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Utilities actively investing in new technologies despite political uncertainty in US: Capgemini's 2017 World Energy Markets Observatory Report

New report cites economic growth and changes in energy consumption as main drivers for change

New York, November 9, 2017 – Investments by North American utilities in green and renewable energy, as well as digital technologies, have the potential to reduce carbon emissions, and provide greater energy choices and lower costs to consumers, according to Capgemini's World Energy Markets Observatory (WEMO) report. Despite the United States' decision to pull out of the Paris climate agreement and uncertainty around other government initiatives, utilities and consumers are driving a significant transformation of the energy system.

There is a great deal of uncertainty and contradiction on the future of climate action in North America, driven by the United States' announcement to pull out of the Paris climate agreement. Not only does this decision have implications for North America's climate action targets, it will also impact climate aid programs in the developing nations, as the U.S. reduces its commitment to help fund these programs.

Additionally, the report projects that coal may become the leading source of electricity generation by 2019, potentially retaining that position through 2032, if the Clean Power Plan is not approved or stripped down. These impacts may be offset by the natural course of political compromise that occurs in the U.S. between the two dominant political parties and the Federal and State governments.

Despite this political uncertainty, utilities have increased investments in green and renewable energy. Within the power and utilities sector, efficiency program spending has almost tripled since 2007, from US$2.2 billion to $6.3 billion in 2015. 2016 was a record year with renewable energy capacity additions of over 22GW.

With the growth in renewable energy, enhancing infrastructure and grid modernization will be instrumental in the future of the North American electricity infrastructure and adequacy of supply. For example, advanced grid analytics platforms can utilize big data from SCADA, Advanced Metering Infrastructure, weather forecasting, and IoT sensors to provide actionable information in support of daily operations and intelligent planning of future investments. This is just one promising technology that is essential for the success of the U.S. Department of Energy's Grid Modernization initiative.

As investment and adoption of green and renewable energy increases, a significant transformation of how utilities deliver energy, and consumers receive it, has begun. As renewable energy sources grow, so will the risk of congestion-driven outages. In the longer term, achieving grid stability will likely require big data, analytics, and automation versus human-based processes and procedures to allow the electric grid to remain stable.

"The North American utilities market is exposed to several significant, global variables in play – those not only impact how we consume and source energy in the near-term, they ultimately factor into our ability to achieve success during this time of transition," said Bart Thielbar, Vice President, North America Utilities Practice Lead, Capgemini. *"The U.S. energy market has shown growth in renewable energy projects and an*

increase in new technology investments – which shows a focus on building a successful future, despite uncertainties in today's climate."

These findings are included in the 19th edition of Capgemini's WEMO report that highlights the main indicators of the global electricity and gas market, and analyzes the developments and transformations in these sectors. This is the first year Capgemini's annual study has published a detailed, region-specific analysis of the energy landscape for North America.

The authors examined: uncertainty around climate change; how the generation, consumption and delivery of energy is shifting; the impact of infrastructure on energy supplies; costs for residential consumers; the benefits and risks of technologies such as IoT, big data, machine learning and robotics; and the financial performance of utilities.

Link to infographics: North America

For more information:

- To download a full copy of the report, go to: www.capgemini.com/wemo
- Links to other regional infographics: Global, Europe, South-East Asia, Australia
- Global findings of WEMO: here and in appendix below

The World Energy Markets Observatory is an annual publication by Capgemini that monitors the main indicators of the electricity and gas markets in Europe, North America, Australia and South-east Asia, and reports on the developments and transformations in these sectors. This 19th edition, which is drafted mainly from public data combined with Capgemini's expertise in the energy sector, refers to data from 2016 and winter 2016/2017. Special expertise on regulation, climate challenges and customer behavior is given respectively by De Pardieu Brocas Maffei, the I4CE – Institute for Climate Economics – and VaasaETT research teams.

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APPENDIX

Globally the three main findings of the 2017 edition of the World Energy Markets Observatory are:

1. **Rapid evolution of generation technologies makes the renewables penetration unstoppable, thanks to their competitiveness gains, and despite the end of feed-in tariffs in Europe**

During the past 12 months, the costs of renewable energies have continued to fall: onshore wind and utility scale photovoltaic (PV) costs are becoming competitive in some countries, compared to traditional electricity generation resources (nuclear, coal, gas). A recent auction for solar PV generation plants recorded a lower cost in sunny Saudi Arabia, with only 17$/MWh. Battery storage costs decreased also by about 20%. The ingredients now gathered favor Energy Transition with limited political intervention.

According to Colette Lewiner, Energy and Utilities senior advisor at Capgemini, "*Efforts in R&D and industrialization are boosting renewable energy development, even when considering extra network investments linked to intermittence and energy generation distribution. Today, their intermittency coupled with the absence of pricing reforms, mean the impact of renewable energy on the wholesale markets prices threatens electricity supply and impacts negatively utilities' finances*."

2. **Empowered Smart Energy consumers are pushing Utilities to deliver new energy services.**

All customers (residential, tertiary or industrial) now expect from their suppliers' offerings better management of their energy (examples include self-consumption, Smart Home, Smart Building, Smart Plant, electric mobility). With the participation of the customer in energy communities, the way energy is purchased or managed collectively is also now evolving.

For Perry Stoneman, Head of the Energy and Utilities sector at Capgemini, "*We observe many Utilities creating new customer divisions that are focused on chasing the Holy Grail: the differentiating services valued by the customer, allowing the development of new revenue streams with better margins. With variations from one country to another, the vast majority of players are moving in that direction, but very few, for the moment, have found the appropriate recipe. Innovation capabilities and agility for a rapid and successful go to market are generally missing."*

3. **Established Utilities, heavily hit by Energy Transition and customers' evolving expectations, have started large transformations. It's now time to accelerate by leveraging Digital Transformation.**

Most of the big players have launched transformation plans that they are executing with a particular attention. This is also the case in North-America, where the Utilities' finances are less challenged than in Europe, thanks to a lower pace of Energy Transition and different market rules. In addition to simplifying their internal processes, these transformation plans generally focus on the downstream business (networks, green energy and customers' energy services), designing and managing new operations and business models. Gains could also be sought in the generation side of the value chain. Digital technologies are evolving continuously to provide new solutions (for example Robotic Processes Automation, Artificial Intelligence, Internet of Things, or Blockchain were not available a couple of years ago). The value of managed data – Analytics - remains also largely unexploited.