

APERC ANNUAL CONFERENCE 2019 SUMMARY



ABOUT THE CONFERENCE

- The Asia Pacific Energy Research Centre (APERC) Annual Conference provides an opportunity for energy experts and policymakers together to discuss key issues influencing the energy sector and share findings from recent research. It also serves as a means of gathering input for the development of the future editions of the *APEC Energy Outlook* and the research programme, as well as strengthening regional cooperation in the Asia-Pacific Economic Cooperation (APEC) region.
- APERC hosted its 2019 Annual Conference on May 15 and 16 at the Grand Prince Hotel New Takanawa in Tokyo, Japan. Over 50 participants from government, industry and academia participated in the event.
- Presentations from the event are available for download on the [APERC website](#).

CONFERENCE SUMMARY

The 21 economies that make up the APEC forum represent nearly 60% of global energy demand. The region's energy system is currently undergoing a wide-ranging transition that generates a variety of complex problems. This summary presents four themes from the conference addressing these challenges, and highlights some of the ways the region's policymakers can learn from past experiences.

ACHIEVING APEC EFFICIENCY, RENEWABLES AND CLIMATE GOALS WILL REQUIRE ACCELERATED ACTION.

- APEC economies need to accelerate their decarbonisation efforts to meet the GHG reduction targets of the Paris Agreement. Some participants proffered a more ambitious revision of the APEC dual-goals of doubling the share of renewables and improving energy efficiency to align with this need for an accelerated transition.
- Participants repeatedly stressed the importance of considering nuclear power as a component of APEC member decarbonisation pathways. Collaboration between economies was also highlighted as a way of helping implement successful renewable deployment solutions across APEC economies.

- The identification of technical decarbonisation solutions is needed beyond the power sector. Industry is difficult to decarbonise and requires massive increases in R&D to identify new or augmented industrial processes that are less energy- and emission-intensive. Reducing GHG emissions from fossil fuel production may require breakthroughs in carbon capture and storage (CCS). Electrification of some transport modes is viable, but a rapid diffusion of emergent technologies and lifestyle changes coupled with ambitious social planning is required to decarbonise the whole transport sector.

ASSESSING THE COSTS AND VALUE OF TECHNOLOGIES AND POLICIES AMIDST THIS ENERGY TRANSITION WILL REQUIRE ROBUST METRICS.

- While conventional cost accounting remains an important indicator of competitiveness, the changing needs of power systems require metrics that account for system-wide costs, including externalities. Participants highlighted deficiencies of the levelised cost approach to modelling electricity capacity deployment falls short of achieving this and recommended a more robust approach.
- Participants identified decarbonisation costs and the equitable distribution of these costs as an important knowledge gap for future research.
- While energy investment projections are very important, policymakers want to see comparisons of options on a price per unit of energy basis (in terms of USD per MWh, USD per GJ, etc.). Projections across various sectors and fuel types could illustrate the costs and benefits of a decarbonisation pathway and help illuminate technical, political and economic alternatives.

AN UNCERTAIN FUTURE WARRANTS ADAPTABLE FRAMEWORKS TO INCENTIVISE THE INVESTMENTS REQUIRED TO ACHIEVE REGIONAL ENERGY GOALS.

- Black swan events, such as hydraulic fracturing techniques that have transformed oil and gas production in the United States, have shaped APEC's current energy system. There is also potential for similar unknown events, such as emerging technologies or increased digitalisation, to drastically alter APEC's energy systems. Market frameworks will need to be designed to both incentivize and absorb such disruptive technologies.
- Industry is implementing projects with shorter payback periods and lower upfront capital costs as a way of insulating investors against the rising uncertainty in the energy system. Securing financing for such projects requires a shift in project finance, which can be difficult for developers with business models that rely on economies of scale to deliver returns to investors. For example, through small modular reactors, nuclear proponents are looking to embrace smaller, less capital-intensive designs to compete in this reality.
- Modelling uncertainty is challenging. Analysing a dynamic energy system necessitates a nimble modelling framework that can accommodate a growing range of data inputs and assumptions. A knowledge-based modelling approach is one way to create a flexible framework that avoids the need for rebuilding models each time the energy system changes.

UNINTENDED CONSEQUENCES OF GOVERNMENT POLICY CAN BE COUNTER-PRODUCTIVE. PAST EXPERIENCES OFFER LESSONS FOR FUTURE POLICIES.

- Policymakers and researchers should provide policy options that are realistic and achievable by considering given an individual economy's political and economic contexts. It is inefficient and sometimes counter-productive to promote or introduce narrow or unsustainable policies. Thus, policymakers need to take an integrated and holistic approach to policy formation.
- Unintended, negative consequences can erode public support for, and consequently undermine, policy goals. Avoiding these pitfalls may require tempered strategies paced to the "speed limit" set by the inherent economic, technical, social and regulatory parameters of an economy. Effort needs to focus on promoting public engagement and buy-in for the proffered solutions.
- Energy systems are often built around national boundaries that do not necessarily consider wider regional impacts and gains from integration. Increasing collaboration and developing policies that work across borders is challenging but can be rewarding and potentially achieve shared domestic and regional goals.
- It is important to show stakeholders that new ideas and approaches can work in practice, particularly in relation to new technologies and in developing economies. Investment in capacity building is required to ensure that policymakers and regulators can keep up with the rapid pace of technological development that is transforming the energy system. This can involve building data collection and modelling capacity or sharing successes and lessons across economies.
- Policymakers must consider the commercial viability of the solutions that they are proposing and ensure that mechanisms are in place to secure financing for the infrastructure needed to achieve those solutions. This could involve private-public partnerships or revisions to tax systems to fund clean energy projects.
- The public sector currently plays a dominant role in financing global energy investment but financing the needs of an evolving energy system will likely require a larger role from the private sector. New approaches may be necessary to provide the incentives for the technological and infrastructure investments that policymakers are aiming to materialize while supporting affordability, reliability and sustainability.

ABOUT APERC

APERC is an independent energy research institute based in Tokyo, Japan. Founded in 1996, APERC supports APEC energy activities, research initiatives and cooperative projects, and promotes knowledge sharing. APERC's research staff is composed of members from APEC member economies. Please visit APERC online at <https://aperc.iecej.or.jp/>.