

## Joint Statement of the CEM Power System Challenge

We, the endorsing CEM countries of Denmark, Finland, France, Germany, India, Indonesia, Japan, Korea, Mexico, Norway, South Africa, Sweden, the United Arab Emirates, the United States, and the Directorate-General for Energy of the European Commission following the 6th Clean Energy Ministerial (CEM6) in Merida, Mexico, held on May 27-28, issue this joint statement in recognition of the strategic importance of power system transformation. We believe that the path to developing clean, reliable, resilient, and affordable power systems is built upon a set of core principles, and we intend to undertake a series of actions, through our domestic activities and international cooperation, that act upon these principles. Across all principles, we plan to utilize the CEM and its initiatives as a platform for sharing effective innovations and strategies. Moreover, we issue a series of challenges to the CEM initiatives to provide leadership in implementation of these actions, in coordination with our governments and other international institutions. We plan to direct our ministries to engage through CEM initiatives to put in place plans by the 7<sup>th</sup> Clean Energy Ministerial in 2016 for the implementation of these actions.

### 1. Power system transformation is a strategic imperative

Power systems should provide clean, reliable, resilient, and affordable power to everyone, and power system transformation is a strategic imperative to achieve these goals. Different pathways will emerge in our different contexts, but all transformations will require innovations to increase energy efficiency and to reorient system planning and operation to take advantage of smart grid technologies and renewable resources such as wind and solar power.

- We plan to show leadership by establishing national roadmaps or strategies for achieving power system transformation. We plan to deploy best practice planning and operational methods, and to share knowledge about effective strategies. We challenge CEM initiatives to identify approaches to support and measure effective power system transformation, and to work with international partners and local communities to advance diffusion of effective transformation strategies.

### 2. Cleaner power systems will improve public health and combat climate change

Globally, power systems are one of the largest sources of emissions that significantly degrade public health and accelerate global climate change. Working together to innovate and implement clean energy solutions across the spectrum of energy supply, delivery, and demand will yield benefits locally and globally.

- We plan to work together to innovate and implement solutions that support high-quality, low-emissions power systems, consistent with our national strategies. We challenge CEM initiatives to identify cost-effective pathways toward cleaner power systems, and to support implementation of our national strategies.

### 3. Markets, prices, and tariffs should be aligned to support power system transformation

Transforming power systems will require innovation in the design of energy markets, in pricing mechanisms that better represent energy costs, and in tariffs that incentivize investment in critical system assets. Alignment of these design elements will increase efficiency, flexibility and other desired system characteristics, facilitate regional market integration, encourage system-friendly deployment of renewable and other clean energy resources, and unlock new business models.

- We plan to show leadership in the design of markets, prices, and tariffs, and to share best practices through CEM initiatives. We challenge the CEM initiatives to identify design strategies that support alignment across these elements.

#### **4. Smart grids are a key enabler for power system transformation**

Smarter power grids, enhanced with information and communication technologies, provide strategic value by increasing consumer engagement, efficiency, resilience and reliability, and by facilitating the integration of clean energy resources. They also provide opportunities for business model and technology innovation, and they support regional electricity market integration.

- We plan to promote significant investment in modernized grid infrastructure as a pathway toward cleaner, more reliable, and more resilient power systems. We challenge CEM initiatives to support our national smart grid priorities and work with our national smart grid leadership to develop shared visions for scaling up smart grid deployment.

#### **5. Renewable energy is a strategic power system resource**

As a sustainable, domestic, and cost-effective source of supply, renewable energy will constitute an important asset in transformed power systems. Policy and regulation should promote sustained, cost-efficient investment, and system-friendly deployment to maximize the benefits of renewable energy for the power system and society at large.

- We plan to promote accelerated growth of renewable energy, consistent with our national strategies and domestic contexts. We challenge CEM initiatives to conduct analysis and make recommendations on best practices to achieve cost-efficient and system-friendly renewable energy deployment.

#### **6. Innovation in finance and procurement is essential to accelerating transformation**

Prices of clean energy supply and smart grid technologies are likely to continue to decline, yielding opportunities for accelerated investment with less reliance on subsidies. Innovation in financing and procurement will be critical in this objective. Effective policy and regulatory frameworks encourage this innovation by ensuring efficient procurement mechanisms, providing market-based price signals, and unlocking new financing business models.

- We plan to develop and implement strategies to accelerate innovative financing mechanisms, and to encourage transparent, cost-effective, and market-based procurement. We challenge CEM initiatives to identify key principles for finance and procurement, and to facilitate greater peer learning and knowledge exchange between CEM countries.

#### **7. Power systems should be optimized to interface with other energy systems**

Power systems are part of a larger energy system. Integrating electricity and thermal systems leads to improved efficiency, reduced emissions, and improved energy security. Integrating electricity and transport systems through vehicle electrification can result in significant improvements in air quality and system flexibility. Intelligent industrial and building energy management increases efficiency and supports advanced power system operation.

- We plan to advance research and policies that promote innovation at the interface of electricity, thermal, transport, industrial and building energy systems. We challenge CEM initiatives to support the diffusion and adoption of best practice approaches to energy system integration.

#### **8. Skill and capacity development is critical to 21st century power systems**

Planning and operating transformed power systems will require highly skilled workers in various fields. Proactive skill development in the areas outlined by these Principles will be crucial for realizing power system transformation.

- We plan to cooperate internationally to increase the skills and capacity of power system experts, especially in emerging sectors such as smart grids, advanced power system planning and advanced power system operation. We challenge the CEM power system initiatives to facilitate staff exchanges and peer learning opportunities between regulators, system operators, policy makers, and utility staffs that promote skills and knowledge transfer.