

POLICY DIALOGUE CHILE – APEC 2018

Energy modernisation for a better quality of life

The transition to a low-carbon economy requires modernisation of the energy sector. New technology and energy systems must be developed to take advantage of growing renewable energy sources and improving energy intensity.

The APEC **energy** intensity and renewable doubling goals, as well as the UN Sustainable Development Goals, seek to drive the development of cleaner, more efficient and accessible energy. Energy modernisation, which can help meet these multilateral objectives by improving standards of living across APEC, should address at least three challenges:

- a) **Innovation:** Energy underpins almost all economic activity and enables access to education, health care, and other public services. In the pursuit of these goals, APEC has experienced dynamic change and will continue to do so. New technology and systems are persistent features of the energy industry; innovation makes this dynamism possible. Better technology and procedures can expedite change and have a significant impact on energy. For example, because of the development of fuel cell and battery technology, electric vehicles are rapidly gaining market share in APEC vehicle markets.

The result of APEC EGNRET research shows that enhancing the efficiency of renewable energy technology in terms of safety and sustainability of energy production, storage, transmission, and distribution of energy, and resilience to climate change and its impacts is crucial during this transition. It is necessary to adopt optimal approaches to enhance innovations in the processes, products, and services of renewable energy development.

Innovation requires both an expectation of frequent failure (trial and error) and a longer view. To encourage innovation, it is important to reduce the risk of attempting to innovate. To promote innovation, it may be necessary to strengthen cooperation among economies through R&D Centres, technical collaboration, joint research and sharing best practices.

Questions:

- What are the obstacles to innovation?
- How does innovation occur within the energy industry?
- How should we accelerate and expand energy innovation?
- How should we support cooperation among economies to expand innovation?
- Are there other ways to promote innovation?

• How can we explore collaboration between EWG and the APEC Policy Partnership for Science, Technology and Innovation?

- b) **Sustainable transport:** Transport plays a critical role in economic and social development. However, transport systems need to be sustainable and be able to provide services in a manner that is safe, affordable, accessible, efficient and resilient while minimising air pollution and other negative environmental impacts. Critical steps include sharing best practices on policy development and implementation, improving access to financing, building an enabling environment, and strengthening regional cooperation and technological innovation.

By 2050, nearly 80% of APEC residents will be living in cities. Currently, the most common transport solution to increasing urban population is to expand the role of public transport and minimise private vehicle use by scaling-up high quality mass transit systems, providing cycling and walking facilities, making more use of travel demand management tools, working with the private sector to develop green freight management systems, and encouraging information and communications technology-related innovations such as vehicle sharing, intelligent transport systems, and integrated charging systems.

Sustainable development should also include a shift towards high-efficiency and low-carbon modes of transport, with the main technical pathway for road transport through the development of “New Energy” vehicles, such as battery, plug-in hybrid and fuel cell electric vehicles (advanced powertrain technologies). Other measures might include the use of lighter materials, enhanced fuel efficiency, and electrification of other transport modes, coupled with increased renewable energy and smart grids.

As biofuel markets expand in a wide range of APEC economies, and as technologies advance for the cost-effective production of biofuels from abundant second-generation feedstocks like farm and forest residues and algae, it is important to consider the cost-effective expansion of infrastructure to transport and distribute the ethanol and biodiesel that are produced. Economies could expand this infrastructure in tandem with production and demand mandates in order to manage transportation and distribution costs.

Questions:

- What are the most important data and information needs in planning the transition to sustainable transport?
- How can policy and regulatory measures best support climate actions through sustainable transport development?
- What types of external technical, financial or information support do all stakeholders need to prepare and implement sustainable transport development?

- How do we develop a framework that accounts for the specific transport needs of each economy?
 - What policies have already been or still need to be put in place to accelerate the adoption of advanced powertrain technologies for road vehicles?
 - What actions need to be taken in other energy demand, transformation and supply sectors to support sustainable modes of transport?
 - How do we explore collaboration between EWG and the Transportation Working Group (TPTWG)?
- c) • How do we direct the expertise from the best cases on smart transportation in the Energy Smart Communities initiative Knowledge Sharing Platform into the future work of Low Carbon Model Towns? **Modern regulatory frameworks:** Energy systems across the APEC region are currently undergoing profound technological change associated with decarbonisation efforts. Regulatory policies and instruments that reduce technical and commercial barriers must accompany the deployment of these new energy technologies. EWG technical projects need to recognise this interplay of regulation and technology, and provide more policy recommendations from each project to energy ministers.

Although regulatory frameworks are generally developed domestically, APEC provides an excellent forum to share energy policy experience and lessons learned. Topics to be addressed could include: storage systems, demand management, distributed generation, as well as regional and cross-border interconnections.

Questions:

- What do you see as the main regulatory hurdles currently facing the buildings/industry/transport/electricity/etc. sectors?
- What are some successful recent changes in regulation in your economy to promote energy modernisation in the buildings/industry/transport/electricity/etc. sectors?
- Which sector is being most affected by technological change?
- What can regulation do to assist?
- How does the government balance the need to provide supportive regulation for new technologies without ‘picking winners’?
- What are some regulatory changes that can assist networks/grids in integrating renewables and distributed generation?
- How about establishing capacity markets?