

## **Public-Private Roundtables – Tuesday, May 28, 2019**

*The Digital Economy of an Electric Future*  
Co-Chairs: Italy and China

### **Brief Overview:**

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This session will address how new business models and grid edge technologies have the potential to help industrialized countries cope with pressing challenges, such as rising electricity needs and grid integration and emerging economies optimise the path towards a secure and sustainable access to clean energy for all users.

### **Narrative:**

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A wide variety of technologies, solutions and services are being integrated at the edge of the electricity network:

- i) Distributed renewable generation, such as rooftop mounted PV panels, enables the progressive evolution of the passive electricity consumers towards active prosumers potentially able to participate in the market;
- ii) Energy storage decouples from the grid the variability of renewable sources;
- iii) Advanced and flexible electricity uses, from smart appliances or advanced electric vehicle recharging, allow to shape the load curves to accommodate the variable generation patterns;
- iv) Flexibility services, enabled by vehicle-to-grid, generation and/or consumption aggregators boost the renewables integration capacity and open for new market opportunities, growth and welfare;
- v) Coupling between the electricity system and other energy vectors (e.g. natural gas, water, heating & cooling, hydrogen), intimately linked and tuned to a renewables-based electricity generation, has the potential to dramatically expand the flexibility of the entire energy sector, thus contributing to a progressive decarbonisation of all sectors of the economy.

The common denominator for all these developments is digitalization: the digital layer integrated within smart grids supports the necessary network automation to increase the hosting capacity of renewables, control this new type of generation and fosters interaction with the prosumers (i.e. a hybrid between consumers and producers). A new playground is created for the development of all sorts of market

platforms enabling peer-to-peer transactions, creating value for the grid and the customers by shrinking energy bills, reducing peak demand and shifting consumption to lower-price, off-peak hours.

## **Session Structure:**

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The discussion will focus on the phenomenal potential unleashed by grid edge technologies and the digital layer to boost yet unexplored business models where the prosumer (single or aggregated) can have a fundamental role in the decarbonisation of the power system, thanks to the dramatic increase in renewables integration made possible by smart grids. The formidable potential from grid edge is however still untapped: most of the necessary technologies are available but obstacles still stand in the way: regulation, interoperability, cybersecurity, resilience, or just initial adoption. Failure to untie these knots will prevent the deployment of the full potential of grid edge solutions.

This discussion aims to identify what works and what impedes these developments based on concrete examples and experiences from a variety of stakeholders around the table. Subjects such as technology adoption, subsidiarity, decentralization, grid defection and the new roles and business models of network operators will be discussed. In light of varying profiles, geographies, regulatory and boundary conditions, participants will be invited to discuss if and how grid edge technologies are deploying their potential over the entire value chain of electricity.

As an example, the session could proceed as follows:

- Italy and China could lead a discussion on how new business models and grid edge technologies have the potential to help industrialized countries cope with pressing challenges, such as rising electricity needs and grid integration;
- A discussion could then be established on how microgrid technologies can help developing countries leapfrog centralized power systems altogether, increasing energy access and connectivity in developing and emerging economies;
- The progress of technologies and solutions could be assessed, highlighting success stories and reasons for failure, identifying the most important drivers to foster the unleashing of grid edge solutions potential;
- The value of international collaboration, technology and experience transfer could be brought to light and Italy could present the Smart Grid Innovation Accelerator and invite participants to pitch in.
- Clear mention to the World Bank's \$1BN battery storage accelerator could also be profiled.

## **Desired Outcomes:**

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- To challenge MI members and the private sector to share best ideas and cooperate towards exploiting at best the opportunities made available by electrification, decentralization and digitalization of the grid, especially taking into account the following aspects:
  - Redesign of the regulatory paradigm
  - Deployment and more efficient utilization of the enabling infrastructures to allow new business models

- Redefine customer experience
- Embrace new business models for all stakeholders (from prosumers to network operators, flexibility providers, telecommunication operators, mobility service providers etc.)
- Define how by its global approach MI could tackle the system transformation challenges and help fulfil the above mentioned objectives. IC1 SGIA initiative could play an important role in this direction promoting effective cooperation between public and private sectors.

### **Guiding Questions:**

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1. Are there technical, policy, and/or financing barriers to transforming power systems and maximizing grid edge potential?
2. What are some examples of new business models or transformations that could accelerate the progressive uptake of grid edge solutions?
3. What are the impacts and concerns linked with extensive digitalisation of the energy system?
  - a. Are we more secure or exposed to new threats from cyberattacks?
  - b. How do we need address privacy risks to grid users?