



ASIA PACIFIC ECONOMIC COOPERATION (APEC) CLEAN ENERGY ACTIVITIES

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Pacific Northwest National Laboratory

Workshop: Deep Transition and Integration of Power and Transport Systems(APEC project EWG 10 2018A)

NREL Office, Washington DC, 14-15 January 2020



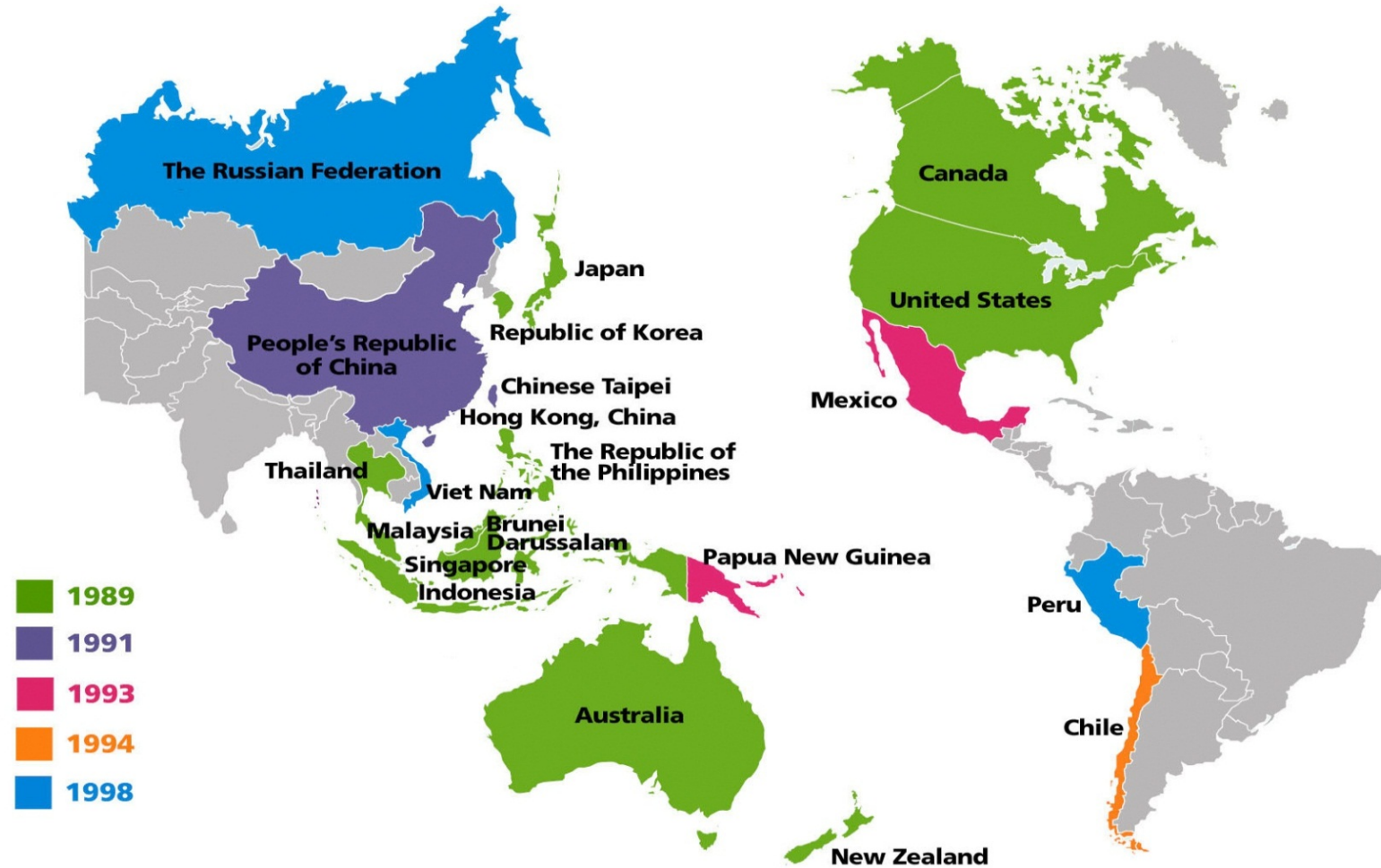
What is APEC?

The Asia-Pacific Economic Cooperation (APEC) forum was established in 1989 to leverage on the growing interdependence of the Asia-Pacific economies

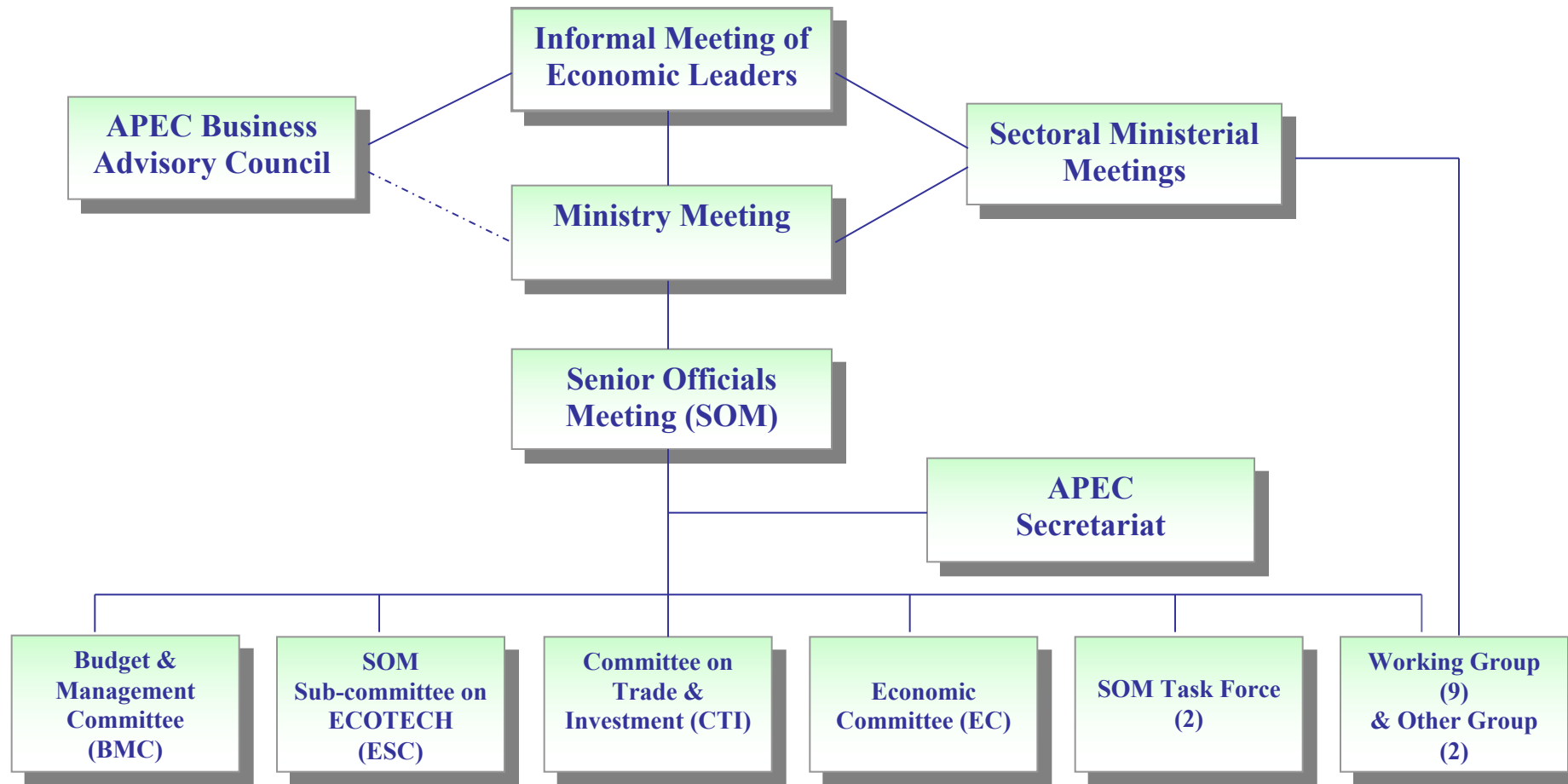
- ▶ Objective: Promote trade liberalization, trade facilitation and technical assistance
- ▶ APEC Economies account for more than one third of the world's population, 54% of world GNP and 44% of world trade

www.apec.org

APEC Member Economies span the Pacific



Asia Pacific Economic Cooperation



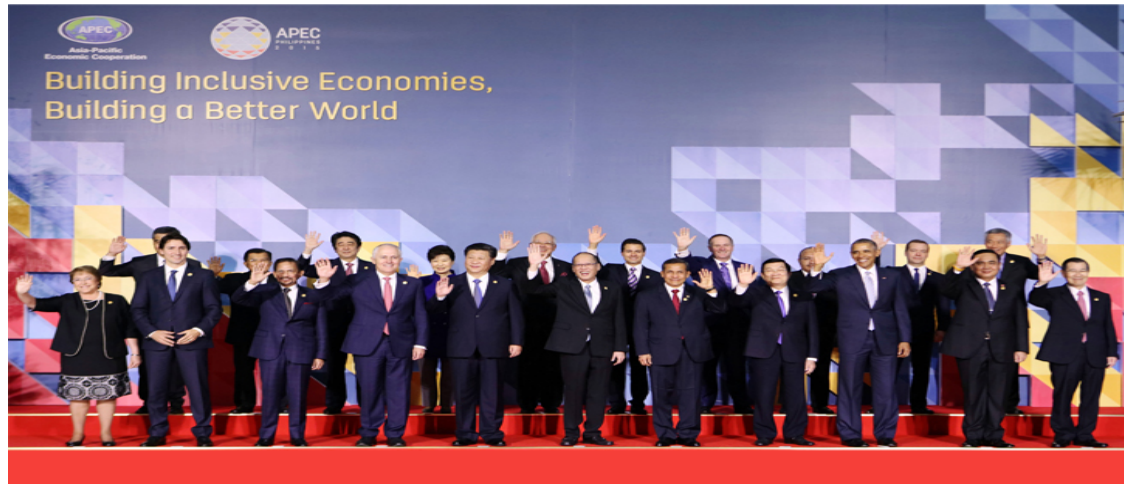
There are fifteen working groups that operate under the SOM Steering Committee on Economic and Technical Cooperation (ECOTECH)

- Agricultural Technical Cooperation
- Anti-Corruption and Transparency
- Counter-Terrorism
- Emergency Preparedness
- Energy Working Group (EWG)
- Health
- Human Resources Development
- Expert Group on Illegal Logging and Associated Trade
- Ocean and Fisheries
- Policy Partnership on Science, Technology and Innovation
- Policy Partnership on Women and the Economy
- Small and Medium Enterprises
- Telecommunications and Information
- Tourism
- Transportation

The Energy Working Group is supported by 8 sub-fora groups

- Expert Group on Clean Fossil Energy (EGCFE) – Chair: USA
(www.egcfe.ewg.apec.org)
- Expert Group on Energy Efficiency & Conservation (EGEEC) – Chair: Hong Kong, China (www.apec.org/egeec/)
- Expert Group on Energy Data & Analysis (EGEDA) – Chair: Japan
(www.iecej.or.jp/egeda/)
- **Expert Group on New and Renewable Energy Technologies** (EGNRET) – Chair: Chinese Taipei (www.egnret.ewg.apec.org)
- Asia Pacific Energy Research Center (APEREC/Japan)
(www.iecej.or.jp/aperc/)
- APEC Sustainable Energy Center (APSEC/China)
(<http://www.apsec.org.cn/apsecen/>)
- Low Carbon Model Towns Task Force (LCMT)- Chair: Japan (2010-)
- APEC Energy Resiliency Task Force (ERTF)- Co-Chairs: Philippines/U.S. (2015-)

Clean energy goals are provided by APEC Leaders and energy ministers



.... We therefore reaffirm our aspirational goals to reduce aggregate energy intensity by 45 percent by 2035 and double renewable energy in the regional energy mix by 2030 to achieve sustainable and resilient energy development within the Asia-Pacific.

(2015 Leaders' Declaration, Manila, Philippines 19 November 2015)

APEC Expert Group on New and Renewable Energy Technologies (EGNRET)

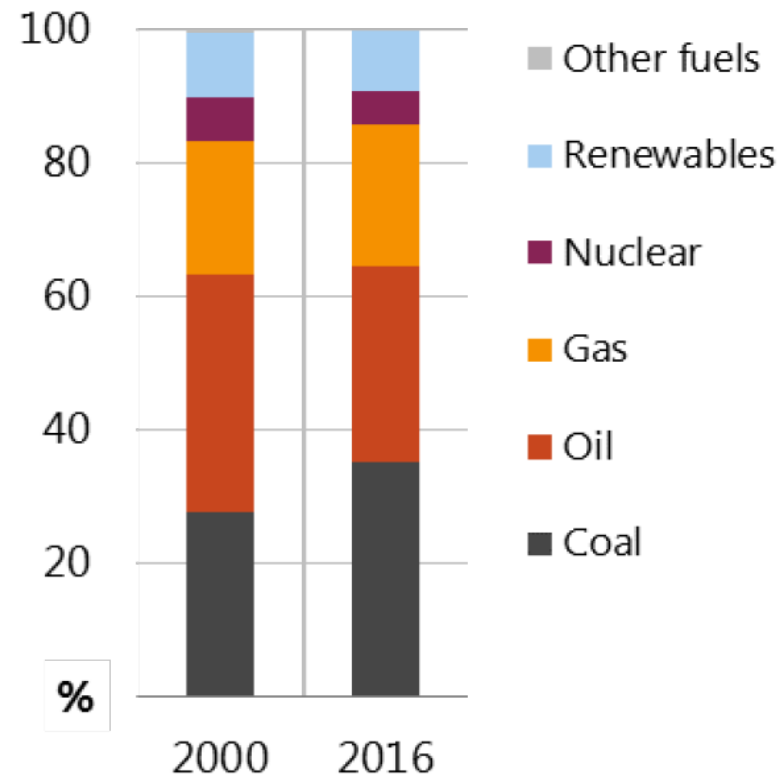
- Thailand was the first Chair, followed by Indonesia, Chinese Taipei, USA, and Chinese Taipei
- Lead and work with EWG major initiatives
 - Ministerial Level Smart Grid Initiative (2010)
 - EWG led APEC Energy Resiliency Task Force (2015)
- Organize workshops
- Conduct research projects
- Approximately 82 projects have been completed since 1992
- Nine projects are being implemented in 2018-2019
- The 53^{ed} meeting Oct. 22-26, 2019 was in Seoul, Republic of Korea

APEC EV Related Projects

- EWG 10 2018A – Low Emissions Development (LED)
Strategies: Supporting the Transition to Energy Efficient,
Electric Transport Systems (USA)
- EWG 03 2017A – Electric Vehicle and Hydrogen
Technology Policy Workshop (New Zealand)
- EWG 10 2017A – Electromobility: Infrastructure and
Workforce Development (Chile)
- EWG 11 2011A – Stock-take of Electric Vehicle Interface
with Electricity and Smart Grids Across APEC Economies
and the Potential for Harmonization (New Zealand)

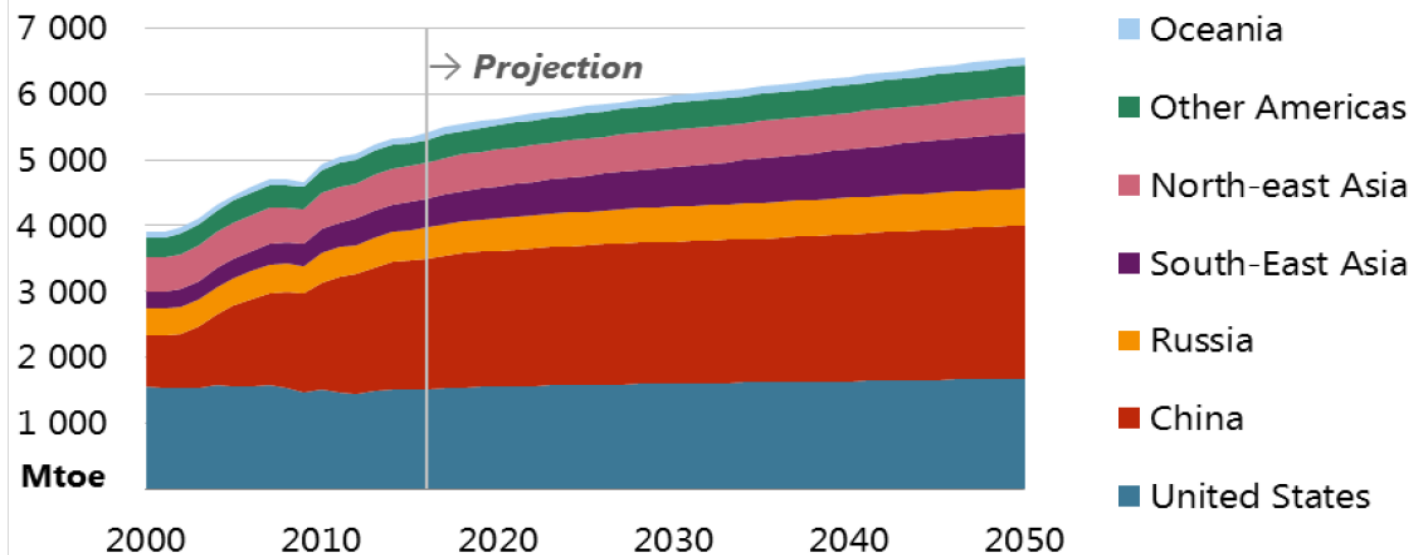
APEC Energy Background*

- As of 2016, APEC represented 39% of global population and 54% of global GDP.
- APEC's total primary energy supply (TPES) has grown 27% since 2000.
- The energy supply mix is currently dominated by fossil fuels.



Final Energy Demand increases 21% in 2050

Final energy demand by region in BAU, 2000-50

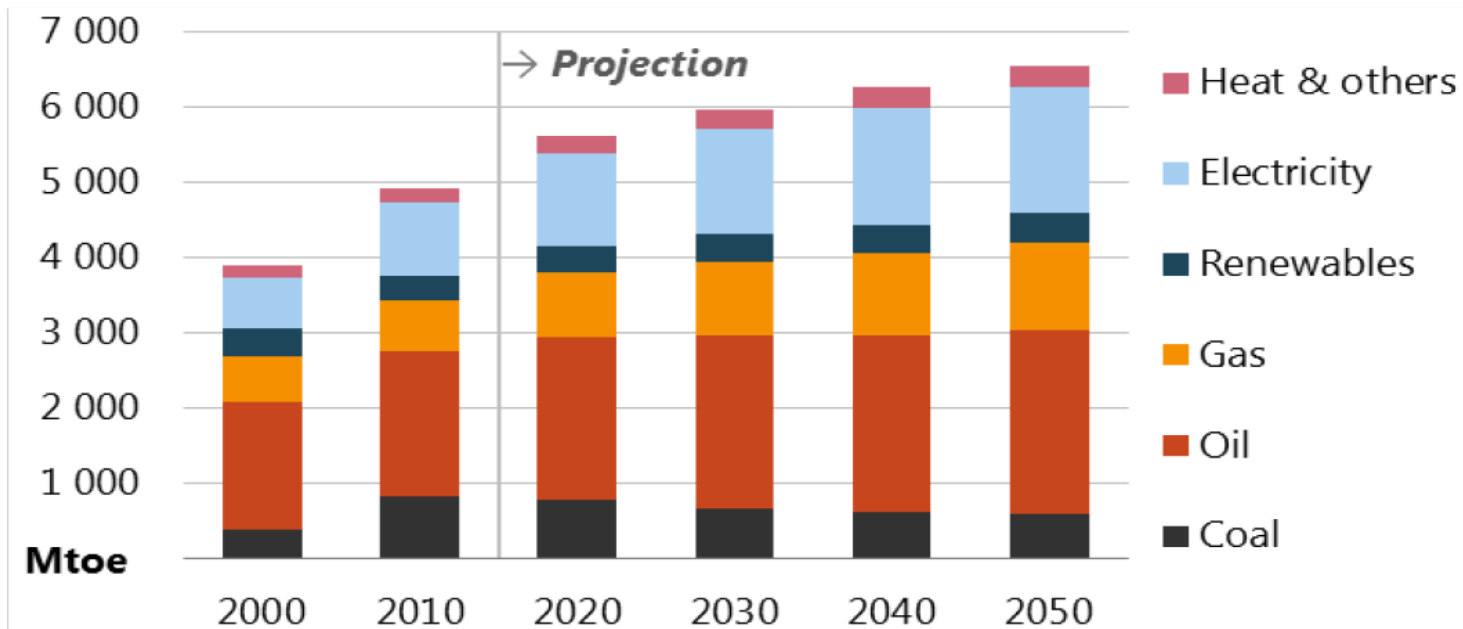


Sources: APERC analysis and IEA (2018a).

FED grows to over 6 500 Mtoe in 2050, driven primarily by GDP and population growth in China and south-east Asia.

Final Energy Demand increases 21% in 2050

Final energy demand by fuel in BAU, 2000-50

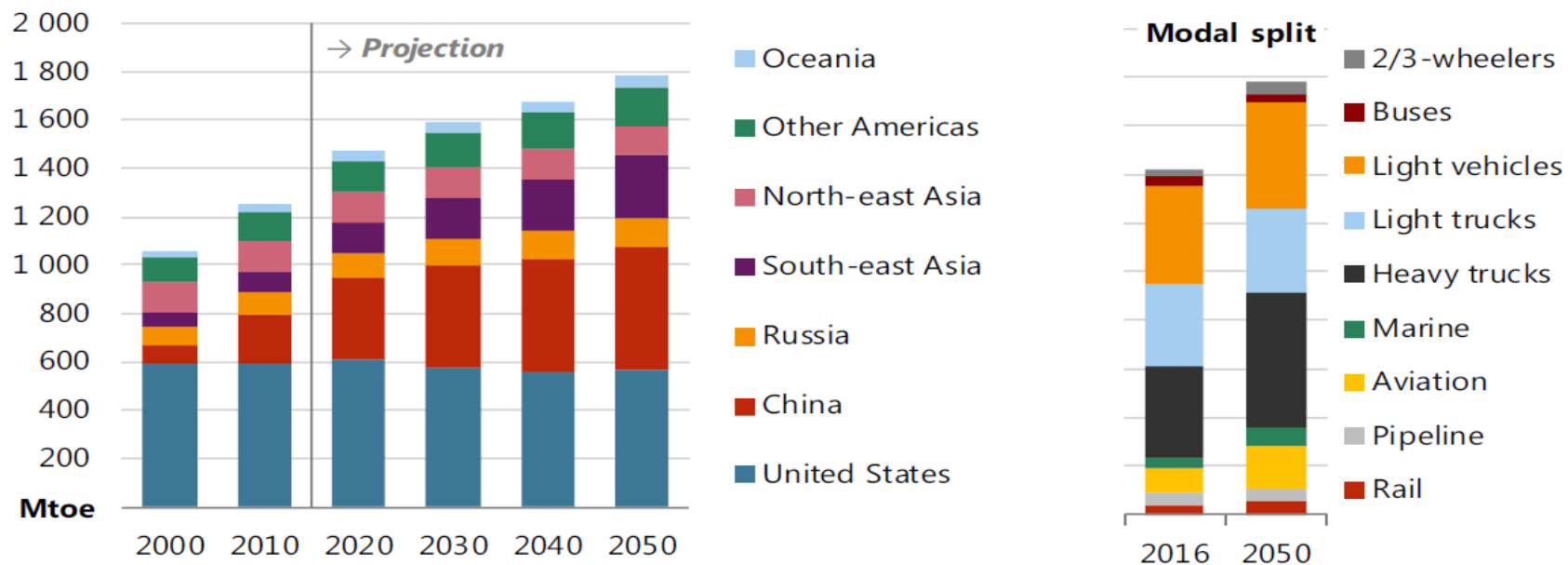


Sources: APERC analysis and IEA (2018a).

Electricity grows to 26% of FED as use in buildings and transport increases.

Transport FED grows by 25% in 2050

Transport demand by region and mode in BAU, 2000-50

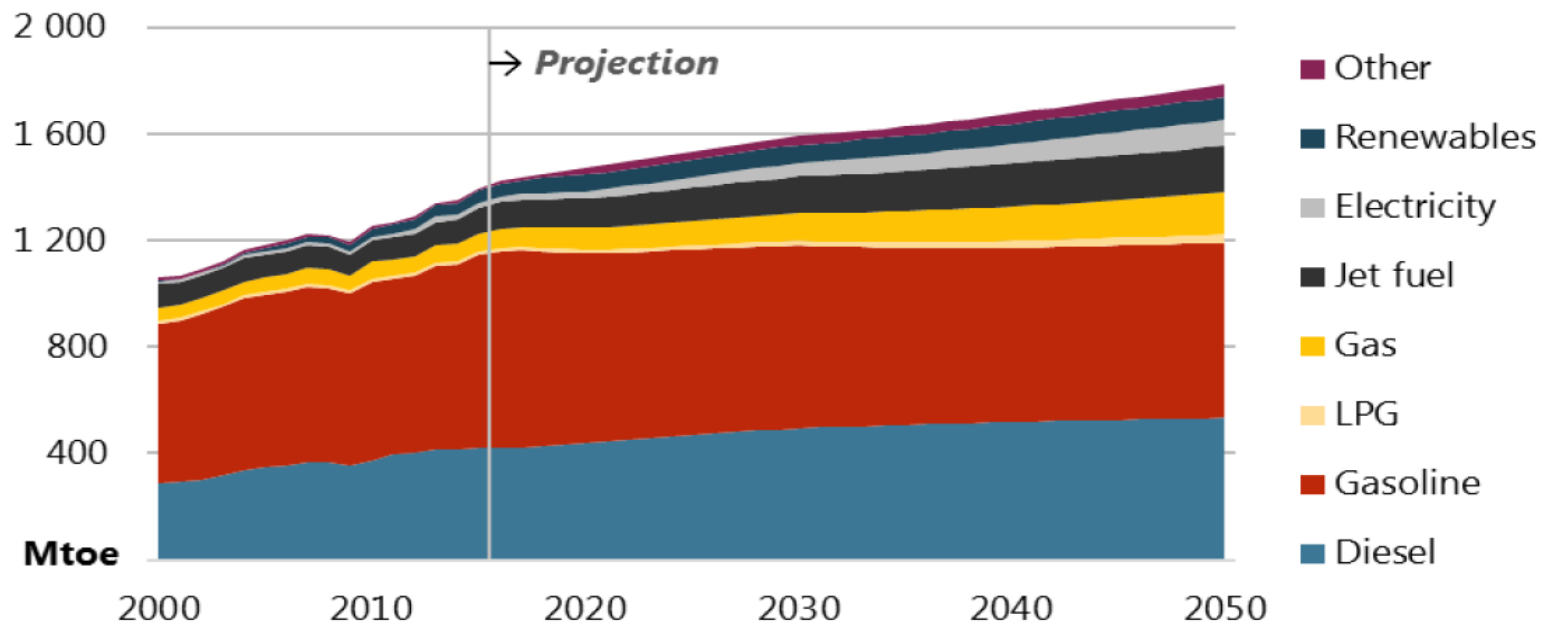


Sources: APERC analysis and IEA (2018a).

South-east Asia demand more than doubles. In China, demand increases by 70%.

Transport FED grows by 25% in 2050

Transport fuel demand in BAU, 2000-50

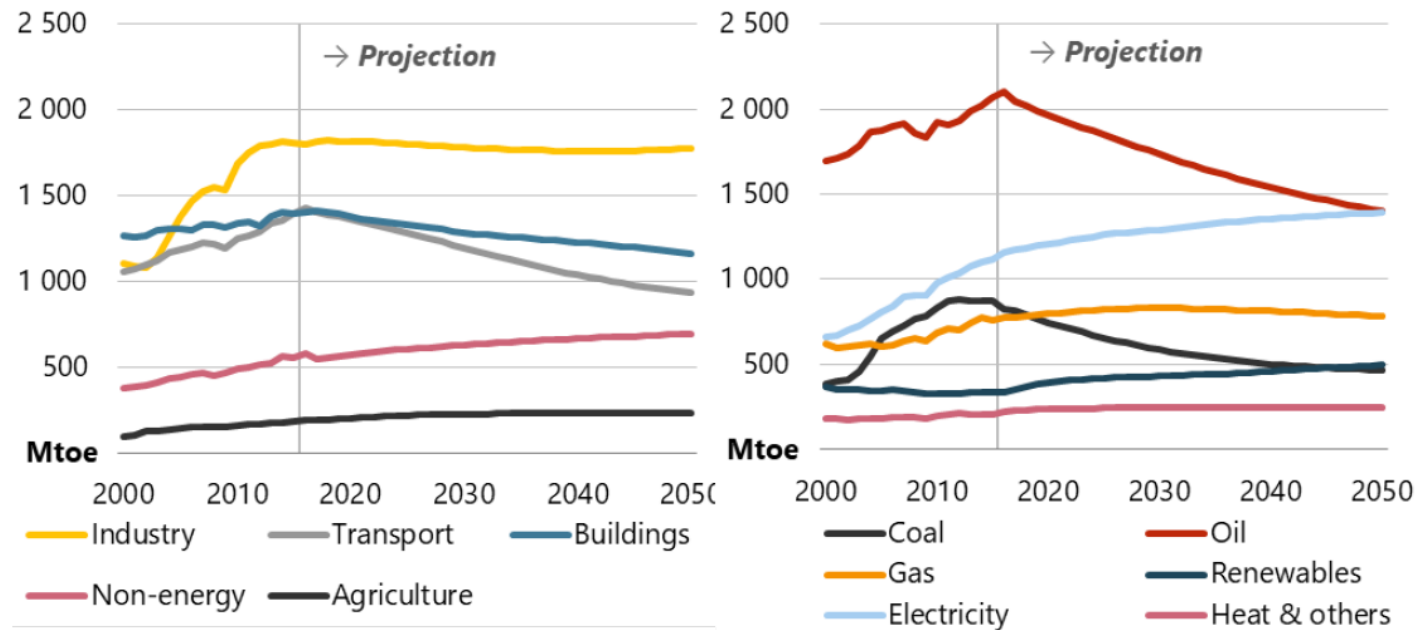


Sources: APERC analysis and IEA (2018a).

Fossil fuels remain dominant, but growth slows due to fuel efficiency standards. Electricity increases but remains a minor fuel.

Transport and buildings support demand reduction of 11% below 2016 in 2 DC scenario

Final energy demand by end-use and fuel type in the 2DC



Sources: APERC analysis and IEA (2018)

Electrification and efficiency improvements are key drivers of demand reduction.

Questions?

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