



CABA Research Library – Public Area (Updated: March 2023)

The following reports are available through the CABA Public Research Library:

(IS-2019-138) Breakthrough Batteries Powering the Era of Clean Electrification

This report by the Rocky Mountain Institute frp, October 2019 describes how the exploding investment in battery technologies is revolutionizing the sector much faster than anticipated, increasing the demand for EVs, grid-tied storage, and other emerging applications. The report examines implications for natural gas and internal combustion engine vehicle markets are examined and weighs the merits of various battery technologies. This paper is relevant for anyone interested in energy storage technologies and their market impact.

(IS-2019-137) 2019 Utility Demand Response Market Snapshot

This survey by the Smart Electric Power Alliance from September 2019 covers utility demand response (DR) programs throughout the U.S., and represents 64% of total U.S. customer accounts (or 93 million customers). Program capacity for mass market and commercial & industrial customers totals 20.8 GW. Policy updates and demand market trends are provided. This report is relevant for utility, investment/financing, government, technology and business leaders.

(IS-2019-136) Revving the Community Broadband Economic Engine

The adoption and expansion of broadband has brought about derived economic value and services to communities. This report illustrates the results of a survey carried out in the US to analyze deployment of broadband technology as economic engine. The topics covered include state of broadband and impact in local economies, broadband-driven education and healthcare initiatives as well as community broadband funding. Both urban and rural communities have favoured network ownership through municipalities or partnerships.

(IS-2019-135) Why Space Utilization Matters

Underutilized office space continues to translate into unnecessary costs and reduced profits. This report describes an analysis of private office and cubicle utilization. The study found that most companies space utilization is typically in the 60% – 70% range due mainly to an increasing mobile work force.

Smart-building initiatives could help address this issue, the report underlines.

(IS-2019-134) Analysis and Key Findings from EPA’s Review of the ENERGY STAR Model for U.S. Office Properties

This report from July 2019 by the Environmental Protection Agency (EPA) presents key findings from EPA’s review of the ENERGY STAR model for U.S. office properties. The topics covered include industry data, changes in U.S. buildings, adjustments to the office model, average office scores, and ENERGY STAR scores. The report would be useful for business owners, building owners and energy professionals.

(IS-2019-133) Hydro One 2018 Sustainability Report: Partnering for a brighter future

This report by Hydro One from August 2019 describes the utility's successes and challenges in advancing its sustainability performance throughout the year. The topics covered include the importance of customers, environmental management, people and potential, community support, and building a grid for the future. The report is useful for policy makers, regulators, engineers, environmentalists, and consumers.

(IS-2019-132) World Energy Investment 2019

The report from May 2019 by IEA emphasizes the opportunities for the energy system to attract the scale and types of investment that would align with a more secure and sustainable energy system. The topics covered include energy end-use and efficiency, power sector overview, fuel supply, financing and funding trends, research and development, and new technologies. The report is useful for governments, industry, and the financial community.

(IS-2019-131) Canada's Go Solar Guide and Directory

This report was published in April 2019 by CanSIA and helps consumers to understand how to benefit from generating electricity from solar energy and to become familiar with the installation process from start-to-finish. The topics covered include a description of how solar works, solar photovoltaics, solar thermal, energy storage, solar potential, investment, lease to own, power purchase agreements, community generation, pricing, and choosing a contractor. The report will be of interest to consumers, electricians, electrical engineers, contractors, and suppliers of solar technology.

Voice Assistant Platforms: Pursuing an Improved Utility Customer Experience

(IS-2019-130) Dominion launches electric school bus initiative, aims for 100% electric fleet in Virginia territory by 2030 Transportation is the number one source of carbon emissions in the US. This report illustrates the strategy that a utility company in Virginia (US) is using to replace diesel school buses fleet with electric powered vehicles. Although it does not explain how EV charging technology can be integrated into building infrastructure, this case constitutes a good example of early adoption of electric vehicle technology.

(IS-2019-129) Advanced Energy Now - 2019 Market Report

The advanced energy industry has experienced explosive growth over the last decade in the US and internationally. Evidence suggests that its revenue equals to the global tourism industry. This report is the sixth report of market size by revenue of this industry. This industry consists of seven segments (Building efficiency, electricity delivery & management, advanced transportation, advanced fuel production, advanced industry, fuel delivery and electric generation) and 41 subsegments. Globally, in accordance to 2018 data, advanced transportation (US\$495billion) remained for the second year in a row, the largest advanced energy segment worldwide.

(IS-2019-128) Fairhair Specification enables IoT in commercial buildings via a common, building-wide IT infrastructure

This report focuses on the Internet of Things (IoT) in commercial buildings. It describes an Internet Protocol (IP) developed to facilitate the information exchange between various building-automation systems, for example lighting or HVAC. It is anticipated that this specification will support the work of standards development organizations.

(IS-2019-127) Deregulation Drives Virtual Power Plant Expansion in Japan

This paper explores Japan as an Emerging Market for Virtual Power Plans (VPP) and Distributed Energy Resource management systems. After the 2011 Fukushima nuclear reactor accident in 2011, the country has experienced significant reforms of the electricity sector resulting in market deregulation that enables the introduction of efficiencies from new technologies and business models. This makes it one of the more interesting candidates for VPP markets in the Asia Pacific region because of its robust grid infrastructure. Several modelled scenarios for VPPs and a path moving forward are discussed.

(IS-2019-126) A Modern Data Ownership Framework

This July 2019 Microshare white paper outlines the need to embrace a modern scalable data ownership framework, and provides an approach for how to recognize who/what owns the data, who sets the rules for accessing, editing, sharing, and monetizing data, rules enforcement and conflict resolution. The concept of digital ombudsman is discussed. This paper is relevant for those involved in any aspect of data initiation, ownership, use and management.

(IS-2019-125) Unlock the Promise of 5G: Three Imperatives to Guide Your Journey

This 2019 white paper by F5 Networks describes key stages necessary for development of 5G journey, specifically: network optimization; monetizing new 5G Solutions; and ensuring best-in-class security. 5G connections are expected to approach 280 million by 2021. Market trends, benefits and opportunities are provided, along with business cases and examples. This paper is relevant for those involved in any aspect of network communications.

(IS-2019-124) The Key to Unlocking Smart Home Ecosystems

This Harbour Research white paper from January 2019 reviews the smart-home market and suggests four solutions to unlock its full potential. In particular, network protocols need to be standardized, software interoperability needs to improve, more of an emphasis on localized ecosystem architecture needs to occur, and distributed edge computing needs to increase to improve reliability and user experience satisfaction. A current list of industry participants and case studies is provided. This paper is relevant for companies involved in smart home technology and the residential consumer.

(IS-2019-123) The 2019 State Energy Efficiency Scorecard

This scorecard from the American Council for an Energy-Efficient Economy, from October 2019, ranks all 50 US states and the District of Columbia are ranked according to policies and progress. It highlights best practices of leading states and captures the latest updates in a year that has seen a particularly strong surge in state-level activity. The analysis would be relevant for those involved or interested in energy efficiency.

(IS-2019-122) Advancing Automation: Cybersecurity

This 2019 eBook from Automation.com examines various aspects of automated industrial cybersecurity. 5 industry leading organizations contributed ten articles, including: A History of Automation; Automation Techniques to Improve Cybersecurity; Industrial Cybersecurity Journey; Implementing ISA/IEC-62443; Cybersecurity Implications of IIoT; Industrial Cybersecurity; Deep Packet Inspection; and, 4 Ways to Tackle Cybersecurity on the Industrial Edge. This paper is relevant for those involved in technology, automation and cybersecurity.

(IS-2019-121) Zero Energy Buildings in MA; Saving Money from the Start

This September 2019 report from the US Green Building Council assesses zero energy (ZE) upfront building costs, model performance and life-cycle costs in Massachusetts. Many types of ZE buildings can be built with no additional upfront costs and some can see return on investment in as little as one year. Recommendations on how to further advance ZE building policy are provided. This paper is relevant for investment/financing, government, commercial/multi-family construction and business leaders.

(IS-2019-120) 2019 Corporate Energy & Sustainability Progress Report

This 2019 GreenBiz Research / Schneider Electric reports highlights the survey results from 309 industry leaders providing guidance to help organizations align how energy purchase/usage can reduce environmental impacts and build sustainable operations. Findings include: CapEx may be a misleading barrier, data quality/usage is still a struggle, setting public targets enables speed of execution, smarter energy purchasing is important, and technology continues to gain traction. Examples are provided. This paper is relevant for investment/financing, government, technology,

utility and business leaders.

(IS-2019-119) Consultation on a Definition for Net Zero Carbon Buildings in the UK

This 2019 UK Green Building Council survey request for consultation on net zero carbon buildings in the UK. While the survey deadline has passed, it provides a framework, hierarchy, recommended principles disclosure / energy efficiency / renewables / offsets / whole life principles, and verification. UK policy opportunities are provided. This energy policy paper is relevant for asset managers, developers, government planning authorities, property managers, technology, utility and business leaders.

(IS-2019-118) Barriers to maximizing the Value of Behind-the-Meter Distributed Energy Resources

This 2019 California Solar + Storage Association white paper identifies five barriers to enable behind-the-meter distributed energy resources in the California market, including: utility exclusions, lack of clarity regarding DER adoption forecasts, dual participation limits in DR programs, capacity credit limitations / availability requirements, and prohibitions on participating in multiple utility programs. The current regulatory status of each barrier and suggested resolutions for each are discussed. This paper is relevant for those interested in utility regulations and utility business development in California.

(IS-2019-117) Electric Vehicle Sales Forecast and the Charging Infrastructure Required Through 2030

Electric Vehicle Sales Forecast and the Charging Infrastructure Required Through 2030 This November 2018 Edison Electric Institute / Institute for Electric Innovation report provides an EV sales forecast through 2030 and an estimate for the associated charging infrastructure needs, based on five independent forecasts. EVs are expected to reach 18.7 million or 7% of cars and light trucks. Approximately 9.6 million charge ports will be required. Sales projections by manufacturer are provided. This paper is relevant for automotive, investment/financing, government, technology, utility and business leaders.

(IS-2019-116) Improving the Estimated Cost of Sustained Power Interruptions to Electricity Customers

This June 2018 Lawrence Berkeley National Laboratory report provides improvements, including Monte Carlo uncertainty analysis, to previous studies and models. Commercial and Industrial sectors are estimated to lose \$43B due to power interruptions, while residential losses total \$1B. Reliability data and reference reports are provided. This paper is relevant for regulators, government, technology, utility and business leaders and the general public.

(2019-2019-115) 7 Hot Tech Trends for Office Transformation

This report was prepared in January 2019 by Future Offices and deals with top seven tech trends impacting the future offices market. The topics covered include open space floor plans, teleconferencing, smart technology, nontraditional illumination, next generation acoustics, sustainable design, and ergonomic seating. The report is useful for business owners, managers, IT professionals, and interior designers.

(IS-2019-114) Build, Operate and Monetize 5G Networks Together

Build, Operate and Monetize 5G Networks Together This 2019 Altran white paper provides a background on 5G, and how it can be installed, operated and monetized. The advantages of 5G over 4G are reviewed as are the merits of the three different band spectrums. Altran provides examples of its 5G solutions. This paper is relevant for technology and business leaders.

(IS-2019-113) Global Energy Innovation Index

This white paper from the the Information Technology & Innovation Foundation, released in August 2019, indicates faster implementation of clean energy innovation is required to meet global emissions goals. Norway and Finland are the only countries investing at recommended levels. Innovation index results including social legitimation indicators with country rankings are provided. Survey methodology is provided. This report is relevant for government and business leaders and the general public.

(IS-2019-112) Critical Infrastructure Cyber Security: How to Actively Secure Your Industrial Environment in the New Era of Distrust

This 2019 Indegy white paper illustrates the need to integrate siloed operations technologyutilizing an integrated industrial control system environment which provides a more robust defense against industrial cyber security threats. Key aspects are discussed including visibility, security and control. References to case studies are provided. This paper is relevant for IT leaders.

(IS-2019-111) BRIDGE Index™ - Industry in Transformation – The Technology

This survey was created to provide objective, research-driven insights to current and future priorities across a broad cross-section of North American utility decision-makers. Over 20,000 North American Utility Employees were reached. The utility industry continues to be at a crossroad – but transformation is accelerating. While industry participants are at different stages of the transformation maturity model, many have moved beyond just contemplating changes to taking action supported by substantive investments in capability, infrastructure and talent. This report describes the technology issues.

(IS-2019-110) Wi-Fi Onboarding Technologies for Connected Products

Wi-Fi onboarding is the first thing most people do with connected products. Unfortunately, the

process is not always easy. 39% of negative reviews of connected products are related to initial setup and connectivity. Improving this process is critical to the success of the industry, and to the success of each individual product. This guide characterizes the different Wi-Fi onboarding solutions available to developers of connected products, and compares the different approaches to make actionable recommendations.

(IS-2019-109) Next-Generation Energy Efficiency Resource Standards

This report published in August 2019 by the American Council for an Energy-Efficient Economy found that the 27 U.S. states that have adopted the EERS accounted for 80% of utility-sector electricity savings in 2017. Three approaches for realizing greater efficiencies are proposed, including the adoption of resource-specific targets, fuel-neutral targets and multiple-goal approaches. Seven specific tools are discussed. This paper is relevant for investment/financing, public policy makers, technology, utility and business leaders.

(IS-2019-108) Planning for a Distributed Energy Future

This report from West Monroe Partners surveyed 1,700 customers, 140 utilities and 24 regulators across North America to assess the impact of customer demand for distributed energy resources (DERs) from strategy through technological needs and system integration. Among utilities, 92% have DERs on their system and 40% view DERs as an opportunity. Approximately 28% of aggregated communities are adding DERs to their systems. In addition, 40% of regulators are looking at performance-based ratemaking. This paper is relevant for utilities, regulators, energy customers, investment/financing, technology and business leaders.

(IS-2019-107) IoT Signals

This report was published by Microsoft in July 2019. A survey of 2,500 global businesses and IoT decision makers revealed that over 80% of large companies are adopting IoT solutions - providing a 25% ROI, on average. Interconnectivity provides additional data sources, yielding further opportunities for improvements. The report is relevant for internet technology and business leaders and anyone following the IoT market.

(IS-2019-106) Planning For Safer, Better, Bigger, Battery Energy Storage

This white paper from Utility Dive Brand Study DNV GL provides a background and market projections for large Battery Energy Storage Systems (BESSs). Resource adequacy, grid resilience and fast response are discussed. Examples of cost savings as a result of behind-the-meter deployment are provided. Safety issues are discussed, as well as tips for planning safer and better BESS. This paper is relevant for utility players, energy marketers, system operators, battery manufacturers, technology and business leaders.

(IS-2019-105) Solid-State Lighting R&D Opportunities

This is an annual report by the U.S. Department of Energy on the current state of SSL. This report from January 2019 looking back on the year 2018 examines how a new understanding of lighting science opens up possibilities to further reduce energy consumption and improve lighting performance in new ways. LED and OLED applications are discussed, along with associated R&D challenges and funding activities. This paper is relevant for academic, investment/financing, government, technology, and utility and business leaders.

(IS-2019-104) Hotel Sustainability Report

This report published in July 2019 by the Urban Land Institute assesses the current stage of sustainability in the hotel sector. Energy efficiency, water conservation and waste-reduction best practices are discussed. The report provides insights on industry trends, solutions to sustainability challenges, operational/technical best practices, and case studies. This paper is relevant for property managers and technology and C&I business leaders.

(IS-2019-103) Annual Energy Outlook 2019

This annual report from the US Energy Information Administration assesses how US and world energy markets will operate through 2050, based on many key assumptions. Modeled projections are provided, as are comparative side cases (i.e., high/low oil & gas) when important model assumptions are changed. The US is projected to become a net energy exporter starting in 2020. Energy efficiency will keep US energy consumption relatively flat even as the economy continues to expand. This paper is relevant for anyone monitoring the energy sector.

(IS-2019-99) Virtual Power Plants Go Global

This report was published in June 2019 by Navigant and discussed the need for Virtual Power Plants (VPP) to keep electric grids in a "constant, delicate and reliable" balance. VPPs set the stage for future Distributed Energy Resources Management Systems (DERMS). Insights on market trends, the impact of EVs and emerging technologies, and the convergence of VPPs and DERMS are provided. The paper is relevant for specialists in the following sectors: policy/regulatory, conservation, technology, utilities.

(IS-2019-98) Flowing Investment to Scale Clean Technology

This report published by Globe Capital in June 2019 focuses on the clean-tech investment landscape in Canada, which currently lags the U.S. both growth and proportional levels of capital raised. Trends and funding strategies are reviewed. Tools to address gaps and challenges are provided along with a list of venture capital and Canadian government funding sources. This paper is of interest to investment/financing, government, technology and business leaders.

(IS-2019-97) Solar PV and Energy Efficiency in Residential Building Codes

This 2019 study from the American Council for an Energy-Efficient Economy shows that energy

efficiency upgrades in new homes are more cost-effective than installing rooftop solar photovoltaic panels in U.S. climate zones 2-6, generating monthly savings of \$4 to \$32. Cost comparisons are provided. This paper is relevant for specialist working in numerous sectors, including investment/financing, government, technology, and utilities.

(IS-2019-96) 5G in Europe: More than a Wireless Upgrade

This report was published in March 2018 by Sensa Fili and describe how the transition to 5G affects wireline backhaul, fronthaul, and the emerging covered-haul variations. The topics covered include the impact of those changes on how mobile operators transport traffic across their networks, how they can plan for them as they transition to 5G, and the implications for European mobile operators. The report is useful for telecom operators, engineers, technologies, IT professionals, and system integrators.

(IS-2019-95) Missing the Bigger Picture

This report was published in May 2019 by Clean Energy Canada. It examines Canada's clean energy sector, seeking to better understand its economic contribution and job creation.

The topics covered include growth trends, employment statistics, energy storage, electric vehicles, building controls systems, and the a snapshot of the sector by province. This report would be of interest to investors, public policy makers, engineers, business owners, and entrepreneurs.

(IS-2019-94) Energy as a Service

This report was published in February 2019 by the American Council for an Energy Efficient Economy and describes how Energy as a Service (EaaS) can help commercial building customers with limited access to capital achieve higher energy, operation and maintenance (O&M) savings. The topics covered include what it means to be an "efficiency-as-a-service" provider, the EaaS model, cost savings opportunities, program approaches, challenges and recommendations for the future. The report would be useful for commercial building customers.

(IS-2019-93) Navigating the Smart Building Landscape

The report was prepared in June 2019 by Locatee and Memoori and examines how smart building concepts and strategies that can be applied to commercial buildings. The topics covered include attributes of a smart building, trends shaping the future of smart buildings, current use cases, and key steps to consider when creating a smart building. The report will be useful for corporate real estate and facility management teams.

(IS-2019-92) Get Connected: Smart Buildings and the Internet of Things

This report was published in March 2019 by Schneider Electric and describes how smart buildings leverage the Internet of Things (IoT) to create new opportunities for information gathering and

sharing, and the impact this has on buildings management and operations. The topics covered include evolution of buildings management; smart buildings and the IoT, a real- world examples showcasing the future of buildings and smart building IoT best practices. The report is useful for engineers, architects, developers, investors, and ITprofessionals.

(IS-209-91) Industry Focused Patenting Trends

This report was prepared in May 2019 by Kilpatrick and Townsend / Grey B Services and deals with the impact and significance of patenting trends in the United States. Topics include patentingtrends in the followingindustries: artificial intelligence (AI), automotive, block chain, building materials, cleantech and greentech, computational biology and bioinformatics, financial tech, industrial design, Internet of Things, medical devices, therapeutic & diagnostic molecules, and wireless phones. The report is useful for business leaders, public policy makers, innovators, inventors and investors.

(IS-2019-89) Revolutionizing Building Management with Cloud-Native Solutions

The report was prepared in April 2019 by Harbor Research and deals with data management tools, such as cloud- native solutions, which provide OEMs and service providers an advantage to remain competitive in the future of smart buildings. The topics covered include machine intelligence, smart services, current building management challenges, smart technologies, the evolving role of suppliers to meet customer needs, a cloud native digital BMS solution (RIPTIDE), and its future valuepotential. The report is useful for building owners, service providers, equipment manufacturers, system integrators, and IT professionals.

(IS-2019-88) Improving the Estimated Cost of Sustained Power Interruptions to Electricity Customers

This June 2018 Lawrence Berkeley National Laboratory report provides improvements, including Monte Carlo uncertainty analysis, to previous studies and models. Commercial and Industrial sectors are estimated to lose \$43B due to power interruptions, while residential losses total \$1B. Reliability data and reference reports are provided. This paper is relevant for regulators, government, technology, utility and business leaders and the generalpublic.

(IS-2019-87) The case for utility consumer engagement platforms

The report was prepared in May 2019 by the McDonnell Group and describes how online engagement platforms and choice engines can be used by utilities to offer meaningful choices to their consumers. The topics covered include consumers' choice and digital expectations, utilities and social media, building brand trust, consumer self-service requirement, distributed energy resources, and non-wire alternatives. The report is useful for electric utility executives, managers, marketers, IT professionals, and consumers.

(IS-2019-86) Using Artificial Intelligence to Optimize the Flow of Energy through the Built

Environment

The report was prepared in May 2019 by Brainbox AI and deals with management of thermal equilibrium in a building by applying principles of dynamic modulation and artificial intelligence (AI). The topics covered include a description of a dynamic thermal equilibrium process, energy characterization, predicting energy flow with deep learning (AI), and cost effectiveness. The report is useful for building owners and operators, electrical and mechanical engineers, and IT professionals.

(IS-2019-85) Why an Integrated Platform is Essential to Your Video Business Quality

The report was prepared in April 2019 by Verizon and deals with the integrated platform approach for delivering TV- quality streaming video. The topics covered include video platform features such as quality, simplicity, scale, streaming, delivery, security, service, and support. Verizon's Digital Media Services platform is presented as a benchmark of video platform excellence. The report is useful for video content creators and broadcasters.

(IS-2019-84) Voice Assistant Platforms: Pursuing an Improved Utility Customer Experience

The report was prepared in 2019 by Google and describes how the Google Assistant can be applied by utilities to improve customer experience. The topics covered include smart homes, Google's utility program for energy providers, and case studies including Tendril and Xcel Energy. The report is useful for system designers and integrators, home owners, and utility company operators.

(IS-2019-83) 5G consumer potential: Busting the myths around the value of 5G for consumers

The report was prepared in May 2019 by Ericsson and clarifies consumer myths regarding 5G. The topics covered include near-term consumer benefits of 5G, use cases for 5G, price premiums, smartphones as the only solution for 5G, and future demand for 5G. The report is useful for telecom providers, communication technology vendors, IT professionals, and the general public.

(IS-2019-82) Shaping Cradles of Innovation

The report was prepared in December 2018 by Cyviz and deals with how organizations can navigate digital upheavals and drive disruption through innovation centers. The topics covered include the rise of digital transformation, incubating innovation, understanding the innovation landscape, challenges to innovation maturity, building a successful innovation center, innovation labs, and the Cyviz turnkey solution for establishing an innovation center. The report is useful for business leaders, entrepreneurs, innovators, architects, interior designers, and IT professionals.

(IS-2019-81) The Future of Open Data in Smart Cities

The report was prepared in May 2019 by Harbor Research and deals with key factors affecting

data access and management in smart cities. The topics covered include business verticals in smart cities, value creation, synergistic ecosystems, distributed data challenge, IoT architecture, new applications, and business opportunities. The report is useful for city planners, regulators, entrepreneurs, business owners, IT professionals, system architects and integrators.

(IS-2019-80) Future Perfect: Thematic Research and Trends for 2019

The report was prepared in January 2019 by Harbor Research and deals with critical core technologies and their enablers in the context of broader business and market forces. The topics covered include critical core technology developments, the promise of combinatorial technologies, "new" technologies which are really not new, new market roles and business modes, new relationships and ecosystems, new rules for a new economy, and new players driving new innovations. The report is useful for business owners, executives, managers, entrepreneurs, and IT professionals.

(IS-2019-79) The Challenges and Pitfalls of Digital Transformation

The report was prepared in August 2018 by Harbor Research and deals with alternative innovation modes and ventures that original equipment manufacturers (OEMs) should consider to drive customer solutions and value creation. The topics covered include OEM growth challenges, digital pitfalls, evolving growth themes, digital development ventures, and catalytic growth strategies. The report is useful for OEM company owners, executives, and managers.

(IS-2019-78) New Approaches to Energy Hardware Innovation and Incubation

The report was prepared in 2019 by the Joint Institute for Strategic Energy Analysis and provides a general landscape of cleantech innovation and incubation programs in the U.S. to identify metrics of success and quantify the impact of these various approaches. The topics covered include examples of nine innovation organizations and their success metrics. The report is useful for investors, entrepreneurs, government officials, and professionals working in the energy sector.

(IS-2019-77) A Policymaker's Guide to Blockchain

The report was prepared in April 2019 by the Information Technology & Innovation Foundation and deals with the ten principles that governments can apply to support legitimate blockchain innovation and adoption. The topics covered include a description of blockchain and problems that it can solve, blockchain applications and case studies, regulation, and principles to advance blockchain. The report is useful for policy makers, government officials, regulators, computer scientists, software developers, IT professionals, and the general public.

(IS-2019-75) Net Zero: The UK's contribution to stopping global warming

The report was prepared in May 2019 by the Committee on Climate Change and deals with its

recommendation for net-zero greenhouse gases in the UK by 2050. The topics covered include principles behind the recommendation, climate science, international circumstances, UK's contribution, supporting global ambition, reaching net zero emissions, delivering a net-zero target, costs, and benefits. The report is useful for government officials, policy makers, business leaders, technology professionals, and the general public.

(IS-2019-74) Report on the implementation of the open internet access provisions - Reg. 2015/2120

The report was prepared in April 2019 by the European Commission and deals with the open internet as per Regulation (EU) 2015/2120. The topics include the assessment of the implementation of the regulation since it entered into force. Also included is a comparison of the state of play regarding access to the open internet in the European Union today against the situation that existed before the regulation became applicable. The report is useful for regulators, policy makers, business owners, and IT professionals.

(IS-2019-73) New York Getting to Net-Zero Status Report

This brief was prepared in April 2019 by the Getting to Zero Forum and provides an update on the construction of net zero Solara apartments and New York State's leadership in net zero buildings. The topics covered include details about the Solara apartments and comments from New York State leaders about advances in net zero development. The report is useful for builders, contractors, investors, and professionals working in the energy sector.

(IS-2019-72) Energy efficiency 2018: Analysis and outlooks to 2040

The report was prepared in October 2018 by the International Energy Agency and deals with global energy efficiency trends and indicators. The topics covered include global trends and outlook, investments, energy efficiency in transport, buildings, appliances, industry, and emerging economies. The report is useful for policy makers, government officials, engineers, technologists, and professionals working in the energy sectors.

(IS-2019-71) The 2019 U.S. Energy and Employment Report

The report was prepared in March 2019 by the Energy Futures Initiative and the National Association of State Energy Officials and provides information for state officials in the U.S. to advance effective, informed, and robust energy policies and programs. The topics covered include fuels, electric power generation, energy transmission / distribution / storage, energy efficiency, motor vehicles, and vehicle component parts. The report is useful for government officials, policy makers, and professionals working in the energy sector.

(IS-2019-70) Understanding the Business Value of Re-architecting Core Applications on the Public Cloud

The report was prepared in February 2019 by Ovum and deals with opportunities that the public cloud strategy presents for telecommunication companies. The topics covered include making a business case for a public cloud strategy, importance of having a public cloud to operate in a digital economy, benefits of public cloud, and the Optiva revenue management suite. The report is useful for telecommunication company owners and operators.

(IS-2019-69) Features and Performance of Energy Management Programs

The report was prepared in January 2019 by the American Council for an Energy-Efficient Economy and deals with two emerging energy efficiency programs, strategic energy management (SEM) and energy management information systems (EMISs). The topics covered include program prevalence, features, reported savings, challenges, and recommendations for program promotion. The report is useful for program stakeholders—utilities, third-party administrators, evaluators, and policymakers.

(IS-2019-68) UCRC 2018 State of the Customer Survey Findings Utility Customer Service at a Crossroads

The report was prepared in November 2018 by Russell Research and deals with the customer's perspective on the current state of utility customer service and offerings. The topics covered include customer satisfaction, service value, information access, pricing and payment options, service reliability, power restoration, solar power, and electric vehicles. The report is useful for electrical power utility owners and operators.

(IS-2019-67) The Energy Web Chain – Accelerating the Energy Transition with an Open-Source Decentralized Blockchain Platform

The Energy Web Foundation has built an ecosystem of 70 companies planning to grow it to 200 to help build out an open-source, blockchain-based, digital infrastructure for the energy sector.

(IS-2019-66) Opening the Door to the Smart City

Itron took a close look at selected smart cities around the globe that are demonstrating key priorities and proven best practices that make them successful.

(IS-2019-65) Powering Forward – Publicly Owned Utilities are Critical to California's Energy Efficiency Progress The Natural Resources Defense Council (NRDC) working with Publicly Owned Utilities in California and the California Energy Commission built this report to quantify the value realized by the state of California by energy efficiency programs employed by Publicly Owned Utilities.

(IS-2019-64) Smart Meter Benefits Cost Savings Households Could Make Within A Smart Energy Future

This report was prepared in February 2019 by Delta Energy and Environment and deals with how smart meters are a central part for the energy system of the future and their benefits to households. The topics covered include energy usage, conservation, purchasing strategy, importance of smart meters for energy savings, and benefits of flexible systems. The report is useful for homeowners, electrical utility operators, and IT professionals.

(IS-2019-63) Want to Drive Business Benefits? Improve Customer Experience

This report was prepared in November 2018 by TM Forum and deals with the importance of customer experience as a driver of business benefits. The topics covered include why customer experience is important, challenges communications services providers (CSPs) face in developing digital customer experiences, steps CSPs must take to overcome the challenges, and what CSPs can learn from digital natives and their peers who have succeeded in improving customer centricity. The report is useful for executives, managers, and employees of CSPs.

(IS-2019-62) Real Estate Market Outlook 2019

This report was prepared in February 2019 by CBRE Research and provides an overview of Canada's real estate market. Regional and national perspectives are provided with a focus on growth trends, demand for commercial property, vacancy rates, construction growth, housing imbalance, the impact of coworking providers / technology companies / logistics and distribution firms, future trends, and second tier markets. The report is useful for city planners, policy makers, builders, contractors, real estate owners, and tenants.

(IS-2019-61) The flexible workspace boom in London and beyond

This report was prepared in February 2019 by OfficeFreedom and deals with the analysis and insight of Office Freedom's internal data collected between 2014 and 2018. The topics covered include central London's average work station rates by area, transactions by area and year, workstation sales by area, decision makers by gender, business centre groups vs independents, enquiry to transaction time, transactions by industry type, business centres, new serviced office operators, and also an overview of global business centres. The report is useful for business owners, managers, and owners of flexible workspaces.

(IS-2019-60) Achieving Deeper Energy Savings through Integrated Building Systems This report was prepared in July 2018 by the American Council for an Energy Efficient

Economy and deals with the savings potential of integrated systems for energy management in buildings along with the barriers to adoption. The topics covered include project economics and savings potential, challenges, program approaches, and a case study from New York State Energy Research and Development Authority. The report is useful for building owners and managers, electrical and mechanical engineers, IT professionals, and system integrators.

(IS-2019-59) 2017 Green Venue Report: The State of Convention & Exhibition Center

Sustainability

This report was prepared in August 2017 by Greenview and provides insight and content to best practices showing trends across the facets of event and venue sustainability. The topics covered include space and events, location, energy, water, waste, business case for sustainability, communications, staffing, community involvement, indoor air quality, facility certifications, and green cleaning. The report is useful for owners and managers of event and exhibition centers, energy professionals, engineers, and architects.

(IS-2019-58) Making the Case for Building to Zero Carbon

This report was prepared in February 2019 by the Canada Green Building Council and advocates for applying the Zero Carbon Build (ZCB) approach for simultaneously lowering energy use and carbon emissions from buildings. The topics covered include unlocking the potential of zero carbon buildings, accelerating to zero, the business case for ZCB, the broader benefits of ZCB, and financial benefits of carbon reduction. The report is useful for building owner- operators, design teams and policydecision- makers.

(IS-2019-57) Energy Efficiency Over Time: Measuring and Valuing Lifetime Energy Savings in Policy and Planning

This report was prepared in February 2019 by the American Council for an Energy-Efficient Economy and discusses measuring and valuing energy savings over a lifetime. The topics covered include short-term versus long-term measures of energy savings, estimating measure lifetimes, applications of lifetime savings estimates, and recommendations to shift toward lifetime savings. The report is useful for energy efficiency program administrators and policy makers.

(IS-2019-56) Building a Lean, Mean, Digital Machine

This report was prepared in January 2019 by SoftwareONE and discusses how businesses can truly make the most of the growing digital workspace. The topics covered include a consideration if a true digital force is fact or fiction, flexible work, benefits and challenges of adopting technology, and management of software and devices across the enterprise. The report is useful for business leaders, managers, and IT professionals.

(IS-2019-55) DGS Sustainability Roadmap 2018-19

This report was prepared in August 2018 by the Department of General Services and deals with an update and plan for meeting the Governor's sustainability goals for California state agencies. The topics covered include climate change adaptation, zero-emission vehicles, energy, water efficiency and conservation, and green options. The report is useful for government officials, policy makers, professional working in water and energy sectors, environmentalists, and leaders of technology companies.

(IS-2019-54) Virtual Power Plants & the Road to DERMS: It's a Distributed Energy World

Our energy grids were not designed to handle two-way power flows (renewables, etc.), nor were they setup to store energy (new batteries are in the pipeline). In the coming days our grids will require new systems to cover both of these potentialities. This series of articles explores ways to incorporate "Virtual Power Plants" (demand response/capacity; frequency regulation; operational reserves; energy arbitrage and peak demand management) and "Distributed Energy Resource Management Systems".

(IS-2019-53) Making the Grid Smarter Primer on Adopting the New IEEE 1547TM-2018 Standard for Distributed Energy Resources

The report was prepared in January 2019 by the Interstate Renewable Energy Council and provides an overview and explanation of the major revisions in IEEE Standard 1547TM-2018 and the issues that regulators, utilities, and other stakeholders will need to consider as they work through adopting and implementing the standard. The topics covered include key requirements and implications of the standard, anticipated rollout timelines, distributed energy resource (DER) performance categories, voltage regulation functions, compliant communications, updates to power quality requirements, grounding practices, DER testing and verification, and policy issues. The report is useful for regulators, utility operators, and electrical engineers.

(IS-2019-52) How to Leverage Smart Meter Opportunities with Future-Proof Designs

The report was prepared in November 2018 by Telit and deals with how the advances in technology are changing the role of electricity metering. The topics covered include connectivity standards, communication modules, anticipation of future changes, and Telit's cellular modules for smart metering. The report is useful for electrical utility operators, electrical engineers and technologists, system integrators, and IT professionals.

(IS-2019-51) CRETECH: 2018 Year End Report

The report was prepared in February 2019 by CRETECH and deals with global real estate technology investments for 2018. The topics covered include the state of commercial real estate technology (CREtech) investing in 2018, notable transactions, CREtech landscape, and CREtech company data. The report is useful for commercial real estate owners, real estate company executives, and leaders of technology startup companies.

(IS-2019-50) 2019 Corporate Energy & Sustainability Progress Report

The report was prepared in January 2019 by Schneider Electric and deals with the findings and supporting data from a survey of top global companies to provide guidance to help organizations align how they buy and use energy, reduce environmental impact, and build sustainable operations in 2019 and beyond. The topics covered include capital expenditure for energy projects, use of data to foster collaboration, the importance of setting public targets, strategic energy purchasing, and the importance of technology for achieving efficiency. The report is

useful for company executives, operations managers, engineers, and IT professionals.

(IS-2019-49) Electric Report

The report was prepared in August 2018 by Black & Veatch and deals with the progress made by the electric industry as it continues to evolve. The topics covered include the rapidly changing customer base, commercial defection from the grid, advanced technologies, changing regulatory landscape, importance of renewable energy to drive change, evolution of distributed energy, the changing face of power, and global perspectives. The report is useful for electric utility owners and operators, electrical engineers, electric equipment manufacturers and integrators, and policymakers.

(IS-2019-48) Wi-Fi and 5G redefine wireless Convergence creates a pervasive connectivity fabric

The report was prepared in January 2019 by Senza Fili and provides an overview of the evolution of Wi-Fi and how it addresses the new connectivity requirements driven by increased data volumes, latency-sensitive traffic, and IoT applications – and how it will meet the IMT-2020 vision together with 5G. The topics covered include an overview of WiFi technology, continuity and innovation, Wi-Fi 6 (IEEE 802.11ax), the evolution of Wi-Fi, convergence of WiFi and 5G, and implications. The report is useful for electrical and electronics engineers, system integrators, and IT professionals.

(IS-2019-47) The Modern Family Bringing Families Together: The Digital Connection

The report was prepared in January 2019 by Trusted Media Brands and deals with the impact of digital technology on families. The topics include the impact of technology on family relationships, fun and time saving attributes of technology, role of technology in family connectedness, and a recommendation on how the marketplace should respond to the digital connection. The report is useful for digital technology designers, marketers, and the general public.

(IS-2019-46) The Key to Unlocking Smart Home Ecosystems

This report was prepared in January 2019 by Harbor Research and deals with the status of the current smart home market and the required strategies for it to reach full potential. The topics covered include strategy recommendations such as network protocol standardization, software interoperability, movement of architectures from dictator to a localized ecosystem, and increased distributed edge computing. The report is useful for smart home system developers, system integrators, and IT professionals.

(IS-2019-45) Executing a partner strategy to monetize 5G and IoT

This report was prepared in January 2019 by Netcracker and provides guidance to help communications service providers (CSPs) succeed with partner-based B2B strategies by

describing the key characteristics and capabilities that their partner experiences will need to offer. The topics covered include groundwork for a strong partner experience, creating a digital partner experience, a smart city use case, and how to deliver on a digital partnering strategy. The report is useful for CSP owners, operators, and IT professionals.

(IS-2019-44) Broken buildings: Leveraging the power of people, data and technology

This report was prepared in December 2018 by Switch Automation and deals with strategies for building managers to determine their portfolio's unique needs and how to choose the right vendors to achieve smart building goals. The topics covered include how to leverage the power of building data to lower OPEX costs while maintaining occupant satisfaction across the entire portfolio. The report is useful for building owners, building operators, and system integrators.

(IS-2019-43) Smart Systems, and Strategic Services Innovation

This report was prepared in August 2018 by Harbor Research and deals with the productivity impacts and customer responsiveness gains by original equipment manufacturers (OEMs) from the implementation of new asset management solution platforms. The topics covered include smart systems, strategic role of service, legacy asset management, building value for users and customers, strategic opportunities, new OEM business models, data and analytics, IoT, and partnerships. The report is useful for OEM company owners and operators.

(IS-2019-42) The Challenges and Pitfalls of Digital Transformation

This report was prepared in August 2018 by Harbor Research and deals with the development of digital and smart systems strategy for original equipment manufacturers (OEMs). The topics covered include OEMs' growth challenges, digital pitfalls, evolving growth themes, digital development ventures, and catalytic growth strategies. The report is useful for OEM company owners and operators.

(IS-2019-41) The Advent of Hybrid Networks

This report was prepared in December 2018 by Harbor Research and deals with the impact of smart systems on computer networks. The topics covered include how smart systems are driving a need for hybrid networks, impact of complex applications, connected environments, impact of 5G technology, role of satellite, customer environments, post-hybrid developments, wireless industrial connectivity, and distributed systems. The report is useful for network engineers and technologists, IT professionals, system integrators, telco operators, and business owners.

(IS-2019-40) Ecosystems Design in the Age of Smart Systems

This report was prepared in November 2018 by Harbor Research and deals with a new generation of pervasive computing and information architectures known as smart systems which include artificial intelligence, machine learning and the Internet of Things. The topics covered

include data driven economy, privacy, business culture, platforms, collaboration, and open source models. The report is useful for IT professionals, system integrators, and business owners.

(IS-2019-39) India's Energy Storage Mission - A Make-In-India Opportunity for Globally Competitive Battery Manufacturing

This paper was completed by the NITI Aayog and the Rocky Mountain Institute. The paper outlines the economic rationale to develop battery manufacturing capabilities for India's domestic market. Shifting to electric vehicles and batteries allows India to become its own supplier of energy for transportation (electricity produced in India) and a leading manufacturer of the batteries used to store and transport that energy. Various challenges and solutions are provided.

(IS-2019-38) Five Ways Congress Can Improve the Electric Power System

This survey was completed in August 2018 by the Advanced Energy Economy and CRES forum. This paper suggests five initiatives Congress could undertake to improve the electric power system. Included are: 1) streamline federal permitting; 2) encourage grid planners to consider transmission alternatives;

3) encourage competition between energy storage, efficiency and generation; 4) allow large consumers to choose among electricity sources; and 5) allow utilities and consumers to benefit from cloud computing.

(IS-2019-37) Staff Report to the Secretary on Electricity Markets and Reliability

This survey was completed in August 2017 by the U.S. Department of Energy. This study examines the electricity markets with regards to reliability, affordability, resilience and fuel diversity - both in present state and projected future state based on trend analysis. A summary of the findings is provided along with the analytical framework, relevant data and research.

(IS-2019-36) 2019 Black & Veatch Strategic Directions Smart Utilities Report

This report was prepared in January 2019 by Black & Veatch and deals with the evolution of electrical utilities toward a smarter infrastructure. The topics covered include topics such as distribution modernization and automation, field area networks (FAN), security, network management services, asset management, and DER market enablement. The report is useful for utility owners, operators, electrical engineers, and IT professionals.

(IS-2019-35) Capitalizing on Enterprise Video Convergence: Tips for Building Business Value from the Integration of Streaming and Web Collaboration Solutions

This report was prepared in 2019 by Wainhouse Research and deals with convergence of video technologies used in the workplace such as streaming and web collaboration. The topics covered include the blurring lines of business communication, building a bridge to streaming video, identifying opportunities for video convergence, and how to maximize an organization's

convergence potential. The report is useful for business leaders, technology integrators, IT professionals, and Audio / Video managers.

(IS-2019-34) Predictions for 2019 and Beyond: The Internet of Things

This report was prepared in December 2018 by CCS Insight and presents 57 predictions for 2019 and beyond as they relate to the Internet of things. Topics covered include a broad view including wearables, virtual and augmented reality, smart home, industrial Internet of Things, automotive and transport, as well as smart cities. The report is useful for innovators, engineers, technologists, system integrators, investors, and leaders of technology start-ups.

(IS-2019-33) Planning for a Distributed Energy Future

This report was prepared in January 2019 by West Monroe Partners and presents the survey results of utilities which indicate an increase in deployment of distributed energy resources (DERs). The topics covered include where DERs are making the biggest impact for regulators and utilities, the customer experience side of DERs, and the opportunities and threats if utilities don't quicken the pace of DER integration. The report is useful for utility owners, operators, and energy regulators.

(IS-2019-32) IP Protection in the Data Economy: Getting the Balance Right on 13 Critical Issues

This report was prepared in January 2019 by the Information Technology and Innovation Foundation and deals with key policy issues related to intellectual property (IP). The topics covered include an analysis of 13 policy issues some which include a balance between data collection and its widespread use, non-rivalrous nature of data, who has rights to data, individual ownership of data, forced sharing, competition policy, forced access, text and data mining, database protection, government access to data, conflicts between international regimes, and political economy of IP and data. The report is useful for organizations, individuals, policy makers, lawyers, and government officials.

(IS-2019-31) The Autonomous Grid: In the Age of the Artificial Intelligence of Things

This report was prepared in January 2019 by SAS and Zpryme and explores how AI and IoT work together to deliver everything from improved threat detection to better customer engagement for utilities. The topics covered include digital transformation, the components of AI and status of utility adoption, today's connected grid, how utilities are using AI and IoT, integration of AI and IoT (AIOT), blockchain, and recommendations for utilities. The report is useful for electrical utility executives, managers, electrical engineers, and IT professionals.

(IS-2019-30) 2018 California Renewables Portfolio Standard Annual Report

This report was prepared in November 2018 by the Public Utilities Commission and describes the progress of California's electricity retail sellers in complying with the Renewable Portfolio

Standard (RPS) program. The topics covered include RPS progress, statues, activities, workforce development and diversity, challenges, and policy recommendations. The report is useful for policy makers, government officials, and electrical utility operators.

(IS-2019-29) The difference between cCSAus Certified and cULus Listed? There is none.

This report was prepared in April 2018 by Emerson and deals with a comparison of "CSA-us" and "UL Listwith" markings. The topics covered include the role of Sections 90.7 and 110.3 of the National Electric Code (NEC), variations and meanings of CSA and UL certification marks, and the importance of CSA Group being a Nationally Recognized Test Lab. The report is useful for electricalcontractors and electrical engineers.

(IS-2019-28) Creating a Smart City Roadmap for Public Power Utilities

This report was prepared in 2018 by SmartEnergyIP and provides guidelines and recommendations for public power utilities regarding their digital transformation process to serve smart cities of the future. The topics covered include the role of a public power utilities in a smart city, how utilities can become part of the smart city conversation, security planning, building the roadmap, and the characteristics of a public power “utility of the future”. The report is useful for public utility leaders and managers.

(IS-2019-27) Design and Implementation of Community Solar Programs for Low- and Moderate-Income Customers

This report was prepared in 2018 by the National Renewable Energy Laboratory and provides insights on design and implementation of low- and moderate-income (LMI) community solar programs. The topics covered include existing and emerging LMI community solar programs, key questions related to program design, how states can leverage incentives and finance structures to lower the cost of LMI community solar, and the marketing and outreach considerations. The report is useful for policy makers, regulators, electrical engineers, solar equipment manufacturers and distributors, and consumers.

(IS-2019-26) Facilities Technology Trends & Buying Best Practices

This report was prepared in December 2018 by ARC and explains why some facilities leaders are proving to be far more successful at buying technology than others. The topics covered include specific types of technology considered high-value, increase in importance for tech adoption and use, tech purchase success variability, and the top five success factors for buying technology. The report is useful for facilities teams and leaders.

(IS-2019-25) AJourney Across The 51st State: Highlightsand Insights from SPEA's Initiative on the Future of the Electric Power Sector

This report was prepared in January 2019 by the Smart Electric Power Alliance (SEPA) and

provides key takeaways from SEPA's three-part study to understand the future of electric power in the U.S. The topics covered include a summary of visions for the future of energy systems, plans to achieve the visions, defining the role of the electric utility, and recommendations for a process to achieve the goals. The report is useful for electric utility operators, regulators, and policymakers.

(IS-2019-24) KNX and OMS position paper: Cross-functional systems for home and building automation as well as smart metering

This report was prepared in September 2016 by KNX / OMS and deals with systems for home and building automation. The topics covered include an overview of cross-functional systems, role of OMS and KNX in smart metering protection, the interplay of OMS and KNX in energy optimisation and information, web services, and Internet of Things. The report is useful for electrical engineers, technologists, IT professionals, system integrators, and building operators.

(IS-2019-23) World Green Building Council annual report 2017/18

This report was prepared in December 2018 by the World Green Building Council and summarizes the Council's achievements from 2017/2018. The topics covered include new partnerships to reduce global carbon emissions, inspiring action toward net zero carbon emissions, access to green mortgages, update on green certified space, and the global promotion of the "green building week". The report is useful for policy makers, builders, architects, contractors, and cityplanners.

(IS-2019-22) Minnesota Energy Efficiency Potential Study: 2020–2029

This report was prepared in December 2018 by the Center for Energy and Environment and deals with the best practices that could be applied by the state of Minnesota to achieve a statewide energy efficiency potential. The topics covered include potential savings from electricity and natural gas, segment analysis, tool to estimate individual utility potential, program findings, and policy considerations. The report is useful for government officials, policy makers, utility operators, and professionals working in the energy sector.

(IS-2019-21) Improving Productivity in the Workplace

This report was prepared in November 2018 by the British Council for Offices (BCO) and summarizes the Whole Life Performance Plus (WLP+) project findings with an interpretation of what the findings mean for improving workplace productivity. The topics covered include an overview of the WLP project, U.K.'s productivity problem, productivity and buildings, case studies, lessons learnt, and insights. The report is useful for business executives, better manage their fuel, operational and price risks. A case study from Microsoft is presented to illustrate the benefits.

(IS-2019-20) Methods for Comparing Visual Illumination Between HID and LED Luminaires to

Optimize Visual Performance in Low Light Environments

This report was prepared in May 2018 by Emerson and deals with methods for comparing visual illumination between HID and LED luminaires. The topics covered include the mechanisms of human visual response, methods for empirical estimation of equivalent illuminance and luminance between sources of disparate spectral energy, and differences in optical characteristics of luminaires. The report is useful for lighting professionals, architects, interior designers, and electrical engineers.

(IS-2019-19) Navigating Content Chaos A roadmap for pay-TV operators

This report was prepared in November 2018 by Ampere Analysis and presents the key factors impacting the engagement of Pay-TV customers. The topics covered include content choice, content navigation, content access on demand from various devices, and navigation complexity. The report is useful for Pay-TV operators.

(IS-2019-18) Overall Residential Wireline Customer Satisfaction Increases Across the Board

This press release was prepared in September 2018 by J.D. Power and presents the results of a residential survey indicating that residential wireline companies that focus on finding newer, more effective ways of communicating with their customers have driven the increase of customer satisfaction. The topics covered include a ranking of wireline companies according to customer satisfaction and the survey results by question. The report is useful for owners, operators, and managers of wireline companies.

(IS-2019-17) Realizing Value for Investments in FM Technology

This benchmark study from Veolia presents the findings from interviews with energy and facilities executives, exploring aspects related to the benefits they are receiving from their technology investments. The report indicates wide adoption of advanced lighting controls with 63% of respondents indicating deployment to most of their sites, and highlights a movement towards software solutions to help reduce energy and maintenance costs, but many are struggling to achieve their desired value, with only 30% being fully satisfied.

(IS-2019-16) Proxy Generation PPAs

This paper presents an adaptation of the power purchase agreement (PPA) which is more appropriate for renewable energy power generation assets such as wind and solar. It explores the issues with the current PPA contracts for renewables.

(IS-2019-15) IoT and Privacy By Design in the Smart Home

This report was prepared in February 2018 by ESET and deals with the privacy concerns relating to the creation of a basic smart home. The topics covered include an overview of the Internet of Things (IoT) and the smart home, privacy policy and data capture, and IoT devices and their

security vulnerability. The report is useful for electrical engineers, system integrators, device manufacturers, and cyber security professionals.

(IS-2019-14) Smart Factory Case Study

This report was prepared in 2017 by Smart Plants and discusses the application of Internet of Things (IoT) technologies to establish a connected factory with a cloud-based network. The topics covered include the challenges, objectives, the main features and advantages of the IoT solution, and the results. The report is useful for IoT solution providers and businessowners.

(IS-2019-13) Smarter QA for Smart Homes

This report was prepared in January 2018 by Cognizant and considers the smart home as the point of reference to elaborate on the concept of connected ecosystems, and addresses the challenges and opportunities inherent in the testing of such ecosystems. The topics covered include smart home elements, complexities and challenges with smart home systems, a smarter approach to quality assurance, a UK energy utility case study, and a future outlook. The report is useful for companies deploying smart home systems, smart home owners, and quality assurance professionals.

(IS-2019-12) The Connected Home: Smart Home with Batteryless Wireless Technology

This report was prepared by EnOcean Alliance and deals with the batteryless wireless technology from EnOcean. The topics covered include energy harvesting, secure data transmission, product range, cost reduction, energy savings, applications, and a future outlook for smart homes. The report is useful for home builders, home owners, electrical engineers, and systemintegrators.

(IS-2019-11) Resilient Cities Plug In to Technology for Response and Recovery

This report was prepared in December 2018 by the Consumer Technology Association and the Smart City Council and presents a call to action and recommendations for making cities more resilient to disasters with the use of technology. The topics covered include natural disasters in the U.S. 2017, creating a culture of responsiveness and resiliency, how rapidly advancing technology is responding to crisis mode, and the ten essentials for making cities resilient. The report is useful for city planners and operators, government officials, policy makers, engineers, and IT professionals.

(IS-2019-10) Frequency Sharing for Radio Local Area Networks in the 6 GHz Band

This report was prepared in January 2018 by RKF Engineering Solutions and deals with the evaluation of sharing possibilities of Radio Area Networks (RLANs) with existing services in the 6 GHz band. The topics covered include RLAN deployment and operating assumptions, propagation models, and spectrum sharing. The report is useful for electrical and electronics engineers, technologists, IT professionals, and technology company executives.

(IS-2019-09) Next generation Wi-Fi®: The future of connectivity

This report was prepared in December 2018 by Wi-Fi Alliance and presents an overview of Wi-Fi technology. The topics covered include inherent strengths of Wi-Fi, Wi-Fi 6 and Wi-Fi 6E technology, mission critical connectivity for 5G networks, performance, cost effectiveness, next generation of Wi-Fi CERTIFIED technologies, frequency range, integration, and societal/financial benefits. The report is useful for technologists, engineers, system integrators, and IT professionals.

(IS-2019-08) MIT Tests New Energy Valve Technology at Charles Hayden Library And Reaps the Rewards of Higher Delta-T!

This report was prepared in November 2014 by Belimo and deals with new valve technology from Belimo that was applied to MIT's Charles Hayden Library to achieve acceptable difference between entering and exiting chilled water temperatures. The topics covered include an overview of the Belimo valve technology and a case study at MIT's facilities department. The report is useful for college and university facilities managers and operators.

(IS-2019-07) Building a Data Lake to Drive Digital Transformation

This report was prepared in November 2018 by TMForum and explores why common data models and a standardized approach to setting up data lakes is of benefit to communications service providers (CSPs) and the telecoms industry. The topics covered include data models, input from operators such as Verizon and Telia, the importance of event data, application program interfaces, and standards for virtualizing data. The report is useful for telecom and CSP executives, managers, and IT professionals.

(IS-2019-06) Cost-Effectiveness Tests: Overview of State Approaches to Account for Health and Environmental Benefits of Energy Efficiency

This report was prepared in December 2018 by the American Council for an Energy Efficient Economy and deals with health and environmental benefits of energy efficiency across the United States. The topics covered include benefits related to health, society, environment, avoidance of compliance costs, and a summary of State approaches. The report is useful for policy makers, health professionals, environmentalists, and the general public.

(IS-2019-05) Home Energy Management System Savings Validation Pilot - Final Report

This report was prepared in 2018 by Lockheed Martin Energy and deals with the validation of the Base-Load Simulation testing methods and a simulation of potential home energy management system (HEMS) savings in New York State. The topics covered include a HEMS pilot study of 50 homes, equipment selection, system integration, data management, overall results, and a summary of findings regarding installation, data management, and technology. The report is useful for system integrators, electrical engineers, and professionals working in the energy

sector.

(IS-2019-04) Reducing Energy Waste through Municipally Led Behavior Change Programs This report was prepared in November 2018 by the American Council for an Energy-Efficient Economy and provides a large-scale review of municipally led energy-saving behavior change programs in terms of their design, motivations, goals, and impacts. The report also provides recommendations for designing and implementing a successful locally led behavior change program. The report is useful for policy makers, municipality managers and executives, professionals working in the energy sector, and the general public.

(IS-2019-03) Delivering an Autonomous Customer Experience Through Business Intelligence and Analytics

This report was prepared in November 2017 by Aricent and deals with customer experience management (CXM). The topics covered include a review the current maturity level of CXM for communications service providers (CSPs), the latest CXM technology drivers, and detail Aricent's CXM offerings including a few case studies. The report is useful for business owners and IT professionals.

(IS-2019-02) KNX Demand Side Management

This report was prepared in October 2018 by KNX and discusses compliance issues with European Standard for Home and Building Electronics Systems (EN50090) as it pertains with demand side management of electrical power. The topics covered include demand side management, control strategies and algorithms for load adaptations, and KNX solutions for providing flexibility. The report is useful for electrical engineers, system integrators, and smart gridoperators.

(IS-2019-01) Energy Management

Energy management is a growing trend globally. This paper provides an overview of how this topic and the market for performance contracting of buildings has evolved in signatory nations of the Gulf Cooperation Council. It analyzes projected energy demand, existing models for performance contracting, typical cost breakdown and risk distribution amongst stakeholders (end user, financial institution and energy service companies).

(IS-2018-424) 2018 Utility Energy Storage Market Snapshot

This report was published in August 2018 by Smart Electric Power Alliance. This report (expanded on from previous national solar energy studies) tracks and analyses energy storage and demand response deployment data over the past two years. This 2018 report looks at market trends / growth by sector, incentives, application type, policy and integrated resource planning.

(IS-2018-423) A Low-Cost Energy Future for Western Cooperatives

This report was posted in August of 2018 by Rocky Mountain Institute. This report examines the cost savings opportunities of large scale renewable energy projects. They analyze two potential projects (wind and solar) in the Tri-State area that could save \$600 million through 2030 by switching off coal fired generation. The study demonstrates that coordination between wholesale energy providers and member co-ops mitigates risk allows for more cost- effective procurement of systems.

(IS-2018-422) The Tenant Experience Gap

As buildings compete to win tenant's loyalty, assumptions also change. This report illustrates findings of a survey carried out in the US to identify expectations of commercial real estate tenants and building operators. Channels of communication, amenities and information needs are amongst the key aspects discussed. It is concluded that although there are commonalities that both groups (tenants/building managers) share, there are different perceptions about what is important and how to manage these expectations.

(IS-2018-421) Climate Change Needs Behavior Change

Since almost 213 of GHG emissions are linked to human consumption patterns, this report defends the thesis that mitigating climate change heavily depends on modifying human behavior to make a difference. Existing theoretical models of behavior change are explained. Thirty behavioral solutions grouped in the following categories: food, agricultural & land management, transportation and energy & materials are discussed in detail. A gross estimation of the reduction potential for each initiative is also provided.

(IS-2018-420) Defining Health and Well-Being at Home

This report describes the features that defines a healthier home. It incorporates several case studies and researches carried out in the U.S. to illustrate the potential that the concept of "Healthy Homes" has in terms of new market opportunities for related goods and services, buyer's expectations and the challenges. Likewise, the potential for developing health and well-being codes and standards is also discussed and it is expected that they can become common building practices in the near futures.

(IS-2018-419) LED Lighting Solutions - Engineering for Demanding Environments

The debate about the benefits of LEDs is commonly discussed by many authors. This report focuses on LED illumination for hazardous locations and hard industrial environments where corrosion resistance, protection from water and dust on the outside, thermal design, surge suppression, among others are factors affecting the reliability of the fixtures. It explains the variables considered to define high quality luminaries like color temperature, lumen levels and projected life.

(IS-2018-418) Southeast Asia's Journey to a Low Carbon Economy

This report aims to explain the challenges that Southeast Asian countries face in transitioning to a low carbon economy. A survey of more than 500 senior business executives in the region was the method employed to obtain the findings of the research. The region has experienced rapid economic growth in recent decades, but it is also subject to climate change related risks and not all the states are at the same level of economic development.

(IS-2018-417) Connected Services: Creating a Community Around Data

The report was prepared in December 2016 by Zpryme Research and explores how building a community of shared data and analytics among asset owners and service providers in the energy sector is becoming increasingly important to address the next generation of asset needs. The topics covered include retirement as an opportunity for change, technology investments, opportunities to share data and insights, challenges, and opportunities. The report is useful for executives, managers, and IT professionals working in the energy sector.

(IS-2018-416) Indistinguishable from magic: What we need to understand about disruption and what it means for the workplace

The report was prepared in July 2018 by Built With (BW) and deals with the challenge faced by workplace designers to make company culture, skills, and workplace surroundings malleable with rapid changes in technology. The topics covered include a historical perspective on disruption, creation of consensus and implications for the workplace, a history of disruption in the workplace, and pre- requisites of disruption. The report is useful for interior designers, architects, business owners and managers, IT professionals, and technology integrators.

(IS-2018-415) The Emerging Role of Single-Pair Cabling in Enterprise Networks

The report was prepared in October 2018 by Siemon and summarizes IEEE 802.3's BASE-T1 single-pair Ethernet standardization efforts and investigates the activities currently underway by the TIA TR-42 Telecommunications Cabling Systems Engineering Committee to develop performance requirements for single-pair cabling in commercial, intelligent building, and industrial spaces. The topics covered include machine-to-machine communication, a growing need for single-pair 10 Mb/s Ethernet, link segments and mixing segments, developing single balanced twisted-pair cabling specifications, and ISO/IEC activity. The report is useful for electrical engineers, technologists, and IT professionals.

(IS-2018-414) Pathways to Zero Energy Buildings through Building Codes

The report was prepared in October 2018 by the American Council for an Energy-Efficient Economy and examines the current state of zero energy codes and provides an update on avenues to achieving zero energy codes by 2030. Topics include an overview of current efforts to achieve zero energy and similarly high-performing buildings, example code proposals that help

move the needle toward zero energy buildings, and thoughts on additional issues and barriers. The report is useful for building owners and operators, builders, building inspectors, policy makers, and professionals working in the energy sector.

(IS-2018-413) Electric Vehicles Initiative: EV30@30 Campaign

The report was prepared in September 2018 by the Clean Energy Ministerial and deals with the EV30@30 Campaign which has a goal to reach 30% sales share for electric vehicles by 2030. The topics covered include the implementation of actions, supporting governments, supporting organizations and companies, and information on how to join the campaign. The report is useful for government officials, policy makers, electric vehicle manufacturers, electric utility operators, and professionals working in the energy and transportation sectors.

(IS-2018-412) A Security Framework for the Internet of Things in the Future Internet Architecture

The report was published in June 2017 by Future Internet and presents a unified Internet of Things (IoT) framework based on the MobilityFirst future Internet architecture that supports security for the IoT. The topics covered include a survey of the evolution of IoT architectures, security analysis of IoT systems, MobilityFirst- Based IoT architecture, IoT middleware security, and the delegation-based key provisioning protocol. The report is useful for system architects, system integrators, cyber security professionals, Internet providers, and manufacturers of IoT devices.

(IS-2018-411) CABA Monetization of Connected Home - Full Report

The purpose of this collaborative landmark research study is to aid in the development of more effective models that increase the revenue potential for connected home solutions. The report offers insights on value chain categorization, benchmarking and analysis of current monetization practices and models will identify existing gaps, and the potential for change in existing models or in new model development. The research focuses on the identification and understanding of behaviors and practices, potential new affiliations and partnerships, and the analysis of end-user desires and adoption points, translating into optimized revenue models.

(IS-2018-410) CABA Smart Grid Impact on Intelligent Buildings - Full Report

CABA's "Smart Grid Impact on Intelligent Buildings" research study estimates that the North American smart grid marketplace will reach \$8 billion in revenue by 2013 and will exceed \$10 billion by 2015. In 2011, the marketplace was estimated to have reached \$6.6 billion. The study found that the fastest growing components of the smart grid market are grid applications, followed by: demand response and peak load management, building energy management systems, and smart meters.

(IS-2018-409) CABA Impact of Smart Grid on Connected Homes - Full Report

CABA's "Impact of Smart Grid on Connected Homes" study is a collaborative, industry-funded research program that brought together several organizations from the Connected Homes industry sector. The research study was designed to greatly improve the understanding of residential Smart Grid development and deployment throughout the industry value-chain. The broad purpose of the research study was to identify market demand and growth areas for new products; compare competing product strategies and communication of competitors; determine product preferences for end-users; develop messaging that resonates with the target audience; define critical success factors to expand product offerings to end user markets; and to establish a market approach and foundation for future strategic decision-making efforts.

(IS-2018-408) Aging in the Connected Home - Full Report

The CABA Aging in the Connected Home 2011 research study is a collaborative, industry-funded research program that brought together organizations from the healthcare sector with connected home solutions providers. As Baby Boomers reach retirement age, 71 million Americans will be over the age 65, in which 90% indicate that they wanted to remain in their homes. As such, home healthcare services, as well as products designed to help the aging adult move through their home and interface with their home in a safe and efficient manner have seen rapid growth in demand. The objective of this study is to determine the key needs of the seniors and their caregivers as they seek to maintain their independence.

(IS-2018-407) Energy as a Managed Service - Full Report

The purpose of this research is to create an Energy Roadmap of the Connected Home. The roadmap will provide a comprehensive examination of all the major aspects of energy in the smart home, including: state of the market, key industry players, business opportunities, technical barriers and opportunities, future market direction, issues, case studies and industry recommendations, etc.

(IS-2018-406) State of the Connected Home Market - Full Report

CABA's State of the Connected Home Market 2011 study analyzes the most desired features for connected home solutions, including comfort, energy savings, communications, and security, in order to determine how manufacturers and service providers can combine these features to improve consumer lifestyles.

(IS-2018-405) State of the Connected Home Market - Full Report

For the purposes of market analysis, Internet Home Alliance has adopted an ecosystem perspective on the connected home market, dividing the space into three separate, but related ecosystems: family, career and entertainment. In the fall of 2005, the Alliance sponsored a comprehensive Web survey. Approximately 1,800 online consumer panelists between 18 and 64 years of age participated across the U.S. The sample was divided equally into three separate lifestyle domain or 'ecosystem' tracks: entertainment, Family and Career. This report provides a

synopsis of the full report available to CABA Internet Home Alliance Research Council members.

(IS-2018-404) Connected Home Roadmap - Full Report

The Connected Home Roadmap project was initiated by the Continental Automated Buildings Association (CABA) in 2005 to stimulate the evolution of the Connected Home industry. The Roadmap is an assessment of the market today and of the probable short-term evolution of the Home industry. It is intended to provide a framework to support stakeholders and players in this arena as they navigate the complex and shifting dynamics of this emerging market.

(IS-2018-403) Custom Mobile Advertising Study - Full Report

Mobile communications technology now promises advertisers the ability to deliver targeted commercial messages to consumers when their behavior can be immediately influenced and converted into a sale. The question is: How open are consumers to receiving these messages—either on their cell phone, or on a device installed in their car? That is the central question addressed by the Custom Mobile Advertising Study, conducted in May 2007 by Zanthus, an independent research consulting firm for CABA's Internet Home Alliance Research Council. AT&T, Cisco Systems and General Motors led, funded and participated in this research.

(IS-2018-402) Interactive Television & Advertising Study - Full Report

The Interactive Television & Advertising Study, conducted by CABA's Internet Home Alliance Research Council in early 2007, investigated the effectiveness of interactive TV advertising and product purchasing. The aim of the market study was to: learn about potential business models

for using advanced television programming; explore new advertising potential and interactive capabilities for message delivery; and create parallel experiences to live and recorded programming and interactive capabilities. AT&T, Cisco Systems, Campbell Ewald, Digitas and Tandberg TV led, funded and participated in this research.

(IS-2018-401) Senior Living Research Study - Full Report

CABA's Internet Home Alliance Research Council has conducted a study which identifies the solutions consumers over the age of 50 want most in a home to keep them safe, comfortable and living independently in their own homes as they grow older. The study was designed to help consumer product and service companies better understand - and develop products and services for - the mature market. Whirlpool Corporation, Aqua Glass Corporation, American Shower & Bath Corporation, AT&T, Delta Faucet Company, Echelon Corporation, KraftMaid Cabinetry, Merillat Industries, Milgard Windows & Doors and the National Association of Homebuilders led, funded and participated in this research.

(IS-2018-400) Laundry Time Research Pilot - Full Report

The Laundry Time Research Pilot, conducted by CABA's Internet Home Alliance Research Council in late 2006, examined how effective an "intelligent" laundry solution was at simplifying and saving time on laundry tasks while also uncovering consumer attitudes about remote access and control of laundry appliances. Whirlpool Corporation, HP, Microsoft, Panasonic, and Procter & Gamble led, funded and participated in this research.

(IS-2018-399) Subsidized Media and Location Based Advertising Study - Full Report

Faced with declining consumption of traditional mass media such as newspapers and broadcast television fare, as well as advertising-skipping technologies like digital video recorders, advertisers are seeking new ways to deliver messages to their target audiences. At the same time, current trends in mobile telecommunications and digital media are opening up opportunities for advertisers to deliver custom-tailored messages to audiences in ways that consumers may find more relevant and compelling than advertising designed for the masses. This research effort was designed to yield insights into two such potential advertising formats, subsidized media and location-based advertising. This report provides a synopsis of the full report available to CABA Internet Home Alliance Research Councilmembers.

(IS-2018-398) IPTV Demand Study - Full Report

Based on an earlier Alliance-sponsored project, the Digital Entertainment Needs Assessment Study, we understood that a substantial percentage of online households want the type of functionality IPTV (Internet Protocol television) can deliver, including time-shifted TV programming, multi-room viewing options, and the ability to surf the Web while watching broadcast programming. The main purpose of this project was to determine the most appealing features/functions of a hypothetical IPTV service. This report provides a synopsis of the full

report available to CABA Internet Home Alliance Research Council members.

(IS-2018-397) Home Networking in a Box - Full Report

The number of networked homes in the United States is projected to grow to 32.3 million by the end of 2007 from 6.7 million in 2002. Increasing adoption of broadband, multiple PCs in the home, the introduction of connectivity hardware by broadband providers, and improvements in wireless networking performance are factors driving the trend. This report provides a synopsis of the full report available to CABA Internet Home Alliance Research Council members.

(IS-2018-396) Health & Wellness Web Portal Study - Full Report

It's clear that controlling obesity and the chronic health conditions that come with it is vital to the nation as a whole, both in economic terms and quality-of-life terms. Previous research by Internet Home Alliance on the general health of U.S. families confirmed that many Americans are heavier than their ideal weight, and they chalk it up to three factors: lack of time to cook and eat healthy food, lack of time to exercise, and not enough discipline to exercise regularly. Based on these findings and the nationwide trends in health, Alliance members developed a concept called My Health Port, which combines a set of health data monitoring devices and access to a secure, personalized Web portal. This report provides a synopsis of the full report available to CABA Internet Home Alliance Research Council members.

(IS-2018-395) Asset Management (RFID) Study - Full Report

In this study, Internet Home Alliance member companies were interested in investigating consumer response among early technology adopters of an RFID tagging solution for use in the home. Additionally, Alliance members sought to uncover specific needs regarding the use of RFID, and additional application possibilities. This report provides a synopsis of the full report available to CABA Internet Home Alliance Research Council members.

(IS-2018-394) CABA Connected Home Roadmap Summary Report - Full Report

The Connected Home Roadmap project was initiated by the Continental Automated Buildings Association (CABA) in 2005 to stimulate the evolution of the Connected Home industry. The Roadmap is an assessment of the market today and of the probable short-term evolution of the Home industry. It is intended to provide a framework to support stakeholders and players in this arena as they navigate the complex and shifting dynamics of this emerging market.

(IS-2018-393) Digital Entertainment Needs Assessment - Full Report

As of the beginning of 2005, more than 16% of U.S. households had a broadband connection, multiple PCs and a home network. To the extent that these three components comprise the 'heart' of the connected home, the concept has reached an important milestone. Now, it seems industry players should focus on how to best capitalize on this burgeoning digital infrastructure.

The recently completed Digital Entertainment Needs Assessment study was designed primarily to help companies do just that. This report provides a synopsis of the full report available to CABA Internet Home Alliance Research Council members.

(IS-2018-392) Digital Entertainment Migration - Full Report

The main purpose of this project was to determine the degree to which digital entertainment enthusiasts have an interest in potential non-entertainment features or functions of the connected home. The project was managed by Zanthus.

(IS-2018-391) Video Experience Point of Contact - Full Report

Parks Associates completed eight focus groups, four in Dallas and four in Los Angeles for Internet Home Alliance in July 2003. These groups addressed consumer interest and reaction to the concept of home entertainment servers that will allow the networking of entertainment and PC equipment for the purpose of moving content (audio, video and still pictures) from one output/display device within a home to another. This report provides a synopsis of the full report available to CABA Internet Home Alliance Research Council members.

(IS-2018-390) Personal Media Storage - Full Report

Internet Home Alliance commissioned this study with the Aberdeen Group to better understand the role of portable storage products, most notably memory cards, in achieving a fully networked and connected Internet lifestyle. This report provides a synopsis of the full report available to CABA Internet Home Alliance Research Council members.

(IS-2018-389) Safe, Secure and Comfortable Home - Full Report

Safe, secure, and comfortable – these are words that describe an ideal home. In this research study, the Alliance evaluated a number of home automation concepts designed to deliver on this notion. Participants explored the unifying theme of a home information and control solution that will help home owners by managing and providing information about environment, energy consumption, safety, and security. This report provides a synopsis of the full report available to CABA Internet Home Alliance Research Council members.

(IS-2018-388) Web-based Family Calendar User - Full Report

Web-based calendars provide a way for users to gather information about upcoming personal or business events and present them in calendar form. The main purpose of this project was to identify the relative strengths and weaknesses of three existing Web-based calendars: Yahoo!Calendar, Microsoft's MSN Calendar (part of MSN 8.0), and SimpleDay's prototype calendar. This qualitative research project produced detailed evaluations of these applications and recommendations for developing an 'ideal' product. This report provides a synopsis of the full report available to CABA Internet Home Alliance Research Council members.

(IS-2018-387) Health & Fitness Needs Assessment - Full Report

To assess the most salient consumer needs in the health and fitness area that could be addressed by products or services with a Web component, CABA sponsored a Web survey of 643 single-family, owner-occupied households with Internet access in the U.S. The sample included both primary and mass market consumers. The report was authored by Zanthus.

(IS-2018-386) Mobile Worker IHA Research Pilot - Full Report

A public work space built specifically to meet the needs of mobile workers—workers who use a PC at least 15 percent of the time and have the freedom to work from home, the office or some 'third place,' is the latest project from Internet Home Alliance to provide real life research learnings. The results found that a mobile work environment was a viable business proposition, increasing the revenue of retailers in the area, prompting the pilot participants to keep the Plano, Texas, test site up and running indefinitely. This report provides a synopsis of the full report available to CABA Internet Home Alliance Research Council members.

(IS-2018-385) The future delivery/business model for smart home services and infrastructure This CABA white paper by Frost & Sullivan calculates that the market for smart home

technologies will top US\$150 billion globally in 2018. This rapidly growing market provides great opportunities across the value chain, from equipment manufacturers, telecom companies and DIY stores to software providers to app developers, among others.

(IS-2018-384) Human Skin Cells: A Potential Source of Building Contaminants

This CABA white paper reveals that the presence of skin cells in air-conditioning and other indoor sites is common and looks at how to mitigate odour and pollutants.

(IS-2018-383) Connected Home Use-Case Audit

This CABA white paper provides a use-case audit scenarios of connected homes, along with outlining the market opportunity for smart homes in the U.S. and worldwide.

(IS-2018-382) Artificial Intelligence and the IoT Connected Home

This CABA white paper explores how artificial intelligence might provide the means to make the connected home a practical and beneficial reality for the average homeowner.

(IS-2018-381) Creating a New Deal for Buildings

This CABA white paper attempts to facilitate the adoption of information technologies to enable a more productive indoor environment.

(IS-2018-380) Home Automation Distribution Trends

This CABA white paper analyzes the change in distribution channels for home appliances with the evolving Internet of Things (IoT).

(IS-2018-379) Elevator Systems for Future Intelligent Buildings Part 1: Speed and Multi-dimensionality In Part 1 of this CABA white paper series, academics examine elevators that serve high-rise and wide buildings.

(IS-2018-378) Elevator Systems for Future Intelligent Buildings Part 2: Remote Control and Monitoring, and Emergency Operation

In Part 2 of this CABA white paper series, academics discuss remote monitoring and control of elevators with open protocols, along with emergency operation.

(IS-2018-377) Elevator Systems for Future Intelligent Buildings Part 3: Dispatchers and Energy Conservation

In Part 3 of this CABA white paper series, academics examine dispatching and energy concerns in elevators.

(IS-2018-376) The Road to Smart Cities: Considerations for a Templated Approach

This CABA white paper examines the interconnected opportunities in the smart city marketplace. Frost & Sullivan estimates the potential market for smart city solutions to be more than US\$1.5 trillion globally by 2025.

(IS-2018-375) Development and Training of a Knowledge-based Workforce for the Intelligent Buildings and Connected Home Industries

This CABA white paper addresses the issue of a significant shortage of trained professionals in the intelligent building and connected home industries.

(IS-2018-374) Intelligent Building Advances in the Quick Service Restaurant Industry This CABA white paper notes that innovative Internet of Things (IoT) platforms and applications can aid quick service restaurants to improve operational efficiency and drive business growth.

(IS-2018-373) Printable and Flexible Electronics Enabled Intelligent Buildings

This CABA white paper explores how printable electronics plays a role to evolve the function of

operation of commercial buildings. This paper also explores some of the specific applications where printable electronics can provide disruptive and compelling alternatives to conventional technology.

(IS-2018-372) Driving Energy Efficiency & Occupant Comfort through Printable & Flexible Electronics Applications in the Next Generation Connected Home

This CABA white paper examines how additive manufacturing technology, known as printable electronics, can play a role to evolve the function and operation of the connected home.

(IS-2018-371) The Role of Hybrid AC/DC Building Microgrids in Creating a 21st Century Enernet – Part 1 This CABA white paper examines the alternative of maintaining power in its native DC form from distributed generation and storage sources in a simplified, more flexible, efficient and resilient configuration in the building. The paper also explores the eventual interconnection of building-level microgrids within and between buildings and the public grid to create an energy network.

(IS-2018-370) Project Haystack

This CABA white paper describes how Project Haystack helps to ensure the completeness of building system measurements and enable building owners and managers to make better decisions that improve efficiency and financial performance.

(IS-2018-369) Cybersecurity in Smart Buildings: Preventing Vulnerability While Increasing Connectivity

This CABA white paper will show system vulnerabilities in intelligent buildings and help those responsible for smart building management avoid potential damage.

(IS-2018-368) Improving Organizational Productivity with Building Automation Systems This CABA white paper explores how the use of advanced building control technology can

improve organizational productivity. It concludes with a call to action to developers, building owners, and tenant organizations to form a real estate movement that realizes the full potential of buildings to save energy and to be a factor in improving as contributors to corporate performance and environmental sustainability.

(IS-2018-367) High-Quality Multimedia Distribution in Commercial Buildings

This CABA white paper examines the increasing need for high-quality multimedia in commercial buildings and the options for a distribution infrastructure.

(IS-2018-366) The Connected Car: Lifestyle Impact on Consumer & the Ecosystem

This CABA white paper notes that the connected car market is on the cusp of significant growth. A variety of market factors, from government regulations, to industry partnerships, to consumer demand, are propelling the connected car market forward.

(IS-2018-365) On Intelligent Home Offices – A Model and Potential Impacts

The main theme of this CABA white paper suggests that telecommuting technology is available to let employees, whose work is information-based, work at home for three or four days a week.

(IS-2018-364) Toward Zero Net Energy (ZNE) Super High-Rise Commercial Buildings

This CABA Whitepaper defines zero net energy in commercial buildings and presents a concept for a feasible net-zero solution applied to a building cluster consisting of an office building and select homes.

(IS-2018-363) The Impact of Cloud Computing on the Development of Intelligent Buildings

This CABA white paper gives building management decision makers some perspective on the trend toward cloud delivery of smart building energy management solutions and key hurdles and opportunities around integrating these solutions.

(IS-2018-362) Improving Organizational Productivity

This CABA report synthesized existing data to enable decision-makers to benchmark their buildings against others on multiple organizational productivity metrics. Partners will receive guidance concerning how to use this information to make strategic building decisions for their organizations for the benefit of the organization and its employees.

(IS-2018-361) Convergence of Green and Intelligent Buildings

This CABA research provides documented evidence and build tools that can be used to educate and influence end-users, building owners, architects, and contractors that a “greener building” can be achieved using intelligent technology, and will provide a tangible and significant return on investment. This concept – intelligent, green, and profitable – is what we call a bright green building. This research identifies the exciting developments taking place on the technology front and analyzes their implications for intelligent and green buildings, highlighting examples of “best in class” buildings employing green and intelligent technologies. These buildings are dynamic environments that respond to their occupants’ changing needs and lifestyles.

(IS-2018-360) Intelligent Buildings: Design and Implementation (Executive Summary) The purpose of this CABA research study is to address the approach and application of technical design in Intelligent High-Performance Buildings from the perspective of architects, building

engineers, designers, OEM hardware/software providers, service providers and facility managers. This research will provide a comprehensive examination of all the major aspects of Intelligent Building design and implementation, including: state of the market, key industry players, business opportunities, technical barriers and opportunities, future market direction, issues, case studies and industry recommendations.

(IS-2018-359) Intelligent Buildings and Big Data (Executive Summary)

This CABA research study focused on how “Big Data” translates into the intelligent building context and whether Big Data analytics will help keep businesses competitive. A combination of different types of primary research examined market perspectives on Big Data in order to project near and mid-term opportunities in intelligent buildings. The findings present a new understanding of customer behaviors, competition and market trends that will shape the adoption of Big Data solutions.

(IS-2018-358) State of the Connected Home Market (Executive Summary)

This executive summary presents key findings from CABA’s “Connected Multi-Dwelling Units and the Internet of Things” Landmark Study conducted by Harbor Research. The report summarized in this executive summary is based on a survey and interviews of 1,500 stakeholders, including developers, owners, operators and property managers, residents, technology providers, original equipment manufacturers, and service providers associated with multi-dwelling units across Canada and the United States.

(IS-2018-357) Smart Grid Impact on Intelligent Buildings (Executive Summary)

This CABA study found that the fastest growing components of the smart grid market are grid applications, followed by: demand response and peak load management, building energy management systems, and smart meters. While building management systems are not projected to be the fastest growing segment of the market, the study notes that smart grid development will become a major driver for the development and deployment of more intelligent building technologies.

(IS-2018-356) Connected Home IoT Energy Roadmap (Executive Summary)

The purpose of this research is to create a Connected Home IoT Energy Roadmap that will provide a comprehensive examination of all the major aspects of energy in the smart home, including: state of the market, key industry players, business opportunities, technical barriers and opportunities, future market direction, issues, case studies and industry recommendations, etc.

(IS-2018-355) Monetization of Intelligent Buildings (Executive Summary)

The purpose of this \$150,000 research project is to provide a comprehensive examination of how

to monetize intelligent buildings from the perspective of building owners, developer, solution providers (OEM manufacturers and service providers) and other stakeholders. This research will include: stakeholder analysis, business opportunities, technical barriers and opportunities, future market direction, issues, use-cases and industry recommendations.

(IS-2018-354) Foundational Research in Integrated Building - Internet of Things (IoT) Data Standards The report recognizes that while a vast amount of IoT data originates in a building environment, it is often

overlooked. As a result, lack of inter-system connectivity is bound to impede the effective and efficient expansion of IoT. In short, this work is about fostering data interoperability between building systems. It is an important component of broader research efforts currently underway at the Georgia Tech Digital Building Laboratory whose goal is "Advancing Construction Through Digital Technology".

(IS-2018-353) The Inexorable Rise of Alternative Energy

The alternative energy market is facing some pretty severe headwinds in USA given the Trump Administration actions. Yet solar panels and wind turbines were novelties in 2008, and now they are commonplace. Alternative energy technology - heat pumps, solar panels and the like -- is improving while the price of that technology is dropping. Meanwhile demand remains high in certain market and geographic segments (the state of California being a standout).

(IS-2018-352) Transactional Energy Management for Residential Buildings

This report summarizes work conducted at the Archetype Sustainable House investigating transactive energy management for residential buildings. Both simulations and real-world demonstrations were used to examine transactive control protocols and their impact on building energy consumption. Further details on the experiment are available in the thesis upon which this work is based.

(IS-2018-351) IoT Home Safety: Fire Prevention Solutions

Fires can be devastating-electrical fires cause over 1,300 injuries and 420 deaths in the U.S. per year, with \$1.4 billion in associated residential property damage. Advances in electromagnetic sensing technology can detect micro-arcs and sparks, the precursors to arc faults and electrical fires. New technology solutions can detect and prevent fires before they start, save lives and property, and reduce or eliminate false alerts. This whitepaper examines the issues surrounding electrical fires in U.S. homes.

(IS-2018-350) Disrupt the Status Quo

This report on Disruptive Technology's Impact on Sustainable Energy shows a majority of companies surveyed will bolster investment in sustainable solutions as more than 400

technology decision makers across 13 industries indicates that early adoption of disruptive technology, including in the areas of Energy Storage and Renewable Energy seen as less risky than waiting to invest.

(IS-2018-349) Effects of office workstation type on physical activity and stress

Office environments have been causally linked to workplace-related illnesses and stress, yet little is known about how office workstation type is linked to objective metrics of physical activity and stress. This report explores these associations among office workers through a wearable, sensor-based, observational study of 231 workers in four office buildings.

(IS-2018-348) IoT 2020: Smart and secure IoTplatform

The report was prepared in September 2016 by IEC and provides an outlook on the development of smart and secure IoT platforms. The topics covered include IoT systems and architectures, limitations and deficiencies, uses cases, capabilities and requirements, next generation technologies, and standards. The report is useful for IT and cyber security professionals, software developers, systems integrators, electrical engineers, and business owners.

(IS-2018-347) International Interconnection Forum for Services Over IP (i3 Forum)

The report was prepared in April 2017 by the I3 Forum and deals with the impact of the Internet of Things on telecom carriers. The topics covered include an overview of the IoT eco-system and the different players involved, carriers position and their customers in this eco-system, and an analysis of the business impact of IoT pertaining to carriers today and tomorrow. The report is useful for IT professionals, telecom executives, electrical engineers, and business owners.

(IS-2018-346) Understanding the Internet of Things (IoT)

The report was prepared in July 2014 by GSMA and presents an overview of the Internet of Things (IoT) and its potential impact on business and the economy. The topics covered include an IoT definition, description of services, distribution and commercial models, applications, and demands on the mobile network. The report is useful for IT professionals, system integrators, telecom executives, electrical engineers, and business owners.

(IS-2018-345) CABA Intelligent Buildings Market Sizing North America 2015 Report (Executive Summary)

In May 2014, the Continental Automated Buildings Association (CABA) commissioned BSRIA to update their 2010 survey of the North American market for intelligent and integrated building technologies. The purpose of this study has been to provide a detailed assessment of the current and future markets around intelligence in non-domestic buildings in North America (USA and Canada). The emphasis is on a quantitative assessment of the products, installed systems, maintenance and converged solutions markets, supported by qualitative description and

explanation where required. The study was broken into the following five areas: environmental (HVAC) Building Automation and Control Systems (BACS), Lighting Systems, Fire Detection and Alarm Systems, Security Systems (CCTV/Video, Access Control, Intruder Alarm) and Convergence.

(IS-2018-344) CABA Connected Consumer Roadmap: Driven by the Internet of Things (Executive Summary) This executive summary presents top level trends and conclusions from the CABA Landmark Study “The Connected Consumer Roadmap - Driven by the Internet of Things” report which was created by IHS, a leading analyst research firm, for the Continental Automated Buildings Association (CABA).

CABA is a leader in initiating and developing cross-industry collaborative research, under the CABA Research Program. The research presented in this executive summary - and the full report in whole, was driven from a consumer survey of 1,036 residents within Canada and the United States, conducted in January 2015, and based on a range of interviews with suppliers, service providers and other ecosystem players within the connected home market. For the purposes of this research, the term “North America” refers only to Canada and the United States.

(IS-2018-343) CABA Intelligent Buildings and the Impact of the IoT (Executive Summary)

The proliferation of IoT related to buildings has caused a dramatic shift from few siloed building systems to an interconnected system of devices and sensors that have the ability to collect and share data within and across buildings. This, in turn, has created a large opportunity to increase the efficiency, security, productivity, occupancy comfort and profitability of buildings as relevant IoT data can be analyzed remotely and actionable information can be generated.

(IS-2018-342) CABA Intelligent Buildings and Cybersecurity (Executive Summary)

This Intelligent Buildings and Cybersecurity study examined the state of the cybersecurity and intelligent buildings industry, how to prevent cybersecurity attacks, how to deal with and manage cybersecurity attacks, the future direction of cybersecurity in intelligent buildings and specific recommendations going forward. Some of the topics covered include: cybersecurity trends, evaluation of cybersecurity risks and solutions, inhibitors to industry growth, risk benefit analysis, how cybersecurity impacts the adoption of connected devices and services, business case analysis for cybersecurity and specific recommendations to the industry.

(IS-2018-341) CABA Cybersecurity and the Connected Home (Executive Summary)

The Cybersecurity and the Connected Home research study examined the proliferation of connected devices and the Internet of Things (IoT) in the home and how it has created many new cybersecurity risks. This CABA Connected Home Council (CHC) research utilized both industry expert interviews and consumer surveys to examine all the major aspects of cybersecurity in the home. Some of the topics covered include: cybersecurity trends, public concern and awareness of cybersecurity, how cybersecurity impacts the adoption of connected home devices and services, business case analysis for cybersecurity and specific recommendations to the industry.

(IS-2018-340) CABA Connected Multi-Dwelling Units and the IoT (Executive Summary)

This \$150,000 US CABA research study was completed by Harbor Research and consisted of 1,500+ surveys of OEMs, service providers, tenants, and owners, as well as 60 in-depth interviews with industry leaders. The 242 page research report is a comprehensive examination of all the major aspects of Internet of Things (IoT) related to Multi-Dwelling Units (MDUs), including: state of the market, trends, business opportunities, technical barriers and opportunities, future market direction, issues, use cases and industry recommendations.

(IS-2018-339) The Power Plant of the (Not Too Distant) Future

This report was prepared in October 2018 by the Emerson organization and deals with the role of digital technologies in transforming power utilities. The topics covered include potential of digital transformation, a need for change, attracting a digital workforce, and application of digital technology. The report is useful for power utility executives and managers, IT professionals, and electrical engineers.

(IS-2018-338) Research Needs to Support Immediate Occupancy Building Performance Objective Following Natural Hazard Events

This report was prepared in August 2018 by the National Institute of Standards and Technology (NIST) and presents an exploratory, interdisciplinary assessment of activities needed to target a higher level of building performance referred to as immediate occupancy (IO). The topics covered include the current state of practice for designing buildings, building design considerations, community considerations for IO buildings, economic and social considerations, and adoption / acceptance considerations. The report is useful for architects, civil engineers, builders, building inspectors, and city planners.

(IS-2018-337) How ICT Can Restore Lagging European Productivity Growth

This report was prepared in October 2018 by the Information Technology & Innovation Foundation and deals with the role of Information & Communication Technology (ICT) in improving European productivity growth. The topics covered include European and US productivity trends, reasons why Europe needs to accelerate its productivity growth, role and impact of ICT on productivity growth, and actions required of Europe to improve its productivity. The report is useful for government officials, policy makers, business leaders, and ICT professionals.

(IS-2018-336) Roundtable: Maximizing Big Data

This report was prepared in September 2018 by the Health Leaders Media and presents a summary of a roundtable discussion among health leaders on the future of big data and its impact on large-scale operation. The topics covered include the role of big data in strategic

decision making, translating data into skills and people, privacy issues, barriers accessing integrated patient data, and role of big data in transforming an organization. The report is useful for health industry professionals, hospital and health clinic executives, and IT professionals.

(IS-2018-335) Natural Hazard Mitigation Saves: 2017 Interim Report

This report was prepared in December 2017 by the National Institute of Building Sciences and provides insights to help decision-makers build a mitigation strategy to protect lives, property, and assets. The topics covered include benefit-cost analysis resulting from designing new buildings to exceed the 2015 International Building Code requirements, federal grants for natural disasters, mitigation guidance, and quantification of benefits resulting from mitigation. The report is useful for politicians, policy makers, city officials, builders, and the general public.

(IS-2018-334) Keeping the Lights On: Energy Efficiency and Electric System Reliability

This report was prepared in October 2018 by the American Council for an Energy-Efficient Economy and examines energy efficiency's role in supporting electric power system reliability. The topics covered include grid reliability, how energy efficiency affects electric system reliability, experience with energy efficiency and reliability, quantifying the reliability benefits of energy efficiency, and emerging opportunities for energy efficiency and reliability. The report is useful for electric power utility executives and managers, electrical engineers, and policy makers.

(IS-2018-333) Is Your ERP Ready for AI? How Distributors Can Prepare for Digital Transformation as a Competitive Differentiator

This report was prepared in October 2018 by Modern Distribution Management (MDM) and describes how artificial intelligence (AI) will increasingly support and enhance core enterprise resource planning (ERP) capabilities for distributors. The topics covered include a description of AI and the Internet of Things (IoT), ERP's role in digital transformation, evaluation of ERP systems, and application of ERP system for business growth. The report is useful for distributors, IT professionals, and system integrators.

(IS-2018-332) Choosing Off-Site Renewable PPAs for Environmental and Social Impact

This report was prepared in September 2018 by the Rocky Mountain Institute and provides insights into the renewables strategy and procurement process of Cummins, a global power equipment manufacturer, by focusing on its first virtual power purchase agreement (VPPA). The topics covered include VPPA as a high-impact renewables procurement option and a cost-benefit framework for selecting high-impact renewable projects. The report is useful for power utility executives, business managers, and engineers.

(IS-2018-331) International Digital Economy and Society Index 2018 SMART 2017/0052 This report was prepared in October 2018 by Tech4i2 and provides trend analysis and

comparison of the digital performance of the 28 member states in the European Union and 17 other countries around the world. The topics covered include connectivity, human capital, citizen Internet use, business technology integration, and digital public services. The report is useful for political leaders, policy makers, business executives, and IT professionals.

(IS-2018-330) Central Office Evaluation Strategy for Deployment of Information and Communications Technology (ICT) Equipment

This report was prepared in October 2018 by the Telecommunication Industry Association (TIA) and deals with infrastructure, connectivity, and environmental issues that must be addressed in the central office to data center transition. The topics covered include central office evolution strategy, fire protection and HVAC considerations, electrical power considerations, and deployment scenarios. The report is useful for IT professionals, electrical engineers, mechanical engineers, and central office managers.

(IS-2018-329) Blockchain for Hospitality

This report was prepared in October 2018 by Hospitality Technology Next Generation and provides a comprehensive overview of blockchain technology as applied to the hospitality industry. The topics covered include a description of blockchain technology, private and public blockchains, technical limitations, application of blockchain, and steps to adopting blockchain. The report is useful for hospitality business leaders and the technology vendor community.

(IS-2018-328) Impact of Cybercrime on Canadian Businesses 2017

This report was prepared in October 2018 by Statistics Canada and deals with the financial impact of cyber crime on Canadian businesses. The topics covered include business expenditures on cyber security, cyber crime incident rates, common cyber security strategies, human resources dedicated to cyber security, and policy for managing cyber security. The report is useful for business owners and cyber security professionals.

(IS-2018-327) Maritime Forecast to 2050

This report was prepared in August 2018 by DNV-GL and provides an independent forecast of the maritime energy future and examines how the energy transition will affect the industry. The topics covered include an overview of current shipping practices, Seaborne trade outlook, the energy transition, regulatory and stakeholder outlook, fuel and technology outlook, world fleet outlook, key issues to monitor, and the carbon-robust ship. The report is useful for government officials, policy makers, shipping company executives, ship owners, and energysector leaders.

(IS-2018-326) Energy Transition Outlook 2018: Oil and Gas Forecast to 2050

This report was prepared in August 2018 by DNV GL and presents a long range global outlook regarding the future of the oil and gas industry. The topics covered include oil and gas demand

forecast, trends and implications, onshore / offshore exploration and production, technologies for enabling decarbonization, midstream and downstream technologies, digitalization and automation, and projections for the next five years. The report is useful for government officials, policy makers, utility executives, and energy consumers.

(IS-2018-325) Virtual Power Plant and Distributed Energy Resources Management System

Virtual Power Plants (VPP) is a system that relies upon software and a smart grid to remotely and automatically dispatch retail DER services through a platform, whereas Distributed Energy Resources Management Systems (DERMS) are control systems that enable optimized

control of the grid and DER. VPP focuses on the financial value captured by markets whereas DERMS focuses on maintaining the physics of the power grid. A case study of Alectra, a public utility in Ontario is discussed.

(IS-2018-324) Enterprise Portfolio Management for Utilities

This report summarizes the key findings obtained through a survey applied to utilities providing services in electric, gas, water, wastewater and solid waste management in North America.

The topic of the survey relates to the series of enterprise portfolio management. The intent was to identify how utility industry perceive investment decision making, asset valuation, benefits and challenges of taking an enterprise view of investments as well as the future of project portfolio management tools.

(IS-2018-323) What's the Right LED Retrofit Strategy

Currently, LEDs are the most energy-efficient electric lighting technology available. This report compares the existing type of LED lighting strategies (replacement lamps, luminaires, retrofit kits) and analyzes the pros and cons of each application. Nonetheless, myths exist when it comes to implementing this illumination technology.

(IS-2018-322) 2019 Office Design Trends

The integration of biophilic elements, greenery, handcrafted and fair trade objects, open spaces and technology driven co-working stations are core features of innovative office designs being developed around the world. This is an informative report that explain the benefits, drivers and key features of macro trends (e.g., experience driven spaces, free- range cohabitation spaces, old meets new, second nature) and micro trends (moss walls, abstract and geometric patterns, hand crafted and green branding).

(IS-2018-321) Capturing the next economy: Pittsburgh's rise as a global innovation city

This report illustrates the findings of a study undertaken by the city of Pittsburgh to identify its internal strengths and weaknesses, as well as its external opportunities and threats in view of a new competitive reality in a modern, innovation economy. Although the city possesses significant innovation assets (industry clusters), several recommendations are done to overcome the challenges and maximize chances of success and progress.

(IS-2018-312) The 2018 State Energy Efficiency Scorecard

The report was prepared in October 2018 by the American Council for an Energy-Efficient Economy and presents an overview of energy policy and programs across the U.S. along with a ranking by state. The topics covered include utility and public benefits programs and policies, transportation policies, building energy efficiency policies, combined heat and power, state

government-led initiatives, and appliance and equipment efficiency standards. The report is useful for governors, state legislators, regulators, and leaders of energy companies.

(IS-2018-311) Will robots really steal our jobs? An international analysis of the potential long term impact of automation

The report was prepared in February 2018 by PWC and deals with the impact of various stages of automation on the current job market. The topics covered include automation rates by country, highest rates of automation by sector and occupation, public policy implications, and the implications for business. The report is useful for policy makers, business leaders, and the general public.

(IS-2018-310) KNX for Metering, Displaying and Energy Management

The report was prepared in July 2018 by KNX and deals with the advantages of the use of home and building electronic systems (HBES) to promote smart metering infrastructure, and the EN 50090 HBES open communication standard. The topics covered include the limits to the use of conventional installation techniques for smart meters, advantages of the use of smart home and building infrastructure, advantages of the KNX proprietary system, and available solutions based on the KNX system. The report is useful for electrical engineers, IT professionals, system integrators, and electrical power utility managers.

(IS-2018-309) Context Aware Conversational Understanding for Intelligent Agents with a Screen
The report was prepared in February 2018 by Association for the Advancement of Artificial

Intelligence and deals with intelligent context-aware conversational system that incorporates screen context information to service multimodal user requests. The topics covered include an introduction to the research, review of related work, context aware conversational understanding, data and representation, research methodology, research results, discussion, and conclusions. The report is useful for computer science students, researchers, and developers of artificial intelligence systems.

(IS-2018-308) Working Group Report Digital Entrepreneurship

The report was prepared in 2018 by the Broadband Commission for Sustainable Development and deals with the role of digital entrepreneurship in achieving the United Nations goals for connecting the least developed countries. The topics covered include the digital entrepreneurship and the sustainable development goals, digital infrastructure, policy support, online commerce, and building digital markets. The report is useful for government, business, and technology leaders.

(IS-2018-307) Foundational Research in Integrated Building Internet of Things (IoT) Data Standards

This report systematically investigates how to achieve data interoperability between building systems and the Internet of Things (IoT). This research in this report aims to develop a strategy and preliminary framework for building level IoT semantic models and open data strategies.

(IS-2018-306) Solutions for Special Constant Environments

This report looks at Computer Room Air Conditioning (CRAC) solutions, specifically for facilities like laboratories, medical imaging rooms, museums, and archives with sensitive and irreplaceable materials. This report seeks to answer why CRAC systems are not up to the job of protecting these specialized environments and what kind of system is.

(IS-2018-305) The Energy Advantage Report - Powering Your Business Forward

This report was created by Centric Business Solutions and covers current and future organizational trends in the strategic sourcing and use of energy. Conclusion: Distributed energy (local generation options) and IoT built tools provide the ability to manage and efficiently use energy, as well as, in some cases, generate new revenue streams. Well researched by an unaffiliated research firm using 1000 qualified individuals from companies that have already started on the path to energy leadership.

(IS-2018-304) Differentiating Your Brand With EQ

This report was prepared in September 2018 by iProspect and deals with the proliferation of digital assistants and the importance of the emotional quotient (EQ) in their design. The topics covered include digital assistants in retail, use EQ in the design of digital assistants, conversational technology and interfaces, the modern concierge, humanizing a brand, and creation of branded intelligent agents. The report is useful for business owners, software engineers, programmers, UI/UX designers, and the general public.

(IS-2018-303) Energy Efficiency with Justice How State Energy Efficiency Policy Can Mitigate Climate Change, Create Jobs, and Address Racial and Economic Inequality

This report was prepared in August 2018 by the Institute for Policy Studies and deals with a set of policies (energy efficiency in residential, commercial, and public buildings) that can accelerate the transition from a fossil fueled economy to a clean, regenerative economy. The topics covered include the origin of greenhouse gas emissions, policy options for energy efficiency, social and environmental benefits, how to pay for energy efficiency upgrades, case studies, and best practices. The report is useful for government officials, policy makers, energy professionals, and the general public.

(IS-2018-302) Solar Power: Becoming America's Energy

This report was prepared in September 2018 by the Global Strategy Group for the Solar Energy Industries Association and presents the survey results of registered voters and opinion leaders

regarding solar power in the U.S.. The topics covered include consumer attitudes toward solar power, cost barriers, benefits to health, economy, and the environment. The report is useful for executives and managers of utility companies, solar company operators, policy makers, and consumers.

(IS-2018-301) The Rise of Innovation Districts: A New Geography of Innovation in America

This report was prepared in May 2014 by the Brookings Institution and deals with the emerging trend of innovation districts in the U.S., along with the driving forces, local practices, and practitioners. The topics covered include a definition of an innovation district, why innovation districts matter, the evolution of innovation, the deconstruction of districts, reflections from practitioners, scaling of innovation districts, and a path forward. The report is useful for U.S. city and metropolitan leaders.

(IS-2018-300) How to Reduce Data Center Energy Use

This report was prepared in August 2018 by the Critical Facilities Summit and deals with range of proven measures — including some relatively low cost steps — that can be taken to cut energy use significantly in a data center. The topics covered include LEED certification, air flow, operating temperature, location, and renewable energy. The report is useful for data centre owners and operators.

(IS-2018-299) The Customer PUSH or PULL: How much are customers driving digital change for utilities?

This report was prepared in September 2018 by Zpryme research for CGI and deals with the impact of consumer input on the digital transformation of utilities. The topics covered include the changing digital needs of consumers, the influence of consumers and utilities' internal needs on digital transformation strategy, consumer engagement, trust between consumers and utilities, consumer expectations, and recommendations to meet consumer demands. The report is useful for utility company executives, managers, IT professionals, and consumers.

(IS-2018-298) Reaching Rural Communities with Energy Efficiency Programs

This study examines rural energy efficiency programs. ACEEE uses an inclusive definition of rural by considering programs delivered to communities with fewer than 50,000 inhabitants. This study shares lessons learned from a variety of program leaders across the country who have implemented energy efficiency programs across customer segments.

(IS-2018-297) Utility Demand Response Market Snapshot

The 2018 Utility Demand Response Market Snapshot is the result of a collective partnership among the Smart Electric Power Alliance (SEPA), Navigant, and Peak Load Management Alliance (PLMA) staff. Data collected from SEPA's 2018 Utility Survey seeks to provide deeper insight into

utility demand response programs throughout the U.S. and represents 62.40% of total U.S. customer accounts (or 89.5 million customers).

(IS-2018-296) The Future of Jobs Report 2018

This new edition of the Future of Jobs Report taps into the collective knowledge of executives of some of the world's largest employers by asking them to reflect on the latest employment, skills and human capital investment trends across industries and geographies. A particular focus of this edition is a better understanding of the potential of new technologies to create new high-quality jobs and vastly improve the job quality and productivity of the existing work of employees.

(IS-2018-295) Real Estate Expansion Lives On: 2017 Real Estate Industry Outlook Survey For KPMG's annual Real Estate Industry Outlook Survey, senior U.S. commercial real estate

executives were asked about their view of the industry and their strategic plans for the next year. KPMG's research captured the feeling of resilience in the market that despite so much speculation that the current expansion simply cannot continue much longer, there will still be growth in 2017 and perhaps beyond.

(IS-2018-294) To Zero and Beyond- Zero Energy Residential Buildings Study

The report was prepared in April 2018 by Net-Zero Energy Coalition and provides an inventory of residential projects on the path to zero net energy in the U.S. and Canada. The topics covered include growth trends in the number of net-zero projects, viable business opportunities, lessons from net-zero builders, energy performance, and zero energy basics. The report is useful for residential building owners, builders, contractors, and the general public.

(IS-2018-293) Home Life Data and Children's Privacy

The report was prepared in September 18, 2018 by the University of London and deals with data that is being collected by home hub technologies. The report emphasizes that the data collected is highly contextual and includes individual data, household, family, and children's data. The topics covered include the business model of home hubs, home life data, children's privacy, and the importance of new measures and solutions to protect children's privacy. The report is useful for policy makers, regulators, system integrators, IT professionals, and the general public.

(IS-2018-292) Faster big data analytics and better responsiveness with IBM Cloud

The report was prepared in 2018 by Principled Technologies and deals with the performance advantages of IBM's Cloud services as compared to Amazon Web Services. The topics covered include considerations when choosing a cloud platform for big data projects and a performance comparison based on processing speed, data clustering, and data transfer between data centres. The report is useful for business executives and IT professionals.

(IS-2018-291) Proposed Cyber Security Readiness Report & Amendments to Electricity Reporting and Record Keeping Requirements (RRR)

The letter was prepared in September 2018 by the Ontario Energy Board with the purpose of providing stakeholders (electricity transmitters and distributors) with the opportunity to comment on a proposed form of report on cyber security readiness (Cyber Report). The topics covered include the purpose of the report, an overview of the report, the full report, and an invitation to comment. The report is useful for electricity transmitters and distributors.

(IS-2018-290) How big is the energy efficiency resource?

The article was prepared in September 2018 by Amory Lovins from the Rocky Mountain Institute and deals with an integrative approach for energy efficiency that focuses on whole systems (buildings, factories, vehicles, and the larger systems embedding them). The topics covered include perspectives on energy efficiency, examples of overlooked efficiency resources, implications for climate protection, and implications for an analytic methodology. The report is useful for energy industry executives, engineers, business executives, policy makers, environmentalists, and the general public.

(IS-2018-289) Discussion Paper Policy Case: Recommendations for an Ontario Load-Serving Entity Model The report was prepared in September 2018 by two organizations, Power Advisory and Aird & Berlis, and explores the policy case for an Ontario Load-Serving Entity (LSE) model. The topics covered include the need and benefits of the LSE model, model recommendations, outcomes of the recommended model, and transitioning to an LSE model. The report is useful for government officials, policy makers, and executives of electrical utility companies.

(IS-2018-288) Smart home, seamless life Unlocking a culture of convenience

The report was prepared in January 2018 by PWC and deals with consumer attitudes and experiences with the connected home. The topics covered include the current state of today's smart home, smart home devices and purchasing trends, motivations to purchase smart home devices, resistance to smart device adoption, consumer satisfaction, an overview of a smart home of the future, technology ranking, and a consumer wish list for new smart home devices. The report is useful for the general public, IT professionals, system integrators, and smart home device manufacturers.

(IS-2018-287) 2018 Energy Transition Outlook 2018: A Global and Regional Forecast to 2050 The report was prepared in September 2018 by DNV GL and provides an informed global

outlook on the the transitions in the energy sector. The topics covered include energy demand, energy and power supply, infrastructure, efficiency, impact of digitalization, impact of technology, regional transitions, and a five year projection on the evolution of the energy sector. The report is useful energy company executives, energy policy makers, social policy makers, and

engineers.

(IS-2018-286) CREtech 2018 Mid-Year Report

The report was prepared in September 2018 by CREtech and deals with the rapid evolution of the commercial real estate sector, the growth of startups, increase in funding activity, and the impact of technology on the way people and businesses use real estate. The topics covered include CREtech's leadership board, real estate landscape, fundraising activity, and company data. The report is useful for investors, real estate developers, technology professionals, and builders.

(IS-2018-285) 2018 Black & Veatch Strategic Directions Electric Report

The report was prepared in August 2018 by Black & Veatch and deals with the progress made by the electric industry as it continues to evolve and addresses new areas such as a rapidly changing customer base, commercial defection from the grid, advanced technologies and a changing regulatory landscape. The topics covered include renewable energy, distributed energy, changes in the power industry, and global perspective. The report is useful for electrical utility executives, managers, and electrical engineers.

(IS-2018-284) Off-site Construction Education: Results of a Survey of Prefabrication in Design and Construction Academics

This report looks at the results of a survey of a survey surrounding off-site construction education conducted in 2014 and 2017. The data from 2014 and 2017 are shared, analyzed and compared.

(IS-2018-283) Building Automation & Control Systems: An Investigation into Vulnerabilities, Current Practices & Security Management Best Practice This report looks at the current and future building automation and control systems (BACS), including terminology, technical architecture and likely vulnerabilities. It also provides guidance to support security and facility professionals in BACS security design and maintenance activities.

(IS-2018-282) Venture in the Built World

The report was prepared in September 2018 by Builtworlds and deals with factors affecting the growth of startup companies in the built industry. The topics covered include growth trends, global financing, the finance cycle, turning an idea into a funded company, initial public offering, strategic investors, and the role of venture capital. The report is useful for leaders of startups in the built industry.

(IS-2018-281) Managing the Multi Generational Workforce

The report was prepared in June 2018 by CompTIA and deals with the key factors that affect the management of a multi-generational workforce. The topics covered include the importance of technology to attract top talent, employee engagement with technology and applications, views on careers, and the impact of automation. The report is useful for recruiters, HR professionals, business leaders, and the general public.

(IS-2018-280) Internet Trends 2018

The report was prepared in May 2018 by Kleiner Perkins and deals with global Internet trends. The topics covered include Internet use and users, innovation and competition, e-commerce, advertising, consumer spending, impact of the Internet on jobs, data gathering and optimization, economic growth drivers, developments in China, enterprise software, and importance of immigration in the U.S. The report is useful for the general public, business and technology leaders, strategists, and IT professionals.

(IS-2018-279) What Do Workplace Wellness Programs Do - Evidence From the Illinois Workplace Wellness Study The report was prepared in June 2018 by the National Bureau of Economic Research and presents the results of a comprehensive workplace wellness program for over 12,000 employees at the University of Illinois at Urbana-Champaign. The topics covered include employee participation in the wellness program, medical expenditures, health-related participant behavior, employee productivity, and net savings for employers. The report is useful for HR professionals, policy makers, managers, and employees.

(IS-2018-278) The 2018 UK Workplace Stress Survey

The report was prepared in January 2018 by Perkbox and presents the results of a survey of 3000 British workers to understand their sources and causes of stress. The topics covered include most prevalent types of stress, the most stressed people by region, the most stressed industries, stress by work position, causes of stress, stress triggers, impact of stress on the workforce, and stress management strategies. The report is useful for the general public, executives, directors, managers, and HR professionals.

(IS-2018-277) 2017 Wind Technologies Market Report

The report was prepared in August 2018 by Lawrence Berkeley National Laboratory for the U.S. Department of Energy and provides an overview of developments and trends in the U.S. wind power market, with a particular focus on the year 2017. The topics covered include trends in installation, industry, technology, performance, cost, wind power price, policy and market drivers, and future outlook. The report is useful for electrical utility owners and operators, policy makers, electrical engineers, and energy industry professionals.

(IS-2018-276) Uptime Institute Global Data Center Survey

The report was prepared in July 2018 by the Uptime Institute and provides an overview of the major trends shaping IT infrastructure delivery and strategy. The topics covered include the cause and effect of data center outages, power and cooling redundancy configurations, the impact of legacy IT assets, power generation and energy storage adoption rates, and data center technology trends. The report is useful for electrical engineers, IT professionals, and data centre operators.

(IS-2018-275) Case Study Building Specifications High-Rise Health Care Facility

The report was prepared in April 2018 by TECSA and covers a performance-based design for an Italian new high-rise health care facility with a parking garage. The topics covered include building characteristics, fire risk assessment, life safety code application, Italian fire code, reaction to fire, and fire resistance. The report is useful for builders, contractors, building safety professionals, city planners, and hospital building operators.

(IS-2018-274) Google Data Collection

The report was prepared in August 2018 by Digital Content Next and deals with unique and comprehensive view of Google's data collection approaches and delves deep into specific types of information it collects from users. The topics covered include data collection through Android, Chrome, publisher technologies, advertiser technologies, Google's key popular applications aimed at individuals, and products with high future potential for data aggregation. The report is useful for the general public, consumer protection agencies, public protection agencies, government officials, marketers, advertisers, IT professionals, and policy makers.

(IS-2018-273) Jobs Created by Appliance Standards

This report uses an input-output model of the US economy to estimate the job creation impacts of existing national appliance standards. It also provides an analysis on the impacts of general service lighting (light bulb) standards - a standard with one of the largest savings because that standard is threatened with a regulatory rollback.

(IS-2018-272) The High Cost of Energy in Rural America: The High Cost of Energy in Rural America

In this report, residential energy affordability in rural and small-town America is examined. ACEEE analyzes how rural household energy burdens, including the percentage of household income spent on energy bill, vary across regions and among specific groups.

(IS-2018-271) Internet of Things Fundamentals

A comprehensive primer on IoT as applied to the Hospitality Industry. The purpose of this document is to outline best practices for designing, implementing and maintaining IoT solutions in a secure manner. The goal is to empower industry members to make informed decisions about IoT and help them navigate on a path toward successful adoption of IoT, within the

context of their objectives.

(IS-2018-270) Valuing the Resilience Provided by Solar and Battery Energy Storage Systems

This paper explores the impact of resilience on the economics of solar photovoltaic (PV) and energy storage systems for commercial buildings. The analysis illustrates that accounting for the cost of electric grid power outages can change the breakeven point for PV and storage system investment.

(IS-2018-269) TALQ White Paper- The Smart City Protocol

TALQ Smart City protocol specification; a brief description of the TALQ Smart City protocol, an open protocol that can be used for integration of multiple Smart City services, that should help companies understand the TALQ concepts.

(IS-2018-268) Intelligent buildings: For smarter, healthier, more productive people

Brief, general synopsis of “building IoT” and it can be leveraged to improve quality of indoor environment. Additionally, a view on how technology developed by ARM could be leveraged to solve numerous issues related to IoT implementation.

(IS-2018-267) Improving Compressed Air System Performance: A Sourcebook for Industry

This sourcebook is designed to provide compressed air system users with a reference that outlines opportunities for system performance improvements. It is broken up into three sections: Introductions to industrial compressed air systems, performance improvement opportunity roadmap, and where to find help.

(IS-2018-266) Smart Buildings

This report was prepared in August 2018 by Navitas Capital and provides an insight into the current themes and trends in the smart buildings sector in 2018 from a venture capital perspective. The topics covered include venture capital investment in real estate, influx of institutional capital, smart building trends, case studies, tenant engagement, the evolution of the smart building space, and key challenges driving investment returns. The report is useful for investors, real estate owners, brokers, builders, contractors, IT professionals, and tenants.

(IS-2018-265) Frameworks and Guidelines for Implementing Voice-Based Solutions in Hotels

The report was prepared in July 2018 by Hospitality Technology Next Generation (HTNG) and provides high-level guidance and sets a minimum standard for the implementation of voice technologies in hotels, including but not limited to Amazon Alexa, Google Assistant, Apple Siri, Alibaba Genie, and Baidu Raven. The topics covered include guidelines for implementation and

operation of voice-based solutions, use cases by property type, management features, and network considerations. The report is useful for hotel operators, IT professionals, and system integrators.

(IS-2018-264) Power Industry AMI Thought Leadership

This report was prepared in August 2018 by Navigant Consulting for Huawei Technologies and deals with technical and business aspects of advanced metering infrastructure (AMI) for energy management. The topics covered include an overview of AMI technologies, AMI market trends, global market survey results, and market forecasts. The report is useful for electrical utility operators, electrical engineers and technologists, system integrators, and businessowners.

(IS-2018-263) The Utility Business Customer Survey on Energy Management Piecing Together the Puzzle on Small, Medium and Large Customer Perspectives

This report was prepared in December 2017 by Ecova and explores what drives small, medium and large businesses when it comes to energy savings. The topics covered include the the relationship between businesses and their utilities, and how businesses and utilities can work together to create effective energy efficiency and management strategies. The report is useful for business owners and utility operators.

(IS-2018-262) Unlock Energy Efficiency in Your Building

This report was prepared in August 2018 by BuiltWorlds and describes technologies and cost saving strategies to achieve energy efficiency in large buildings. The topics covered include HVAC control systems, smart lighting solutions, smart window technologies, on-site energy generation, and building management platforms. The report is useful for building owners and operators.

(IS-2018-261) Electric Vehicles and the California Grid

This report was prepared in July 2018 by Next 10 and investigates the trends in California's electrification of the transportation sector. The report also covers the mobility and charging infrastructure trends to determine the impacts policy leaders should be aware of and the strategies that can optimize grid performance as more electric vehicles hit the road. The topics covered include mobility trends, charging infrastructure, charging strategies, grid services, impacts in California, and policy recommendations. The report is useful for policy makers, government officials, electric vehicle manufacturers, and electrical utility operators.

(IS-2018-260) Actual Consumer Practices and Operators' Offers for Intra-EU Calls

This report was prepared in June 2018 by PWC for the European Commission and presents and in-depth review of consumer practices and telecommunication offers by operators across a sample of 15 EU countries. The topics covered include a comparison of domestic and intra-EU tariffs, intra-EU destination countries, extra tariff offers, trends in operator revenues, trends in

voice and messaging traffic, use of the over-the-top services, and mobile virtual network operators in the international market. The report is useful for policy makers, government officials, telecom operators, and consumers.

(IS-2018-259) Helping Cities Plan High-Rise Growth

This article was published in February 2018 by the Council on Tall Buildings and Urban Habitat (CTBUH) journal and deals with strategies and guidelines to help connect high-rise developments to their people, communities, and cities. The topics covered include Toronto's growth and its tall building guidelines, planning for children in vertical communities, living documents and policies, and building / unit scale guidelines. The report is useful for urban planners, building owners, builders, and architects.

(IS-2018-258) The Business Case for Healthy Buildings: Insights from Early Adopters

This report was prepared in July 2018 by the Urban Land Institute and highlights the key certification standards for health buildings, explores recent research on the impact of health-promoting design, and offers profiles of five projects that have been early adopters of healthy building and workplace design and management practices. The report is useful for architects, interior designers, building owners, builders, and the general public.

(IS-2018-257) How to take mobile video mainstream

This report was prepared in June 2018 by FierceVideo and deals with the trends of video going mobile and the impact on the players across the video industry. The topics covered include factors that are enabling video going mobile, the impact on wireless network operators, content delivery optimization, mobile devices, and streaming technologies. The report is useful for video content providers, network operators, mobile app developers, mobile device manufacturers, and the general public.

(IS-2018-256) The Future of Energy and Power Utilities in Africa

This report was prepared in July 2018 by the Gordon Institute of Business Science and provides an insight to how African utilities could look like in 2030 and remain relevant, effective and lead the African energy revolution. The topics covered include scenarios of future African utilities, trends, drivers, system dynamics, and the political context. The report is useful for energy company executives, government officials, and policy makers.

(IS-2018-255) The Sectoral Impact of the Digitisation of the Economy

This report was prepared in July 2017 by Centre for European Economic Research and deals with the productivity effects of information & communication technologies (ICT) at the sectoral level and predicts employment effects for the EU15, the US, China and Japan across various industries between 2000 to 2021. The topics covered include changes in labour demand and changes in

full-time equivalent employment across 12 countries and 14 industries due to ICT factors. The report is useful for government officials, policy makers, and IT business leaders.

(IS-2018-254) Fiber to the X Fundamentals

This report was prepared in July 2018 by Commscope and deals with the fundamentals of fiber optic technology, its importance, and deployment. The topics covered include history and future of fiber, fundamentals of fiber technology, network architectures: options, benefits and considerations, and important business factors for fiber deployment. The report is useful for home and business owners, engineers, technologists, and IT professionals.

(IS-2018-253) Microhydropower Handbook

This report was published in January 1983 by the U.S. Department of Energy and provides a mechanically proficient lay person with sufficient information to evaluate microhydropower site potential, layout a site, select and install equipment, and finally, operate and maintain the completed system. The topics covered include an overview of hydropower, power potential, design, equipment, safety requirements, design package, construction, installation, startup, operation, maintenance, and economic / legal / environmental / institutional considerations. The report is out of date. Basic principles may be useful for the general public and engineers.

(IS-2018-252) US Climate Service: Taking Stock 2018

Rhodium Group's 2018 "Taking Stock" report provides an independent assessment of where the US stands on its climate commitments. Their projections include the latest federal policy developments, state climate and energy rules, energy market trends and technology advancements over the past year.

(IS-2018-251) MVNO Region Portrait Series: Latin America

This report is an in-depth focus on the growth of the mobile virtual network operator (MVNO) business model in Latin America. It focusses on the key regions in Latin America where MVNOs are really growing, as well as looks at what the main retailers are in Latin America.

(IS-2018-250) Portfolio 2040: Preparing for a Radically Different Real Estate Future

This white paper by CBRE looks well into the future to examine what the real estate landscape will look like in 2040. They approach 2040 from a portfolio perspective, asking how business, buildings and perhaps even citizen themselves might look in 20 years time.

(IS-2018-249) The 2018 International Energy Efficiency Scorecard

The fourth edition of ACEEE's International Energy Efficiency Scorecard examines the efficiency

policies and performance of 25 of the world's top energy consuming countries. These countries' efficiency efforts were evaluated and scored using 36 policy and performance metrics spread over four categories: buildings, industry, transportation and overall national energy efficiency progress.

(IS-2018-248) The Road to 5G is Paved with Fiber

This report was prepared in December 2017 by the Fiber Broadband Association and deals with the evolution of cellular networks to 5G. The topics covered include what differentiates 5G from existing cellular networks, fiber requirements for metropolitan areas, 5G supported applications, a case study, network computing, and converged fiber networks. The report is useful for policy makers, IT professionals, engineers, and telecom executives.

(IS-2018-247) E-Communications and Digital Single Market

This report was prepared in July 2018 by the European Commission and focusses on the international communications within the EU, via mobile Internet, instant messaging and social media, along with traditional communication services such as fixed telephony, and the more established mobile telephony and SMS. Topics covered include mobile and fixed telephone access, fixed and mobile Internet access, means of access to television, penetration of communication bundles and switching providers, awareness and use of tools to control consumption of mobile services, and awareness of the single European emergency service number 112. The report is useful for policy makers, government officials, telecom executives, internet service providers, mobile solution providers, and IT professionals.

(IS-2018-246) Next Level Business: Why a Born Digital Strategy is the Key to Being a Digital Leader

This report was prepared in July 2018 by Driving Mobile Innovation (DMI) and explores the challenges of creating digital first business models and how they impact the business, employees, and customers. The topics covered include mobility as a driver of digital strategy, agile development methods, customer engagement, digital mobile user experience, technology disruptors, and the essential need for businesses to have mobile strategy. The report is useful for business owners, IT professionals, and software developers.

(IS-2018-245) Building Our New Energy Future: What Buildings Professionals Need to Know about Changes Coming to the Electricity Sector

This report was prepared in June 2018 by ASHRAE and provides an overview of the changes in the electricity sector and their impact on the building industry. The topics covered include the electrical grid today, changes to the electrical grid, the smart grid, benefits of the new energy future, utilities and electricity markets of the future, and implications for building design and operation. The report is useful for building owners, design and construction professionals, building operators, and policy makers.

(IS-2018-244) Smart Building Connectivity: Shaping the Always-on Business of Tomorrow The report was prepared in March 2018 by Commscope and provides formation and recommendations for its global customers regarding mobile connectivity, future ready infrastructure for the Internet of Things (IoT), and network convergence. The topics covered include IoT, infrastructure convergence and management, connectivity, power over ethernet, AV connectivity, in-building wireless, low-voltage lighting, intelligent buildings, security, safety, and standards. The report is useful for engineers, architects, builders, IT professionals, security professionals, business owners, and the general public.

(IS-2018-243) Media Nations: UK 2018

The report was prepared in July 2018 by Ofcom and reviews key trends in the television and audiovisual sector, as well as the radio and audio sector, in the UK. The topics covered include TV services and devices, consumption, revenues, output and spend, consumer satisfaction, and UK radio landscape. The report is useful for media industry members, stakeholders, academics, and consumers.

(IS-2018-242) FY 2016 Annual Progress Report for Advanced Batteries

This report was prepared in August 2017 by the U.S. Department of Energy and summarizes its Vehicle Technologies Office (VTO) progress on battery R&D projects supported in FY 2016. The topics covered include battery R&D overview, advanced battery development, battery testing / analysis / design, battery research for transportation, advanced battery materials research, and the Battery500 Innovation Centre. The report is useful for electrical engineers, scientists, technologists, and manufacturers whose products rely on batteries.

(IS-2018-241) Tips on Saving Money and Energy in Your Home

This report was prepared in October 2017 by the U.S. Department of Energy and describes how the general public can reduce home and automobile energy use. The topics include home energy audit, weatherizing, efficient heating and cooling, home design for efficiency, renewable energy, vehicles and fuels, financing and incentives. The report is useful for the general public.

(IS-2018-240) Rural Broadband Economics: A Review of Rural Subsidies

This report was prepared in July 2018 by Costquest Associates and deals with communications networks, road networks, and electric power networks as three key network infrastructure industries; and the resulting vulnerability in low-density rural areas with the highest need for targeted subsidies. The topics covered include the economics of capital investment, costs, subsidies, distribution of natural gas and water, cost of broadband, communication networks, and economies of scope. The report is useful for government officials, policy makers, rural planners, engineers, energy company executives, and IT professionals.

(IS-2018-239) Energy Savings, Consumer Economics, and Greenhouse Gas Emissions Reductions
This report was prepared in July 2018 by the American Council for an Energy-

Efficient Economy and

deals with the energy, financial, and greenhouse gas emissions impacts of converting oil and propane furnaces, boilers, and water heaters to high-efficiency electric heat pumps. The topics covered include energy use analysis, economic analysis, greenhouse gas emissions, a summary of analysis findings, consumer acceptance of heat pumps, early programs promoting conversions to heat pumps, and recommendations. The report is useful for government officials, policy makers, energy company executives, engineers, equipment manufacturers, and the general public.

(IS-2018-238) AAL Market and Investment Report

This report was prepared in May 2018 by the Technopolis Group and provides a consolidated view of the existing market and investment information in Europe for the Ambient Assisted Living (AAL) domain. The topics covered include market drivers and barriers, value chains and business models, digital technology and applications development, development and evaluation of AAL solutions, market and investment trends, market developments for AAL solutions, and future prospects. The report is useful for investors, start-ups and small and medium enterprise, mature companies, and policy makers that are interested in becoming more familiar with the market to support the independent living of older people.

(IS-2018-237) The impact of the 'open' workspace on human collaboration

This report was published in May 2018 by The Royal Society and deals with the impact of open office architecture on employees' face-to-face and electronic interaction. The topics covered include a description of the study, results, discussion, and an extensive reference list. The report is useful for business leaders, managers, interior designers, architects, and the general public.

(IS-2018-236) Extended Producer Responsibility (EPR) and the Impact of Online Sales

This report was prepared in June 6, 2018 by the Organisation for Economic Co-operation and Development and focuses on the challenge that increasing online sales represent for environmental policies, known as extended producer responsibility or product stewardship, that aim to increase waste recovery and recycling. The topics covered include online sales and free riding, diversity of free riding, regulations for waste electrical and electronic equipment, free riding in the context of electrical and electronic equipment sales, issues and existing good practices, and actions to address free riding. The report is useful for government officials, policy makers, environmentalists, producers, and online sellers.

(IS-2018-235) Exploring IoT Strategies- Insights on IoT Value Chain Positioning From Leading Telecom Service Providers

This report was prepared in April 2018 by Ericsson and describes how the 20 leading telecom service providers are engaging and positioning themselves in the IoT market. The topics covered include the current strategy, capability gaps, market segments, IoT positing framework, providing the network and connectivity, and creating / enabling service. The report is useful for telecom executives and managers, engineers, IT professionals, and system integrators.

(IS-2018-234) Predictions: 2018 and Beyond

This report was prepared in 2018 by FierceVideo and deals with the future of the video industry. The topics covered include distribution, technology, providers, programming, and strategy. The report is useful for executives leading video companies, engineers, technologists, video content providers, and the general public.

(IS-2018-233) Report of the Attorney General's Cyber Digital Task Force

This report was prepared in July 2018 by the U.S. Department of Justice and covers how the Department of Justice is responding to cyber threats. The topics covered include countering of malign foreign influence operations, cyber scheme categorization, detecting and deterring cyber threats, responding to cyber incidents, training and management of the workforce, and a future outlook. The report is useful for government officials, policy makers, business owners, cybersecurityprofessionals, and the general public.

(IS-2018-232) Renewables on the Rise 2018 A Decade of Progress Toward a Clean Energy Future
This report was prepared in July 2018 by the Frontier Group and Environment America
Research&

Policy Center and deals with America's adoption of clean, renewable energy over the last decade. The topics covered include a boom of clean energy technologies across America since 2008, the importance for America to accelerate its clean energy progress, and recommendations for accelerating the pace of change. The report is useful for government officials, policy makers, energy company executives, engineers, technologists, and the general public.

(IS-2018-231) Clean Energy Investment Trends, 2Q 2018

This report was prepared in July 2018 by Bloomberg New Energy Finance and provides a summary of global investment in clean energy for the second quarter of 2018. The topics covered include quarterly trends for new investment and funds in circulation, top deals, annual trends for new investment, and clean energy stock performance. The report is useful for investors, market analysts, investment brokers, and leaders of clean energy companies.

(IS-2018-230) Energy management: Most consumers and businesses push for cleaner energy

This report was prepared in March 2018 by Deloitte and provides insights that can be useful in helping energy companies and businesses make energy-related investment and business

decisions. The topics covered include the views of U.S. residents and businesses on energy management, carbon reduction and environmental responsibility, motivation for reduction in energy consumption and use of clean technologies, maturity of energy management approaches, and the role of electricity suppliers and energy service providers. The report is useful for energy company executives, business leaders, and the general public.

(IS-2018-229) Top 50 Smart City Governments

This report was prepared in July 2018 by Eden Strategy Institute and ONG&ONG Pte Ltd. and deals with the development of smart cities from a city government's perspective. The topics covered include a suite of 10 key tools that mayors have found effective to develop smart cities, reflections on how these tools were applied differently to achieve a range of outcomes and highlights the achievements of 50 leading governments that have steered their smart cities forward. The report is useful for city planners, government officials, policy makers, technology and business leaders, IT professionals, and system integrators.

(IS-2018-228) There's No Place Like The Smart Home: Intel's Smart Home Vision

This report was prepared in May 2018 by Moor Insights & Strategy and deals with Intel's value proposition and strategy for the smart home market which is influenced by user experience, fast and reliable internet access, the Internet of Things, and artificial intelligence. The topics covered include market sizing, Intel's prior efforts in the smart home market, Intel's macro strategy, best-in-class consumer experience, and Intel's differentiation strategy. The report is useful for home and business owners, engineers, technologists, IT professionals, and system integrators.

(IS-2018-227) Outside in Cost-Effectively Improving Indoor Cell Coverage

This report was prepared in April 2018 by WilsonPro and deals with cellular coverage inside workspaces. The topics covered include bring-your-own-device (BOYD), commercial case studies, signal reach, signal booster solution WilsonPro 1000, building materials and cell phone signal performance, and installation issues. The report is useful for business owners, engineers, technologists, and IT professionals.

(IS-2018-226) Driving New Modes of IoT-Facilitated Citizen-User Engagement

This report was prepared in July 2018 by Georgia Tech and deals with the nature, direction, and challenges of the Internet of Things (IoT). The topics covered include smart cities, data ownership and security, IoT business models, IoT roadmaps, insights, and a forward outlook. The report is useful for city planners, business leaders, engineers, technologists, security professionals, system integrators, IT professionals, and cybersecurity professionals.

(IS-2018-225) Let's Get Digital: A Roadmap for Digital Supply Chain Excellence in the Canadian Electrical Industry

This report was prepared in May 2018 by Electro Federation Canada (EFC), in collaboration with PriceWaterhouseCoopers (PWC), and examines how digitalization can impact the Canadian electrical industry, specifically as it relates to supply chain networks. Topics covered include current digital progress, the importance of digital transformation and service, leading and lagging areas, enterprise wide digital culture, importance of collaboration and technological advancement, and an outlook on future opportunities. The report is useful for business executives, managers, electrical engineers, technologists, technicians, and IT professionals.

(IS-2018-224) Through the Local Government Lens: Developing the Energy Efficiency Workforce

This report was prepared in June 2018 by the American Council for an Energy-Efficient Economy and deals with the energy efficiency workforce for new and existing public and private buildings in the U.S.. The topics covered include local government actions and initiatives that leverage the activities of state governments, non-profits, utilities, unions, and other stakeholders. The report is useful for local policy makers and advocates who are increasingly prioritizing energy efficiency.

(IS-2018-223) Generation Energy Dialogue Summary

This report was prepared in March 2018 by the Government of Canada and presents a summary of numerous engagement sessions, reports, online discussions, polls, and quizzes across Canada regarding energy issues that are important to Canadians. The topics covered include cherished values and principles to guide Canada's energy future, technologies and low-carbon pathways, social and economic issues, and the global energy context. The report is useful for government officials, policy makers, energy company executives and managers, engineers, and the general public.

(IS-2018-222) Transforming the DVR Experience: A Case Study in Cloud DVR

This report was prepared in March 2018 by Innovative Systems and deals with the next generation of the digital video recorder (DVR) technology that is cloud based. The topics covered include an evolution of video technology and a case study in cloud DVR. The report is useful for executives leading video service providers and IT professionals.

(IS-2018-221) Digital China- Powering the Economy to Global Competitiveness

This report was prepared in December 2017 by the McKinsey Global Institute and focuses on how three digital forces—disintermediation, disaggregation, and dematerialization—are reshaping value chains and, in the process, boosting China's productivity. The topics covered include a detail review of China's four sectors: consumer / retail, automotive / mobility, health care, and freight / logistics. The report is useful for government officials, policy makers, business executives, and IT professionals.

(IS-2018-220) Thinking Smarter: The Next Step in City Infrastructure

This report was prepared in July 2018 by BuiltWorlds and presents how developments in smart infrastructure have used information and technology to connect urban assets, and explore the vast implications of this trend on the built industry. The topics covered include connectivity and the Internet of Things, smart roads, collaborative transit, real time information, remote storm water monitoring and control, waste routing, route optimization, and decentralized renewable energy. The report is useful for city planners, builders, engineers, system integrators, and IT professionals.

(IS-2018-219) DER and the Non-Wires Solutions Opportunity

This report was prepared in May 2018 by the Solar Energy Industries Association (SEIA) and focuses on the ways in which utilities are deferring traditional distribution grid investments with investments in distributed energy resources (DER). The topics covered include the importance and potential of the non-wires solution (NWS), utility planning and NWS, and case studies from California and New York. The report is useful for policy makers, electrical utility executives, city planners, and electrical engineers.

(IS-2018-218) Telecom Sector - A Paradigm Shift Towards Cleaner Energy

This report was prepared in May 2018 by Greenomics World and deals with the energy supply challenges facing India's telcom industry. The topics covered include an overview of India's telecom industry and energy consumption, power availability, strategy for telecom companies, casestudy, diesel consumption, saving and payback, emission reduction, and government initiatives. The report is useful for policy makers, government officials, electrical utility executives, telecom executives and managers.

(IS-2018-217) Minimize Risk and Maximize Building Performance

This report was prepared in 2018 by Lutron and deals with the advantages of wireless light control and why contractors and specifiers are utilizing this innovative solution to stay competitive, maintain profitability, and exceed client's expectations. The topics covered include workforce shortage, the importance of choosing the right lighting control, advantages for wireless deployment, smart buildings, and lighting retrofits. The report is useful for building owners, facility managers, electrical contractors and specifiers.

(IS-2018-216) Maximizing the Benefits of a Network Inventory Management Platform This report was prepared in January 2018 by SaskTel International and deals with the

importance for communication service providers to track and manage their networks. The topics covered include physical and logical network management, identifier management, service and applications management, creating service quality and optimal execution, and the SaskTel International's Optius platform. The report is useful for telecom executives, managers, and IT professionals.

(IS-2018-215) Role of Smart Cities for Economic Development

This report was prepared in January 2018 by ABI Research and deals with the impact of smart city technologies on economic development and gross domestic product (GDP). The topics covered include the criteria and conditions for economic development in smart cities, the new technology-driven smart urban economy, economic development metrics for smart cities, and implementation guidelines and operationalization checklists. The report is useful for policy makers, city planners, business leaders, IT professionals, and system integrators.

(IS-2018-214) Artificial Intelligence and Machine Learning: Making IoT work for telecoms

New 5G and IoT technologies and applications will not work if telecoms carriers do not master artificial intelligence in their network operations. This is the conclusion of a new editorial report from Enterprise IoT Insights. The topics covered include analytics, IoT networks, chat bots, savings and investments, digital voice assistants, self-learning algorithms, and automation. The report is useful for telecom executives, IT professionals, engineers, computer scientists, programmers, and system integrators.

(IS-2018-213) Cybersecurity Trends 2018 Perspectives on cybersecurity in an increasingly digital world This report was prepared in May 2018 by the TUV Rheinland Group and deals with the most significant global cybersecurity threats and emerging opportunities. The topics covered include cyber regulation, the Internet of Things, operational technology, threat detection and response, artificial intelligence, certifications, biometric authentication, and industries under siege. The report is useful for business owners and executives, IT professionals, cybersecurity professionals, and the general public.

(IS-2018-212) A Comprehensive Tutorial on Data & Cybersecurity Concepts, Analysis & Best Practices

This report was prepared in June 2018 by the Bit Bazaar and provides a tutorial for data and cybersecurity concepts, analysis, and best practices. The topics covered include four functional layers of cybersecurity, cyber awareness, pros and cons of TCP/IP protocol, denial of service protection, protecting network and business layers, cyber governance, role and priorities for the chief information security officer, data security, and business security. The report is useful for business owners, IT professionals, and cybersecurity professionals.

(IS-2018-211) Making Audiences Actionable

This report was prepared in June 2018 by Advertiser Perceptions and 4C Insights and provides an overview of the post-disruption media landscape, from TV to digital to social and mobile. The topics covered include how advertising industry players are navigating today's fragmented channels and platforms, audience-based strategies, and tools that will make planning and buying cohesive and measurable. The report is useful for advertising company executives and managers, IT professionals, and marketers.

(IS-2018-210) The way to wellbeing: A multidimensional strategy for improving wellbeing of the self- employed

The report was prepared in June 2018 by the Centre for Research in Self-Employment (CRSE) and deals with strategies to improve wellbeing of the self-employed. The topics covered include what is currently known about the wellbeing of the self-employed, responding to diversity of the self-employed, and a new approach to wellbeing policies for the self- employed. The report is useful for policy makers, business leaders, and the general public.

(IS-2018-209) Blockchain beyond the hype: What is the strategic business value?

The report was prepared in June 2018 by McKinsey & Company and deals with insights to help companies determine if there is strategic value in blockchain that justifies a major investment. The topics covered include a blockchain overview, myths, use cases, and key insights on the strategic value of blockchain. The report is useful for business leaders, IT professionals, cybersecurity professionals, computer scientists and programmers, investors, and the general public.

(IS-2018-208) Residential Consumer Guide to Solar Power

The report was prepared in June 2018 by the Solar Energy Industries Association and deals with important information for homeowners who are deciding to go solar. The topics covered include an explanation of how solar works, generation of electricity, solar options, energy storage, taking care of a solar system, agreements and certificates, and key questions to ask when purchasing a system. The report is useful for homeowners, solar energy solution providers, and the general public.

(IS-2018-207) SMART CITIES: DIGITAL SOLUTIONS FOR A MORE LIVABLE FUTURE

The report was prepared in June 2018 by the McKinsey Global Institute and analyzes the impact of digital technology applications in cities to improve quality-of-life indicators. The topics covered include the impact of digital solutions on health, time and convenience, safety, cost of living, jobs, social connectedness and civic participation, and environmental quality. The report is useful for policy makers, city planners, IT professionals, system integrators, and the generalpublic.

(IS-2018-206) International Report - Construction Market Intelligence Q2 2018

The report was prepared in May 2018 by Rider Levett Bucknall (RLB) and showcases the positive global sentiment within the construction sector as a whole. The topics covered include RLB global tender price index, global construction cost relativity index, RLB market activity cycle, and regional intelligence. The report is useful for policy makers, government officials, and construction company leaders.

(IS-2018-205) EASE Study on Energy Storage Demand

The report was prepared in 2018 by the European Association for Storage of Energy and presents an analysis for the demand for energy storage systems. The topics covered include definitions of energy storage and energy demand, critical assumptions for assessing energy demand, and the range of estimates for storage demand in European Union member states. The report is useful for executives leading energy companies, utility managers, engineers, and cityplanners.

(IS-2018-204) GREENBOOK RESEARCH INDUSTRY TRENDS REPORT

The report was prepared in May 2018 by Greenbook Research and deals with the transformative pressures facing the market research industry, along with the present and future implications. The topics covered include automation platforms, sampling, readiness for General Data Protection Regulation (GDPR), blockchain, business outlook, meeting project goals, most innovative suppliers and clients, industry lumascape, a focus on Latin America, and commentaries by research industry experts. The report is useful for market research company executives, business owners, researchers, and IT professionals.

(IS-2018-203) Inspire loyalty with customer lifecycle management

The report was prepared in June 2018 by the TM Forum and deals with communication service providers' trends in revenue, churn and the costs of customer acquisition and retention. The topics covered include retaining high- value customers, improving net promoter score and customers satisfaction, and strategies for inspiring loyalty. The report is useful for business leaders, marketing professionals, and customer service managers.

(IS-2018-202) Security Architecture for the Internet of Things (IoT) in Commercial Buildings

The report was prepared in March 2018 by Fairhair Alliance and deals with implementation of a common, IP- based, secure infrastructure for building control. The topics covered include an overview of security, manufacturer and operational identity, device enrollment, security zones, authorization, and securing group communication. The report is useful for building owners and operators, IT and security professionals, and system integrators.

(IS-2018-201) HOME APPLIANCES & DEVICES: Solutions Guide

The report was prepared in May 2018 by TE Connectivity and deals with the growing smart home market. The topics covered include the home platform perspective, reliability, convergence, connectivity, innovative solutions, low power and signal application guide, small home appliances, and electronic components. The report is useful for home owners, smart home technology providers, engineers, system integrators, and home builders.

(IS-2018-200) BEYOND THE HYPE: HOW EARLY IOT ADOPTERS ARE DRIVING REVENUE AND QUALITY

The report was prepared in February 2018 by Electric Imp and describes how the Internet of Things (IoT) has been a catalyst for new business models and how manufacturers are driving revenue through the use of smart, connected products. The topics covered include predictive maintenance, the significance of the IoT data, how IoT disrupts design, and the benefits of being an early adopter of IoT. The report is useful for business owners, technologists, engineers, and system integrators.

(IS-2018-199) Field Services in an Increasingly Impatient World

The report was prepared in May 2018 by BuiltWorlds and XOi and deals with rising expectations by consumers regarding the performance of service technicians. The topics covered include failed first-time fixes, an aging workforce, evolving customer expectations, and strategies and technologies for improving the customer experience. The report is useful for executives and managers of field service companies, field service technicians, technology solution providers, and the general public.

(IS-2018-198) Digesting the Immersive Reality Experience: VR, AR, MR, + 3D

The report was prepared in June 2018 by BuiltWorlds and provides an insight to the technologies that enable immersive reality consisting of augmented reality (AR), virtual reality (VR), mixed reality (MR), and 3D. The topics covered include the forecast for worldwide AR & VR markets, the immersive experience spectrum, definition of key terms, and applications in real estate, architecture, and construction. The report is useful for the general public, immersive technology developers, and business leaders intending to adopt immersive technologies.

(IS-2018-197) Deducing the Impact of Excluding Social Groups when Modelling Pedestrian Flow

This research report was prepared in June 2018 by M.V. Gwynne and A.L.E. Hunt and deals with the exclusion of social groups (formed from existing or emerging social ties) when modelling large-scale pedestrian flows, assuming that this effect is dominated by physical factors. The topics covered include hypothesis, premises, implications, and a summary. The report is useful for urban planners, traffic engineers, scientists, and mathematicians developing pedestrian flow models.

(IS-2018-196) User-centered Innovation in EU Energy Law: Market Access for Electricity Prosumers in the Proposed Electricity Directive

Enabled by smart meters, digital platforms and blockchain technologies, prosumers can also act in the energy market in the roles of traders and suppliers. The participation of prosumers in retail and wholesale energy markets is illustrative of the user-centered innovation, when prosumers innovate themselves rather than rely on the market to do so for them. The current paper aims to analyze whether the user centered innovation in the energy market is effectively addressed by the proposed Electricity Directive. This analysis focuses on the energy prosumers' access to retail

and wholesale energy markets. The paper also presents recommendations as to how to improve the regulatory effectiveness of the proposed Electricity Directive in relation to the energy prosumers' market access.

(IS-2018-195) Achieving A Net-Zero Energy, Waste, and Water Performance Level For A High-Density MURB In Toronto

This report provides an account of the two facilitated Integrated Design Process (IDP) workshops that focused on identifying a path to net zero energy, water, and waste, and the challenges associated with achieving those targets using an actual multi-residential building project. The IDP is a way of designing new buildings and houses to achieve higher performance targets through the participation of all stakeholders in a manner that acknowledges the inherent interrelationships between the function and features of the building and the resulting environmental impacts. Recognizing that these relationships are part of an integrated design activity, opportunities to minimize energy and water use, and other related environmental impacts can be identified and the evaluation of the performance benefits of new design solutions considered.

(IS-2018-194) Building Information Modeling and Intelligent Green Buildings

This report discusses the U.K. government commitment to BIM. Its main aim is to maximize efficiency in the construction industry through legislation and best practices aimed at lowering costs, speeding delivery, lowering emissions and increasing exports. This will encourage collaborative behaviors that will unlock new, more efficient ways of working at all stages of a project lifecycle—from earliest concept through operation. The key objective is to reduce capital cost and the carbon burden from the construction and operation of the built environment by 20 percent. So what is BIM? And how will BIM fit into the drive for intelligent green buildings?

(IS-2018-193) "THE ONCE" ALTERNATIVE WORKPLACE STRATEGIES

The report was prepared in June 2018 through a collaboration between Advanced Workplace Associates, Haworth Inc., and Global Workplace Analytics. The report deals with the survey results of 142 companies from diverse industries and focuses on benchmarking workplace strategies, practices, and monitoring trends. The topics covered include alternative workplace approaches, management of alternative workplace programs, barriers to program development and expansion, organizational change and employee involvement, management policies and work practices, and value / benefits. The report is useful for business owners, office managers, IT professionals, and the general public.

(IS-2018-192) ARTIFICIAL INTELLIGENCE AND LIFE IN 2030

The report was prepared in October 2016 by Stanford University and provides a collected and connected set of reflections about Artificial Intelligence (AI) and its influences as the field advances. The topics covered include a definition of AI, application of AI in various domains,

prospects and recommendations for AI public policy, and a short history of AI. The report is useful for the general public, industry, government officials, and AI researchers.

(IS-2018-191) THE FUTURE OF U.S. RENEWABLE ENERGY INVESTMENT: A Survey of Leading Financial Institutions

The report was prepared in June 2018 by the American Council on Renewable Energy (ACORE) and deals with the investment climate in the U.S. amid ongoing national and global developments. The topics covered include investors' confidence in the renewable energy sector, their insights about the impacts of market and policy changes, and their projections for cumulative private investment levels to 2030. The report is useful for executives leading renewable energy companies, policymakers, and investors.

(IS-2018-190) Through the Local Government Lens: Developing the Energy Efficiency Workforce

The report was prepared in June 2018 by the American Council for an Energy-Efficient Economy and focuses on the energy efficiency workforce for new and existing public and private buildings. The topics covered include scope and challenges of energy efficiency workforce, role of local governments, stakeholders, and strategies for local government workforce development. The report is useful for local policymakers and energy efficiency advocates.

(IS-2018-189) Why Should You Invest in BACnet?

The report was prepared in June 2018 by Optigo Networks and deals with the BACnet communication protocol, its power, and potential challenges. The topics covered include BACnet's dominance in the industry, device selection and convergence, open systems, partnerships and acquisitions, network infrastructure, maintenance and management, financial savings, and the Internet of Things. The report is useful for IT professionals, system integrators, network engineers and technologists, and building operators.

(IS-2018-188) Global EV Outlook 2018: Towards cross-modal electrification

The report was prepared in May 2018 by the International Energy Agency and presents a global outlook for electric vehicles to year 2030. The topics covered include sales of new electric vehicles, vehicle stock, chargers, policy support, battery developments and cost reductions, and future projections. The report is useful for electric vehicle designers/ manufacturers/distributors, electrical and electronics engineers, electrical utility executives, and the general public.

(IS-2018-187) High Areal Energy Density 3D Lithium-Ion Microbatteries

The article was prepared in June 2018 by CellPress and deals with the use of semiconductor-based processes to fabricate functional 3D microbatteries. The topics covered include the need for microbatteries to support the Internet of Things (IoT), semiconductor-based process, design challenges, and research results. The report is useful for researchers and designers of

microbatteries, electronics engineers, and system integrators.

(IS-2018-186) Connected Car for Dummies

The report was prepared in March 2018 by Qorvo and deals with various radio frequency (RF) systems and technologies that are making the connected car of the future a reality today. The topics covered include the connected car visions and trends of today and the future, heterogeneous (mixed, varied, diverse) connectivity in the connected car, the connected car ecosystem, connected car RF solutions, and key connected car takeaways. The report is useful for car designers, electrical and electronics engineers, IT professionals, and system integrators.

(IS-2018-185) Human Skin Cells: A Potential Source of Building Contaminants Human skin cells are one of the frequently reported biogenic particulates of indoor

environments. This study reveals that the presence of skin cells in air-conditioning and other indoor sites is common and looks at how to mitigate odour control, and minimize skin cells and similar pollutants.

(IS-2018-184) Effect of Green Building Certification on Organizational Productivity Metrics

This research paper published by National Research Council Canada in 2017 notes there is increasing interest in understanding how office accommodation affects organizational productivity. Data on metrics of engagement, job satisfaction, job performance and facility complaints for thousands of employees of a large Canadian financial organization were analyzed to explore differences in outcomes between those working in green-certified office buildings and those in otherwise similar conventional buildings.

(IS-2018-183) Who is Watching You? Who is Watching Out For You?

The 2018 Pwnie Express Internet of Evil Things survey results are in. For the fourth consecutive year, Pwnie Express polled hundreds of information security professionals to get a detailed look at their perceptions, awareness and preparedness for cyberattacks on their organizations. As

you will see, security professionals are more concerned than ever about what they see as the growing threat. The top 5 threats are explored in great detail, as well as best practices to reduce the risk of threats.

(IS-2018-182) Linear Luminaires, Troffer Luminaires, & Troffer Retrofit Kits

This whitepaper, published in February 2018, looks at data for linear luminaires, troffer luminaires, and troffer retrofit kits. The data examined includes the efficacy, colour quality and power quality of each light source.

(IS-2018-181) The Six-Second Ad Experience: The Impact of Ad Length & Placement

The FreeWheel Council for Premium Video (FWC) created custom research in 2018 to better understand the impact of ad length on the ad experience and business outcomes. This study looks at the advertising experience within short-form premium video content. The study captured the behaviors and attitudes of almost 3,000 viewers in order to measure engagement and emotional reactions with different content and ad scenarios.

(IS-2018-180) Measuring Wellbeing Inequality: Working Paper on the Selection of a Headline Indicator

This working paper, published in 2018, explores the strengths and weaknesses of different measures of wellbeing inequality and looks to make a recommendation of a measure which could be reported alongside mean wellbeing. Key stakeholders with an interest in wellbeing at a national level were consulted with via in-depth interviews and a round table discussion. This was supplemented by an online survey where wider views were invited, including from non-experts.

(IS-2018-179) UHD Video Transmission Over Bidirectional Underwater Wireless Optical Communication

This whitepaper, published April 2018, goes into detail demonstrating, for the first time, a bidirectional underwater wireless optical communication system that is capable of transmitting an ultra-high definition real-time video using a downlink channel while simultaneously receiving the feed-back messages on the uplink channel. Data and findings of this project are examined in detail.

(IS-2018-178) 2018 Survey Results - Distributed Energy Resources: One Year Later

This report was prepared in April 2018 by Enable and deals with the future of distributed energy resources (DERs), the challenges they impose to utilities, and utility plans for leveraging distributed energy assets moving forward. The topics covered include major activities by the utilities, investment goals, connection and control of distributed assets, response speed, and cost and regulatory challenges. The report is useful for executive leaders and managers of utility companies.

(IS-2018-177) 10 Hot Consumer Trends 2018

This report was prepared in December 2017 by Ericsson and deals the top 10 technology impacted trends based on consumer feedback. The topics covered include gesture recognition, augmented hearing, impact of the Internet on learning, social broadcasting, intelligent ads, human/machine similarity implications, robots enabling leisure, photo as a room, air roads for drones, and longer lasting batteries.. The report is useful for IT professionals, engineers, innovators, device manufacturers, system integrators, and the general public.

(IS-2018-176) Beyond smartphone shopping – the rise of smart assistants

This report was prepared in May 2018 by Ericsson and presents smartphone shopping insights from an online survey of 5,048 (500 per city) advanced internet users in Johannesburg, London, Mexico City, Moscow, New York, San Francisco, São Paulo, Shanghai, Sydney and Tokyo. The topics covered include how smartphone shoppers change the face of purchases, top jobs for shopping assistants, implications for stores, bargain prices, materialism, and peak smartphone shopping. The report is useful for online and on-ground store owners, IT/AI professionals, and consumers.

(IS-2018-175) Fourth Industrial Revolution for the Earth: Harnessing Artificial Intelligence for the Earth

This “Fourth Industrial Revolution for the Earth” series is designed to illustrate the potential of Fourth Industrial Revolution innovations and their application to the world’s most pressing environmental challenges. It offers insights into the emerging opportunities and risks, and highlights the roles various actors could play to ensure these technologies are harnessed and scaled effectively.

(IS-2018-174) Blockchain - An Opportunity for Energy Producers and Consumers

Blockchain is a special technology for peer-to-peer transaction platforms that uses decentralized storage to record all transaction data. This report looks at what blockchain is, blockchain use in various sectors and around the world, as well as blockchain risks and regulatory challenges.

(IS-2018-173) Intelligence Series - Protect.me

PwC conducted extensive research to better understand consumer attitudes about data security, cybersecurity, privacy, trust, and regulation. This report is an in-depth look at what consumers want, what worries them, and how companies can earn their trust and their business.

(IS-2018-172) Stay Informed: SEC Comment Letter and Disclosure Trends Technology Media & Telecommunications

This whitepaper analyzes the trends in the 2017 SEC comment letter, as well as shares insight from PwC's study of industry financial reporting trends. PwC also analyzes the segment and non-GAAP disclosure in the annual filings of 160 registrants in the TMT sector.

(IS-2018-171) The Smarter Phone: How AI-Enabled Devices will Reshape the Technology Media and Telecoms Industry

This whitepaper looks at the impact AI will have on the TMT industry, through the vehicle of smart devices such as the smart phone. PwC also breaks down three steps those in the TMT industry need to take to prepare for this new landscape.

(IS-2018-170) Emerging Trends in Real Estate: The Global Outlook for 2018

This report is published annually by PwC and looks at the emerging real estate trends for the year on a global scale. Topics discussed include maintaining balance with rising interest rates and inflation, and the top cities for real estate investment for 2018.

(IS-2018-169) The Anxious Optimist in the Corner Office

This whitepaper was created by using the data from the 21st CEO Survey by PwC. The survey compiled data from over 1,200 interviews with CEOs in 85 countries and a wide range of industries. The articles stemming from this survey explore the heightened levels of anxiety CEOs face about their organization's revenue growth, growing stakeholder expectations and unprecedented threats that are not of the market's making.

(IS-2018-168) 2017 Annual Report: Centre for Urban Energy (CUE)

The Centre for Urban Energy (CUE) is an energy research center in Canada. The 2017 annual report illustrates the ongoing projects which are possible thanks to the long-term partnerships with private and public institutions involved in the electricity sector. Projects undertaken are innovative and deliver tangible outcomes aimed at resolving real problems. Examples are given related to energy storage solutions, conservation and demand, electric vehicle charging stations and IT developments applicable to smart grids. The CUE has also been instrumental by fostering the incubation of startups and offering a variety of educational programs and workshops in the sustainable energy sector.

(IS-2018-167) Valuing Distributed Energy Resources: Combined Heat Power and the Modern Grid

This paper focuses on addressing the lack of a robust risk assessment that reflects the risk of poor energy resiliency to inform investment decisions in energy infrastructure in the US. The report provides background information about how Combined Heat and Power (CHP) systems work, applications (including large buildings), and how they can contribute to improve resiliency of the electric grid infrastructure. Then, it explores the concepts of resiliency, reliability and power quality as a metrics of performance. It also, exemplifies the economic cost associated with

poor energy performance based on prior studies and discuss why existing methods do not properly value the resiliency of energy assets. Then, it proposes a way in which existing and new energy resiliency data can be used to set out a framework that properly assesses the value of resiliency benefits brought about by CHP technology.

(IS-2018-166) Consumer Perceptions of Augmented Reality

This is a market research report completed in the first quarter of 2018. The report illustrates the results of a survey carried out to check on people's understanding of what augmented reality is, concerns about its use and future industry applications. The survey concludes that there is confusion between the concept of augmented reality and virtual reality, although early adopters are more likely to be those in the gaming industry or have vested interest in IT, there might be potential for more useful purposes such as education, science, decorating, etc. It remains to be seen as to how this trend evolves and is able to capture other segments of the population by developing technology products and services that are affordable and practical into their daily lives.

(IS-2018-165) On Track to CDL Future Value 2030

This report was prepared in 2018 by City Development Limited (CDL) and provides a long-range sustainability outlook for CDL. The topics covered include statements from executive leadership, integrated strategy for value creation, building sustainable cities and communities, reducing environmental impact, workplace safety and inclusion, and creation of shared and economic and social value. The report is useful for CDL shareholders and employees, real estate executives, and investors.

(IS-2018-164) Yuma Border Patrol Area Lighting Retrofit

This report was prepared in April 2018 by Pacific Northwest National Laboratory and follows up on a report published in April 2016 showing illuminances of the LED lighting installed in the Yuma Sector Border Patrol changing more rapidly than anticipated after 7000 hours of operation. The topics covered include a background review, photometric and colorimetric field measurements, temperature measurements of second-generation luminaires, discussion, and lessons learned. The report is useful for lighting professionals, law enforcement officials, electrical engineers, and system designers.

(IS-2018-163) NRC Cities of the Future Workshop December 14, 2017

This report was prepared in December 2017 by Intersol and summarizes the presentations given and discussions that took place during the workshop co-hosted by NRC and Infrastructure Canada to discuss the challenges in building smart, sustainable, and integrated cities in Canada. Topics covered include harmonization and data sharing (including standards), procurement challenges, engagement, education and awareness, cybersecurity, governance and policy coherence, and connectivity. The report is useful for policy makers, government officials, IT and

cybersecurity professionals, and smart system integrators.

(IS-2018-162) Blockchain-based Cybersecurity

This report is a survey of 15 companies in the emerging blockchain industry. The offering of each company is described by the following categories: Company Background, Innovation Online, Impact Assessments and Threats, and Expectations. Applications include management of identity data, data storage, contract management, cryptocurrencies, health and government data security, and anonymous messaging.

(IS-2018-161) Inside The Top of Mind for Top U.S. Health Systems 2018 Summit

This report summarizes presentations at the Top of the Mind 2018 Summit about the impact of information technology (IT) on health care. Topics covered include cyber security, data analytics, and a collaborative approach to health care tailored to the patient.

(IS-2018-160) The Industrial Internet of Things Volume G1: Reference Architecture

This technical specification introduces a reference architecture for the Industrial Internet of Things (IIoT) combining information technology (IT) and operations technology (OT). "A reference architecture provides guidance for the development of system, solution and application architectures." This architecture covers aspects of business, usage, functional, and implementation.

(IS-2018-159) Smart Energy Outlook March 2018

This report summarizes a survey in Great Britain of attitudes toward smart meters for electricity and gas. The U.K. is installing 26 million such smart meters. The acceptance of smart meters ranges from 60% among those aged 21-34 to 34% for those over 65. Most who have smart meters like them. 82% of those with smart meters have attempted to reduce energy wastage. Most prefer an in-home display to access meter data rather than an app or a web site.

(IS-2018-158) Artificial Intelligence: The Next Digital Frontier?

This report is a survey of 3000 executives on the possible impact of artificial intelligence (AI). "AI generally refers to the ability of machines to exhibit human-like intelligence—for example, solving a problem without the use of hand-coded software containing detailed instructions." The largest impact will be on companies using digital technologies in the fields of robotics and autonomous vehicles, computer vision, language, virtual agents, and machine learning. AI expenditures in 2016 were estimated at \$20-30 billion.

(IS-2018-157) Study on a marketing plan to stimulate the take-up of eID and trust service for the Digital Single Market

This report was prepared in April 2018 by PWC and is the outcome of the SMART 2015/0046 study on a marketing plan to stimulate the take-up of electronic identification (eID) and trust services for the Digital Single Market in the European Union. The topics covered include a market review of the eID regulation, a description and analysis of the eID market and trust services (TS) markets, stakeholder input, market key performance indicators, and recommendations. The report is useful for policy makers, government officials, law enforcement officials, and information technology professionals.

(IS-2018-156) Enabling Experience- Driven Commerce Anytime, Anywhere

This report was prepared in April 2018 by Avionos and outlines retail trends from a consumer perspective and offers strategic advice for marketers or eCommerce decision makers on the use of a digital transformation strategy to gain a competitive edge. The topics covered include the creation of relevant shoppable moments for consumers, the importance of content to drive conversion, personalization of shoppers journey, the convergence of physical and digital experiences, how trends impact consumer perception, and the new age of eCommerce. The report is useful for marketers, eCommerce decision makers, retailers, and the general public.

(IS-2018-155) Synchronized and Business-Ready Microgrid

This report was prepared in April 2018 by the Industrial Internet Consortium and outlines an approach to address operational challenges faced by existing electric grids by integrating communications and control technology directly to the grid. The topics covered include challenges, technical approaches, control and visualization of microgrids, enabling a better grid, and commercialization of microgrids. The report is useful for utility executives, policy makers, electrical engineers, IT professionals, and system integrators.

(IS-2018-154) Our Powers Combined: Energy Efficiency and Solar in Affordable Multifamily Buildings

This report was prepared in May 2018 by the American Council for an Energy-Efficient Economy and examines several case studies of projects and programs that have successfully combined energy efficiency upgrades and rooftop solar systems in affordable multifamily buildings. The topics covered include motivations for integrating energy efficiency and solar resources, policy factors, examples of existing projects and programs, challenges and opportunities, emerging approaches, and recommendations. The report is useful for solar program administrators, investors, building owners, and real estate developers.

(IS-2018-153) House of Lords Select Committee on Artificial Intelligence

This report was prepared in April 2018 by the House of Lords and provides an in-depth inquiry regarding artificial intelligence (AI) and Britain's readiness to be a world leader in AI. The topics covered include an introduction to AI, engaging with AI, designing with AI, developing AI, working with AI, living with AI, healthcare and AI, mitigating risks of AI, and shaping AI. The report is

useful for policy makers, researchers, computer scientist and programmers, business professionals, engineers, technologists, and the general public.

(IS-2018-152) Community Solar Program Design Models

This report was prepared in April 2018 by the Smart Electric Power Alliance and provides an overview of the community solar market, findings from a survey of program administrators, solar program design decision tree, and the lessons learned over the past two years. Additional topics include cultivation of new markets, growth of installed capacity, types of solar programs, impact of state policy, and leveraging of other distributed energy sources. The report is useful for solar energy company executives, policy makers, solar equipment manufacturers, and solar energy program administrators.

(IS-2018-151) Energy Impacts of Smart Home Technologies

This report was prepared in April 2018 by the American Council for an Energy-Efficient Economy and deals with the energy-saving potential of smart home technologies in utility-sponsored energy efficiency and demand response programs. The topics covered include an overview of smart home technologies, energy and non-energy benefits, barriers to adoption, incentives, and recommendations. The report is useful for building owners, construction professionals, energy program managers, smart technology manufacturers, and system integrators.

(IS-2018-150) Energy Transition Framework for Cities: Mid-size Cities Leading the Way

This report was prepared in March 2018 by DNV GL - Energy and examines ten of the world's pioneering cities through the lens of the seven dimensions of the DNV GL Energy Transition Framework for Cities. The topics covered include the DNV GL Energy transition framework, dimensions of energy transition, and case studies. The report is useful for city planners, energy and utility executives, and policy makers.

(IS-2018-149) A New Era for Modular Design and Construction

This report was prepared in April 2018 by FMI and explore the "perfect storm" of factors that are suppressing productivity levels in engineering and construction (E&C), show how they're impacting E&C as a whole, and provide a framework for overcoming these issues through the use of modular construction and other innovative techniques. The topics covered include key industry drivers, managing change, a new business framework, disruption, and future prospects. The report is useful for engineering and construction professionals.

(IS-2018-148) Mission Attainment: Incorporating Pollution Reductions from Energy Efficiency in State Implementation Plans

This report was prepared in April 2018 by the American Council for an Energy-Efficient Economy and examines the concerns and solutions regarding energy efficiency savings, enforceability of

pollutant reductions, and how crediting emission reductions can deter state air regulators from investing resources into counting the emission benefits of energy efficiency. The topics covered include the national ambient air quality standards (NAAQS), energy efficiency in state implementation plans for NAAQS, analysis, results by state, and recommendations. The report is useful for state air and energy officials and other decision makers.

(IS-2018-147) What Apartment Renters Actually Value

This report was prepared in March 2018 by Entrata and provides apartment owners with insights on how they can increase tenant occupancy, renewals, and rent growth by identifying the actual amenities and community features residents want. The topics covered include the top ten things residents would pay a premium for, the five most important smart home amenities for residents, the value of living in a smart community, and smart home brand loyalty. The report is useful for apartment renters, tenants, and smart technology solution providers.

(IS-2018-146) Microgrids: Expanding Applications, Implementations and Business Structures

This report was prepared in December 2016 by the Smart Electric Power Alliance and deals with the implementation, application, and expansion of microgrids. The topics covered include microgrid drivers, adoption, implementation types, barriers and challenges, and solutions for different contexts. The report is useful for electrical utility executives, policy makers, electrical power engineers, business owners, and general public.

(IS-2018-145) Value Stacking: A Rural Village Leverages Solar, Storage and 4 Revenue Streams

This case study report was prepared in April 2018 by the Smart Electric Power Alliance and deals with solar power implementation in the village of Minster (Ohio, U.S.). The topics covered include input from residents, business needs, implementation factors, technology considerations, community engagement, and competitive advantages. The report is useful for city planners, policy makers, business owners, residents, utility company leaders, and solar power technology manufacturers.

(IS-2018-144) Cybersecurity: A Major Capital Opportunity

With more of our business and personal lives being stored and logged online, the need for cybersecurity has never been more urgent. This report, published by Cushman & Wakefield, looks at how cybersecurity impacts our current society from the rise of cybercrimes, increase of jobs in the cybersecurity field, and even the impact on the real estate market.

(IS-2018-143) BC Energy Step Code: Design Guide

In April 2017, the Province of British Columbia adopted the BC Energy Step Code as a series of amendments to the Building Act and the Local Government Act. This guide outlines key principles and strategies for meeting the Upper Steps of the BC Energy Step Code for two of

B.C.'s primary Part 3 building types: High-Rise and Mid-Rise Multi-Unit Residential Buildings, or MURBs.

(IS-2018-142) Enhancing Community Resilience through Energy Efficiency

This report was prepared in October 2015 by the American Council for an Energy-Efficient Economy and deals with the role of energy efficiency in supporting a community's resilience to various threats such as aging infrastructure, extreme weather, and economic volatility. The topics covered include definitions of risk and resilience, risk and resilience strategies for the energy sector, energy efficiency measures and their resilience benefits, integrating energy efficiency into resilience planning, and indicators for the intersection of efficiency and resilience. The report is useful for city planners, government officials, policy makers, energy utility executives, and technology professionals.

(IS-2018-141) Solar Marketplace Intel Report 2017

This report was prepared in April 2018 by EnergySage and provides an overview of trends in the U.S. solar industry for 2017. The topics covered include a national summary, price distribution in select states, solar economics, solar system characteristics, equipment market share, installer equipment offerings / pairings / price, quality sells, characteristics of most selected quotes, user energy interests, user financing preferences, financing products, and solar landscape by state. The report is useful for solar company executives, energy utility operators, solar equipment manufacturers, installers, and general public.

(IS-2018-140) Saving Watts to Save Drops: Inclusion of Water Efficiency in Energy Efficiency Programs

This report was prepared in January 2018 by the American Council for an Energy-Efficient Economy and provides an overview of practices for quantifying and reporting water savings from demand-side measures. The topics covered include criteria for assessing water-saving energy efficiency programs, highlighted programs, policy barriers to implementation, reporting water savings, joint energy-water program collaboration, and avoided water costs in cost-effectiveness screening. The report is useful for water utility executives, energy utility executives, policy makers, and environmentalists.

(IS-2018-139) The Next Nexus: Exemplary Programs That Save Energy and Improve Health The report was prepared in March 2018 by the American Council for an Energy-Efficient

Economy and deals with award-winning programs for residential buildings that mitigate indoor health risks while also saving energy. The topics covered include an overview of the winning programs and trends among programs. The report is useful for building owners, builders, policy makers, health organizations, and residents.

(IS-2018-138) Duke Energy Climate Report to Shareholders

The report was prepared in March 2018 by Duke Energy and provides information on Duke Energy's strategy and actions to mitigate physical, policy, and economic risk from climate change. The topics covered include strategy and drivers, risk management, metrics and targets, two-degree scenario analysis, and governance. The report is useful for energy executives, shareholders, policy makers, environmentalists, and consumers.

(IS-2018-137) Survey Shows That Smart Home Prices Still Need "Smarts"

The report was prepared in April 2018 by 151 Advisors and deals with factors affecting the growth in the smart home market devices over the next five years. The topics covered include pricing as a barrier to greater smart home device adoption, the importance for smart home device companies to meet users' price expectations, and the importance of marketing product capabilities to increase sales. The report is useful for smart home technology providers, consumers, and marketing professionals.

(IS-2018-136) Estimating the Value of Energy Efficiency to Reduce Wholesale Energy Price Volatility April 2018 The report was prepared in April 2018 by the American Council for an Energy-Efficient Economy and examines the degree to which upward unexpected energy price swings cost buyers more than unexpected downward swings save them. The topics covered include risk in the wholesale energy market, hedging electricity price risk, customer exposure to price fluctuations, the role and benefits of energy efficiency in reducing risk, and quantifying the risk reduction value of energy efficiency. The report is useful for electrical utility executives, market analysts, and energy efficiency solution providers.

(IS-2018-135) Machine Data Analytics Drives Innovation in Healthcare Market

The report was prepared in April 2018 by Harbor Research and explores how new machine data transformation and analytics solutions enable the true potential of complex machine data. The topics covered include data as enabler of smart systems, the future of machine intelligence in healthcare, machine data management challenges, opportunities for machine data/analytics/apps, business models and data challenges for equipment manufacturers, Glassbeam machine data analysis platform, data transformation, and complex healthcare data management opportunity. The report is useful for healthcare executives, IT professionals, and healthcare equipment manufacturers.

(IS-2018-134) Making Connections: Straight Talk About Electricity in Ontario 2018 Energy Conservation Progress Report, Volume One

The report was prepared April 2018 by the Environmental Commissioner of Ontario and presents an update on Ontario's progress in energy conservation. The topics covered include Ontario's transition to a low-carbon electricity system, impact on the electricity system, impact on electricity prices, impact on the environment, and Ontario's electricity future. The report is

useful for policy makers, electrical utility executives, electrical engineers and technologist, environmentalists, and manufacturers of electrical generation and distribution equipment.

(IS-2018-133) EyeComfort white paper

The report was prepared in March 2018 by Philips and explains its "EyeComfort" LED trademark based on key lighting parameters (Flicker, Stroboscopic effect, Photobiological safety, Glare, Dimming, Tunable, Color rendering, and Audible noise) and the importance of optimizing lighting. The report is useful for lighting professionals, interior designers, electrical engineers, and lighting equipment manufacturers.

(IS-2018-132) The Impact of the EU's New Data Protection Regulation on AI

The report was prepared in March 2018 by the Center for Data Innovation and deals with the negative impact of EU's new data privacy rules, the General Data Protection Regulation (GDPR), on the development and use of artificial intelligence (AI) in Europe, putting EU firms at a competitive disadvantage compared with their competitors in North America and Asia. The topics covered include how the GDPR will inhibit the AI development and use in Europe, its overall impact, and recommendations for addressing problems posed by GDPR. The report is useful for policy makers, business leaders, and IT professionals.

(IS-2018-131) Workplace Review Global Workplace Insights 2018

The report was prepared in March 2018 by Optimaze and provides comparative data to help organizations assess the efficiency of their own space use, discover cost savings potential, and analyze their employees' needs and workplace satisfaction. The topics covered include workplace activities, meeting culture, meeting spaces, work seats, density and space use, examples of employee experience, explanation of review data, methodology and terminology, and insights and reflections. The report is useful for business owners, building owners, interior designers, and architects.

(IS-2018-130) Singapore 2017 Summit: New Solutions for Global Infrastructure

The report was prepared in July 2017 by McKinsey & Company and focuses on the levers and actions that can help countries to close their infrastructure gaps and best position global economies to meet increasing demands on their infrastructure. The topics covered include the best ideas from the 2017 Global Infrastructure Initiative summit, planning, finance, build, operations, cross-cutting sessions, sector specific roundtables, engineering and construction, energy and resources, real estate, and list of participants. The report is useful for politicians, city planners, builders, civil engineers, IT professionals, and technology integrators.

(IS-2018-129) Reinventing Construction: A Route to Higher Productivity

The report was prepared in July 2017 by McKinsey & Company and examines the root causes of

poor productivity growth in the construction industry, explore practical ways to improve the situation, and discuss the beginnings of a shift in parts of the sector toward a system of mass production, standardization, prefabrication, and modularization. The proposed "production" system has the potential to boost productivity by five to ten times, depending on the sector.

The report is useful for city planners, builders, policy makers, and trade professionals.

(IS-2018-128) CREtech 2017 End-Year Report

The report was prepared in March 2018 by CREtech and presents a review of the real estate tech sector for 2017. The topics covered include research, analysis, and CREtech company data. The report is useful for building owners, real estate executives, and technology firm leaders.

(IS-2018-127) Solving for the Future with Agility - Americas Occupier Survey Report 2018

The report was prepared in March 2018 by CBRE Research and deals with impactful strategies that executives are executing for their businesses regarding efficient and experiential workplace environments designed to quickly adapt to future needs. The topics covered include the agile workplace, efficiency and effectiveness in workplace design, convenience and choice in employee experience, flexibility in portfolio strategy, position of influence, organizational strategy, and a technology driven environment. The report is useful for business owners, interior designers, architects, and IT professionals.

(IS-2018-126) Wireless in the enterprise: A deeper reach, a more active role for venue owners

The report was prepared in November 2017 by Senza Fili and deals with the factors driving the transformation of the role of wireless technology in the enterprise and the supporting role of service providers to provide better service at a reduced cost. The topics covered include the evolution of wireless in the enterprise, serving the enterprise and the "middleprise", enterprise priorities, basic needs, the rise of IoT/Citizens Broadband Radio Service/private networks, technology enablers, business models, pervasive networks, striking the right balance, and interviews with telecom companies. The report is useful for business owners, telecom executives, network engineers, IT professionals, telecom vendors, and manufacturers.

(IS-2018-125) Going deeper with automation How to tame complexity in wireless networks

The report was prepared in March 2018 by Senza Fili, in collaboration with FierceWireless, and explores the role of automation in shaping the evolution of wireless networks as we move toward 5G, massive IoT adoption, densification, and virtualization to meet a growing demand for a more diverse set of use cases. The topics covered include past and future perspectives, simplicity and complexity, scripts and learning, historical and real time factors, fixing and predicting, legacy and virtualization, technology and cultures, costs and savings, choice and necessity, and interviews with telecom companies. The report is useful for telecom executives and engineers, IT professionals, vendors, and telecom equipment manufacturers.

(IS-2018-124) The Cyber Threat: The Future of Intelligence in a Wired World

The collection of journal articles was prepared in 2017 by the National Military Intelligence Foundation and deals with cyber threats and intelligence issues prevalent in the wired world. The topics covered include a wide-range of security topics such as Chinese cyber-spies, social media intelligence, darknet markets, and other security topics. The report is useful for policy makers, military organizations, law enforcement agencies, and cybersecurity and intelligence professionals.

(IS-2018-123) ICT and Resilience in Times of Crisis: What Do the Meso-Level Data Say

The report was prepared in February 2017 by Econstor and includes a research methodology and findings to determine if Information & Communications Technology (ICT)-intensive firms are more resilient in times of crisis than their non-ICT intensive counterparts. The findings indicate that ICT- intensive firms, relative to less ICT- intensive ones, were hit less hard during the economic crisis in 2008 and 2009. The success is attributed to process innovation by the ICT- intensive firms. The report is useful for business owners, managers, and IT professionals.

(IS-2018-122) Google, Amazon Patent Filings Reveal Digital Home Assistant Privacy Problems

The report was prepared in December 2017 and deals with patent applications filed by Amazon and Google for a number of technologies that would dramatically expand surveillance of consumers' private lives. The topics covered include the Amazon Echo, the Google Home Assistant, and the associated implications of the filed patents. The report is useful for consumers, policy makers, cybersecurity professionals, system integrators, and technology solution providers.

(IS-2018-121) Net Metering: Costs, Customers, and a Smarter Way Forward

This paper outlines policy options for residential solar rooftop's use of net metering. It compares a number of states in terms of programs, costs, and what customers want in terms of a beneficial net metering framework that supports solar.

(IS-2018-120) As-a-Service for Customer Service: Optimizing for New Utility Customer Demands

This paper is a research survey of 200 U.S. and International utilities and focuses on using business process as a service (BPaaS) as an option to serve customer's contact center needs.

(IS-2018-119) CIS and the Cloud: Agility in the New Utility Era

This paper is a research survey of 200 utilities in the United States and focuses on their needs and perceptions of providing customer service in a changing marketplace. It entertains the option of moving the customer information system (CIS) from an on-premise platform to a cloud-

based platform.

(IS-2018-118) 8 in 2018: The Top Transformative Technologies to Watch This Year

IHS Markit provides a look into eight transformative technologies, specifically AI, IoT, Cloud, Connectivity, Blockchain, Machine Vision, Ubiquitous Video, and Robots & Drones, to predict how they may change the world and vertical industries in 2018. The technologies, while not new, are fundamentally changing businesses, fueling innovation, disrupting industries, and creating both threats and opportunities for all.

(IS-2018-117) Building Technologies Office Peer Review Report 2017

The U.S. Department of Energy's (DOE) Building Technologies Office (BTO) leads a network of national laboratory, university, small business, and industry partners to develop innovative, cost-effective energy saving solutions for U.S. buildings, which are the single largest energy-consuming sector in the nation. Every year the BTO conducts a Peer Review - a formal, documented evaluation process that uses objective criteria and qualified independent reviewers to judge the technical, scientific, or business merit; the actual or anticipated results; and the productivity and effectiveness of BTO-funded projects.

(IS-2018-116) Using Intelligent Efficiency to Collect and Analyze Nonenergy Benefits Information

Information technologies and communication networks are enabling new ways of tracking and quantifying the many benefits of saving energy. This paper encourages capturing all benefits associated with the costs of energy efficiency and proposes new ways of capturing data in order to realize all benefits, energy and non-energy associated.

(IS-2018-115) National Green Building Adoption Index 2017

This report summarizes the key findings from the 2017 National Green Buildings Adoption Index. It highlights that there continues to be an increasing adoption in certified green buildings, now at 35% of buildings across the 30 largest office markets in the U.S. Specifically, the ENERGY STAR program and LEED certifications have continued to increase in 2017, with the report suggesting there is a correlation between the magnitude of this growth and a city's benchmarking ordinances and transparency laws.

(IS-2018-114) Integrating Energy and Facility Management

This research paper explores how organizations are integrating energy and facility management operations together; what type of benefits they realize; and what type of barriers exist. The research uncovers that 49% of organizations are already gaining benefits from such an integration, including reducing operating costs; increasing operational efficiency; reducing risks; and enhancing the occupant environment. Barriers highlighted includes lack of strategic alignment and disparate data systems.

(IS-2018-113) Utilities and Electric Vehicles: Evolving to Unlock Grid Value

This report was prepared in March 2018 by the Smart Electric Power Alliance and deals with the progression in utilities' electric vehicle (EV) programs and activities through a simple framework, from early stage to intermediate to late stage, identifying specific benchmarks at each point in the process. The topics covered include the role of the electric utility and the EV revolution, EV research key findings, utility EV programs and activities, utility EV regulations, conclusions, and the next steps. The report is useful for policy makers, utility executives, electric vehicle designers and manufacturers, and electrical engineers.

(IS-2018-112) Tackling Asia's plastic problem

This report was prepared in January 2018 by Eco-Business and deals with strategies for tackling Asia's environmental problem created by excess plastic. The topics covered include examples of plastic recycling initiatives by country, examining if a ban on plastic is the solution, responsibility of plastic producers, better designs that use less plastic, changing behaviors of plastic users and producers, and recommendations for companies. The report is useful for the general public, manufacturers of plastic items, product designers, policy makers, and environmentalists.

(IS-2018-111) Zone Cabling and Coverage Area Planning Guide

This report was prepared in December 2015 by Siemon and deals with important factors pertaining to zone cabling and planning for area coverage. The topics covered include zone cabling design and benefits, definition of coverage area, location of coverage areas served by zone enclosures, service outlet use within coverage areas, zone area device density and standards, and service outlet usage for building device and WAP connections. The report is useful for cabling professionals, network designers, network engineers, and system integrators.

(IS-2018-110) Boost LPWA Revenue Through OneM2M

This report was prepared in December 2017 by OneM2M and deals with projected growth of IoT devices and low power wide area (LPWA) networks. The topics covered include average revenue per device connection, drawbacks of legacy IoT architecture, oneM2M reference architecture, cellular LPWA options using licensed spectrum, selected non-cellular LPWA options using unlicensed spectrum, the small data challenge, and oneM2M internetworking with GSMA and 3GPP. The report is useful for technology solution providers, device manufacturers, system integrators, IT professionals, and electrical engineers/technologists.

(IS-2018-109) The Future-Proof Utility Advancing Digital Transformation in Energy Retail, Supply and Distribution

This report was prepared in August 2017 by Dexma and deals with main factors affecting the digital transformation of utilities. The topics covered include innovation, customer experience,

business models for accelerating the digital transformation of utilities, and technologies for extending utility energy services. The report is useful for utility executives, CTOs, CIOs, and technology solution providers.

(IS-2018-108) Zone Cabling and Coverage Area Planning Guide: 60W PoE Lighting Applications his report was prepared in February 2018 by Siemon and provides guidance on the selection, design, and deployment of a structured balanced twisted-pair cabling system that is well optimized to support a wide range of power over the ethernet (PoE) lighting applications. The topics covered include PoE lighting benefits, LED lighting luminaire configurations, zone cabling, coverage areas, service outlets, applications and effects on cabling, induced temperature, contact arcing under load, and the benefits of using a digital lighting partner. The report is useful for lighting professionals, architects, interior designers, system integrators, and manufacturers of smart technologies.

(IS-2018-107) Anatomy of a 5G Smart City What makes a smart city once 5G arrives?

This report was prepared in January 2018 by Rethink Technology Research and highlights the initiatives by the city of Bristol in becoming a truly smart city. The topics covered include the participants who are making Bristol a smart city, a review of recent projects, the Huawei UK smart cities index, the open data platform, perspectives by the city's managing director, Nokia's contributions, and a spotlight on Zeetta networks. The report is useful for policy makers, city planners, system integrators, and manufacturers of smart technologies.

(IS-2018-106) Q4 2017 Online Video and Pay-TV Trends Report: Consumer Behavior Across Pay-TV, OTT, Connected Devices and Content Discovery

This report was prepared in March 2018 by TIVO and deals with consumer behavior across pay-tv, over-the-top services, connected devices, and content discovery. The topics covered include the most popular smart speakers and how respondents use them, customers preferred devices for voice search, streaming and sports content viewership, and a deep dive into the viewing habits of sports viewers. The report is useful for broadcast network executives, studio managers, digital publishers, and consumer electronics manufacturers.

(IS-2018-105) Data Privacy and Security Trends for 2018

This report was prepared in January 2018 by the Security Industry Association and explores some of the major data privacy and security trends for 2018 for professionals seeking an introduction to this critical issue. The topics covered include mainstream trending of cybercrime, evolution of attacks through social engineering and AI, the rise of the machines, the future of cloud security, managing external tools and creating a culture of security, the intersection of cybersecurity and physical security, understanding the general data protection regulation, decentralizing data storage with blockchains, differential privacy, and recommendations. The report is useful for CEOs, CIOs, CSOs, CTOs, and security technology providers.

(IS-2018-104) Smart Speaker Consumer Adoption Report 2018

This report was prepared in March 2018 by Voicebot and deals with smart speaker adoption in the United States. The topics covered include smart speaker ownership, use cases, voice commerce, voice app discovery, and input from non-owners. The report is useful for consumers, retailers, manufacturers, and technology solution providers.

(IS-2018-103) From Thousands to Billions: Coordinated Action towards 100% Net Zero Carbon Buildings By 2050 This report was prepared in May 2017 by the World Green Building Council (WGBC) and deals with calls for action by government, business, and non-government organizations to ensure that new and current buildings achieve a net-zero carbon goal by 2030 and 2050, respectively. The topics covered include the 2017 summary of the state of the market, the WGBC's theory of change and vision for net-zero carbon buildings, and summary of the calls for action. The report is useful for builders, building owners and managers, energy executives, mechanical and electrical engineers, and technology solution providers.

(IS-2018-102) Connected Lighting Systems Efficiency Study — PoE Cable Energy Losses,

Part 1 This report was prepared in November 2017 by Pacific Northwest National Laboratory for the US Department of Energy and presents the results of an exploratory study investigating power losses in Ethernet cables used between Power over Ethernet (PoE) switches and luminaires in PoE connected lighting systems. The topics covered include the findings related to usefulness of the ANSI C137.3-2017 standard in limiting cable energy losses, and recommendations to help streamline the adoption of PoE technology in lighting applications. The report is useful for lighting and energy professionals, electrical engineers, and technology solution providers.

(IS-2018-101) Microgrid Benefits and Example Projects

This report was prepared in December 2016 by Schneider Electric and explores the benefits that microgrids can provide and includes examples of relevant microgrid projects. The topics covered include energy reliability, accessibility, independence, and cost optimization. The report is useful for electrical utility executives, managers, electrical engineers, and technology solution providers.

(IS-2018-100) Creating an Energy Efficient Mortgage for Europe Consumer Research Insights

This report was prepared in February 2018 by E-On and Basis companies and deals with the European energy efficient mortgage action plan (EeMAP) and its benefits to mortgage lenders and borrowers. The topics covered include energy efficient mortgage (EEM) proposal for customers in Germany, Italy, Sweden and the UK, recommended improvements to the plan, and guidance for developing an EEP proposition. The report is useful for policy makers, mortgage lenders, and mortgage borrowers.

(IS-2018-99) Renewable Energy Prospects for the European Union

This report was prepared in February 2018 by the International Renewable Energy Agency in cooperation with the European Commission and identifies cost-effective renewable energy options for all EU Member States – spanning a wide range of sectors and technologies – to accelerate the deployment of renewables towards 2030. The study also identifies areas where further action could be taken to unleash the full renewable energy potential identified. The report is useful for policy makers, energy sector executives, and technology professionals.

(IS-2018-98) Smart Systems and IoT Growth Themes and Technology Trends To Watch in 2018

This report was prepared in March 2018 by Harbor Research and presents the factors affecting original equipment manufacturers (OEMs) enabling new customer solutions and new non-traditional growth opportunities. The topics covered include market forces, evolving OEM growth themes, technology trends, dramatic industry changes, and OEM business model and sub-segments. The report is useful for OEM company executives, technology professionals, and system integrators.

(IS-2018-97) Energy Savings Potential and RD&D Opportunities for Commercial Building HVAC Systems This report was prepared in December 2017 by Navigant Consulting for the US Department of Energy and deals with characterization and technology assessment of heating, ventilation, and air-conditioning (HVAC) systems for

commercial buildings. The topics covered include a summary of high priority technology options, technology enhancements to current systems, alternative electrically driven heat pump technologies, alternative gas-fired heat pump technologies, and alternative system architectures. The report is useful for commercial building owners, operators, mechanical engineers, IT professionals, and system integrators.

(IS-2018-96) A Smart Way to Achieve Smart Buildings: Delivering intelligence as a service

This report was prepared in March 2018 by Social Energy Partners and addresses why and how intelligent building technologies “as a service” (IBTaaS) are a change agent to accelerate technology adoption of by organizations worldwide. The topics covered include a summary of technology and real estate trends that are impacting building owners and operators, description of intelligent building technologies, the value of an “as a service” model, and a summary of the various benefits that are delivered by IBTaaS . The report is useful for building owners, building operators, and IT professionals.

(IS-2018-95) High-Performance Building

This report was prepared in February 2018 by BuildingIQ and deals with a case study of a high-

performance office building in Australia to which the BuildingIQ's predictive energy optimization solution was applied to determine if further improvements in energy efficiency were possible. The topics covered include a description of the challenge, the solution, and the results achieved. The report is useful for building owners, property managers, and IT professionals.

(IS-2018-94) Top 10 predictions for the telecoms media and digital services sectors in 2018

This report was prepared in January 2018 by Analysis Mason Research and deals with the 2018 predictions for the telecom media and digital services sector. The topics covered include specialist mobile virtual network operators, new enterprise services, digital transformation and impact on labor cost, digital methods for customer acquisition, service-specific and unlimited data tariffs, consumer spending on OTT video services, AI techniques to engage customers, 5G new radio, virtual networks, and NGPON-2 as a converged infrastructure. The report is useful for telecom leaders, IT professionals, retailers, marketers, network engineers, and system integrators.

(IS-2018-93) Data Age 2025: The Evolution of Data to Life-Critical

This report was prepared in April 2017 by IDC and deals with trends driving growth in the global datasphere from now to 2025 with implications for people and businesses. The topics covered include life-critical data, embedded systems and IoT, mobile and real-time data, cognitive AI, and security. The report is useful for data scientists, IT professionals, security professionals, system integrators, and technology providers.

(IS-2018-92) Benefits and Challenges of a Timely Code Adoption Cycle

This report was prepared in February 2018 by the National Institute of Building Sciences and deals with considerations to help inform policymakers and others involved in the debate around extending the building code adoption cycle. The topics covered include a historical perspective on building codes and standards, code adoption cycle process, and the benefits and concerns of adopting current codes and standards. The report is useful for policymakers, builders, building owners, and the general public.

(IS-2018-91) The State of Our Schools

This report was prepared in February 2018 by the Emirates Green Building Council and presents the findings of the 2017 UAE roundtable discussion between academic, government, and private sector regarding planning, design, implementation, innovation, and sustainability of green schools.

(IS-2018-90) The Role of Energy Efficiency in a Distributed Energy Future

This report was prepared in February 2018 by the American Council for an Energy-Efficient Economy and deals with the ways various states in the U.S. are planning to integrate technology into planning of electrical systems with a focus on energy efficiency. The topics covered include

grid modernization, resource planning, energy efficiency, valuing and evaluating energy efficiency as a distributed resource, and geotargeting of distribution and transmission. The report is useful for electrical utility executives, managers, electrical engineers, and IT professionals.

(IS-2018-89) 2018 Getting to Zero Status Update and List of Zero Energy Projects

This report was prepared in January 2018 by the New Buildings Institute and deals with the growth and trends from nearly 500 certified, verified, and emerging zero energy projects across the United States and Canada. The topics covered include a path to zero energy buildings, case studies, trends, residential zero energy buildings, policy directives, certification, radiant heating and cooling, zEPI measurement scale, and a listing of zero buildings. The report is useful for builders, architects, building owners, and energy technology professionals.

(IS-2018-88) 2018 State of the Electric Utility

This report was prepared in February 2018 by PA Consulting Group and Utility Dive and highlights the challenges facing electrical utility companies and how many of them are rethinking the utility model to adapt. The topics covered include a summary of key findings, demographics, utility industry trends and concerns, regulatory issues, electricity markets, key power mix trends, impact of distributed energy resources and electric vehicles on utilities, cybersecurity, and recommendations for transforming utilities. The report is useful for leaders of electrical utilities, cybersecurity professionals, electrical engineers, and system integrators.

(IS-2018-87) Building Energy Intelligence: Art Museum Case Study

This report was prepared in February 2018 by BuildindIQ and deals with a comprehensive energy solution to an art museum's inefficient HVAC system. The topics covered include a description of the energy challenge, the proposed solution, and the results. The report is useful for building owners, mechanical engineers, and IT solution providers.

(IS-2018-86) How can utilities proactively improve resiliency before disaster strikes?

This report was prepared in February 2018 by Landis+Gyr and deals with strategies that utilities can deploy to more effectively restore power following an outage. The topics covered include a historical approach to electrical resiliency, the changing resiliency landscape, and improving resiliency through innovative technologies. The report is useful for leaders of utility company, electrical engineers, information technology professionals, and system integrators.

(IS-2018-85) Distributed Energy Management: The New Era of Demand Response

This report was prepared in February 2018 by Zpryme Research and Itron and deals with the importance of distributed energy management to utility companies. The topics covered include holistic distributed energy management strategy, the role grid-edge computing and devices play,

challenges facing utilities, potential benefits to utilities, evolution of demand response, accelerating deployment of distributed energy resources (DER), leveraging "edgy" devices, and planning with partners. The report is useful for leaders of utility companies, IT professionals, and system integrators.

(IS-2018-84) 2018 Real Estate Market Outlook: Canada

The report was prepared in February 2018 by CBRE Research and deals with the 2018 trends for commercial real estate in Canada. The topics covered include rise in office sales and rental prices, impact on tenants, rising demand for land, speculative construction surge, record investment volume, increased leasing demand, new metrics for space valuation, and emerging importance of big data. The report is useful for commercial real estate professionals, building owners, IT professionals, and tenants.

(IS-2018-83) The Evolution of Edge Computing

The report was prepared in January 2018 by ABI Research and deals with the evolution of edge computing in 2017 by examining tier-one communication service providers and companies such as Amazon, Facebook, Google, and Microsoft. The topics covered include strategies for getting closer to the end user and redefining apps and network deployment. The report is useful for telco leaders, IT professionals, small businesses, and end users.

(IS-2018-82) Saving Energy, Saving Lives: The Health Impacts of Avoiding Power Plant Pollution with Energy Efficiency

The report was prepared in February 2018 by the American Council for an Energy-Efficient Economy and deals with the results of a hypothetical case study that assumes 15% reduction in annual electric consumption evenly across the U.S.. The topics covered include energy efficiency and air pollution, impact of energy efficiency on states and cities, energy efficiency strategies for public health, and compounding the health benefits of energy efficiency. The report is useful for policy makers, health professionals, utility leaders, and technology professionals.

(IS-2018-81) Power to the People: How People-Based Marketing is Driving Change Across the U.S. Advertising Industry

The report was prepared in January 2018 by Viant Technology and deals with people-based marketing in the U.S. The topics covered include the size of people-based marketing adoption, its biggest challenges, and how it's providing solutions to issues such as ad blocking. The report is useful for marketing professionals, IT solutions providers, and consumers.

(IS-2018-80) Assessing Health and Wellbeing in Buildings Alignment between BREEAM and the WELL Building Standard

The report was prepared in January 2018 by the BRE and the International WELL Building

Institute and deals with the synergies between the BREEAM and WELL technical requirements in order to help streamline both building assessment processes. The topics covered include BREEAM credits that can be used to demonstrate compliance with WELL features and the WELL features that can be used to demonstrate compliance with BREEAM assessment issues. The framework enables both project teams to use the same evidence in the assessment processes for both methods. The report is useful for builders, architects, interior designers, and building inspectors.

(IS-2018-79) 2018 Sustainable Energy in America Factbook

The report was prepared in February 2018 by Bloomberg New Energy Finance and deals with the revolution in energy production, delivery, and consumption in the U.S. for 2017. The topics covered an overview of the U.S. energy sector, natural gas, large scale renewable energy, distributed power and storage, demand-side energy efficiency, and sustainable transportation. The report is useful for policy makers, energy company executives, and technology professionals.

(IS-2018-78) How to Reform Worker-Training and Adjustment Policies for an Era of Technological Change This report was prepared in February 2018 by the Information Technology and Innovation Foundation and

presents policy recommendations and guiding principles for reforming worker-training policies within the scope of technological change. The topics covered include recent and current views of technological change and employment, six issues related to technological innovation and implications for the labor market (overall number of jobs, employment relationships, income inequality, job quality, employment tenure, and worker dislocation and transition), and actionable policy agenda to ensure that workers are better positioned to navigate a potentially more turbulent, but ultimately beneficial labor market. The report is useful for policy makers, business owner, HR professionals, and the general public.

(IS-2018-77) Transforming Energy Efficiency Markets: Lessons Learned and Next Steps

This report was prepared in December 2017 by the American Council for an Energy-Efficient Economy and presents an up-to-date look at market transformation in the context of profound changes underway in energy utilities, especially electric utility systems. The topics covered include history or market transformation, market transformation in practice, case studies, analysis, and recommendations. The report is useful for policy makers, business leaders, and technology professionals working in electric utilities.

(IS-2018-76) Smart Buildings: A Deeper Dive into Market Segments

This report was prepared in December 2017 by the American Council for an Energy-Efficient Economy and deals with the benefits of deploying smart technologies in commercial buildings such as offices, retail stores, hotels, and hospitals. The topics covered include recommended smart technologies and approaches by sector, framework for implementing smart technologies,

case studies, non-energy benefits of smart technologies, and recommendations. The report is useful for building owners, building operators, and smart technology program administrators.

(IS-2018-75) Capitalizing on the digital revolution: How distribution utilities are leveraging new technologies to create business opportunity

This report was prepared in January 2018 by Zpryme Research & ABB and deals with asset strategies by distribution utilities to leverage available technology to create new opportunities and transform business models. The topics covered include connected asset lifecycle management (CALM), applications of CALM, building out the CALM ecosystem, planning considerations, and recommendations. The report is useful for distribution utility leaders and technology professionals.

(IS-2018-74) Examining the Battle for Online Shoppers: Amazon vs. Walmart

This report was prepared in October 2017 by Luth Research and gives helpful insights into the competition for customers between Amazon and Walmart by analyzing customer behavior data and buying patterns. The topics covered include who shops at each retailer, shopping time patterns, items customers buy, and the implications for marketers. The report is useful for brands, retailers, and marketers.

(IS-2018-73) The socio-economic impact of FTTH

This study investigates the socio-economic benefits of FTTH in Sweden and the Netherlands using a representative consumer survey and case studies.

(IS-2018-72) Reshaping Business With Artificial Intelligence Closing the Gap Between Ambition and Action The report was prepared in September 2017 by the MIT Sloan Management Review and presents a realistic baseline that allows companies to compare their artificial intelligence (AI) ambitions and efforts. The topics covered include examples of AI deployment, high expectations, disparity in adoption and understanding, need for data, training, and algorithms, management challenges, and future implications. The report is useful for business and technology leaders.

(IS-2018-71) Outsmart eCommerce Giants to Win Online Shoppers in 2018: A Guide

The report was prepared in January 2018 by Radial and deals with factors affecting the online retail industry. Topic covered include what 4,000 consumers across four different regions of the world -United States, United Kingdom, Canada and Australia - value in their online experience, where opportunity exists, and how brands and retailers can execute to ensure that they maintain a competitive position as the industry continues to rapidly transform. The report is useful for retail business owners and information technology professionals.

(IS-2018-70) Strategies for Integrating Electric Vehicles into the Grid

The report was prepared in February 2018 by the American Council for an Energy-Efficient Economy and deals with the five categories of utility strategies to integrate EVs into the grid. The topics covered include rate design, smart charging, charging station investment and ownership, vehicle purchase incentives, and coordination with state and local efforts. The report is useful for business and technology leaders of utility companies.

(IS-2018-69) Thrive in today's digital economy

The report was prepared in July 2017 by Schneider Electric and deals with the EcoStruxure architecture and interoperable technology platform that brings together energy, automation, and software. The topics covered include EcoStruxure's benefits, architecture, platform components, and its overall value. The report is useful for building managers, data center operators, utility grid operators, system integrators, and application developers.

(IS-2018-68) 2016 Renewable Energy Data Book

This report was prepared in February 2018 by the U.S. Department of Energy (National Renewable Energy Laboratory) and deals with the U.S. energy consumption and growth. The topics covered include renewable electricity, global renewable energy development, wind, solar, geothermal, biopower, hydropower, marine and hydrokinetic power, hydrogen and fuel cells, renewable and alternative fuels, and clean energy investments. The report is useful for policy makers, utility companies, and professionals working in the energy sector.

(IS-2018-67) Q3 2017 Online Video and Pay-TV Trends Report: Consumer Behavior Across Pay-TV, OTT, Connected Devices and Content Discovery

This report was prepared in December 2017 by TiVo and deals with key trends in TV viewing habits, consumer opinions of pay-TV providers, and emerging technologies. The topics covered include streaming devices, smart home devices, over-the-top services, TV network apps and content discovery features, quarterly/annual/long-term trends, generational response to cross-catalog video, usage of advanced content discovery functionality, voice functionality, and effectiveness of targeted marketing on adoption. The report is useful for pay-TV providers, digital publishers, and consumer electronics manufacturers.

(IS-2018-66) Engaging Code Officials Early in the Process to Achieve High-Performance Buildings

This report was prepared in January 2018 by the National Institute of Building Sciences and examines the benefits of involving code officials early in building projects and how jurisdictions and code departments could begin engaging earlier in the design process. The topics covered include the historical role of code officials, shifting the paradigm in the role of code officials, regulatory implementation, and challenges to implementation. The report is useful for code officials, builders, and building owners.

(IS-2018-65) Digital Video Quality Handbook Appendix

This report was prepared in January 2018 by the Johns Hopkins University Applied Physics Laboratory and deals with the digital data captured by network or Internet Protocol (IP) cameras connected via a Wide Area Network (WAN). The topics covered include background material regarding video trends and analytics, additional topical use-cases reflecting newsworthy events shaping the use of video, a detailed discussion of available video standards, the organizations that create them and how they might be used, and a potential implementation plan. The report is intended as an appendix to the May 2013 Video Quality Handbook and is useful for organizations and technology professionals implementing digital video solutions.

(IS-2018-64) Renewable Power Generation Costs in 2017

This report was prepared in January 2018 by the International Renewable Energy Agency (IRENA) and deals with the cost trends for global renewable power generation. The topics covered include solar photovoltaics, concentrating solar power, wind power, hydro power, bioenergy, and geothermal. The report is useful for leaders of energy and utility companies, government officials, and equipment manufacturers.

(IS-2018-63) Freezing in the tropics: Asean's air-con conundrum

This report was prepared in July 2018 by Eco-Business Research and highlights both the economic and environmental benefits for driving the Association of Southeast Asian Nations (ASEAN) towards more efficient use of ACs, as well as emphasizing some of the most obvious areas that governments, businesses and consumers can direct their immediate attention. The topics covered include the growth in pollution from the boom in cooling, ASEAN's perspectives on energy issues, a case study featuring challenges of driving energy efficiency in Indonesia, and future outlook for electricity demand. The report is useful for government officials, electrical utility leaders, and consumers.

(IS-2018-62) Intelligent Buildings: Design & Implementation Executive Summary

The purpose of this CABA landmark research study is to address the approach and application of technical design in intelligent high-performance buildings from the perspective of architects, building engineers, designers, OEM hardware/software providers, service providers and facility managers. This research will provide a comprehensive examination of all the major aspects of intelligent building design and implementation, including: state of the market, key industry players, business opportunities, technical barriers and opportunities, future market direction, issues, case studies and industry recommendations.

(IS-2018-61) Five Building Blocks for Enterprise Streaming Success

This report was prepared in October 2016 by Wainhouse Research and highlights the five core

features of enterprise streaming platforms that do the most to enhance the value of live and on-demand video distributed behind and beyond the corporate firewall. The topics covered include key trends in online business video adoption, securing content, embracing on-demand capabilities, network management, video quality measurement, and viewership analytics. The report is useful for executives contemplating new corporate investments in streaming solutions

(IS-2018-60) Local Power: State of The Distributed Grid 2017

The report was prepared in January 2018 by Lockheed Martin and deals with the state of the distributed grid in North America and the necessary partnership among utilities, commercial and industrial businesses to ensure its success. The topics covered include the importance of the distributed grid, key grid areas such as solar energy, energy efficiency, demand response, and energy management, partnerships and influences, and recommendations for future development. The report is useful for utility companies, grid operators, and leaders of commercial and industrial businesses.

(IS-2018-59) Smart Spaces Solution

This report was prepared in October 2017 by Aricent and presents strategies for reducing the number of warehouse accidents and the associated costs. The topics covered include proper stacking of products, safe use of forklifts, and system awareness of asset and personnel location. The report is useful for warehouse owners, managers, and workers.

(IS-2018-58) Clean Energy Investment Trends 2017

This report was prepared in January 2018 by Bloomberg New Energy Finance and deals with the 2017 global investment trends in clean energy. The topics covered include the solar boom in China, global investment in clean energy, quarterly trends of new investment in clean energy, quarterly trends of funds in circulation, top asset finance deals, top venture capital deals, top public market deals, and clean energy stock performance. The report is useful for professionals working in the clean energy sector, funding organizations, and investors.

(IS-2018-57) Speaking of Work: A Story of Love, Suspense and Paperclips

This book was prepared in January 2018 by Xerox Corporation and presents the perspectives of fourteen storytellers of different geographies and genres who worked together to create a multi-faceted, multi-lensed, portrait of today's workplace. Topic covered include contemporary issues of mentorship, creation, competition, boredom in the modern workplace, and many others. The report is useful as entertainment for anyone who spends time in a workplace.

(IS-2018-56) Information Management for Facilities and Operations: Knowing Your Gaps is Key to Catastrophe Preparedness

This report was prepared in November 2017 by ALLM in partnership with ARC and deals with

management of facility information to prepare for an unforeseen catastrophe. The topics covered include the pain points experienced by facilities managers such as converting their paper documents to digital, the specific types of catastrophes they face and their associated costs, the challenges of an aging workforce, and the steps they are taking to future-proof their operations. The report is useful for facility owners, managers, and IT professionals.

(IS-2018-55) Getting to Zero: 2018 Status Update and List of Zero Energy Projects

This report was prepared in January 2018 by the New Buildings Institute and summarizes the growth and trends from nearly 500 certified verified and emerging zero energy projects across the United States and Canada. The topics covered include a high school zero energy building case study, growth in zero energy buildings, residential zero energy buildings, policy directives and program support, radiant heating and cooling systems, zEPI scale for measuring commercial building energy performance, and a list of zero energy projects. The report is useful for policy makers, utility company leaders, and builders.

(IS-2018-54) Security Recommendations for Hypervisor Deployment on Servers

This report was prepared in January 2018 by the National Institute of Standards and Technology and deals with recommendations for ensuring the secure execution of baseline functions of a hypervisor deployed for server virtualization. The recommendations are agnostic to hypervisor architecture. The report is useful for information technology and network/cybersecurity professionals.

(IS-2018-53) Guide to Building a World-Class Construction Vendor Bench

This report was prepared in January 2018 by Honest Buildings and addresses key issues for building a world-class vendor bench. The topics covered include requirements for the vendor bench beyond core skills, the minimum number of vendors, signs when to expand the vendor list, dangers of having too many vendors, how to source vendors confidentially, how to use the preferred vendor list, and how to leverage data for better hiring. The report is useful for commercial real estate owners.

(IS-2018-52) Achieving Zero Energy: Advanced Energy Design Guide for K–12 School Buildings

This report was prepared in January 2018 by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and provides strategies and recommendations for achieving a zero energy school building; that is, a building that can produce as much on-site renewable energy as it consumes. The topics covered include a rationale for zero energy schools, keys to achieving a zero energy school, building performance simulation, and implementation strategies. The report is useful for government officials, utility company executives, school leaders, and schoolbuilders.

(IS-2018-51) Dynamic Spectrum Alliance announces the publication of new model rules for TV

White Space technology

This report was prepared in January 9, 2018 by the Dynamic Spectrum Alliance (DSA) and deals with the DSA's publication announcement of the new model rules for TV White Space (TVWS) technology. The new model rules

provide the tools necessary to enable the quick and efficient deployment of TVWS networks to help bridge the digital divide and support the Internet of Things (IoT) . This report is useful for governments, policy makers and regulators.

(IS-2018-50) Blockchain Technology Overview

This report was prepared in January 2018 by the National Institute of Standards and Technology and provides a high-level technical overview of blockchain technology and its application to electronic currency. The content is helpful for readers to understand how blockchains works and how it can be applied to technology problems. The report is useful for software professionals, technology leaders, and the general public.

(IS-2018-49) U.S. CA-Chordant Smart Cities Benefits Index

This report was prepared in November 2017 by InterDigital and deals with the relative potential benefits of Smart City technology in America's major metropolitan areas. The topics covered include a meta- analysis of U.S. cities' relative capacities for smart city innovation now, and into the future. The report is useful for city planners, technology leaders, and IT professionals.

(IS-2018-48) A PERSPECTIVE ON CANADA'S ELECTRICITY INDUSTRY IN 2030

This report was prepared in December 2017 by Benoit Marcoux and Denis Chartrand and deals with Canada's electricity energy generation and storage. The topics covered include retail unbundling and competition, renewed energy markets, performance based regulation, high-availability distribution grid, strained customer regulations, new operating distribution model, new business model, and a new generation of electric hardware vendors. The report is useful for leaders of electrical utility companies, consumers, and technology professionals working in the energy sector.

(IS-2018-47) NAVIGATING THE URBAN ENERGY TRANSFORMATION: BUILDING SMART AND SUSTAINABLE FUTURE CITIES

This report was prepared in December 2017 by Navigant research and deals with the critical elements of the emerging city energy landscape, including the spread of distributed renewable energy, building energy programs, and the rethinking of city transportation. The topics covered include emerging digital technologies, new platforms and business models supported by the new technologies, and opportunities and challenges offered by new platforms to diverse stakeholders. The report is useful to city planners, energy and IT professionals.

(IS-2018-46) Reflections and Key Learnings from #IoT6 2017

This report was prepared in November 2017 by Compass Intelligence and highlights the proceedings of a conference focused on the role of the Internet of Things (IoT) in transforming operations, the supply chain, and manufacturing. The topics covered include edge analytics, the role of cloud technology, event driven systems, artificial intelligence, predictive data and analytics, logistics, supply chain, and automation. The report is useful for decision makers and influencers working in the industrial and manufacturing sector.

(IS-2018-45) A Policymaker's Guide to Connected Cars

The report was prepared in January 2018 by the Information Technology & Innovation Foundation and deals with the eight policy principles to guide policy makers to address connected vehicle policy issues. The topics covered included vehicle-to-everything (V2X) infrastructure, national cooperation and interoperability for V2X, incentivising companies to protect consumers, regulations are technology neutrality, transparent industry-led standards for data protection, restricting scope creep for regulators overseeing connected vehicle privacy, allowing vehicle owners to access and use their own data, and permit after-market modifications and repairs while protecting copyright holders' rights. The report is useful for policy makers dealing with connected cars.

(IS-2018-44) Realizing Augmented Reality for Utilities: The Role of Mobile Devices Research

This report was prepared in October 2017 by Zpryme Research and presents the perspective of North American utilities on their potential use of augmented reality (AR) and mobile devices. The topics covered include a review of today's augmented reality, applying AR to improve operational efficiency, leveraging mobile devices with AR, applications of AR, and recommendations for starting to use AR. The report is useful for utility managers, owners, and employees, along with technology professionals creating mobile apps and AR solutions.

(IS-2018-43) CANADA'S RENEWABLE POWER LANDSCAPE Energy Market Analysis 2017

The report was prepared in December 2017 by the National Energy Board and deals with Canada's power generation capacity and migration to low carbon options. The topics covered include an overview of Canada's power generation, data for all individual fuels used for power generation, greenhouse gas emissions, and power generation trends and capacity changes at national and provincial levels. The report is useful for policy makers, professional working in the energy sector, and technology firms developing solutions for the energy sector.

(IS-2018-42) 2015 U.S. Lighting Market Characterization

This report was prepared in November 2017 by the U.S. Department of Energy and provides summary estimates of the installed stock, energy use, and lumen production of all general illumination lighting products operating in the U.S. The topics covered include building sector and outdoor inventory energy use and consumption calculations, lighting inventory and energy

consumption estimates, lighting market characteristics (LMC), comparison to 2001 and 2010 LMC results, and a comparison of lighting electricity consumption estimates. The report is useful for energy policy makers.

(IS-2018-41) Real Trends: The Future of Real Estate in the United States

This report was prepared in October 2017 by the Urban Economics Lab and the Center for Real Estate and provides a ten-year outlook on the future of the U.S. real estate markets and products. The topics covered include changing demographics, affordable housing, the impact of technology on the built environment, smart buildings and the internet of things, and new technologies that are transforming the real estate market. The report is useful for real estate business leaders, building owners, and technology professionals.

(IS-2018-40) US Energy and Employment Report

This report was prepared in January 2017 by the U.S. Department of Energy and analyzes four sectors of the

U.S. economy: electric power generation and fuels, transmission, distribution and storage, energy efficiency, and motor vehicles. The topics covered include sector analysis according to workforce characteristics, employment trends, and technology. The report is useful for policy makers, energy industry professionals, and general public intending to work in the energy sector.

(IS-2018-39) Global Energy System based on 100% Renewable Energy - Power Sector

This report was prepared in November 2017 by LUT/Energy Watch Group and deals with the technical feasibility and socio-economic viability to transition the global electricity system to 100% renewable energy sources. The topics covered include an overview of the global energy landscape, global energy transition, cost projections, socio-economic benefits, and policy recommendations. The report is useful for policy makers, electrical utility companies, and manufacturers on renewable energy technologies.

(IS-2018-38) States Go First: How States Can Save Consumers Money, Reduce Energy and Water Waste, and Protect the Environment with New Appliance Standards

This report was prepared in July 2017 by the Appliance Standards Awareness Project and American Council for an Energy-Efficient Economy and deals with recommended appliance standards to achieve energy savings in the United States. Topics covered include benefits of appliance standards, recommended products, savings potential, and products for future consideration. The report is useful for consumers, appliance manufacturers, building owners, policy makers, and energy professionals.

(IS-2018-37) Enabling Voice in the Smart Home

The report was prepared in October 2017 by Parks Associates / ULE Alliance and deals with the growth of voice control and voice-based technologies within the consumer market. The topics covered include enabling voice in the smart home, creating a voice-first experience, defining the voice market and ultra- low energy (ULE) wireless technology, consumer adoption, use cases, opportunities for voice connected products, architecture of voice technology, ULE market activity / competitive positioning, and driving the smart home forward. The report is useful for consumers, IT professionals, system integrators, and manufacturers of smart home technologies.

(IS-2018-36) A Policymaker's Guide to Rural Broadband Infrastructure

This report was prepared in April 2017 by the Information Technology and Innovation Foundation and presents an overview of the U.S. infrastructure policy and examines how those high-level principles should apply in the broadband context. Topics covered include existing rural broadband programs focusing on successes and shortcomings, available policy tools for a future push for rural broadband deployment, and concluding principles that should guide any future broadband infrastructure legislation. The report is useful for policy makers and telecommunications professionals.

(IS-2018-35) The Value of Connectivity

This report was prepared in November 2017 by WiredScore and deals with the cost implications of poor digital infrastructure for commercial real estate (CRE). The topics covered include the impact of connectivity in the current CRE office, the importance of connectivity for CRE, how Internet connectivity is affecting office leasing, and the importance of wired certification to attract tenants. The report is useful for owners and operators of commercial real estate.

(IS-2018-34) IALD/LIRC GUIDELINES FOR SPECIFICATION INTEGRITY

This report was prepared in October 2017 by the International Association of Lighting Designers / Lighting Industry Resource Council and deals with the challenge of ensuring that lighting designs which are agreed upon and approved are actually what is built. The topics include checklists, tips, and references to protect lighting specification integrity. The report is useful for lighting designers.

(IS-2018-33) CRC turns to printable electronics to shape Canada's 5G future: A Smart Building Use Case

This report was prepared in December 2017 by the IntelliBuild Business Network and the Continental Automated Buildings Association and deals with the use of engineered surfaces to control the propagation of electromagnetic signals in a wireless communications environment. The topics covered include fundamental engineered surface capabilities, advances in surface engineering, fabrication technologies, the power of Internet of Things, and a brief overview of CRC, GGI, and NRC organizations. The report is useful for communication engineers and technologists, and building material manufacturers.

(IS-2018-32) Synthesis of Year One Outcomes in the Smart Energy Analytics Campaign

This report was prepared in September 2017 by the Lawrence Berkeley National Laboratory and deals with energy savings from businesses participating in the Smart Energy Analytics Campaign. The topics covered include the campaign participants, benefits and costs, energy management and information systems (EMIS) products and monitoring-based commissioning (MBCx) services, and industry needs. The report is useful for policy makers, energy management professionals, building owners, and technology providers.

(IS-2018-31) The Future of Equity in Cities

This report was prepared in November 2017 by the National League of Cities and deals with the role of equity and technology in shaping the future of cities. The topics covered include the importance of equity, infrastructure, autonomous vehicles, road pricing, economic development, equitable growth, public safety, predictive policing, and community engagement. The report is useful for government officials, city planners, technology leaders, and city residents.

IS-2018-30) Net Metering: Costs, Customers, and a Smarter Way Forward

This paper outlines policy options for residential solar rooftop's use of net metering. It compares a number of states in terms of programs, costs, and what customers want in terms of a beneficial net metering framework that supports solar.

(IS-2018-29) As-a-Service for Customer Service: Optimizing for New Utility Customer Demands

This paper is a research survey of 200 U.S. and International utilities and focuses on using business process as a service (BPaaS) as an option to serve customer's contact center needs.

(IS-2018-28) CIS and the Cloud: Agility in the New Utility Era

This paper is a research survey of 200 utilities in the United States and focuses on their needs and perceptions of providing customer service in a changing marketplace. It entertains the option of moving the customer information system (CIS) from an on- premise platform to a cloud-based platform.

(IS-2018-27) Energy-Saving States of America: How Every State Benefits from National Appliance Standards This report was prepared in February 2017 by the Appliance Standards Awareness Project and the American Council for an Energy-Efficient Economy and provides up- to-date estimates of the benefits of the national appliance efficiency standards for consumers and businesses in each state and for the United States as a whole. The topics covered include savings for consumers and businesses, statewide and national benefits, product impacts, energy systems

and public health benefits, and potential for future standards. The report is useful for policy makers, leaders of energy organizations, utilities, businesses, and consumers.

(IS-2018-26) The Minnesota Jobs Project: 2017A Guide to Creating Jobs in Energy Efficiency

This report was prepared in May 2017 by the American Jobs Initiative and deals with strategic actions at state level for job creation in the advanced energy sector for Minnesota's middle class population. The topics covered include an overview of advanced energy and cluster growth, Minnesota's economic opportunity, state assets to support energy efficiency cluster development, jobs impact of Minnesota's energy efficiency cluster, policy recommendations, and a call to action. The report is useful for policy makers, business leaders, and energy technology professionals.

(IS-2018-25) Scaling Up Participation and Savings in Residential Retrofit Programs

This report was prepared in October 2016 by the American Council for an Energy-Efficient Economy and explores opportunities for residential retrofit programs to grow participation and realize the anticipated energy savings. The topics covered include a description of the home performance program, program challenges, program opportunities, building support for retrofits in the market, and recommendations to improve realization rates and achieve greater energy savings. The report is useful for organizations sponsoring home retrofit programs, contractors, and consumers.

(IS-2018-24) NEW YORK CITY'S ENERGY AND WATER USE 2013 REPORT

This report was prepared in August 2016 by the Urban Green Council and deals with the analysis of energy and water usage in large buildings based on data provided under New York City's Local Laws 84 & 87 designed to reduce greenhouse gas emissions. The topics covered include space heat generation and distributed technologies, the relationship of heating distribution systems to multifamily building energy use, plug loads, installed lighting technologies, lighting controls, cooling technologies, domestic hot water, ventilation, wall

construction and glazing, relationship of window area and type to energy intensity, building energy metering, auditor recommended conservation, year four benchmarking results, and policy opportunities.

(IS-2018-23) Lending for Energy Efficiency Upgrades in Low- to Moderate-Income Communities: Bank of America's Energy Efficiency Finance Program

This report was prepared in July 2016 by American Council for an Energy-Efficient Economy and deals with the analysis and synthesis of data from the community development financial institutions (CDFIs) pertaining to cost, energy use, and loan performance. The topics covered include Bank of America energy efficiency finance program, financial outcomes, loan performance, building performance, lessons learned from the program, demand and capacity issues, core competency issues, and capital issues. The report is useful for banking professionals,

energy experts, utility company leaders, and consumers.

(IS-2018-22) Electricity Consumption and Peak Demand Scenarios for New England

This report was prepared in August 2016 by the American Council for an Energy-Efficient Economy and deals with the impact of accelerated use of distributed power generation, growing use of electric vehicles, and expanded use of electric heat pumps on electricity consumption and peak demand in New England. The topics covered include the analysis of peak demand and electricity sales for three potential scenarios: business as usual, accelerated, and aggressive. The report is useful for policy makers and power utility executives.

(IS-2018-21) International Broadband Data Report

This report was prepared in January 2016 by the Federal Communications Commission and deals with comparative international information on broadband service based on deployment, speed, and pricing. The topics covered include fixed broadband coverage comparison with Europe, coverage ranking by country, broadband subscription in OECD countries, fixed broadband speeds, broadband pricing plans, community level comparison, relevant similarities and differences among foreign communities, and efforts to improve international broadband data. The report is useful for policy makers, telco executives, and IT professionals.

(IS-2018-20) From footprint to footfall: How the experiential workplace is set to take over the world This report was prepared in December 2016 by Insight and describes the factors that are redefining employees relationship between work and work spaces. Topics covered include the drivers of change in space design such as technology, agility and cost, changing expectations, importance of engineered to achieve serendipity, and the experiential office. The report is useful for architects, interior designers, building owners, and business owners.

(IS-2018-19) Clean Tax Cuts for Commercial Real Estate

This report was prepared in June 2017 by the American Council for an Energy-Efficient Economy and presents two proposals for clean tax cuts for commercial real estate. The topics covered include background information on commercial buildings, commercial real estate structures, opportunities for additional energy improvements, and clean tax cut opportunities. The report is useful for owners of commercial real estate and policy makers.

(IS-2018-18) Federal Preemption as a Barrier to Cost Savings and High Performance Buildings in Local Energy Codes

This report was prepared in June 2017 by the New Buildings Institute and discusses how the federal regulations, which provide uniform requirements for appliances and equipment, have had the unintended consequence of creating a barrier to jurisdictions meeting climate and

energy goals. The topics covered include the analysis of the size of these impacts and potential solutions to the problem. The report is useful for policy makers, business leaders and technology professionals in the energy sector.

(IS-2018-17) The Role of Existing Building Codes in Safely, Cost-Effectively Transforming the Nation's Building Stock

This report was prepared in January 2017 by the National Institute of Building Sciences and examines effective strategies for promoting the adoption of existing building codes, as well as developing and implementing educational and training programs for owners, builders, contractors, design professionals and code enforcers. The topics covered include history of building codes, promoting adoption of building codes, regulatory implementation, education and training, and 2021 IEBC code change cycle. The report is useful for city planners, building inspectors, and construction trade professionals.

(IS-2018-16) Smart Yinchuan Practice in Aligning with TM Forum Smart City Maturity & Benchmarking Mode This report was prepared in October 2017 and deals with the strategy taken to create a Yinchuan as a smart city based on the TM Forum smart city maturity & benchmarking model. The topics covered include leadership and governance, stakeholder and citizen focus, effective use of data, and integrated information and communications infrastructure. The report is useful for city planners, government official, and IT professionals.

(IS-2018-15) Smart Cities Consumer Study

This report was prepared in October 2017 by the Silver Spring Networks in Collaboration with Power Over Energy and the U.S. Department of Energy and deals with consumer opinions of smart city technologies. The topics covered include measures of consumer awareness about smart city technologies, gauging knowledge while educating consumers about the benefits of smart technologies, understanding general sentiment and perceptions, and the best ways to reach/educate consumers. The report is useful for city planners, technology professionals and vendors, system integrators, and consumers of smart technologies.

(IS-2018-14) The home kitchen in the globalization era

This report was prepared in April 2017 by Global Kitchen and provides insights into global trends and uses of the kitchen and its role in the home of the future. Topics covered include the function of the kitchen, trends in equipment and design, functions of the countertop, preferred kitchen styles by customers, refurbishment, connectivity, smart appliances, social aspects, sustainability, and impact of space and energy on kitchen design. The report is useful for architects, interior designers, and manufacturers of smart appliances.

(IS-2018-13) CALIPER Snapshot: Downlights

This report was prepared in October 2016 by the U.S. Department of Energy and deals with technical aspects of downlights. Topics covered include product listings & efficacy over time, efficacy and output, current efficacy versus other luminaire types, trends versus all luminaires, color quality and power quality, and LED downlights. The report is useful for lighting professionals, architects, and interior designers.

(IS-2018-12) District Cooling in the People's Republic of China Status and Development Potential

This report was prepared in January 2017 by the Asian Development Bank and deals with district cooling in China. Topics covered include definition and benefits of district cooling, district cooling technologies, business models, financial feasibility, district cooling market worldwide and in China, and the future of district cooling in China. The report is useful for policy makers, technology professionals, and manufactures of cooling equipment.

(IS-2018-11) India Solar Market 2017 Market Drivers and Challenges

This report was prepared in September 2017 by Mercom and deals the status of the solar energy market in India. Topics covered include installations pipeline, policy drivers, improved bidding guidelines, rising prices of Chinese solar modules, Mercom market leaderboard, solar imports, exports, and antidumping, rising share of renewables, financing and consolidation, project development by states, and future outlook. The report is useful for policy makers, manufacturers, distributors, and business serving the solar energy market in India.

(IS-2018-10) JOBS LOST, JOBS GAINED: WORKFORCE TRANSITIONS IN A TIME OF AUTOMATION

This report was prepared in December 2017 by McKinsey Global Institute and deals with the potential labor market disruptions from automation and sources of new labor demand that will create jobs. Topics covered include impact of automation on work, lessons from history on technology and employment, scenarios for employment growth, implications for skills and wages, the future of work by country (China, Germany, India, Japan, Mexico, United States), managing the workforce transitions, and priorities for government, business, and individuals. The report is useful for policy makers, business leaders, and general public.

(IS-2018-09) Smart Systems, Asset Management, and Strategic Services Innovation This report was prepared in October 2017 by Harbor Research and deals with potential

productivity and customer gains for machine builders and equipment manufacturers from new asset management platforms. Topics covered include the importance of smart systems and services, strategic role of services, a perspective on legacy asset management systems, building value for customers, new strategic service opportunities, evolving machine builder and original equipment manufacturer business models, importance of data, analytics, and asset platform innovation, internet of things, partnerships and ecosystems, and process service strategy. The report is useful for business and technology leaders in machine building and equipment manufacturing industries.

(IS-2018-08) Serviceable Luminaires in a Circular Economy

This report was prepared in October 2017 by LightingEurope and deals with the European Union's (EU) circular economy with a focus on "design for serviceability" of finished luminaires. Topics covered include circular economy as a business driver, potential value of "services and design for serviceability" to the lighting industry, EU's policies and support for the serviceability of luminaires, and the first steps to building serviceability information requirements for luminaires. The report is useful for designers, manufacturers, and repair technicians of luminaires.

(IS-2018-07) IN-BUILDING WIRELESS BEST PRACTICES

This report was prepared in February 2017 by Commscope and deals with the best practices for deploying in- building wireless solutions (IBW). Topics covered include history of wireless technology, need for IBW solutions, common challenges facing IBW deployment, future potential of IBW, choosing the right technologies, differences between distributed antenna systems and small cells, merits of licensed and unlicensed frequencies, cases when Wi-Fi is and isn't sufficient by itself, implementation of IBW, and funding for IBW solutions. The report is useful for IT professionals and communications engineers.

(IS-2018-06) Smart home strategies that pay off: Takeaways from examples of early success for telcos and service providers

This report was prepared in November 2017 by Z Wave Alliance and deals with the implementation of smart home technologies as a growing opportunity for companies to increase revenue. Topics covered include an overview of global opportunities, analysis of who can afford to pay for smart technologies, early mover advantages, case studies, and strategies for smart home success. The report is useful for organizations planning to offer smart home technology solutions.

(IS-2018-05) Associations of Cognitive Function Scores with Carbon Dioxide, Ventilation, and Volatile Organic Compound Exposures in Office Workers: A Controlled Exposure Study of Green and Conventional Office Environments

This report was prepared in October 2016 by the Environmental Health Perspectives and presents a research study for simulation of indoor environmental quality (IEQ) conditions in "Green" and "Conventional" buildings and evaluation of the impacts on human higher order cognitive function. The topics covered include the design of the study, population considered, simulation of the indoor environment, environmental monitoring, cognitive function assessment, statistical analysis, results, discussion, and conclusions. The report is useful for researchers, developers, architects, interior designers, and the general public.

(IS-2018-04) 2014 Digital Divide Index

This report was prepared in September 2016 by the Intelligent Community Institute and presents a county-level digital divide index (DDI) using 2014 data in an effort to rank and identify U.S. counties where the digital divide is highest. Topics covered include background on the digital divide, infrastructure/adoption, socioeconomic factors, the overall digital divide index, and recommendations to narrow the digital divide. The report is useful for policy makers, telcom companies, IT professionals, and members of remote communities.

IS-2018-03) ENERGY EFFICIENCY Market Report 2016

This report was prepared in October 2016 by the International Energy Agency and deals with understanding global trends in energy efficiency. Topics covered include key indicators of energy intensity, energy efficiency investments and their impact, progress in energy efficiency due to lower energy prices and policy changes, threat of a continuation of lower energy prices to energy efficiency, and the potential impact of a well-designed policy to mitigate risks in achieving energy efficiency. The report is useful for energy policy makers and professionals in all industry sectors.

(IS-2018-02) DIGITAL DEMANDS: Exceeding Customers' Ever-Changing Digital Expectations Through Billing

This report was prepared in September 2016 by Zpryme Research and explores new opportunities for innovation and partnerships that enable utilities to readily deliver billing that enhances customer digital experiences. Topics covered include how changing customer expectations apply to utilities, utility perceptions of these changes and what utilities are doing to address them, how innovators can win, and how billing can be addressed using low-cost methods, and finally the benefits and risks associated with taking customer communications digital. The report is useful for executives and technology professionals working in utility companies.

(IS-2018-01) NSCA Electronic Systems Outlook Winter Edition

This report was prepared in February 2016 by NSCA and FMI and gives the U.S. regional (northeast, midwest, south, west) electronic systems outlooks based on construction put in place for various vertical markets. Topics covered include key economic indicators, vertical market outlook (corporate, education, government, health care, house of worship, lodging, manufacturing, retail), construction outlook summaries, and Canada's construction outlook. The report is useful for business consultants and technology integrators.

(IS-2017-296) Enterprise Streaming Technology Spending Trends-2017

This report was prepared in June 2017 by Wainhouse Research and presents the input from CEOs regarding the use, deployment, and perceptions of technology platforms and services for corporate streaming video and webcasting. Topics covered include an in-depth analysis of organizations' budget allocation for streaming video technology solutions in 2017, and a comparison of organizations' 2017 budget for streaming video relative to 2016. The report is

useful for business executives, IT professionals, and video streaming technology manufacturers and distributors.

(IS-2017-295) Using Intelligent Efficiency to Collect and Analyze Nonenergy Benefits Information
This report was prepared in June 2017 by the American Council for an Energy-

Efficient Economy and deals with the use of information and communication technologies (ICT) to track, analyze, and quantify information related to non-energy benefits (NEBs) and addresses potential applications. Topics covered include a working definition of NEBs, uses of NEBs, current practices and collection and analysis of NEBs, use of in "Intelligent Efficiency" technologies ("IE"/ICT) to save energy and track and quantify NEBs, energy efficiency programs, deployment challenges, and policy considerations. The report is useful for policy makers, business executives, and technology professionals.

(IS-2017-294) Augmented Reality for the Industrial Enterprise: A Hands-On Introduction to Rapid AR Development

This report was prepared in May 2017 by Thingworx and deals with the application of augmented reality (AR) to industrial enterprise. Topics covered include business justification for using (AR), creators and use cases, key technologies for building an AR experience, best strategy for AR growth, and the future of AR. The report is useful for executives and technology professionals intending to leverage AR for business growth.

(IS-2017-293) Blocked: Why Some Companies Restrict Data Access to Reduce Competition and How Open APIs Can Help

This report was prepared in November 2017 by the Centre for Data Innovation and deals with unfair use of market power by some companies in real estate, financial services, and airline industries to limit third parties accessing certain data, thereby hurting competition, innovation, and consumers. Topics covered include examples of unfair practices in real estate, financial services, and airline industries, and recommended use of open application programming interfaces (APIs) to achieve increased market transparency. The report is useful for policy makers, executives, IT professionals, and consumers.

(IS-2017-292) Impact of Crosstalk from Non-Standard Links on IEEE 802.3bz

This report was prepared in October 2017 by NBASE-T Alliance and deals with the non-standard operating modes in products advertising IEEE 802.3bz performance. Topics covered include the importance and history of alien crosstalk management in BASE-T Ethernet (including NBASE-T/IEEE 802.3bz), the impact of alien crosstalk interference from non-standard devices, and recommendations for using devices with standard-compliant transmit power and power spectral densities to maintain good performance in BASE-T networks. The report is useful for engineers, technologists, and IT professionals.

(IS-2017-291) NBASE-T 2.5G/5G Ethernet Technology Basis for the IEEE 802.3bz Standard

This report was prepared in December 2016 by NBASE-T Alliance and presents the basis for introducing the IEEE 802.3bz communication standard. Topics covered include key challenges facing 1000BASE-T Ethernet, speed and throughput bottleneck in legacy systems, bridging the communication standards gap through collaboration, and an overview of NBASE-T Alliance and the standards. The report is useful for engineers, technologists, and IT professionals.

(IS-2017-290) GLOBAL BUSINESS CONFIDENCE REPORT 4th Quarter 2017

This report was prepared in October 2017 by the International Trade Council and provides important insights into the current state of the global economy by country and sector based on a global survey of 1689 C-Level executives. Topics covered include responses by sector and industry, business confidence, upcoming challenges, organizational growth, and government impact. The report is useful for business executives, policy-makers, and legislators.

(IS-2017-289) The 2017 State New Economy Index: Benchmarking Economic Transformation in the States This report was prepared in November 2017 by the Information Technology & Innovation Foundation and deals with the capacity assessment of the U.S. to successfully navigate an economy driven by technological innovation. Topics covered include the degree to which state economies are knowledge based, globalized, entrepreneurial, IT-driven, and innovation-based, the overarching strategic issues facing states, the role of large and small businesses in driving growth, and innovative models to spur workforce training and technology commercialization. The report is useful for policy makers, business leaders, and IT professionals.

(IS-2017-288) Discovering, Defining and Framing New Smart Systems and Services Growth Opportunities This report was prepared in May 2017 by Harbor Research and describes with how strategic business designers and developers should think about identifying and developing new smart systems and services growth opportunities. Topics covered include and overview of smart systems, framing smart systems growth opportunities, smart connected models, and framework for identifying opportunities. The report is useful for business and technology leaders.

(IS-2017-287) EMV and NFC: Complementary Technologies Enabling Secure Contactless Payments This report was prepared in November 2015 by Smart Card Alliance and clarifies how EMV ("Europay, MasterCard, and Visa") chip payment and NFC ("Near-Field Communication") technologies are used together to enable secure payments. Topics covered include key terms and definitions, current adoption in the U.S., provisioning and use, and considerations for contactless payment implementation. The report is useful for computer engineers, technologist, security professionals, and merchants.

(IS-2017-286) Coexistence and Interoperability in a mixed vendor PLC environment

This report was prepared in January 2017 by Home Grid Forum and defines the meaning of

coexistence and interoperability within the power line communication context. The topics covered include detailed definition of coexistence and interoperability, backward compatibility, and associated chip sets and protocols. The report is useful for powerline communication engineers and technologists.

(IS-2017-285) Building confidence: Facing the Cybersecurity Conundrum

This report was prepared in November 2016 by Accenture and deals with the cybersecurity breaches and strategies to improve cybersecurity across the enterprise. Topics covered include organizations' misplaced confidence in security, defining cybersecurity success, security testing, innovation, protecting the organization from the inside, employee engagement in security, security leadership from the top, and learning from past security breaches. The report is useful for cybersecurity professionals, business leaders, and employees.

(IS-2017-284) Niagara Framework Guide Specification

This report was prepared in June 2017 by Tridium and deals with a device connectivity, management, and control framework ("Niagara"). Topics covered include an overview and scope of the framework, middleware, and management level requirements. The report is useful for consultants, building contractors, developers, end users, middleware specialists, and system integrators.

(IS-2017-283) Evaluation Roadmap: How to Choose the Right Smart Building Solution

This report was prepared in May 2017 by Switch Automation and deals with the application of the Intelligent Property Design Framework by Bruce Duyshart to achieve scalable smart building solutions. Topics covered include strategy, site review, research, ideation, platform scaling, documentation, implementation, building, testing, support, and a questionnaire for customer input. The report is useful for building owners and facility managers, as well as providers of smart technology solutions.

(IS-2017-282) Meeting Customer Expectations with Video-on-Demand

This report was prepared in March 2017 by Innovative Systems and deals with rising popularity for Video on Demand (VoD) among consumers. Topics covered include different types of VoD (subscription, transactional, free), a case study of successful VoD deployment, and how VoD providers can meet the challenge of over-the-top service. The report is useful for leaders of media and telecom companies.

(IS-2017-281) Bridging the Funding Gap: An Enterprise Perspective Post-Session Report

This report was prepared in June 2017 by GLOBE Series & The Delphi Group and includes perspectives from several CEOs of cleantech companies, who attended the Globe Capital 2017 Summit, on raising capital for development, demonstration, and deployment. Topics covered

include key takeaways on data strategy, government financing, cleantech export opportunities, and procurement. The report is useful for leaders of new cleantech companies.

(IS-2017-280) Assessment of solid -state lighting, Phase two

This report was prepared in January 2017 by the National Academies of Sciences, Engineering, Medicine and deals with the commercialization, technology development , and manufacturing of solid-state lighting (SSL). Topics covered include an introduction to lighting and electricity consumption in the U.S., public policy and development of new lighting technologies, assessment of LED and OLED technologies, SSL applications, and manufacturing. The report is useful for lighting professionals, manufacturers, and organizations planning to invest in SSL solutions.

(IS-2017-279) Schneider Electric Facilities Management Survey

This report was prepared in November 2017 by Schneider Electric and presents the findings from a survey of decision makers in facilities management and maintenance across the USA. Topics covered include electricity expenditures, maintenance practices, familiarity with analytics, barriers for big data solutions, energy management systems, predictive risk, connected services, data storage, information flow, access control, internet of things, capital budgets, and service vendor identification. The report is useful for building owners and facilities managers.

(IS-2017-278) Saudi Arabia HVAC-R Market Outlook 2021

This report was prepared in October 2016 by TechSci Research and presents a five year outlook of Saudi Arabia's market in heating, ventilation, air conditioning, and refrigeration (HVAC-R). Topics covered include an overview of key HVAC-R projects, market outlook (thermal insulation, district cooling, refrigeration), HVAC-R market size, share, and forecast by value and region, and sustainability / energy saving. The report is useful for government officials, city planners, and business intending to participate in Saudi Arabia's HVAC-R market.

(IS-2017-277) Integrating Energy and Facility Management

This report was prepared in June 2017 by Enovity and describes how businesses are integrating energy and facilities management, along with and the resulting benefits. Topics covered include the current state of energy and facilities management in the U.S., the benefits of an integrated approach, organizational risks from to a siloed. approach, and the four steps to integrating energy and facilities management. The report is useful for executives of energy firms.

(IS-2017-276) India Solar Market - September 2017

This report was prepared in June 2017 by Mercom Communications and deals with the market drivers and challenges in India's solar market. Topics covered include current solar market installations, policy drivers, improved bidding guidelines, rising Chinese module prices, market

leaderboard, solar imports, exports, and anti-dumping, renewables, financing and consolidation, project development by state, and solar installations forecast. The report is useful for solar energy companies and manufacturers/exporters of solar energy equipment.

(IS-2017-275) As-a-Service for Customer Service: Optimizing for New Utility Customer Demands
This report was prepared in May 2017 by Zpryme and Hanson Technologies and covers how utility companies are addressing customer service. Topics covered include new customer demands and response from utilities, description of business process as a service (BPaaS), application of BPaaS to customer service, and recommendations for improved customer care. The report is useful for leaders and managers of utility companies responsible for improving customer service.

(IS-2017-274) The State of Utilities in Smart Cities and Energy Innovation

This report was prepared in June 2017 by Zpryme and deals with the participation of utilities in building smarter and more innovative communities. Topics covered include the role of utilities in implementing smart city strategy / technologies and supporting/driving energy innovation in their communities. The report is useful for leaders of utility companies and city/community planners.

(IS-2017-273) How Facility Data Drives Performance and Investments

This report was prepared in March 2017 by Dude Solutions and deals with the use of data and business intelligence for efficient operation of facilities along with the associated constraints. Topics covered include growing demand for facilities data, obstacles to accessing the data, type of data needed, using data, improving equipment performance, keys to success, and acting on improvement opportunities. The report is useful for building owners, managers, and directors of facility operations.

(IS-2017-272) Building a People-Centered Workplace: A Winning Approach to Putting Your Employees First
This report was prepared in June 2017 by Comfy and covers the steps needed to ensure that employee workplaces are aligned to what people actually want. Topics covered include office choice and control, employee feedback, actionable insights and informed decisions, continuous improvement, and a blueprint for success. The report is useful for company executives, interior design professionals, and facilities managers in charge of workplace design.

(IS-2017-271) PJM capacity performance is here: Don't believe the myths

This report was prepared in October 2017 by CPower Energy Management and examines the history of "traditional" demand response program in PJM (a regional energy transmission company), the January storms that sank those programs, and what capacity performance is-- and isn't. Topics covered include a review of three significant myths: the decline of cleared demand

response in the reliability pricing model; new requirements and penalties make it too difficult to participate; and the move to 100% capacity performance means that PJM is moving away from demand response. The report is useful for electric utility companies and government agencies overseeing energy planning and distribution.

(IS-2017-270) Making a Difference: Strategies for Successful Low-Income Energy Efficiency Programs

This report was prepared in October 2017 by American Council for an Energy-Efficient Economy and deals energy efficiency programs that deliver deep savings for low-income customers. Topics covered include customer participation, deep savings opportunities for customers, summary of energy efficiency programs, strategies of successful programs, and coordination of state policies and agencies. The report is useful for energy consumers, energy utility companies, and policy makers.

(IS-2017-269) The energy transition: How innovation is driving change

This report was prepared in September 2017 by the World Energy Council and provides an overview of energy innovation initiatives around the globe. Topics covered include policy and regulation, digital innovation, technology and decarbonisation, and new business models. The report is useful for government officials, energy utility leaders, and startup companies charged with supporting and implementing innovative solutions in the energy sector.

(IS-2017-268) CRE // Tech Mid-Year Report

This report was prepared in October 2017 by CRE // Tech deals with the analysis of employment, funding, and overall development of the commercial real estate technology sector from 2013 to June 2017. Topics covered include value chain analysis of total employees, funding, companies founded year-over-year, venture capital deal volume, pre-money valuation, and summary of new CRE technology companies. The report is useful for startups, investors, commercial real estate professionals, and thought-leaders.

(IS-2017-267) Recent Developments in Energy Efficiency Evaluation, Measurement, and Verification

This report was prepared in October 2017 by the American Council for an Energy-Efficient Economy and deals with the importance of evaluation, measurement, and verification (EM&V) in energysystems. Topics covered include the states that exhibit policy and institutional leadership, deemed savings and technical reference manuals (TRMs), common practice baselines (CPBs), and advanced metering-based M&V enabled by greater data availability and improved data analytics, specific case studies, and major challenges facing the EM&V field. The report is useful for utility leaders engaged in the planning, development, and deployment of energy efficiency utility system resources.

(IS-2017-266) Reimagining the electric utility - Operational excellence in a digital world More than 60 participants from 16 countries and four continents gathered in May 2017 in Rome, Italy, for PwC's roundtable on delivering operational excellence in a digital world. The range of business models is expanding with corresponding implications for business alignment, core capabilities and profitability. But utilities' current business capabilities are often not sufficient to handle the new challenges and opportunities facing the industry. This paper discusses digital business strategy and delivery.

(IS-2017-265) Plug-in Electric Vehicle Sales Forecast Through 2025 and the Charging Infrastructure Required

The Edison Electric Institute (EEI) and the Institute for Electric Innovation (IEI) developed a plug-in electric vehicle (PEV) sales forecast through 2025, including both plug-in hybrid electric vehicles and battery electric vehicles, and identified the associated charging equipment infrastructure needs. This paper identifies both the scope and scale of charging infrastructure needed to support PEVs and the different approaches to infrastructure build-out.

(IS-2017-264) Low-Income Energy Efficiency Programs: A Baseline Assessment of Programs Serving the 51 Largest Cities

This paper summarizes the findings of a baseline assessment of the electric and natural gas ratepayer-funded energy efficiency programs specifically targeting low-income households in the 51 largest metropolitan statistical areas (MSAs) in the United States. Many programs have room to provide additional best practice measures, such as water efficiency and appliance upgrades. The study provides a foundational overview of low-income energy efficiency programs across the country.

(IS-2017-263) Advancing Batteries to Enhance the Electric Grid Chapter One: Front-of-Meter Applications

Energy storage is the only technology that can bank generated electricity and dispatch it later when needed. As intermittent generation continues to be added to the grid, fast and flexible resources such as batteries are increasingly needed to balance wind and solar's variable output. With their unique physical and operational characteristics, batteries directly connected to the transmission and/or distribution systems (front-of-meter) have the potential to cost-effectively increase the electric grid's reliability and resiliency.

(IS-2017-262) Building Smart Cities for Smart Citizens

Smart Cities need Smart Buildings and Homes but they also need citizens engagement. This paper discusses the need to re-evaluate the citizens' role in smart cities - and why now. It provides examples of successful cities' approaches and looks at some of the challenges and hurdles cities face. It provides a glimpse of what's next for citizen-centric smart cities and some tools and best practices that can be used today.

(IS-2017-261) Energy Savings Forecast of Solid-State Lighting in General Illumination Applications

Navigant prepared the seventh iteration of this study forecasting the expected annual lighting energy consumption based on different scenarios: The Current SSL Path scenario estimates the expected future adoption of LEDs based on historical data and the current trajectory for the technology. The DOE SSL Program Goal scenario estimates the potential future adoption of LEDs based on what DOE has determined is technically feasible in the given time frame, but additional efforts and funds would likely be required.

(IS-2017-260) Smart City In Focus 2017: Smart Governance, Life and Industry

This report is a unique collection of articles and takeaways, drawn from presentations by smart city experts from all over the world. 65 city leaders and technology companies discuss how to advance smart city transformation and move from open data platforms to true data economies.

(IS-2017-259) Smart City Strategies- A Global Review 2017

Cities around the world embrace the idea of becoming a smart city, but struggle with the transformations that it requires. The most beautiful visions and the most intricate plans fall down when they are confronted with the messy reality of living cities. Nonetheless numerous demonstrators have shown how smarter services can make cities better, from digital tools for planning, to intelligent transport systems for faster emergency response.

(IS-2017-258) Clean Edge and Navigant for GridWise Alliance

The Grid Modernization Index (GMI-4) ranks and analyzes all 50 U.S. states and the District of Columbia, based upon the degree to which they are moving toward a modernized electric grid. The grid is changing to accommodate new cost-effective technologies and evolving consumer expectations.

(IS-2017-257) Connected Lighting System Interoperability Study Part 1: Application Programming Interfaces

While connected lighting systems (CLS) might enable dramatic improvements in the energy performance of lighting and other energy-intensive systems or services, at this early stage in their development, that potential is limited by significant fragmentation of the underlying technologies and interfaces. The main goal of this series of studies is to discern and document the state of CLS interoperability in this early stage, multi-vendor, multi-technology, and multi-business-model landscape.

(IS-2017-256) IBI GROUP'S TOP 10 Smart City Strategy Success Factors

IBI Group's international involvement in Smart City Strategy development and implementation,

allowed them to identify the Top 10 Smart City Strategy Success Factors as the primary factors that contribute to cities and regions achieving their goals through Smart City initiatives. Most cities have strategies for critical infrastructure components like information technology, transportation, utilities, urban planning, as well as broader strategies for economic development and environment.

(IS-2017-255) GutCheck - Connected Home Exploration

With the proliferation of smart technology and the Internet of Things in daily life, consumers have begun to have access to new ways of controlling and monitoring their homes. Smart connected home technology promises benefits including comfort, convenience, economy, and safety. Companies in a variety of industries are experimenting with connected home products and services; however, there is no clear understanding of what types of products and services have the most promise among early options.

(IS-2017-254) How National Governments Can Help Smart Cities Succeed

This paper reports on how national governments should recognize that cities acting alone cannot transition to smart cities as quickly or as effectively as would be desirable. National governments should enact policies that address the key challenges to smart city development that cities are not likely to solve acting on their own. Nations that complement municipal initiatives with support will likely lead in smart city development and more quickly secure the social and economic benefits of smart cities.

(IS-2017-253) High Performance - Making the Buildings-Energy Equation Sustainable

Transformation of the building-energy equation at an affordable price is possible today. The emerging conception of buildings can be reduced to four principles. Buildings should be viewed as: 1. a whole composed of integrated systems and sub-systems; 2. integrated with a larger community of buildings; 3. integrated with electricity generation and distribution systems; 4. performing over a lifecycle within a community lifecycle.

(IS-2017-252) How We Will Play – Consumers, Connected Devices and the Future of Payments

This paper reports on the study on Connected Devices And Payments Preferences. Consumers kept one and seven day diaries and recorded the answers to the following 3 questions: Which connected devices do consumers own today? How do they use them to pay? How might they consider using them to pay in the future? The study generated more than six million data points and a wealth of information about consumers' connected device ownership.

(IS-2017-251) The Internet of Things: A movement, not a market

This report was prepared in October 2017 by IHS Markit research organization and discusses the significance of the Internet of Things (IoT) and the advantages that IHS Markit can bring to

businesses. Topics covered include the importance of IoT, the main pillars of IT, and the IHS Markit advantage. The report is useful for business leaders wanting to learn about the basics of IoT and IHS Markit services.

(IS-2017-250) The Future of Smart Systems and IoT Analytics

This report was prepared in February 2017 by Harbor Research and deals with a new machine data management and analytics platform SkyFoundry. Topics covered include machine intelligence and analytics, current computing paradigms and challenges posed by IoT, SkySpark platform for IoT computing, cyber-physical computing, IoT data and analytics, application of SkySpark for data interpretation, and Project Haystack the “mark-up language” for data. The report is useful for technology managers and executives in charge of deployment and management of smart systems and IoT analytics.

(IS-2017-249) Getting Smarter by the Sector: How 13 Global Industries Use Artificial Intelligence

This report was prepared in October 2017 by TATA Consultancy Services and provides an overview of how artificial intelligence (AI) is applied across diverse global industries. Topics covered include a comparison of AI strategies across industries and specific trends by industry (automotive, banking and financial services, consumer packaged goods, energy, healthcare and life sciences, high tech, industrial manufacturing, insurance, media, entertainment, information services, retail, telecommunications, travel, transportation, hospitality, and utilities). The report is useful for business and technology professionals across diverse industries who are responsible for driving business strategy, innovation, efficiency, growth, and profitability.

(IS-2017-248) Turning data into dollars: Synthesizing business architecture and optimizing operations in the age of digitization

This report was prepared in April 2017 by Upstream Intelligence and provides insights to help energy (oil) companies increase production and efficiency by transitioning from standard data collection to advanced analytics, visualization, and Internet of Things (IoT). Topics covered include an overview of how oil companies spend in 2016 on data and analytics products and services, 2017 investments by oil companies in digital solutions, services and/or products, role of technology to unlock untapped revenue, predictive maintenance using artificial intelligence and automated technologies, landscape of technology solution vendors, efficiency optimization of data integration platform, and organizational and cultural shifts to enhance data usage for decision making. The report is useful for business and technology professionals leading energy companies.

(IS-2017-247) CYBERSMART BUILDINGS: SECURING YOUR INVESTMENTS IN CONNECTIVITY AND AUTOMATION

This report was prepared in February 2017 by partnership of Johns Controls and Booz/Alland/Hamilton and deals with the importance that cybersecurity plays in large buildings.

Topics covered include cybersecurity risks, a call to action to address cybersecurity threats, integrated systems in smart buildings, examples of cyber attacks, role of stakeholders in supporting cybersecurity, and strategies for mitigating cybersecurity risks. The report is useful for building owners, investors, cybersecurity professionals, and vendors of cybersecurity products.

(IS-2017-246) Transforming eHealth into a political and economic advantage

This report was prepared in February 2017 by Polityka Insight and deals with the state of eHealth in the European Union. Topics covered include an overview of eHealth, policy and regulation challenges, benefits measurement (efficiency, cost reduction), profiles of developed and developing countries, and recommendations for advancing eHealth implementation in Europe. The report is useful for government officials responsible for policy and regulations, health care organization, and IT professionals responsible for implementing eHealth solutions.

(IS-2017-245) From great science to thrilling technology: Europe's future & emerging technology programme

This report was prepared in October 2017 by the European Commission and provides an insight to Europe's science and technology research programme (Future & Emerging Technologies "FET"). Topics covered include research frontiers in artificial intelligence, human-computer interaction, robotics, information & modelling, biotechnologies, interdisciplinarity, computer science, green technologies, medical technologies, quantum technologies, neuroscience & the human brain project, nanotechnologies, new materials & graphene, high-performance computing, and combination of art & science as new way of doing research. The report is useful for anyone interested in learning about science and technology research in Europe.

(IS-2017-244) Internet and enterprise productivity: evidence from Latin America

This report was prepared in May 2017 by the Research Institute of Applied Economics in Barcelona and examines the link between the productivity of firms in Latin America and the Internet. Topics covered include firms' adoption of the Internet and their productivity, the intensity of Internet use, and the link between the new technologies and productivity. The report is useful for executive and technology leaders in Latin America charged with productivity improvements, as well as companies providing Internet services.

(IS-2017-243) What doctor? Why AI and robotics will define New Health

This report was prepared in June 2017 by PWC and deals with the emergence and increasing use of artificial intelligence (AI) and robotics in the health ecosystem. Topics covered include artificial intelligence and consumer apps for keeping well, role of AI & robotics (early detection, diagnosis, decision making, treatment, end-of-life care, research, training), investments in health care, general public's (Europe, the Middle East and Africa) interest in AI & robotics, and recommendations for successful implementation. The report is useful for government officials, health care professionals, patients, technology solution providers, and health care decision

makers.

(IS-2017-242) Successful Strategies Driving Innovation & Results PROGRESS REPORT 2017

This report was prepared in February 2017 by the U.S. Department of Energy and provides an overview of initiatives from leading US organizations to reduce energy and water waste in buildings and industrial facilities. Topics covered include a summary of accomplishment, goals and solutions, examples by industry sector, and efforts to reduce energy and water costs in federal operations. The report is useful for executives, managers, and employees in all industries who are leading or participating in initiatives for more efficient use of energy and reduction of water waste.

(IS-2017-241) THE STATE OF ENERGY INNOVATION 2017

This report was prepared in February 2017 by Dexma Energy Management and provides global insights about energy innovation. Topics covered include a detailed overview of companies who participated in the research, business and technology challenges that companies are facing, technology trends, and a future outlook on energy efficiency. The report is useful for business and technology leaders interested in advancing the innovation agenda at their organizations.

(IS-2017-240) Why cognitive manufacturing matters in electronics Activating the next generation of production success

This report was prepared in February 2017 by IBM Institute for Business Value and presents survey results of electronics industry executives to understand how the electronics industry is applying cognitive computing to manufacturing. Topics covered include the current state of electronics manufacturing, the next generation of electronics manufacturing, adoption of cognitive manufacturing and its level of maturity, barriers facing cognitive manufacturing, and recommendations for implementation. The report is useful for business and technology leaders in charge of advancing manufacturing capabilities of their organizations.

(IS-2017-239) Securing the Internet of Things: A collaborative and shared responsibility

This report was prepared in May 2017 by Online Trust Alliance (OTA) / The Internet Society (ISOC) and deals with security challenges presented by the Internet of Things. Topics covered include: the emerging security issues from connecting auto/home/gym/office, collaborative societal responsibility to secure IoT, and a call to action for key stakeholders affected by IoT. The report is useful for the general public, government officials, and members of private and public organizations developing and/or using IoT technology.

(IS-2017-238) Utilities and Electric Vehicles: THE CASE FOR MANAGED CHARGING

This report was prepared in April 2017 by Smart Electric Power Alliance and deals with challenges and recommendations for effectively managing charging of electric vehicles. Topics

covered include the benefits of managed charging, charging options, role of utilities, vehicle-grid integration, and an overview of electrical vehicle supply equipment manufacturers. The report is useful for owners of electric vehicles, and business and technology leaders of electrical utilities.

(IS-2017-237) Internet of Things Investment & Corporate Development Report

This report was prepared in May 2017 by Harbor Research and deals with an overview of strategic business moves by leading IoT companies in the US market. Topics covered include: major investments, appointment of key leaders, new partnerships, new technology solutions, private funding, new funds, and least valuable players. The report is useful for the general public, investors, and senior executives in charge of business and technology strategy.

IS-2017-236) Outsmart your video competition with Watson How advances in cognitive awareness promise to redefine video industry economics

This report was prepared in May 2017 by IBM and deals with the business benefits of IBM's Cloud Video platform. The benefits discussed include: higher advertising potential, video personalization, access to faster indexed content, improved transcription and captioning, improved accuracy in compliance monitoring, and highlights in near real-time. The report is useful for CEOs and CTOs of video companies.

(IS-2017-235) G.FAST Enabling the Gigabit Society

This report was prepared in August 2017 by ADTRAN and deals with gigabit broadband communications standard (G.Fast). Topics covered include: deployment examples from US and UK, use and performance copper and coax with fiber for gigabit networks, and potential for future growth of G.Fast. The report is useful for telcom carriers, service providers, and researchers.

(IS-2017-234) FROM HEALTHCARE TO HOMECARE: The critical role of 5G in healthcare transformation

This report was prepared in June 2017 by Ericsson and presents insights from an online survey of 4,500 advanced smartphone/mobile broadband users regarding healthcare. Topics covered include: decentralization of health care from hospitals to homes, centralization of patient data in hospitals, and the importance of 5G to support the increased use and security of wearables and remote treatments. The report is useful for IT professionals working in healthcare, healthcare providers, and telecom providers supporting hospitals and end- users.

(IS-2017-233) Plugging In the Fiber Home: A Technical Paper

This report was prepared in 2016 by All Systems Broadband and deals with the emerging trend of fiber self- installs, and its implication on the physical fiber plant. Topics covered include: survey of the various technologies available to bring fiber to the desktop, safety implications of laser,

economics of customer self-installs, transition boxes and their role in providing slack storage as well as safe connectivity, and link verification (in-home versus remote). Different general approaches to indoor Optical Network Terminals (ONTs) along with the practical considerations of each are discussed. The report is useful for the general public planning residential fibre installation and companies providing fibre implementation and maintenance.

IS-2017-232) Envisioning an ICT led approach to the national transformation program for the Kingdom of Saudi Arabia

The report was prepared in December 2016 by International Data Corporation (IDC) and deals with a detailed roadmap to 2030 for Saudi Arabia's national transformation based on information and communications technology (ICT). Topics covered include the opportunities and impact of digitization across health care, entertainment, sports, tourism, supply chain & logistics, the role of private and public partnerships, ICT skill development, and interviews with key Saudi leaders. The report is useful for citizens, government officials, and private and public ICT companies in Saudi Arabia, as well as external companies planning to do business in Saudi Arabia.

(IS-2017-231) Wireless wearables: The role of Wi-Fi® in enabling digital health

This report was prepared in May 2016 by Wi-Fi alliance and provides an overview of wireless technologies in the digital health ecosystem and focuses on the role of Wi-Fi and associated best practices in enabling the promise of wearable devices in digital health. Topics covered include a description of wireless wearables within the digital health ecosystem, typical radio frequency (RF) environments and use cases for wireless wearables, associated challenges and best practices, and relevant and associated Wi-Fi certification programs to deliver the optimal user experience through Wi-Fi connectivity. The report is useful for product developers, infrastructure system integrators, healthcare delivery organizations, and end users.

(IS-2017-230) Clearing a Path to the Cloud: U.S. Regulator Perspectives on Cloud Technologies

This report was prepared in August 2017 by Zpryme and Oracle and deals with ways in which regulators see value in the cloud, both for utilities and for their customers. Topics covered include: why U.S. regulators see benefits in utilities using cloud technologies, how regulators plan to support investment in cloud technologies by utilities, recommendations for furthering regulator support for the cloud, and approaches for utilities to evaluate the best path forward for their own cloud strategies. The report is useful for regulators, CEOs, CFOs, CTOs, and CIOs of utility companies.

(IS-2017-229) MOBILITY REDEFINED: THE UTILITY MOBILE WORKFORCE IN THE CONNECTED GRID

This report was prepared in November 2017 by Zpryme and deals with how a data-rich world with unprecedented connectivity will transform a utility's mobile workforce. Topics covered include a description of the changing utility mobile workforce, the ways IoT and Smart Cities are

reshaping the mobile workforce, preparedness of utility mobile workforce, and the ways that utilities can take action today to unleash the potential of their evolving mobile environments. The report is useful for utility CEOs and HR directors responsible for managing mobile employees, and CTOs and CIOs responsible for technology solutions to support employees.

(IS-2017-228) The Impact of the IoT Demystified

This report was prepared in July 2017 by Qorvo and deals with the Internet of Things (IoT). Topics covered include a brief description and history of IoT, challenges, core values, self driving cars, the downside and the "dark side", privacy, integrity, and impact. The report is useful for the general public, consumers, and technology solution providers.

(IS-2017-227) How Facility Data Drives Performance and Investments

This report was completed 2016 by Dude Solutions. This report explores how facility managers understand data and business intelligence and use them to operate their facilities more efficiently, justify their capital and operating budgets, and communicate the value of their work. However, most facility managers find their efforts to produce and analyze data constrained by outdated systems. A Building Operating Management survey was sent out via email to 30,000 subscribers of Building Operating Management (building owners, facility managers) and Facility Maintenance Decisions (maintenance/engineering managers) magazines and documents the increasing urgency of capturing and leveraging good data.

(IS-2017-226) Energy Information Management - Practices and Technology Assessment

This report was completed November 2012 by Frost & Sullivan. This report explores the benefits of energy information management solutions; key challenges, market drivers and restraints; initiatives driving demand; trends and unmet needs; current state; emerging competitive environment; solutions; market life cycle for and selected solutions (BuildingIQ, SClenergy, EfficiencySMART and SeriousEnergy Manager).

(IS-2017-225) Rise of the Machines: How AI-Driven Personal Assistant Apps Are Shaping Digital Consumer Habits

This report was completed 2017 by Verto Analytics. This report explores how people use AI-driven personal assistant apps to gain a better insight about the future of AI and which apps might have mass market appeal. Many of the biggest technology companies have released personal assistant apps, services, and devices to tap into this emerging market but Google appears to have secured a foothold at the moment.

(IS-2017-224) Moving Forward: Findings and Recommendations from the Consultative Council

This report was completed 2016 by the National Institute of Building Sciences. This report explores the challenges from policies, practices and trends that hinder the achievement of the

nation's goals of high- performance buildings and communities. The report examines some of these and offers findings and recommendations on how to overcome them.

IS-2017-223) Corporate Clean Energy Procurement Index: State Leadership & Rankings

This report was completed January 2017 by Andrew Rector, Bryce Yonker, Clint Wilder, Ron Pernick, David Gardiner, Ryan Hokum, Justin Barnes, Rusty Haynes, Blaine Collison and Emily Williams. This report explores the efforts of the Retail Industry Leaders Association (RILA) and Information Technology Industry Council (ITI) and others to boost renewable energy (RE) usage. The commercial and industrial (C&I) buyers account for more than half of all signed wind energy power purchase agreements (PPAs). This report highlights companies such as, Amazon, Facebook, Google, Microsoft, Target, and Walmart, for their efforts to install both onsite and offsite renewables and create jobs.

(IS-2017-222) National BIM Guide for Owners

This report was completed January 2017 by Dan Chancey, Ernie Conrad, Carrie Sturts Dossick, Craig R. Dubler, Johnny Fortune, M. Dennis Knight, John I. Messner, Henry L. Green, Dominique Fernandez, Earle Kennett and Stephanie Stubbs. This report explores the essential requirements for BIM, as well as, options for Owners who wish to go beyond minimum requirements. The report outlines how to develop and implement requirements for the application of Building Information Modeling (BIM) for internal policies and procedures, and explains how to include these requirements in contracts to plan, design, construct and operate buildings.

(IS-2017-221) Maryland Benefits: Examining the Results of EmPOWER Maryland through 2015

This report was completed January 2017 by Brendon Baatz and James Barrett. This report explores the first phase of the EmPOWER Maryland energy efficiency programs that began in 2008 after the passage of the EmPOWER Maryland Energy Efficiency Act. This report reviews the costs and benefits of the first phase from 2008 through 2015.

(IS-2017-220) ISGF White Paper: AMI Rollout Strategy and Cost-Benefit Analysis for India

This report was completed July 2016 by Reji Kumar Pillai, Rupendra Bhatnagar and Hem Thukral. This report explores the roll-out of Advanced Metering Infrastructure (AMI) in India. It looks at key issues such as smart meter standards and specification, testing of smart meters, retrofitting of existing meters, communication technology options, procurement strategy and business models for the AMI roll- out.

(IS-2017-219) Finance Guide for Policy-Makers: Renewable Energy, Green Infrastructure 2016

This report was completed August 2016 by Kirsty Hamilton, Low Carbon Finance Group, Chatham House and Ethan Zindler, Bloomberg New Energy Finance (BNEF). This report explores the need to mobilize substantial private capital flows into climate solutions at the required pace and scale

to combat climate change as addressed by the Paris UN Climate Agreement. It provides a factual overview from a finance standpoint – sources of capital, what the capital markets do, how transactions work and sets common finance terms in context.

(IS-2017-218) Utility Innovation Series Report

This report was completed 2016 by Zpryme sponsored by Sensus. This report explores a smart water survey of 85 U.S. water utilities completed by Zpryme and the Smart Water Summit (SWS). Nine out of 10 water utilities have a smart water plan, and many are beginning to embrace smart water technologies, such as AMI and analytics. This survey consisted of 45 questions about smart water initiatives in the U.S. A total of 85 water utilities were involved.

(IS-2017-217) Cybersecurity and the Smart Home Industry Snapshot - How the surge in smart homes may open the doors to opportunities and vulnerabilities for consumers and solution providers

Smart homes are a foundation towards greater Connected Living. But due to challenges such as lack of standards and consistency from suppliers and insufficient steps taken by homeowners to protect themselves, the opportunity for cybercrime grows. This study provides an assessment of why both consumers and industry should address the growing concern cybersecurity and smart homes.

(IS-2017-216) Our Detailed Privacy Blueprint: What All Parties Should Be Doing Right Now to Protect the People and Organizations They Care About

Privacy regulations can shut down most of the benefits of big data, leaving organizations ill-equipped to compete in the global economy. Nowhere is that more true than in the EU. The EU's General Data Protection Regulation (GDPR), intended to protect the privacy of EU citizens, threatens the viability of business initiatives in the region— all of which depend on data. However these trends can apply across all global markets. This report touches on conditions and factors posing threats to privacy and provides related recommendations relevant across regions and markets.

(IS-2017-215) The New Digital Grid: A snapshot of changing dynamics and communication for the North America power grid

The rapidly changing grid market demands flexibility in the communications infrastructure. This brief on industry trends looks at how the market is defining - and being redefined by - new communication trends and business models. The industry snapshot focuses on key trends, drivers and restraints, and gives a high level market analysis of industry changes to come.

(IS-2017-214) Transformational Shifts in the Buildings Industry

This study outlines the top six transformational trends that will be affecting the buildings

industry. From changes in how we work to the emergence of cognitive technologies to new business models, the buildings industry will be shaped in the future by technologies, processes, and innovative new ideas. This study charts out the key trends and challenges that building owners and operators will face in the coming years, some with the potential to create revolutionary opportunities.

(IS-2017-213) Strategic Directions: Smart City/Smart Utility Report

This report has a number of individual articles on the smart city and smart utility movement. Municipalities are starting to understand the power of data and how it can foster and support master planning, and how a roadmap can define, drive and ultimately enable smart city initiatives. Utilities are working to integrate advanced technologies—such as evolving to accommodate distributed energy resources (DER) and improving network connectivity—to determine a successful path forward in a changing landscape.

(IS-2017-212) Pathway to Cutting Energy Use and Carbon Emissions in Half

Based on a 2012 report by ACEEE they established a strategic goal to reduce projected 2050 energy use by 50%. Our analytical approach was to compare the reference case in the 2016 Annual Energy Outlook (2016 AEO), prepared by the Energy Information Administration (EIA), to an energy efficiency case we prepared that estimated the energy savings from 13 packages of energy efficiency measures that include smart buildings.

(IS-2017-211) RGGI and CO₂ Emissions Trading Under the Clean Power Plan

The Regional Greenhouse Gas Initiative (RGGI) states have over seven years of experience running a voluntary multi-state program to limit emissions of CO₂ through a mass-based, allowance trading program. The states have administered a liquid and efficient market for trading emission allowances and have directed the proceeds from allowance auctions to achieve economic benefits and meet the public policy objectives important to each individual state. In this report, we assess the core issues around emission-allowance trading that RGGI states could consider during the current program review and identify principles and objectives for program design changes that RGGI states might incorporate given the emerging national context.

(IS-2017-210) Comparative Generation Costs of Utility- Scale and Residential-Scale PV in Xcel Energy Colorado's Service Area

The analysis in this report looks at the Xcel Energy Colorado system in 2019 and compares the per- megawatt hour (MWh) customer supply costs of adding 300 MW of PV panels (measured in W-DC) either in the form of: (1) 60,000 distributed 5-kilowatt residential-scale (rooftop) systems owned or leased by retail customers; or (2) 300MW of utility-scale solar power plants that sell their entire output to Xcel Energy Colorado under long-term purchase power agreements (PPA). Using a Reference Case and five scenarios with varying investment tax credit (ITC), PV cost, inflation, and financing parameters, the study finds that customer generation costs per solar

MWh are estimated to be more than twice as high for residential- scale systems than the equivalent amount of utility- scale PV systems.

(IS-2017-209) Safety, operation and performance of grid-connected energy storage systems

This is a comprehensive 106 page guide to energy storage systems with references to all the industry contributors and the standards bodies working on this evolving energy option. Building automations systems are a key component in this energy storage and usage application.

(IS-2017-208) Smart Systems Growth Opportunities: Blockchain

This report was prepared in July 2017 by Harbor Research and deals with Blockchain technology. Topics covered include: overview of industry's shift from Blockchain project pilots to deployment, market challenges and ecosystem dynamics, and key players. The report is useful for business and technology executives responsible for developing and implementing new business and technology strategies.

(IS-2017-207) CIS AND THE CLOUD - AGILITY IN THE NEW UTILITY ERA

This report was prepared in October 2017 by Zpryme and describes how technology and customer trends are shaping Customer Information System (CIS) requirements for utilities, and the role that cloud technologies play in ensuring an agile CIS that can handle the changing marketplace. Topics covered include: customer requirements, role of new technologies in driving CIS, capability of CIS to handle changes in customer requirements and technology, alternatives to traditional CIS platforms, and recommendations. The report is useful for utility CEOs, CTOs, and CIOs responsible for selecting, deploying, and managing a CIS.

(IS-2017-206) Wi-Fi .11AX – What's It All About?

This report was prepared in August 2017 by Qorvo and deals with the Wi-Fi .11AX communication protocol. Topics covered include: performance, range, distributed Wi-Fi, implications for product suppliers and consumers, and a comparison of Wi-Fi 2.4 GHz and 5 GHz. The report is useful for consumers and IT professionals responsible for deployment of Wi-Finetworks.

(IS-2017-205) Use Cases for Software-Defined Broadband Access

This report was prepared in October 2017 by Iskratel and deals with applicability of software-defined broadband with realistic, tangible use cases that provide operators with business differentiation and enable market success. Topics covered include: service- and app-aware access and aggregation, unification of residential, business and backhaul, local-cloud connectivity, and virtual unbundling, wholesale bitstream and open access. The report is useful for IT professionals responsible for design and implementation of Software Defined Networks (broadband).

(IS-2017-204) TOP 10 THINGS TO CONSIDER WHEN DEVELOPING YOUR MANAGED WI-FI PROGRAM

This report was prepared in October 2017 by SecurityCoverage and deals with development of a managed Wi-Fi program. Topics covered include: the current and future state of wireless home networks, managed approaches, in-house technical support, user experience, tools for world-class technical support, network scalability, up-sell opportunities, and ROI. The report is useful for company owners, CFOs, and IT professionals responsible for design and development of Wi-Fi programs.

(IS-2017-203) Ontario Launches the Green Ontario Fund to Help People Save Money and Fight Climate Change This report was prepared in August 2017 by the Ontario's Ministry of the Environment and Climate Change and deals with the Green Ontario Fund - a new not-for-profit provincial agency that will deliver programs and rebates to help reduce energy costs in homes and businesses. Topics covered include: how home and business owners can save money while reducing greenhouse gas pollution, and the GreenOn installation program. The report is useful for home and business owners interested in reducing their energy consumption and operating costs.

(IS-2017-202) ONTARIO'S LONG-TERM ENERGY PLAN 2017 Delivering Fairness and Choice

This report was prepared in August 2017 by the Ontario Ministry of Energy and deals with initiatives taken by Ontario's provincial government to make energy more affordable and to provide Ontario's energy consumers with more choices. Topics covered include energy access and affordability, flexible energy systems, energy innovation, value and performance for customers, energy conservation and efficiency, climate change, response to First Nations, and infrastructure requirements. The report is useful for energy consumers, energy companies, and technology solution providers.

(IS-2017-201) Ultra Broadband Strategies: A Look into Technology Choices and Business Models

This report was prepared in October 2017 by Nokia and deals with implementation strategies for ultra broadband communication networks. Topics covered include an overview of technology choices, business case development, and benefits of partnering with Nokia. The report is useful for business owners and IT professionals responsible for design and implementation of broadband communication networks.

(IS-2017-200) BLIND RETAIL CASE STUDY

This report was prepared in February 2017 by EnTouch Controls and presents a case study illustrating how a nationally recognized retailer utilized intelligent building technology to reduce energy consumption by 20% and decrease operating costs. Topics covered include a description of the energy challenge, solution, insights, and the results achieved. The report is useful for retail

owners, financial managers, and facility managers responsible for reducing operating costs.

(IS-2017-199) Buildings of the Future: it's time to rethink the bottom line

This report was prepared in October 2017 by Aurecon and deals with a new ROI model for constructing buildings of the future. Topics covered include long-term thinking, the changing nature of construction, and a holistic approach for ROI business case development. The report is useful construction company owners and CFOs striving to improve ROI of building construction projects.

(IS-2017-198) National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework

This report was prepared in August 2017 by the National Institute of Standards and Technology and deals with interdisciplinary nature of the cybersecurity work. Topics covered include how to describe and share information about cybersecurity work and the required knowledge, skills, and abilities (KSAs) by employees to improve organization's cybersecurity capability. Information is also provided on how to identify, recruit, develop, and retain cybersecurity talent. The report is useful for HR and cybersecurity professionals responsible for employee development, planning, training, and education.

(IS-2017-197) Playing the Planet Card

This report was prepared in February 2017 by the Shelton Group and deals with how energy-efficient behaviours can be encouraged.

(IS-2017-196) Multisectoral action for a life course approach to healthy ageing: draft global strategy and plan of action on ageing and health

This report was prepared in April 2016 by the World Health Organization and presents a draft global strategy and plan of action for healthy aging. Topics covered include plan's milestones, resources, and strategic objectives (commitment to action, long term care, research, alignment of health systems, age- friendly environments). The report is useful for policy makers, leaders of health organization, health care providers, and general public.

(IS-2017-195) The Milestones of Digital Transformation

This report was prepared in November 2016 by Comarch and deals with digital transformation of telecommunications companies to improve efficiencies and meet market demands. Topics covered include BSS transformation, omnichannel strategy, customer experience, integrated operations, merger/acquisition cost and time-saving strategies, NVF/SDN technology, cloud-native OSS, IoT quality of service, and machine learning. The report is useful for telecommunications CEOs, CTOs, and CIOs responsible for strategic business and technical solutions.

(IS-2017-194) From data deluge to intelligent insights

This report was prepared in August 2017 by IBM and describes the extent to which marketing executives are embracing cognitive technologies. Topics covered include the IBM Watson Customer Engagement platform, the challenges that marketing leaders face and the lessons they can learn from outperforming companies that are using cognitive solutions. The report is useful for company owners, Chief Marketing Officers, and heads of sales.

(IS-2017-193) Mitigating the Risk of Workplace Violence in Health Care Settings

This report was prepared in August 2017 by SIA Health Care Security Interest Group and deals with the causes workplace violence and mitigation strategies in US health care settings. Topics covered include the root causes of violence, regulations and compliance, security strategies, and institutional and personal vigilance. The report is useful for executives responsible for operating health care organizations, government officials in charge of health care policy, health care workers, and IT professionals responsible for security.

(IS-2017-192) 2016: Year of the Smart Device IoT Adoption Benchmark Report

This report was prepared in June 2017 by PlumChoice and the Z-Wave Alliance and deals with popular smart devices and their consumers. Topics covered include: an overview of smart home devices that are most often purchased, why consumers are purchasing them, and consumer expectations for service and support from brands. The report is useful for smart device manufacturers, retailers, and users.

(IS-2017-191) DISRUPTIVE MODELS OF HEALTHCARE FOR EUROPE

This report was prepared in May 2017 by the Friends of Europe organization and deals with disruptive innovation ideas to overhaul and improve European healthcare. Topics covered include regulatory framework for disruptive innovation, new business models, value networks for change, and seven key recommendations to reform Europe's healthcare systems. The report is useful for government officials, hospital/health centre executives, health professionals, medical technology designers/vendors, and IT professionals.

(IS-2017-190) BROADBAND Additional Stakeholder Input Could Inform FCC Actions to Promote Competition

This report was prepared in September 2017 by United States Government Accountability Office (GAO) and deals with the issues facing FCC to promote the competition for broadband provision in the US. Topics covered include views of selected experts' and stakeholders' on factors affecting broadband competition, and how FCC promotes broadband competition and examines consumers' experience. The report is useful for government agencies and telecommunications companies responsible for overseeing, regulating, planning, and deployment of broadband

services.

(IS-2017-189) Moving Forward: Findings and Recommendations from the Consultative Council

This report was prepared in June 2017 by the National Institute of Building Sciences and deals with the workforce and water issues facing the construction industry in the US. Topics covered include strategies for the development of skilled work force and water resources to support the building industry. The report is useful for city planners, water utility companies, construction industry professionals, and government officials seeking to understand the challenges facing US building industry and find viable solutions.

(IS-2017-188) Cisco 2017 Annual Cybersecurity Report

This report was prepared in January 2017 by Cisco and deals with growth of the cybersecurity attack surface and various strategies and perspectives to mitigate risk. The topics covered include attacker behavior, defender behavior, perceptions of IT professionals, and value chain security. The report is useful for company owners, security equipment designers/manufacturers/vendors, IT security professionals, government officials, and general public wanting to remain current with the latest cybersecurity trends.

(IS-2017-187) ENERGY STORAGE IN GRIDS WITH HIGH PENETRATION OF VARIABLE GENERATION

This report was prepared in March 2017 by the Asian Development Banks and deals with the energy storage for the power grid in support of the expected growth in the use of renewable energy. Topics covered include grid energy storage, renewable energy, smart control systems for grid energy storage, grid integration, financial models, and policies. The report is useful for investors, developers, utility planners, power sector policy makers, and readers who wish to understand the role of energy storage in the smart grids of the future.

(IS-2017-186) THE EMERGING INDONESIAN DATA CENTER MARKET AND ENERGY EFFICIENCY OPPORTUNITIES

This report was prepared in April 2017 by the Asian Development Bank and deals with the assessment of the Indonesian data center industry in terms of energy use, energy saving potential, market trends, growth opportunities, and major challenges. Topics covered include an overview of data centres, the emergence of Indonesian data centres, energy saving recommendations, and improvements in energy performance of government data centres. The report is useful for government officials, utilities, and ICT professionals engaged in the development of datacentres.

(IS-2017-185) Public ICT Center for Rural Development Inclusiveness, Sustainability, and Impact

This report was prepared in August 2017 by the Asian Development Bank and deals with with the

establishment of an ICT centre in a rural community. Topics covered include a framework to understand the rural ICT centre challenges, program types, customer profile, ICT services provided, sustainability and impact, and recommendations for rural center development. The report is useful for government officials, utilities, and ICT professionals engaged in development of rural centres.

(IS-2017-184) Deep Spatial Pyramid for Person Re-identification

This report was prepared in 2017 by Disney Research and deals with a new, spatial pyramid- like structure method for image re-identification (the task of finding the same subject across a network of surveillance cameras). Topics covered include an overview of existing work on image re-identification, description and theoretical framework of the proposed method, experimental results from testing the new method, and a comparison of the proposed method with the existing methods for image re- identification. The report is useful for researchers, design engineers, and software developers of image re-identification technology.

(IS-2017-183) More Power to Zigbee® 3.0: The Power of Green Power Wi-Fi, Zigbee and Thread 'unmeshed'

This report was prepared in September 2017 by Qorvo organization and deals with the Zigbee 3.0 and its protocol Green Power. Topics covered include Zigbee 3.0, Wi-Fi networks, thread meshing, and advantages of the Zigbee Green Power protocol in network design. The report is useful for technologists and engineers responsible for designing and implementing Zigbee 3.0 based networks.

(IS-2017-182) Cellular in the Workplace Survey, 2017 Connectivity issues are widespread

This report was prepared in March 2017 by Zinwave organization and deals with employee satisfaction regarding indoor cellular phone access in workplaces across the US. Topics covered include: in-building wireless employee experiences, who is likely to complain about poor cellular coverage, poor cell coverage in hospitals and warehouses, and a technology solution to improve indoor cellular service. The report is useful for company owners and IT professional responsible for the quality of cellular service within their organization.

(IS-2017-181) THE INTERNET OF THINGS IN THE POWER SECTOR OPPORTUNITIES IN ASIA AND THE PACIFIC

This report was prepared in August 2017 by the Asian Development Bank and deals with the Internet of Things (IoT) pertaining to the Power Sector. Topics covered include asset performance and management, operational optimization, customer experience, case studies, challenges, and capacity building. The report is useful for Power utilities and professionals working the Power and IT sectors responsible for innovation and deployment of IoT solutions.

(IS-2017-180) Internet of Things Investment & Corporate Development Report

This report was prepared in August 2017 by Harbor Research and deals with the growth of Internet of Things (IoT) from a corporate perspective. Topics covered include mergers and acquisitions, investments, partnerships, new products, and private funding. The report is useful for owners of new and established technology companies, investors, and IT professionals responsible for deployment of IoT solutions.

(IS-2017-179) 2017 THALES DATA THREAT REPORT Trends in Encryption and Data Security

This report was prepared in October 2017 by 451 Research and deals with the retail market and its data security and encryption characteristics. Topics covered include a comparison of US and global retailers pertaining to data security, specific concerns security professionals have regarding the effectiveness of security tools and compliance mandates, and the security implications associated with new technologies such as Cloud, Big Data, IoT and Containers. The report is useful for retail store owners, data security technology vendors, and IT professional responsible for datasecurity.

(IS-2017-178) Beyond the Big Data Buzz

This report was prepared in February 2017 by Bernard Marr and deals with the importance of big data and how it is disrupting industries throughout the world. Topics covered include the Internet of Things, how business can benefit from big data, and an overview of how major industries (healthcare, retail, manufacturing, finance, education, transportation, agriculture, energy, government, hospitality, professional services, sports) are applying big data. The report is useful for company owners, big data solution providers, and information technology professionals responsible for big data management.

(IS-2017-177) Are You Prepared for a Mobile-First World? 5 Reasons to Get Ready Now

This report was prepared in March 2017 by Emarsys company and deals with key reasons why organizations should adopt a mobile marketing strategy. Topics covered include: mobile usage, mobile sales, customer retention, and customer response rates. The report is useful for organizations who are planning to deploy or enhance their mobile marketing strategy.

(IS-2017-176) Cybersecurity and the IoT— Threats, Best Practices and Lessons Learned

This report was prepared in July 2017 by Tridium Corporation and deals with an overview of Tridium's cybersecurity platform, Niagara 4, and best practices for deployment of a comprehensive cybesecurity strategy. Topics covered include security capabilities of the Niagara 4 platform and specific items to be considered when developing a cybersecurity strategy (device exposure, network security, factory defaults, system patches, ransomware protection, encryption, securing devices and systems, physical security, treat/risk assessment, people/process/technology). The report is useful for company owners and IT professionals in charge of cybersecurity.

(IS-2017-175) The State of Utilities in Smart Cities and Energy Innovation

This report was prepared in June 2017 by Zpryme research and deals with the role of the twenty largest US utility companies (in the largest metropolitan areas) in implementing smart city strategy/technologies and in supporting/driving energy innovation in their communities. Topics covered include: examples of how the largest US utility companies have contribute in to the development of in each of the three areas (smart cities, energy innovation, communities), a review of progress made in each of the three areas, and recommendations on how utilities can engage further in each area. The report is useful for leaders of utility companies and service providers to utility companies.

(IS-2017-174) IN SEARCH OF THE GREATEST UTILITY APPS

This report was prepared in 2017 by Zpryme Research and deals with mobile apps used by customers to interact with their utility companies. Topics covered include: types of utility apps, app features, utility app providers, comparison of good and poor apps based on customer feedback, and recommendations for app development and promotion. The report is useful for consumers and utilities planning to develop new apps or improve existing apps.

(IS-2017-173) Analysis of the North American Data Center Cooling Market Managing the Data Explosion

This report was prepared in 2014 by Frost & Sullivan research company and deals with the analysis of the North American (US & Canada) data center cooling technology market. Topics covered include: market drivers and restraints, forecast and trends, market share, revenues, and competitive analysis, chillers, airside components, high density modules, economizers, evaporation / direct liquid cooling solutions, and modular and containerized data centers. The report is useful for managers and designers of data centres, as well as manufacturers of data centre cooling technologies.

(IS-2017-172) Electrical Standards and Products Guide

This report was prepared in January 2017 by the National Electrical Manufacturers Association (NEMA) organization and deals with electrical products and standards. Topics covered include electrical standards, products, and manufacturers. The report is useful to individuals and organizations across a variety of industries who manufacture, deploy, use, and maintain electrical equipment.

(IS-2017-171) THE COMPLETE PLAYBOOK FOR FINANCING ENERGY EFFICIENCY

This report was prepared in November 2016 by Dexma Energy Management organization and deals with the actionable tips to help companies fund their energy projects. Topics covered include available loans, tax benefits, and subsidies for companies in UK, France, and Italy,

European funding for R&D, and other sources for project funding. The report is useful for CEOs and CFOs who are responsible for managing and funding energy projects.

(IS-2017-170) Utility Solar Market Snapshot

This report was completed July 2017 by the Smart Electric Power Alliance (SEPA). SEPA has surveyed electric utilities each year, since 2007, to track the amount of solar power interconnected to the grid. The report provides critical insights into the U.S. solar market in general, with a particular focus on utility scale development. A full data set is available through SEPA's website.

(IS-2017-169) 2017 State of the Electric Utility Survey

This report was completed July 2017 by PA Consulting for Utility Dive. The report is based on a survey of over 600 utility executives from the U.S. and Canada conducted in January. The top five issues are: physical and cyber grid security; distributed energy policy; rate design reform; aging grid infrastructure; and, reliable integration of renewable and distributed energy resources. This comprehensive report covers a wide range of topics.

(IS-2017-168) Getting it Right: A More Energy Efficient Alberta

This report was completed in 2017 by the Alberta Energy Efficiency Advisory Panel. The report provides; a long- term vision for the goals and outcomes for Energy Efficiency Alberta; first- stage energy efficiency and community energy system programs; and, recommendations for education and outreach initiatives. Included in the appendices is an extensive list of resources, research and comparisons with other jurisdictions.

(IS-2017-167) How to Recognize a Good Energy Saving Measure or Project

This paper was completed in Spring 2016 by Almiranta. This paper looks at various methods for evaluating energy-saving measures and projects in order to understand the pros and cons of each evaluation tool available and to know when to use them. Simple payback, net present value, the impact of term on payback and lifespan, and the implication of grants are explored.

(IS-2017-166) The Future of IIoT - Smart City, Utility and Telecom Convergence

This report was completed on October 20, 2016 by ZPryme analyst. It provides an overview of the 5G, Industrial Internet of Things (IIoT), and smart city ecosystem. It is based on an online survey comprised of participants from three types of stakeholders: utilities (80), telecom (106), and government (30).

(IS-2017-165) Digitising the Industry - Internet of Things Connecting the Physical, Digital and Virtual Worlds

This e-book was edited by Ovidiu Vermesan and Peter Friess in 2016. It provides an overview of the current Internet of Things (IoT) landscape, ranging from R&D priorities to enabling technologies, mainly based on the related EU funded projects. It is a comprehensive book on IoT in general, with some applications to smart building and smart home.

(IS-2017-164) The World's Top 10 Smart City Projects

This report was completed in 2016 by Smart Cities Summit. It provides a summary of top 10 smart city projects in the world: 6 in North America, 2 in Europe, 1 in Japan, and 1 in Russia.

(IS-2017-163) Safety, operation and performance of grid-connected energy storage systems

This is a comprehensive 106 page guide to energy storage systems with references to all the industry contributors and the standards bodies working on this evolving energy option. Building automations systems are a key component in this energy storage and usage application.

(IS-2017-162) Comparative Generation Costs of Utility- Scale and Residential-Scale PV in Xcel Energy Colorado's Service Area

The analysis in this report looks at the Xcel Energy Colorado system in 2019 and compares the per- megawatt hours (MWh) customer supply costs of adding 300 MW of PV panels (measured in W-DC) either in the form of: (1) 60,000 distributed 5-kilowatt residential-scale (rooftop) systems owned or leased by retail customers; or (2) 300 MW of utility-scale solar power plants that sell their entire output to Xcel Energy Colorado under long-term purchase power agreements (PPA). Using a Reference Case and five scenarios with varying investment tax credit (ITC), PV cost, inflation, and financing parameters, the study finds that customer generation costs per solar MWh are estimated to be more than twice as high for residential-scale systems than the equivalent amount of utility- scale PVsystems.

(IS-2017-161) RGGI and CO2 Emissions Trading Under the Clean Power Plan

The Regional Greenhouse Gas Initiative (RGGI) states have over seven years of experience running a voluntary multi-state program to limit emissions of CO2 through a mass-based, allowance trading program. The states have administered a liquid and efficient market for trading emission allowances and have directed the proceeds from allowance auctions to achieve economic benefits and meet the public policy objectives important to each individual state. In this report, we assess the core issues around emission-allowance trading that RGGI states could consider during the current program review and identify principles and objectives for program design changes that RGGI states might incorporate given the emerging national context.

(IS-2017-160) Pathway to Cutting Energy Use and Carbon Emissions in Half

Based on a 2012 report by ACEEE they established a strategic goal to reduce projected 2050 energy use by 50%. Our analytical approach was to compare the reference case in the 2016

Annual Energy Outlook (2016 AEO), prepared by the Energy Information Administration (EIA), to an energy efficiency case we prepared that estimated the energy savings from 13 packages of energy efficiency measures that include smart buildings.

(IS-2017-159) Strategic Directions: Smart City/Smart Utility Report

This report has a number of individual articles on the smart city and smart utility movement. Municipalities are starting to understand the power of data and how it can foster and support master planning, and how a roadmap can define, drive and ultimately enable smart city initiatives. Utilities are working to integrate advanced technologies—such as evolving to accommodate distributed energy resources (DER) and improving network connectivity—to determine a successful path forward in a changing landscape.

(IS-2017-158) FROM INNOVATION TO IMPLEMENTATION: eHealth in the WHO European Region

The report was prepared in May 2016 by the World Health Organization (WHO) European Region and deals with the status of eHealth in Europe. Topics covered include: 2015 global survey on eHealth by WHO to provide insights on how eHealth is being used, major areas of eHealth development, perceived barriers to adoption, and potential areas of growth. The report is useful for health providers, private and public information technology organizations, and government.

(IS-2017-157) Beyond the Password: The Future of Account Security

The report was prepared in June 2016 by Lawless Research and deals with the state of security of electronic accounts and future trends. Topics covered include: current state of password use to secure electronic accounts, fraud statistics, multi-layer authentication, and behavioral biometrics. The report is useful for IT & Cybersecurity professionals, technology vendors, and general public.

(IS-2017-156) mHealth App Developer Economics 2016: The current status and trends of the mHealth app market

The report was prepared in November 2016 by Research2Guidance and deals with an overview of the global mobile app market for mobile health (mHealth). Topics such as mHealth market size, app publisher background, app development tools/APIs/SDKs/sensors, performance and revenue of app developers, health insurance companies, and future trends of mHealth app development. The report would be useful to app developers, health care providers, insurance companies, and government organizations.

(IS-2017-155) MMC CYBER HANDBOOK 2016 Increasing resilience in the digital economy

The report was prepared in November 2016 by Marsh & McLennan Companies. The report includes extracts, and perspectives from cyber leaders and leading third-party experts covering changes in the external cybersecurity landscape, the developments in cyber risk quantification

techniques, and cybersecurity-related HR strategies. The information is useful to a wide-range of companies across all business sectors seeking to understand cyber risks and develop security strategies to address them.

(IS-2017-154) Gigaband Network Development

The report was prepared by Huawei Technologies in December 2016. The report covers strategies for building gigaband networks and is useful for Chief Technology Officers leading large scale network design projects. The topics that are discussed are cable network upgrades, FTTH deployment principles, overcoming geographical obstacles in network design, and development of broadband networks.

(IS-2017-153) The Digital Tipping Point: How do organizations balance the demands for digital and human customer service?

The report was prepared in October 2016 by Verint Systems Inc. The report provides information to business leaders on balancing the digital and human aspects of customer service strategy. The main ideas that are discussed are the tipping point between digital and human engagement strategies, influence on customer behavior, and steps to improve customers journey in a digital world.

(IS-2017-152) Market Guide for IoT Integration

The report was prepared on June 23, 2016 by the Gartner Group. The report identifies system integration as a main challenge in deployment of IoT projects. Recommendations are made to directors of integration, IoT project owners and other IT leaders for successful IoT implementation. A market analysis is presented and includes a summary IT megavendors, OT megavendors and IoT platform specialists.

(IS-2017-151) Automatic Receptacle Control to Meet ASHRAE 90.1-2010 and California Title 24

This white paper was published by NEMA in 2016. The paper describes the changes that have been made in ASHRAE 90.1 - 2010 and California Title 24 with regards to controlling half of the receptacles in new construction with an automatic shutoff device. This device would be a time-of-day device, occupancy sensor, or a signal from an alarm system or the BAS. Greater energy efficiency will be achieved in buildings with the control of receptacles. Excerpts from the new codes are shown in the paper.

(IS-2017-150) TeleSign Consumer Account Security Report 2016

This report was published by Lawless Research in late 2016. Lawless Research was commissioned by TeleSign to conduct an online survey, filled out by 1,300 adults, on the topic of consumer account security in the United States. Questions related to consumer security practices, consumer security incidents, and companies protecting consumers' online accounts were

answered by the respondents and compiled in this report. 31% of respondents value their online worth at over \$100,000.

(IS-2017-149) TeleSign Consumer Account Security Report - An International Study of Digital Security Concerns and Practices

This report was published in June 2015 by TeleSign. The report summarizes the findings of a survey of US and UK mobile phone and online account users conducted by Lawless Research. The survey quantified the concerns that consumers have regarding online security and breaches, actions they are taking to protect themselves, the use of single and two-factor authentication methods, and the interest that they have in learning how to protect themselves online.

(IS-2017-148) Broadband Outlook 2016

This report was completed in 2016 by Telecoms.com Intelligence. It outlines some of the key technologies currently affecting the broadband delivery industry. The topics of digital transformation, next generation access (5G and Fibre), and network functions virtualization are explored. Over 600 communications service providers and infrastructure professionals took part in a survey regarding these three topics and the results are analyzed in this report.

(IS-2017-147) The Greatest Energy Story You Haven't Heard

This paper reviews the benefits of energy efficiency programs. Since 1980 the US economy grew by almost 150% while energy consumption increased 26% eliminating the need for constructing more than 300 electric power plants while saving the average household \$460 in 2015. This paper recommends additional investments in energy efficiency and policies.

(IS-2017-146) IoT 2020 Business Report - The future of the Internet of Things: From sensor to business sense

This brochure from Schneider Electric describes a range of applications and benefits from incorporating Internet of Things (IoT) into products. Circuits within devices will enable connectivity locally and to the cloud for the "speedy delivery of meaningful information at the right time" with improved insights from the data gathered. IoT will benefit energy efficiency, asset optimization, profits, and risk mitigation. Best practices for IoT are presented.

(S-2017-145) Choosing video wall technology based on your priorities

This brochure introduces technologies for creating large wall-size displays. The factors that affect the choice of technologies are presented. Some of the options mentioned include a large screen composed of micro tiles, LED tiles, LCD panels, and LED cubes using DLP projectors. The seamlessness of the display and lifetime performance are discussed.

(IS-2017-144) Data Protection and Breach Readiness Guide

The document is a guide for companies to perform a risk assessment on how to handle a data breach while maintaining good relations with customers as stewards of the customers' data. 93% of data breaches in 2015 could have been prevented. The average cost of a breach is \$154 per record. Companies are urged to develop a plan "that evaluates data from acquisition through use, storage and destruction" and "Only collect and retain data that has a business purpose."

(IS-2017-143) Next Generation Standards: How the National Energy Efficiency Standards Program Can Continue to Drive Energy, Economic, and Environmental Benefits

This paper examines the potential saving of about \$65 billion per year by 2050 in total electricity consumption through energy efficiency programs for appliances and lighting. The biggest savings will come from water heaters, air conditioners, and clothes driers. Suggestions are proposed for actions such as rule-making by the US Department of Energy. As an example, the average electricity cost for a refrigerator dropped 75% since 1972 while the volume increased and the appliance cost fell.

(IS-2017-142) 2016 U.S. HOUZZ BATHROOM TRENDS STUDY

This market study by Houzz (web site) reports on trends in bathroom renovations. Most of the changes affect fixtures and finishes for walls, floors, and counters. Most of the functional focus is on lighting. About 8% include electronics added to the bathroom. High tech fixtures include toilets (20%), bathtubs (12%), and showers (9%).

(IS-2017-141) Digital customer centricity - A requirement for utilities

This presentation describes how digital data can help utilities migrate from a focus on customer billing to personalized customer service. Utilities need customer data in order to become customer centric with three facets: convenience, context, and personalization. Utilities are cautioned "to continuously improve and evolve" customer interactions.

(IS-2017-140) Competition and norms: A self-defeating combination?

This paper examines motivations for consumers to conserve electricity and heat. The study was done on students who did not pay directly for these utilities. The prime motivation was feedback and norms (comparison to community standards), rather than competition for a prize. Details of a survey of 89 dormitory residents are presented.

(IS-2017-139) Internet of Things — Savings and Operational Efficiencies for the Industrial/Warehouse Environment

This paper reports on a survey of 213 professionals involved in warehouses and distribution centers about how they think the Internet of Things (IoT) will impact energy usage by their

businesses. About 1/4 of those surveyed in medium and large businesses do not know their energy consumption. However, most want to reduce costs. Employee productivity is related to proper lighting and air conditioning. Most have heard of IoT, think it is coming, but are not planning to adopt.

(IS-2017-138) Dynamic lighting system for the learning environment: performance of elementary students

This article from the Optical Society of America examines the impact of the color spectrum (measured in degrees Kelvin (K)) of classroom lighting on student performance. The key finding is that "three lighting presets—3500 K, 5000 K, and 6500 K—are suggested for easy, standard, and intensive activity, respectively." The detailed methodology of the study is described.

(IS-2017-135) IoT Enabled Smart Buildings Market

Smart buildings are increasingly being enabled by the Internet of Things (IoT) and made functional by the ongoing convergence of operational technology (OT) systems and information technology (IT) systems in buildings. With IoT, a host of new elements such as the cloud, remote access, data sharing and analytics, and connected and shared networks are becoming an intrinsic part of a smart building's operational dynamics, fundamentally changing how buildings are used and operated. This market insight takes a look at the specific trends, challenges and opportunities associated with IoT and SmartBuildings.

(IS-2017-134) Global Virtual Power Plant Market, Forecast to 2022

This research service analyzes the Virtual Power Plant (VPP) market by end users (demand management, power trading), region (North America, Europe, Asia-Pacific, and Rest-of-world), trends, and revenue forecast till 2022. VPP promises significant improvements in grid reliability and resilience and early adoption has taken place in Western Europe and North America. This research service hopes to solve issues around peak power demand and facilitate the adoption of distributed energy resources. This study also discusses key trends and analyzes the implemented business models (supply-side, demand- side, and mixed-asset models) for VPP across the globe.

(IS-2017-133) North American BEMS Market, Forecast to 2021

The Building Energy Management Systems (BEMS) is an exciting market in North America that is poised for healthy growth for the next 5 years. BEMS is primarily driven by the trend of high peak demand charges, customers' commitment towards sustainability, and state incentives for buildings installed with energy management systems. The market will be characterized by increased connectivity, bringing deployment of the Internet of Things (IoT) solutions, data analytics, cloud solutions, and technology- enabled business model innovation. New entrants and emerging participants will change the market dynamics by adopting customer- centric business models. The building energy management systems (BEMS) market has witnessed a healthy growth rate in 2016 and has earned revenue of \$822.8 million having grown by 5.1%

from 2015. Frost & Sullivan has segmented the market based on solutions offered by participants such as hardware, software and services, and also based on end-user verticals such as industrial, office, retail, hospitality, healthcare, education, government, and utilities.

(IS-2017-132) Winning Solutions and Applications in the Connected Homes Market

This research service takes a detailed look at two of the most dynamic segments of the connected home and connected living ecosystem, namely connected health and connected security. Security and home monitoring is already one of the core elements of the connected home; and connected health is poised to drive the next wave of growth beyond 2020. For each of these dynamic application areas, this study looks at key trends and growth opportunities, winning business models, and the leading market participants driving the markets forward.

(IS-2017-131) Digital Demands: Exceeding Customers' Ever-Changing Digital Expectations Through Billing

This report by Inlet explores new opportunities for innovation and partnerships that enable utilities to readily deliver billing to enhance customer digital experiences. Through two comprehensive surveys— one focused on 3,000 customer responses and one completed by 115 utility representatives—this report explores the evolving digital desires of customers, and how utilities are embracing cost-effective and innovative approaches to exceed the digital experience demanded by customers.

(IS-2017-130) New York City's Energy and Water Use 2013 Report

Six years ago, as part of its efforts to cut carbon emissions from New York City's largest source, energy used in buildings, the City of New York launched a groundbreaking initiative to determine how much energy its largest buildings use. This report focuses on the 2013 energy and water usage reported in 2014 in New York City.

(IS-2017-129) Up-tower gearbox repairs in the North American market

This report focuses on two companies at the frontline of up-tower gearbox repairs in the North American market: EDF Renewable Services and Moventas. Also discussed in this report paper are the technological breakthroughs and market trends anticipated in up-tower gearbox repairs over the next five years.

(IS-2017-128) NSCA Electronics Systems Outlook: Winter Edition

This report looks at changes in the United States economy and increase in interest rates and how this impacts the future of the construction market, real estate markets and virtual markets. This NSCA report takes an in-depth look at each of these areas currently, as well as predicts future trends.

(IS-2017-127) In The Matter of International Comparison Requirements Pursuant to the Broadband Data Improvement Act

This is the International Bureau's fifth International Broadband Data Report. In this Report and its appendices, the Bureau presents a number of data points, including fixed broadband deployment data in the US and the European Union, advertised and actual fixed broadband speeds in 40 countries around the world, and broadband prices (both fixed and mobile plans) across the same 40 countries.

(IS-2017-126) The Future of the TMT Workplace

This report is the second in a series of reports co-produced by Cushman & Wakefield and Unwork on the future of work, workplace and real estate strategies in different sectors. This report identifies how workplace strategies are adjusting to the threat of digital disruption; how leading players have structured their operations across different geographies; and how workplaces are adapting to accommodate greater convergence and overlap between technology, media and telecoms.

(IS-2017-125) Associations of Cognitive Function Scores with Carbon Dioxide, Ventilation, and Volatile Organic Compound Exposures in Office Workers

This report outlines the findings of study done by Environmental Health Perspectives. In this study, they simulated indoor environmental quality (IEQ) conditions in "Green" and "Conventional" buildings and evaluated the impacts on an objective measure of human performance – higher order cognitive function.

(IS-2017-124) Utilities and Electric Vehicles - The Case for Managed Charging

This report was completed April 2017 by the Smart Electric Power Alliance (SEPA). This report explores the benefits of utility managed EV charging which provides better load management through the reduction of peak load increases, and reduces the overload impacts on transformers and substations. A number of factors are discussed including rate structures, communication/education, protocols, standards, infrastructure and technology. References to additional resources are provided.

(IS-2017-123) Artificial Intelligence and the Internet of Energy

This paper was completed in 2017 by SparkCognition. The paper provides a framework how artificial intelligence (AI) and machine learning (ML) can increase cyber security and provide better data driven decision making. The Internet of Energy (IoE) can be broadly defined as the upgrading and automating of electricity infrastructures, making energy production more clean and efficient, and putting more power in the hands of the consumer. This paper discusses how to apply ML analytics to generation, transmission & distribution, energy trading & Risk

Management, and cyber-security in the utilities industry to create the IoE.

(IS-2017-122) North American Data Center Equipment Integration

Prior to the dawn of the data center infrastructure management (DCIM) era, monitoring was conducted manually within a traditional data center, essentially with separate management solutions provided for each type of equipment in the building. Integral to the equipment in the data center is the ability to monitor it on a regular basis and to provide adequate tools for pre-emptive problem solving. Frost & Sullivan 2014.

IS-2017-121) A Customer Perspective of the Present and Future of Physical Security and Building Technologies in the Retail Industry

This study's research objective is to gauge the usage of building technologies and physical security technologies within United States retail chains. The data was collected in August 2011, using a web-based survey. The sample consisted of 182 managers. The study examines technologies including access control systems: keypads, card readers, and analog video surveillance that help minimize threats. Frost & Sullivan, March 2012.

(IS-2017-120) Understanding the Growth Potential within the Building Technologies Market

The main objective of this study was to identify levels of familiarity with 12 building technologies, measure their usage rates and evaluate the impact that one has on the other. Moreover, the following research attempts to determine which building technologies have the highest and the lowest growth potentials, based on the current usage and likelihood of adoption rates. Frost & Sullivan, August 2013.

(IS-2017-119) Energy Information Management—Practices and Technology Assessment

The need to collect, analyze, and convert energy data into usable information in order to improve energy efficiency, decrease the impact on the information, and make better decisions are driving demand for energy information management solutions. This study evaluates the factors impacting this emerging market as well the benefits of these solutions and the challenges the industry is facing. Frost & Sullivan, November 2012.

(IS-2017-118) Smart Homes & REALTORS

The report was prepared in November 2016 by the Center for Realtor Technology Labs (CRT Labs) and includes survey data from 3495 residential realtors in the US regarding smart home technology. The main questions covered by the survey include: realtor's interest in smart home certification, importance of smart home devices and functions to clients, technology issues with smart home devices, smart home devices clients are interested in along with preferences, and familiarity with smart home products. The information in the report is useful for homeowners, realtors, and manufacturers of smart home devices.

(IS-2017-117) Implementing the Energy of Buildings Performance Directive 2016

The report was prepared in April 2016 by Concerted Action EPBD and reviews the progress made from 2011 to 2014 on making European buildings more energy efficient. Topics that are covered in detail include energy performance certification, inspection of air conditioning and heating systems, training of energy experts, energy performance requirements for cost-optimal levels, progress towards new Nearly Zero-Energy Buildings, compliance and control issues for inspection, and the effectiveness of support initiatives for the EPBD directive. Individual energy performance reports are included for countries in the European Union.

(IS-2017-116) Domain Industry Data and Canadian Internet Trends: CIRA Internet Factbook 2016

The report was prepared in December 2016 by the Canadian Internet Registration Authority (CIRA) and covers global and domestic trends in Internet growth and use. In depth information is presented on Canadian's use of the Internet, where .CA ranks in the rapidly-changing domain market, and information about the ever-changing world of digital security. The report is useful for individuals as well as public and private organizations who are currently engaged, or are planning to engage, in the digital economy.

(IS-2017-115) Transactive Energy Application Landscape Scenarios

The paper was prepared in December 2016 by the SGIP industry consortium and presents an analysis of the transactive energy (TE) applications. TE is defined as system of economic and control mechanisms allowing balance of supply and demand across an electrical infrastructure. The report examines the transactive process, business functions, actors in different smart grid (SG) application domains, and time scales. Operational scenarios are presented and enable TE interactions to be explored. The content of the paper is useful to utilities, regulators, and policymakers.

(IS-2017-114) High-Tech Nation: How Technological Innovation Shapes America's 435 Congressional Districts

The report was prepared in November 2016 by the Information Technology and Innovation Foundation and examines the innovation economy in 435 U.S. congressional districts, 50 states, plus the District of Columbia. The factors that are examined include exports of high-tech goods and services, workforce education and skills, innovative ideas, and digital infrastructure. The report can be useful to policy makers / government officials and private industry planning to establish a new branch or a new company in the US.

(IS-2017-113) Everything the U.S. Government Is Doing to Help the Private Sector Build the Internet of Things

The report was prepared on December 12, 2016 by the Centre for Data Innovation and covers

the initiatives by the US government to support the private sector to build the Internet of Things (IoT) economy. The initiatives discussed include technical resources, cybersecurity, regulations, spectrum availability, supporting research and development, and coordination of stakeholders. The report is useful to IoT companies wanting to grow their business and benefit from government initiatives.

(IS-2017-112) Distributed Generation Task Force Recommendation Report

The report was prepared on March 17, 2017 and deals with the benefits to Ontario resulting from the distributed solar industry to move away from the current Feed-in Tariff (FIT) regime and into a net metering based framework. The benefits include conservation/demand measurement, flexible resourcing, supply-mix diversification of energy sources, and customer engagement. An overview solar energy and net metering is provided. The report is of benefit to the public and private energy companies, as well as energy consumers.

(IS-2017-111) Through the Eyes of Cyber Security Professionals: Annual Research Report (Part II)

The report was completed in December 2016 by Enterprise Strategy Group (ESG) in collaboration with the Information Systems Security Association (ISSA). The report summarizes the of input of cyber security professionals on the state of their profession focusing on strategies, tactics, skills, and challenges. Further information is provided on vulnerability of organizations to cyber attacks, cybersecurity skill shortage, and government's role in cybersecurity.

(IS-2017-110) Securing Smart Airports

The report was completed in December 2016 by the European Union Agency For Network And Information Security. The report deals with strategies to improve the security and resilience of smart airports, including air traffic management. The report is intended for CISOs, CIOs, IT Directors and Head of Operations. The main components covered include cybersecurity of smart airports, assets, threats, risk analysis, good security practices, gap analysis, and recommendations for improvement.

(IS-2017-109) Security of Mobile Payments and Digital Wallets

The report was completed in 2016 by the European Union Agency For Network and Information Security. The report covers mobile payment platforms (Android Pay, Apple Pay, Samsung Pay), potential risks, and security recommendations. Detailed information is provided on risk management and risk mitigation strategies.

(IS-2017-108) The Great Workplace Space Race - How Successful Enterprises are Solving Spatial Challenges

This report was completed in 2016 by iOffice. The report outlines the importance of optimizing workspaces as real estate availability for business expansion continues to be limited. The report

discusses how successful enterprises have used space management software to solve spatial availability challenges. The software calculates optimal layout plans, helping companies to realize workspace transformation solutions that are satisfactory for all employees, and are economical, sustainable and promote innovation.

(IS-2017-107) Mastering Building Code Challenges

This paper was completed in 2016 by Owens Corning and Green Builder Media. It discusses how builders and manufacturers can work together to build high-performance, cost effective homes that exceed building codes. There are several case studies showcasing examples of manufacturers partnering with builders to build quick-selling, low-maintenance, high-performance homes.

IS-2017-106) Scaling Up Smart Meter Operations: Challenges and the Way Forward for UK Energy Utilities

This white paper was published by Cognizant in July, 2016. The UK government is replacing 53 million smart electricity and gas meters by 2020. The paper highlights the benefits and challenges that UK utility companies will encounter while attempting to roll out their smart metering infrastructure and services to millions of customers. Recommendations on how to improve business, technical and operational functions are given.

(IS-2017-105) Best Practices for Integrating Mobile into the Access Control Architecture

This white paper was released by HID in October, 2014. The paper suggests several factors that should be considered when choosing a mobile access solution. The solution must work with the latest mobile device technologies and be capable of evolving with the industry, and the user experience must be equal to or better than physical cards for widespread acceptance to be adopted.

(IS-2017-104) Assessing the potential and market uptake of Demand-Side Flexibility in the European energy system

This paper was published by SEDC in July, 2016. The paper suggests indicators that should be used by the EU (Energy Union) to assess and monitor the market uptake and potential of Demand-Side Flexibility. Realistic benchmarks and objectives are also suggested to help track the progress of Demand-Side Flexibility development on the ground.

(IS-2017-103) The 2017 Vision for the Security Industry - Megatrends

This paper was published in December, 2016 by SIA (Security Industry Association) after the SNG (Securing New Ground) conference. The SNG aims to look at future trends that will shape the security industry. The paper presents 10 megatrends, taken from the SNG, for the security industry to absorb and incorporate into planning for the coming year.

(IS-2017-102) Meeting EBA Guidelines for Internet Payment Security with Mobile-Based Authentication

This paper was published by Goode Intelligence in September, 2015. It explores the "implications for Payment Service Providers of European Payment Authentication and Security Guidelines." To help the PSPs choose the right solution that meets the guidelines across a broad range of payment scenarios, mobile-based identity solutions can be used. The mobile phone number, mobile device and the user's mobile activity behavior are three components used to authenticate the user.

(IS-2017-101) The evolving role of TV and media in consumers' everyday lives

This article was published by Ericsson Consumerlab in November, 2016. They have found that TV and video viewing time has increased due to an increase in mobile viewing, younger viewers spend far less time watching live and linear broadcasts than older viewers do, consumer spending on Video on Demand services has increased in the last few years, and they suggest that future TV and video services will be tailored to suit the wants of Mobile Centrics and ScreenShifters.

(IS-2017-100) Lighting Application Guide for K-12 Classrooms

This application guide was published by the Lighting Controls Association in 2016. The guide outlines various lighting control design strategies for K-12 classrooms. The convenient and flexible lighting control systems enable teachers to establish optimal learning environments with lighting conditions for a wide variety of visual needs in modern classrooms. The lighting system strategies also facilitate the reduction of operating costs through the use of sensors for occupancy detection and daylight-responsive controls.

(IS-2017-99) Pedal to the Metal: Mitigating New Threats Faster with Rapid Intel and Automation

This report was published by MeriTalk on May 14th, 2016. It summarizes the Intelligent solutions that some Federal agencies are using to mitigate and protect against cyber attacks. MeriTalk surveyed 150 Federal security operations employees and found that many agencies are too slow in responding to threats and are not using an automated approach of detection, analyzing, protecting and mitigating threats.

(IS-2017-98) The Future of Internet Video

This eBook provides seven articles discussing the future of internet video. Across these seven articles the main topics addressed are improvements to video quality and improvements to live streaming and buffering.

(IS-2017-97) Energy Efficiency Jobs in America

This white paper provides a comprehensive analysis of energy efficiency employment across all 50 states. A look at what cities provide the most energy efficient jobs, as well as a look into these jobs, are discussed, as well as other relevant findings surrounding this industry.

(IS-2017-96) The Future of Mobile Service Delivery

In conjunction with F5 Networks, Heavy Reading undertook the task to create a detailed survey designed to provide both a broad and granular view of the state of mobile service delivery. The results and key findings of this survey are outlined in detail in this report.

(IS-2017-95) Pyramid Research Predictions 2016: Global and Regional Outlook in the Information, Communications and Technology Industry

This white paper from Pyramid Research provides predictions for the future of the information, communications and technology (ICT) industry. Themes and predictions are discussed on a global level for the ICT industry and also broken down on a regional level covering Africa, the Middle East, the Americas, Asia Pacific and Europe.

(IS-2017-94) McKinsey on Industrials: A Phoenix Ready to Rise Again?

This report provides a comprehensive assessment of the sector's historical performance and outlook. It begins with an analysis of the overall sector's performance over the past 15 years and closes with the McKinsey perspective on the sector going forward and the strategies Industrials companies can deploy to reignite value creation.

(IS-2017-93) 2016 Cloud Migration Survey: Cloud Migration Challenges and Best Practices

This benchmark survey presents challenges and best practices of companies that have already migrated or are looking to migrate their servers to the cloud. The results presented here are based on responses from 258 IT professionals from around the world, collected through an online survey during January- March 2016.

(IS-2017-92) Guide to the Open Cloud: Current Trends and Open Source Projects

This third annual Guide to the Open Cloud aims to help companies stay informed on the latest open source cloud technologies and trends. The Linux Foundation's cloud experts have curated a list of the most useful, influential, and promising open source projects with which IT managers and practitioners can build, manage, and monitor their current and future mission-critical cloud resources.

(IS-2017-91) The Fraud Report: How Fake Users Are Impacting Business

The purpose of this report is to understand the scope of registration fraud, and how this epidemic is impacting companies and their users. It offers a glimpse into how companies verify and protect their users, and the damage that can be done when fraudulent users and fake accounts are allowed to exist within a user base.

(IS-2017-90) Smart Hospitals: Security and Resilience for Smart Health Service and Infrastructures

This report looks at the effect of the Internet of Things (IoT) on hospitals, creating what can now be deemed "smart hospitals." Analyzed in this report are the threats made on smart hospitals, which can be both malicious and human error, and the steps hospital executives can take to prevent them.

(IS-2017-89) Strategic Five-Year Technology Investment Plan for Aviation Security

The Transportation Security Administration (TSA) Strategic Five-Year Technology Investment Plan provides relevant background information, describe TSA's framework for technology investment, delineates the current security technology profile as it exists today, and explores technical initiatives and partnerships that will lead to the Airport of the Future.

(IS-2017-88) Amplifying Human Potential Towards Purposeful Artificial Intelligence

Infosys published 2017 guidelines for practical AI applications and implementations for CIOs. The guidelines identify current levels of AI adoption in the enterprise; and offers decision maker perspectives; along with analysis of future market disruption. Fundamentally, the guidelines recommend a holistic view to AI adoption, suggesting how organizations can apply an array of technologies across a wider number of areas, including human resources, along with examining the potential synergies that AI can offer and anticipated ROI benefits.

(IS-2017-87) Today's Workforce vs the Future Workforce Global Report

Penn Schoen Berland conducted workforce surveys across multiple industries between April and May 2016. This report summarized the key findings of advances in communications, smart workplace technologies and emerging lifestyle trends. The outlook determines the future workforce will be mobile, productive and more capable.

(IS-2017-86) The Workplace Advantage - Why the Office Environment is Key to Productivity

Stoddart Review Group interviewed workplace SMEs in 2016 with a focus on productivity, in order to provide insight and an outlook on complex issues. Stoddart's paper provides an evidence-based executive briefing on the role of workplace in the performance and profitability of businesses. To gain competitive advantages, companies must invest financially and intellectually in "people-centric holistic workplaces". New business models are reliant on different behaviors and they amplify criticality of social infrastructure as a catalyst for collaboration.

(IS-2017-85) ICT Trends vs Technologies 2016

Capita IT Enterprise Services conducted a 2016 online quantitative survey and qualitative interviews with ICT decision makers across multiple industries, with in-depth analysis of key technological trends, including: IoT, wearables, Big Data, AI and robotics, cloud-based solutions, 3D printers, VR, and the digital workplace. The report highlights how businesses perceive the trends and which emerging technologies offer the opportunity to get ahead, and which of them organizations are willing and able to adopt.

(IS-2017-84) Wi-Fi Calling and The Next Generation of Wireless Services

This is a 2016 eBook from the editors of FierceWirelessTech focused on state-of-art Wi-Fi. The topics cover VoLTE interconnection and roaming, and best practices for assuring carrier-grade services and Wi-Fi calling.

(IS-2017-83) Five Essentials of World-Class Creative Operations

This The paper provides a prescription to achieve optimal deliverables in a fast-paced environment by understanding and gaining control of the most essential aspects of creative production, including: (1) file storage, (2) review and approval, (3) collaboration, (4) security and (5) digital rights protection.

(IS-2017-82) Improving Organizational Productivity with Building Automation Systems

This \$150,000 USD research project, undertaken by the National Research Council, involved the review and synthesis of a vast body of published work in the fields of business, engineering, and psychology. The results enable organizations to evaluate multiple organizational productivity metrics against benchmarks, and to compare the demonstrated benefits of better buildings strategies to other corporate investments designed to improve these metrics. This project is the first phase of a multi-phase approach to identifying specific mechanisms by which building systems can improve workplace environments and organizational productivity.

(IS-2017-81) New Building Automation Technology Means ROI for Retailers

This is a 2016 Schneider Electric report by Gina Elliott, MBA. The report identifies various cost savings enabled by building automation technologies in retail industries. Retailers operate with thin profit margins while they are one of the largest users of energy. With state-of-the-art building automation systems, it is possible for retail businesses, using leased facilities, to achieve energy cost reductions totalling as much as 30% with additional benefits in operational savings.

(IS-2017-80) Unified Facilities Criteria (UFC) - Cybersecurity of Facility-related Control System

This is a 2016 DoD Unified Facilities Criteria (UFC 4-010-06) published by the Naval Facilities

Engineering Command. The document provides requirements for incorporating cybersecurity into the design of facility-related control systems. UFC system provides planning, design, construction, sustainment, restoration, and modernization criteria, which applies to military departments, defense agencies, and DoD field activities. UFC shall be used for all DoD projects and work for other customers where appropriate.

(IS-2017-79) 2016 Smart Built Environment - Resource Guide

This is a 2016 Smart Built Environment Resource Guide published by Gabrielle Stoop. This guide provides readers with quick facts about European green and sustainable building and construction markets, compiled by the Commercial Specialist in U.S. Embassies and designed to help readers with international expansion responsibility.

(IS-2017-78) Redefining the Executive View of Facility Management (FM)

This is a 2016 IFMA report by Richard Kadzis. The report identifies the emerging new role of Facility Management (FM) Executives in strategic planning and operations. The changing roles take many forms and ultimately have an effect on the perception of FM by C-Suite executives and industry success in positioning itself as a valued strategic partner to the business beyond facility technical day-to-day operations.

(IS-2017-77) IoT Smart Building Solutions Transform the Workplace

This is a 2016 Forrester Research report by Michele Pelino and Andrew Hewitt. The report discusses IoT-enabled digital transformations as driver for business growth. The report focuses on Infrastructure and Operations executives role in supporting energy efficiency, enhanced employee productivity, and transformed work environments.

(IS-2017-76) Emerging Energy Trends Regulatory Responses to Ontario's Energy Future

This report was completed in December 2016 by Mowat Centre for the Ontario Ministry of Energy. This report explores the role of distributed energy resources (DER) in energy distribution systems. Reviewing a range of international studies on impact of DER, the paper suggests the potentially revolutionary nature of the DERs should be governed through economic regulatory principles in three specific areas: planning, utility regulation/business model, and ratemaking. Applicability to the Ontario market is a particular focus of this report.

(IS-2017-75) Background Report on the Ontario Energy Sector

This report was completed in December 2016 by Mowat Energy for the Ontario Ministry of Energy. This Background Report on the Ontario Energy Sector describes the legal framework under which the Ontario energy market operates, the regulatory environment, the policy context and the relevant history. This comprehensive report enables readers to better understand the complexities of the Ontario energy distribution system.

(IS-2017-74) Energy Innovation Policy: Priorities for the Trump Administration and Congress

This report was completed in December 2016 by Information Technology & Innovation Foundation. This report highlights the need for the United States to invest in energy innovation and infrastructure to secure its competitive economic future. The paper discusses: the need for five types of institutional reform; priority setting and technology missions; and, the importance of funding energy innovation, including proposed

(IS-2017-73) Economic Value of the Integration of Consumption Preferences in Electric System Planning This report was completed in December, 2016 by the Home/Building/Industry-to- Grid Domain Expert Working Group for SGIP. The emergence of smart grid technologies, improved methods for communicating prices, and greater variability of outputs from energy sources challenges the traditional, regulatory administered, closed system electricity pricing model. This report argues the traditional utility structure needs to incorporate or replicate market-driven price incentives to avoid diminishing the potential benefits of emerging technologies.

(IS-2017-72) The Sustainability of Net Metering

This report was completed in November, 2016 by Meridian Energy Policy for Electric Markets Research Foundation. This paper provides an understanding of how net metering affects the costs and revenues for operating and maintaining rooftop solar photovoltaic systems on the electricity system. Two interactive models were developed that quantified the benefits of displaced marginal costs, reduction of equipment loading, and the impact of increased market penetration.

(IS-2017-71) Towards an Intelligent Power Network with Internet of Things (IoT)

The paper from Clemson University explores the possible impact of device-to-device communications on future power grids. The authors project a future where all devices use the same communications protocol and all cooperate to exchange data locally and with cloud services to improve grid operations and to accommodate distributed energy resources (DER). This paper is very optimistic and concludes, "IoT offers a new era full of opportunities in moving toward the vision of the intelligent power network."

(IS-2017-70) U.S. HOUZZ SMART HOME TRENDS STUDY

Houzz.com and CEDIA (Custom Electronic Design and Installation Association) surveyed almost 1000 people renovating homes. About 45% installed some automation. Preferred systems were security, entertainment, climate control (especially thermostats), and lighting. 25% used voice recognition; 30% used a central controller. Top reasons for not automating were lack of interest,

cost, and concerns for loss of privacy.

(IS-2017-69) Considerations for a Multidisciplinary Approach in the Engineering of Trustworthy Secure Systems This report from the U.S. National Institute of Standards and Technology (NIST) is a handbook for measures that can be taken to improve the cyber security of systems. The objective is to design engineering system that can be trusted. Secure systems are defined as having "the freedom from those conditions that can cause loss of assets with unacceptable consequences." A thorough systems engineering approach is presented.

(IS-2017-68) NRC's Executive Summit on the Cities of the Future

Report on NRC on day Executive Summit on the Cities of the Future in Toronto, ON and the advance online inputs received as well as the discussions that took place during the Summit. It is intended as a record of the meeting, to be used by NRC as it moves to the next phase in identifying national R&D opportunities and potential partners to accelerate the development of game-changing technologies that could help transform our cities.

(IS-2017-67) OpenADR 2.0 Demand Response Program Implementation Guide

The target audience for this guide is utilities planning to deploy Demand Response (DR) programs that utilize OpenADR 2.0 for communicating DR event related messages between the utility and downstream entities, and the manufacturers of equipment that facilitate that communication exchange. It is assumed that the reader has a basic conceptual understanding of both demand response and OpenADR 2.0 (referred to simply as OpenADR from this point forward).

(IS-2017-66) Boston Community Energy Study

The Boston Community Energy Study explores the potential for local energy generation, district energy and microgrids. The Study is a collaboration between The Mayor's Office of Environment Energy and Open Spaces, the Boston Planning & Development Agency (BPDA), MIT Sustainable Design Lab and MIT Lincoln Laboratory.

(IS-2017-65) Ontario's Five Year Climate Change Action Plan 2016 - 2020

This report was completed in 2016 by the Environment and Climate Change. This report explores Ontario's Five Year Climate Change Action Plan 2016 - 2020 that aims to fight climate change in Ontario and its implications. The report details actions that will be taken by the Ontario government and the economic opportunities presented through developing and delivering clean technology solutions and products to the world. The plan addresses issues of energy efficiency and carbon emissions for buildings and aims to set lower carbon standards for buildings. It will invest in supporting the shift to low carbon technologies in buildings and homes and provide incentives for retrofits.

(IS-2017-64) NO MORE WAITING ROOM: THE FUTURE OF THE HEALTHCARE CUSTOMER EXPERIENCE

The paper was completed in November 2016 by West Monroe Partners and deals with key factors that are shaping customer experience in healthcare. Factors such as communication with patients, patients data privacy, and business technology are examined. The growing use of mobile apps and web portals by patients to access medical information is discussed.

(IS-2017-63) Market Guide for IoT Integration

The paper was published on June 23, 2016 by Gartner Inc. and deals with the integration issues and project requirements within the context of IoT implementation. The IoT integration capabilities across six categories of information technology solutions are assessed: information technology megavendors, operational technology megavendors, IoT platform/edge specialists, integration specialists, API management specialists, system integrators.

(IS-2017-62) Future-proofing the Connected World: 13 Steps to Developing Secure IoT Products

The paper was completed in October 2016 by the Cloud Security Alliance (CSA) and provides a guide that companies should follow to design secure Internet of Things (IoT) products. Consideration is given to development methodology and environment, desired security features, privacy protection, hardware design, protection of data, security of application and services, protection of logical interfaces, secure updates, authentication, key management, logging, and security reviews.

(IS-2017-61) The Greatest Energy Story You Haven't Heard: How Investing in Energy Efficiency Changed the US Power Sector and Gave Us a Tool to Tackle Climate Change

The paper was completed in August 2016 by the American Council for an Energy Efficient Economy ACEEE and deals with energy efficiencies in the US power sector. The key items that are discussed include the role of energy efficiency in climate control, energy efficiency as a source of electrical power, the benefits of investing in energy efficiency, and the role of policies that support energy efficiency.

(IS-2017-60) Digital transformation in Canadian enterprise: Profound change on the horizon

The paper was completed on June 13, 2016 by International Data Corporation (IDC) and deals with the growth of the digital economy and its impact on the creation of new services, products, and business models. The importance of five interrelated technologies (Cloud Computing, Cybersecurity, Big Data, Hyper-connectivity, Internet of Things) on business model transformation is presented.

(IS-2017-59) IoT 2020 Business Report The future of the Internet of Things: From sensor to business sense

The paper was completed in April 2016 by Schneider Electric and deals with five future predictions for the Internet of Things (IoT). The five predictions include use of mobile devices for IoT deployment, leveraging IoT for service improvement and tracking customer behavior, leveraging of site-to-cloud computing platforms, and systems integration. Immediate value of IoT and best practices are also discussed.

(IS-2017-58) FIVE ESSENTIALS of World-Class Creative Operations

The paper was completed on April 5, 2016 by GlobalEdit and deals with five essential tasks to improve work processes and productivity of organizations. The tasks covered include centralization of assets, simplification of reviews and approvals, streamlining collaboration, security, and protection of digital assets.

(IS-2017-57) From Smart Devices To Smart Systems: The Keys To Catalyzing Smart Home Adoption

The report was completed on July 25, 2016 by Harbor Research and deals with main factors affecting smart home adoption. Several key concepts are considered including the drivers of adoption (equipment manufacturers, telecom providers, retailers, and other service providers), restraining factors (security, privacy, complexity, lack of integration, poor user experience), ecosystem /supplier trends, and need for collaboration among various stakeholders. The Ayla's Agile IoT platform is introduced as a viable smart home platform.

(IS-2017-56) 2016 Data Protection and Breach Readiness Guide

The report was prepared in May 16, 2016 by Online Trust Alliance and deals with strategies for small and large companies to enhance their data security, adopt responsible privacy practices and be prepared for a data breach incident. The main topics covered include risk assessment, security best practices, data lifecycle, incident response, cyber insurance, notifications, training, testing, budgeting, and regulatory issues.

(IS-2017-55) PYRAMID RESEARCH PREDICTIONS 2016 Global and Regional Outlook in the Information, Communications and Technology Industry

The report was completed in January 2016 by Pyramid Research and deals with global themes and predictions for 2016 in the Information & Communications Technology (ICT) sector. The main global themes reviewed include telecom's service revenue, mobile growth areas, trends for pay-TV subscriptions, next generation networks, service and content convergence, competitiveness of Internet giants (Google, Apple, Facebook, Amazon), network and cloud services, and the Internet of Things. The report also provides specific ICT insights for Africa / Middle East, Americas, Asia Pacific, and Europe.

(IS-2017-54) Strategic Five-Year Technology Investment Plan for Aviation Security

The Transportation Security Administration (TSA) Strategic Five-Year Technology Investment Plan aims to achieve a shared vision among Congressional, Industry, Department of Homeland Security (DHS), and TSA stakeholders to address security technology needs, deploy cutting-edge security capabilities, and increase efficiency and security effectiveness in American aviation security.

(IS-2017-53) The Digital Tipping Point: How do organizations balance the demands for digital and human customer service?

This white paper by Verient seeks to answer the question: How do businesses get the balance right between digital and human customer service? To do this, more than 24,000 respondents across 12 countries were questioned by Opinium Research LLP, a UK-based research agency. Verint additionally polled more than 1,000 businesses as part of the study. The key findings from those polled are analyzed in this white paper.

(IS-2017-52) Wi-Fi Calling and the Next Generation of Wireless Services

In this ebook from FierceWirelessTech, they delve into Wi-Fi calling technology and opportunity, with the goal of highlighting what is and what isn't working in this complex but important sector. This ebook provides a number of different articles on this topic, written by various authors.

(IS-2017-51) Encouraging Market Transformation Through Collaboration on Energy Efficiency Standards: A Federal-Provincial-Territorial Framework

This report was completed August, 2016 following the Energy and Mines Minister's Conference held in Winnipeg, Manitoba. The report outlines the regulatory framework goals and implementation plans for industrial energy efficiency standards. These standards will encourage market transformation toward generating energy efficient products, while lowering energy and operating costs, and reducing greenhouse gas emissions.

(IS-2017-50) A New Look at Building Value - How building technology, people and processes improve business outcomes and create greater operational value

This white paper was completed in March 2015 by Siemens. It outlines the benefits of data-driven facilities (smart buildings) which are fully connected. The basics behind data-driven facilities, including: a strong BAS, use of big data, smart software, and software platforms, are detailed. Finally, several steps are given for managers to begin turning facilities into buildings with higher operational value, and turning their businesses into organizations with higher valuation.

(IS-2017-49) ICT Facts and Figures 2016

This report was completed June 2016 by the International Telecommunication Union. This report includes several graphs depicting global comparisons for ICT (information and communications

technology) coverage and usage data from 2013-2016. These data indicate that while the majority of the world's population live in areas with network coverage, ICT services are not used by more than half of the population. Large differences in affordability, accessibility, broadband quality and speed still hinder usage.

(IS-2017-48) Beyond monoculture: How design eats strategy for breakfast

This paper is a collaboration between Boss Design and Insight and was published in 2016. It argues that corporate strategy and design must go "hand in glove" in order for a corporate strategy or culture to survive. When developing workplace strategies, one needs to understand the the culture of the workplace, which could reject or shift the desired output of the strategy. The link between strategy and design is stronger now than ever since the time and place of working no longer ties employees to employers.

(IS-2017-47) Smart Cities in Europe - The Future of the built environment

This paper was released in 2016 by Osborne and Clarke. Different ways in which built environments can become smarter are discussed, along with things which might prevent them from improving. Two case studies are described where an area of a city was redeveloped to include smart technology, and their successes are outlined. Better use of data is one way to make a building smarter. The collaboration of all parties involved, including investors, real estate companies, construction companies, architects, tech companies, and more, is essential for the built environment to become smarter.

(IS-2017-46) Generation Z/Teen: Digital Explorer

Teenagers between the ages of 13-15, also called "Gen Z teens," are more connected and tech fluent than previous generations. This report looks at the new tech habits of Gen Z teens, their digital preferences, and their receptiveness to digital marketing.

(IS-2017-45) Your Warehouse: A Brighter Future

This report looks at the impact lighting has on warehouses from an operational standpoint. The economics of bad lighting and LED lighting, dangers associated with poor lighting, and the benefits of good lighting are discussed. This report also looks at Graybar's Powersmart Process and the impact of investing in LED bulbs over a ten year period.

(IS-2017-44) Connected Home and Building: Beyond the Hype of Hockey Stick Market Forecasts

This document by IoT Evolution Expo presents several market forecasts for the IoT in a more realistic light as opposed to the "hockey stick" forecasts previously reported. While it appears the paper is a marketing piece for IoT Evolution Expo and IoT Connected Home & Building, it does present market forecast data for subsets of the IoT market such as Apps for Smart Appliances, Smart Appliances, Resource Management, Industrial and consumer Lighting,

Facilities Management, Smart Cities, Precision Farming, and Smart Parking.

(IS-2017-43) Examining the Wearables Ecosystem: Roadblocks in Personal Data Interpretation

This document by Argus Insights leverages a survey of consumers using wearable technology to compare satisfaction with the technology versus the applications associated with the technology. Completed in March of 2016, the key findings are that consumers are more satisfied with the technology than the applications that come with the technology. Technology and applications from Jawbone, Samsung, Nike, Microsoft, Garmin, Lumo Body, and Fitbit are compared.

(IS-2017-42) 10 Hot Consumer Trends 2015

This document from Ericsson lists 10 hot consumer trends for 2015 ranging from the streamed future to children connecting everything. Completed in 2015, it includes research from Ericsson ConsumerLab and includes surveys from up to 23 different countries on what the upcoming trends will be for consumers. Trends also include smart homes, mind sharing, smart citizens, the sharing economy, the digital purse, consumer information, longer lives, and domestic robots.

(IS-2017-41) Shining Rewards The Value of Rooftop Solar Power for Consumers and Society

This report was completed in Summer, 2015 by Environment America and the Frontier Group. This report reviewed 11 net metering studies and found that 8 showed utilities are under-compensating owners of rooftop solar systems. The report provides a cost-benefit analysis including a number of categories. Beyond price, the report claims utilities benefit from a lower need for capacity and environmental compliance investments, and improved grid resilience.

(IS-2017-40) Delta Portfolio, Lighting Case Studies Volume 5, Issue 1: LED Lighting in a Campus Building (Rosetti Hall, Siena College, Loudonville, New York)

This paper was completed in May 2014 by the Delta Lighting Research Centre. This report explores the evaluation of the change of the lighting specification for Siena College's Rosetti Hall in Loudonville, NY from originally specified conventional florescent lighting to light emitting diodes (LEDs). The project was funded by the New York State Energy Research and Development Authority (NYSERDA) and aimed to create a comfortable visual environment; provide flexible lighting to promote diverse teaching methods and save on energy consumed.

(IS-2017-39) How to get your energy saving projects funded

The report was completed in the Summer of 2016 by the Almiranta Corporation. The report deals with information, tips, and ideas on how to get energy saving projects approved and funded. Several key items for the project's success are discussed including internal stakeholders, risk, development of business case, timeline, return on investment, and financing.

(IS-2017-38) The Power Of Light: How TLEDs Have Been Revolutionizing The U.S. Military Since 2012 The report was completed on June 10, 2016. The group that completed the report is not explicitly stated. The website, www.energyfocus.com, is included in the footer. The report deals with the advantages (energy savings, efficiency, safety, health benefits) of Tubular LEDs (TLEDs) as compared to fluorescent tubes. Retrofit options are also presented along with key factors to consider when specifying TLEDs.

(IS-2017-37) Designing the Future of Connected Systems

The report was completed on June 28, 2016 by Harbor Research company. The report covers a new, highly adaptive real-time signal processing platform that enables universal – systemic – distributed semantic intelligence, control, and automation. Key features of the platform are presented along with the major pre-existing conditions that need to be overcome for a wider deployment of the platform. Examples of n.io's current implementations of the platform are included.

(IS-2017-36) Social Innovation

The report was completed on October 9, 2014 by Frost & Sullivan company. The report deals with mega- trends defining future societies, social innovation opportunities, and areas poised for growth. The top five mega-trends are examined: Urbanisation; Smart is the New Green; Future of Energy; Future of Mobility; and Health, Wellness & Wellbeing. The Social Innovation opportunity is addressed in detail within the context of the five mega-trends.

(IS-2017-35) IOT AND OMNI-CHANNEL RETAILING WILL SAVE BILLIONS FOR RETAILERS

The report was completed on April 8, 2016 by Relayr, an IoT company. The report deals with integration of the transaction channels between retailers and customers. The key factors which are considered include data integration, supply chain optimization, smart shelf technology, and integration with ERR. Relayr's Innovation Acceleration solution (Cloud Service, SDK, Sensor Kit) is presented as a way to integrate all the sales channels.

(IS-2017-34) The Drivers and Benefits of Edge Computing

This paper was published by Schneider Electric in 2016. It explores drivers of edge computing and the various options available. Edge computing helps solve latency and bandwidth challenges by bringing applications closer to the data and users closer to the content. Computing power and storage is inserted on the edge of the network which decreases transport time and increases data availability. Localized rack systems can be quickly designed and deployed to meet the future Internet of Things application demands.

(IS-2017-33) 2016 Norton Cyber Security Insights Report - Understanding cybercrime and the consequences of constant connectivity

This paper was published in 2016 by Norton by Symantec. It presents data from research conducted by Edelman Intelligence on the topic of cyber-crime and its impact on consumers. Cyber-crimes are increasingly more dangerous but consumers are still complacent to protect their personal information. Many consumers cannot identify a phishing scam. Several other findings are presented with data.

(IS-2017-32) Energy Management: Navigating the headwinds

This study from Deloitte provides insights into the energy marketplace for residential and business perspectives. The report highlights that despite falling energy costs, energy consumption is still a primary focus for the residential market and that 65% of consumers are very concerned about climate change and their carbon footprint, millennials in particular are prepared to pay extra for renewable energy sources. 74% of business responders indicate that they are requested by their customers to provide more environmentally considerate offerings, with over half attempting to procure electricity from renewable energy sources.

(IS-2017-31) Bridging IT and OT for the Connected Asset Lifecycle Management Era

This research from ABB, Microsoft and Zpryme explores the value of connectivity between information technology (IT) and operations technology (OT) as it relates to utility companies. Approximately 45% of respondents indicated that integration between IT and OT was extremely valuable to their business. The report highlights that improved integrations will enhance the use of real-time and predictive data in assisting the business with its asset management. Asset management is surveyed as an increasing area of importance for utilities and IT-OT will allow them to improve planning of capital investments; correlate the impact of upcoming DER; and also aids with cyber security.

(IS-2017-30) Harbor Research's Internet of Things Trends Report 2016

This report from Harbor Research identifies and explores 18 major trends influencing the Internet of Things. These trends include the emergence of legislation related to security and data protection; the promise of lower latency and higher bandwidth communication networks with 5G technology; and the exponential growth in the employment of drones which will open up new applications.

(IS-2017-29) Building Information Modeling and Intelligent Green Buildings

This white paper explores Building Information Modeling (BIM) and how its collaborative nature will allow efficiencies from concept through to operations in reducing capital costs and the carbon burden. According to the report, BIM demonstrations highlight that around 20% of costs can be saved during the construction phase. The report explores the different aspects of BIM and describes the relation between BIM and other information management standards. The report also assesses the adoption of BIM across different countries.

(IS-2017-28) Securing Our Future: Closing the Cybersecurity Talent Gap

This paper was published in 2016 by Raytheon Company. It presents findings from a survey conducted by Zogby Analytics on the topic of the long-term talent pool in the cybersecurity industry. Efforts to raise awareness of careers in cybersecurity are resulting in a well-informed talent pool of young adults. Females are still behind in awareness and inclination towards cybersecurity careers. Raytheon has several initiatives in place to increase awareness and inclination including female scholarships, competitions and education initiatives.

(IS-2017-27) 2016 Smart Cities Survey Summary Report of Survey Results

This paper was published in 2016 by the Smart Cities Council in collaboration with the ICMA. It presents the results of a survey of U.S. local governments regarding their activities and priorities related to smart-city technologies. Insight into the key motivators and barriers to smart city adoption and improvement are presented according to the surveyed governments.

(IS-2017-26) Smart Water Roundtable 2016

This report was published on August 29th, 2016 collaboratively by ABB and Eco-Business. The report explores the implementation of Smart Water systems in Singapore to improve water supply efficiency and sustainability. These Smart Water systems would utilise a Smart Water Grid to improve the efficiency of water supply to homes and businesses in cities within Singapore.

(IS-2017-25) Printable and Flexible Electronics Enabled Intelligent Buildings

This paper examines how Printable Electronics, an additive manufacturing technology, can play a role to evolve the function and operation of commercial buildings. The paper focuses on the major components of building automation systems, with two purposes: First, it explores how PE can change building operations and automation systems, enabling improved control, sensors and ultimately better conditions for those inside. Secondly the paper works to assess the degree to which these technologies are ready for development and deployment.

(IS-2017-24) Driving Energy Efficiency & Occupant Comfort through Printable & Flexible Electronics Applications in the Next Generation Connected Home

In this paper, CABA and the Canadian Printable Electronics Industry Association (CPEIA) examines how additive printable electronics manufacturing technology, or PE, can play a role to evolve the function and operation of the connected home.

(IS-2017-23) The Role of Hybrid AC/DC Building Microgrids in Creating a 21st Century Enernet

This white paper examines the alternative of maintaining power in its native DC form from distributed generation and storage sources in a simplified, more flexible, efficient and resilient configuration in the building. This DC power could be aggregated with AC power from the public

grid and distributed in the building via a hybrid AC/DC microgrid. The paper also explores the eventual interconnection of building-level microgrids within and between buildings and the public grid to create an energy network. The paper refers to this energy network as the “Enernet,” analogous to the network of computers that constitute the Internet. A tiered configuration of private microgrids and public grids in domains akin to the physical network topology of the Internet is proposed. Also discussed are the motivation, need, and status of new standards to support the implementation of such buildings with wide-scale use of private microgrids that would be increasingly based on low voltage (under 1500 Volts (V) DC) direct current.

(IS-2017-22) Project-Haystack

The Internet of Things (IoT) is changing our world, including affecting the way we manage and operate our buildings. Lower cost sensors, more powerful controllers, the “Cloud”, smart equipment, and new software applications are enabling new approaches to facility management. Smart devices are creating dramatic increases in the amount and type of data available from our facilities, while new software applications are creating new ways to benefit from that data. Together these advances are driving a fundamental shift in how we manage and operate buildings, enabling us to move from traditional control strategies based on simple feedback loops to data-driven methodologies that inform operators and service providers about the actual performance of building systems in real time.

(IS-2017-21) Cybersecurity in Smart Buildings: Preventing Vulnerability While Increasing Connectivity

This CABA white paper, authored by Frost & Sullivan, postulates that facilities managers should work with IT personnel to manage the high-tech aspects of building automation systems (BAS) and the cybersecurity concerns that threaten them and, by extension, the rest of the organization. The correct approach is to use a combination of both professions to safeguard the BAS.

IS-2017-20) Improving Organizational Productivity with Building Automation Systems

The worldwide emphasis on energy management and sustainability has stimulated the development of new building automation and IT technology, and the adoption and integration of these systems in smart buildings. The rate of adoption is dramatically increasing, resulting in increasing numbers of organizations housed in smart buildings with advanced building control technology. Beyond resource sustainability, there is growing interest in the potential for buildings to affect the health and well-being of occupants, and the productivity of organizations. This white paper, by the National Research Council Canada, explores how the use of advanced building control technology can improve organizational productivity. It concludes with a call to action to developers, building owners, and tenant organizations to form a real estate movement that realizes the full potential of building to save energy and to be a factor in improving as contributors to corporate performance and environmental sustainability.

(IS-2017-19) High-Quality Multimedia Distribution in Commercial Buildings

This CABA White Paper examines the increasing need for high-quality multimedia in commercial buildings and the options for a distribution infrastructure. The paper notes that building industry has adopted standards for a building data infrastructure that can be extended to multimedia. The paper demonstrates that there is a solution using HDBaseT technology that overcomes the limitations of HDMI, while carrying HDMI signals. The solution is cost-effective and suitable for content-protected audio and video, and can be integrated with a building data network using established installation skills and tools.

(IS-2017-18) Connected Car White Paper

CABA recently published a white paper on the connected car market. An increasing number of vehicles are coming to market with the capability to support communications of various sorts. In 2013 more than one billion sensors were sold to the auto industry, more than doubling the 2009 levels. While tethered and integrated solutions have dominated car connectivity to date, embedded connectivity solutions began appearing in 2014 with the number of such vehicles increasing in 2015 and beyond.

IS-2017-17) On Intelligent Home Offices – A Model and Potential Impacts

The idea of “teleworking” or “telecommuting” or “working from home” is not new. The practice is still not very popular because most organizations lack a policy for “telecommuting.” There are two schools of thought fighting against each other related to the implementation of this practice in a broad sense. The main theme of this CABA White Paper suggests that technology is available to let employees, whose work is information-based, work at home for three or four days a week. While many employees are provided with cell and smart phones to be accessible while they work from anywhere when away from their desks, what is lacking is a cultural acceptance and clearly defined guidelines for telecommuting as part of business activities.

(IS-2017-16) Toward Zero Net Energy (ZNE) Super High-Rise Commercial Buildings

This CABA White Paper examines the driving force for zero net energy buildings, along with examining various definitions and technologies. The paper then presents a concept for a feasible net-zero solution applied to a building cluster consisting of an office building and homes.

(IS-2017-15) The Impact of Cloud Computing on the Development of Intelligent Buildings

This CABA White Paper provides building management decision makers with some perspective on the trend toward cloud delivery of smart building energy management solutions and key hurdles and opportunities around integrating the solutions.

(IS-2017-14) Lighting Application Guide for K-12 Classrooms

This report was completed 2016, by the Lighting Controls Association. This report studies the impact of lighting control solutions which support learning in the modern classroom while minimizing operating costs. Occupancy sensing, automatic daylight response control (both side lighting and top lighting) and manual control were examined. In compliance with existing energy codes, recommendations are provided.

(IS-2017-13) CMS Retrofit Whitepaper Part 2

This report was completed July 2016, by Wind O&M Canada. As a follow up to a previous report, a further examination of the wind turbine retrofit market for condition-monitoring systems is provided. Market opportunities by generation sizes are provided. Financing options are discussed along with potential savings and ROIs. It is expected the retrofit market will provide new opportunities for CMS installations.

(IS-2017-12) CMS Retrofit Whitepaper Part 1

This report was completed June 2016, by Wind O&M Canada. With an increase in the number of wind turbines requiring maintenance and service, this paper examines the benefits of condition-monitoring systems, installed both as original equipment or as a retrofit. Market opportunities by generation sizes are provided, along with potential savings and ROIs. As costs for CMS continue to decrease, ROIs for smaller turbine installations will improve, particularly in the retrofit market.

(IS-2017-11) The Energy-Water Nexus: Exploring the Stream of Opportunities

This position paper, provided by the American Council for Energy-Efficient Economy outlines the important connection between energy and water. A framework for agency collaboration along with a blue print on how water efficiency can be increased is provided. A number of reference reports and documents are listed. The ACEEE also outlines its future area of focus.

(IS-2017-10) Municipal Utility Outlook

A survey of 86 municipal utilities was conducted in Spring 2016 by Zpryme on behalf of Milestone Utility Services. This survey found that budget limitations and business case "ROI" are the most significant challenges for smart grid initiatives. Many utilities are embracing next-generation technologies, particularly AMI, automation/grid optimization, meter data management and data analytics. Information on deployment status, budget amounts and customer engagement tools is provided.

(IS-2017-09) Canada's Natural Gas Opportunity

This publication was completed by the Canadian Gas Association. The report explores the

opportunity to reduce emissions and energy costs through the expansion of natural gas infrastructures within communities that are not currently connected in Canada. This natural gas opportunity would provide Canadian homeowners and businesses with an efficient energy choice with lower emissions and lower energy costs. In addition, this initiative contributes to driving energy technology innovation and promoting economic growth within the industry.

(IS-2017-08) E-health and Telemedicine

This report was published on August 12th, 2016 by the U.S. Department of Health and Human Services. It discusses telehealth activities and some of the challenges associated with it. The focus is primarily on how reforms to the delivery system may increase the use and effectiveness of e-health and telemedicine.

(IS-2017-07) Total Cost of Ownership: The Key Metric for Multi-DRM Strategy

This paper was published in 2016 by Frost & Sullivan. It discusses the options that companies have when they plan anti-piracy infrastructure for their over-the-top streaming services. The options of buying a digital rights management (DRM) solution and building a DRM solution are compared. Five factors are outlined for consideration when evaluating the total cost of ownership (TCO) of a DRM solution. Verimatrix is a DRM solution that can be bought

(IS-2017-06) Testing the theory: demonstration projects and the validation of integrated design protocols for advanced energy retrofits

This paper was published in 2014 in the WIT Transactions on Ecology on The Built Environment, Vol 142 by the University of Pennsylvania. Observations from five small-medium building retrofit projects using the Integrated Design (ID) Advanced Energy Retrofit (AER) Roadmap are detailed. The roadmap's ID protocols are tested and verified based on the initial results of the five demonstration projects, and the method in which different teams employ the components of the roadmap is discussed.

(IS-2017-04) Networks of 'Things'

This report presents an underlying and foundational science for IoT-based technologies, including sensing, computing, communication, and actuation. The vocabulary and semantics presented in this report can facilitate the communication of IoT-based technologies.

(IS-2017-03) How to Build a Successful Smart City

This is an eBook from the editors of FierceWireless. It provides an introduction to the smart city concept; discusses key aspects of smart cities including models, platforms, key players, policies, and benefits.

(IS-2017-02) Creating a Market for Energy-Efficient Commercial Buildings – How Governments Can Reduce Carbon Emissions by Implementing ENERGY STAR Buildings Program Elements

This is a guide developed based on the ENERGY STAR Buildings program. It can be used by other governments, trade associations, non-profits, consultants, and energy efficiency service companies to create a market-based mechanism for reducing greenhouse gas emissions resulting from energy consumption in buildings.

(IS-2017-01) How Is the Federal Government Using the Internet of Things?

It is a very interesting report that provides a summary of 22 expert interviews on the use of the Internet of Things in the federal government (including Smart Buildings with GSA Link) and identifies key challenges including a lack of leadership, skills, and funding, as well as cumbersome procurement policies and a risk-averse culture.