



APEC Workshop on Energy Statistics
Tokyo, Japan, 12 July, 2018

5.3 APERC Research Activities and Data Needs

James Kendell, Senior Vice President
Asia Pacific Energy Research Centre (APERC)



APERC carries out research and cooperative projects

1. Research activities

- a. APEC Energy Demand and Supply Outlook
- b. Yearly APEC Energy Overview
- c. APERC Oil/Gas/Coal reports
- d. Topical studies

2. Cooperative projects

- a. Peer Review on Energy Efficiency (PREE)
- b. Low Carbon Energy Projects (PRLCE, LCMT)
- c. Energy Security Projects (OGSI)

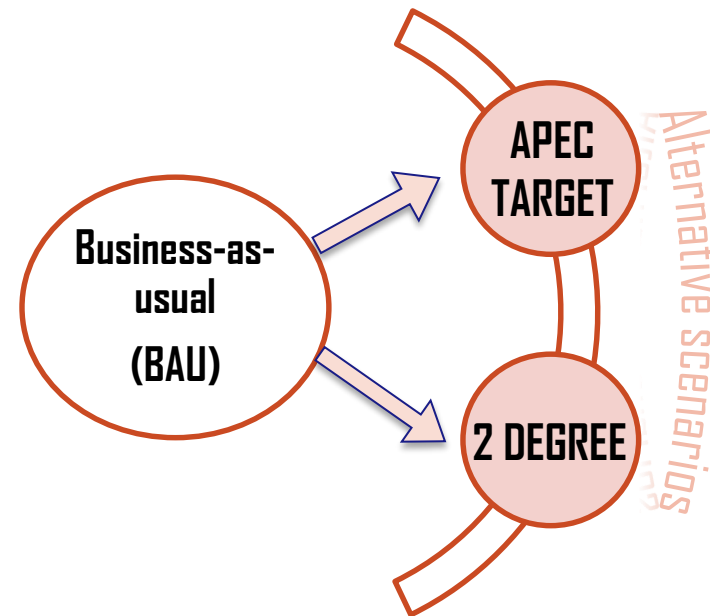
3. Data collection and training

4. Annual Conference and Advisory Board meeting

5. Other activities

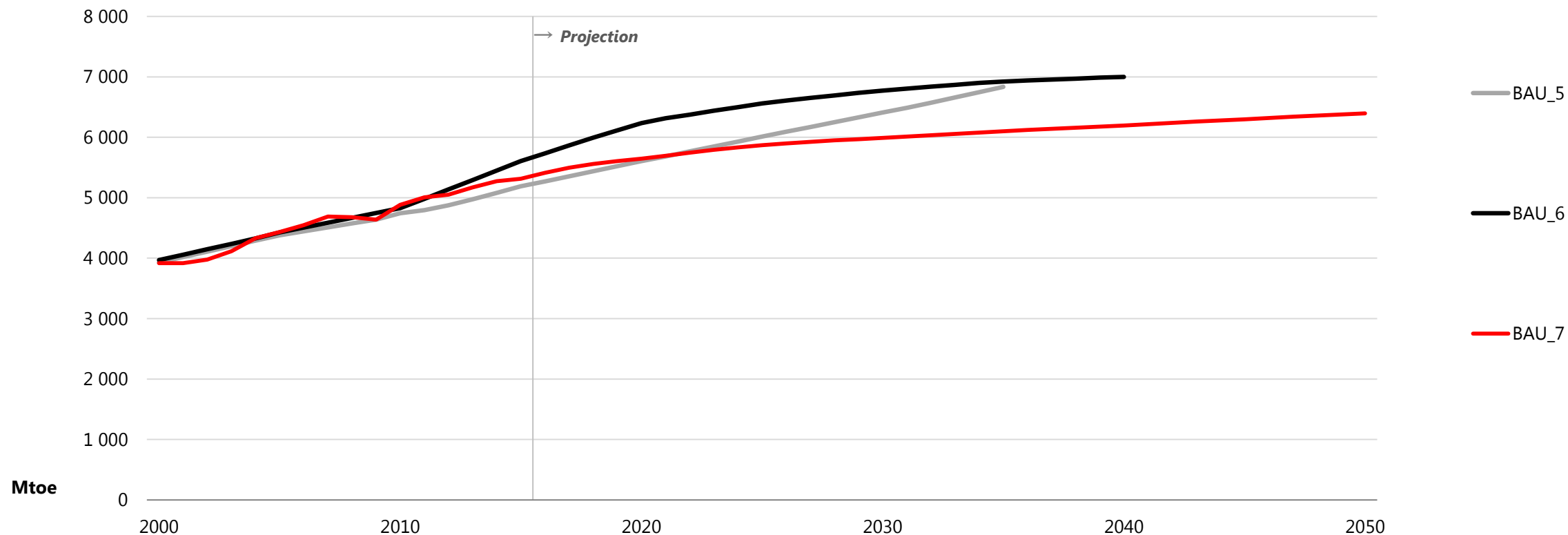
7th edition of the Outlook extends to 2050, enhances supply

- Extends projection to 2050
- Uses OECD GDP forecasts
- Makes buildings models activity driven
- Distributes renewables to the demand and electricity models
- Adds refinery and supply models as well as an integrating module
- Extends investment calculations to include demand side investment and fuel savings



Results show less consumption than previous editions

Total final energy demand, 5th, 6th and 7th editions, 2000-2050



In 2040 the 7th edition total final energy demand is about 800 Mtoe less than the 6th edition

Source: IEA statistics 2017 and APERC analysis.

Chapters will be sent out for review in August

	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	2019
Economy review of assumptions	✓								
Model development	✓	✓	✓						
Demand model runs			✓						
Power & supply model runs				✓					
Economy reviews of model results				✓					
Model reruns to respond to comments					✓				
Outlines, drafting of chapters					✓	✓			
Economy & expert reviews of chapter drafts and updates in response to comments							✓	✓	
Editing, printing								✓	✓
Publication									April

APEC Energy Overview covers supply/demand and policy

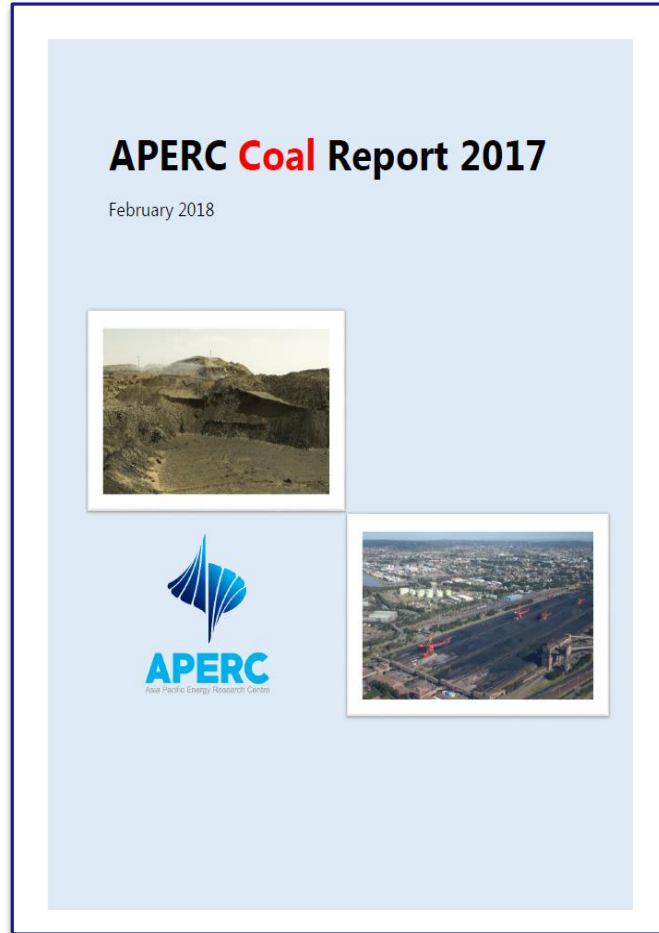


Energy Overview focuses on supply/demand, policy

1. Introduction
2. Energy Supply and Consumption
 - Primary Energy Supply
 - Final Energy Consumption
3. Energy Intensity Analysis
4. Renewable Energy Share Analysis
5. Policy Overview
 - Energy Policy Framework
 - Energy Markets
 - Energy Efficiency
 - Renewable Energy
 - Climate Change
6. Notable Energy Developments
7. References
8. Useful Links

For more information, visit http://aperc.iecej.or.jp/file/2018/6/7/APEC_Energy_Overview_2017.pdf

APERC fuel reports focus on recent trends, near future



Oil, gas and coal reports support EGCFE

1. Historic trends

- Global context
- Economic growth in APEC
- Demand and supply trends in APEC
- Trade in APEC

2. Demand and supply outlook

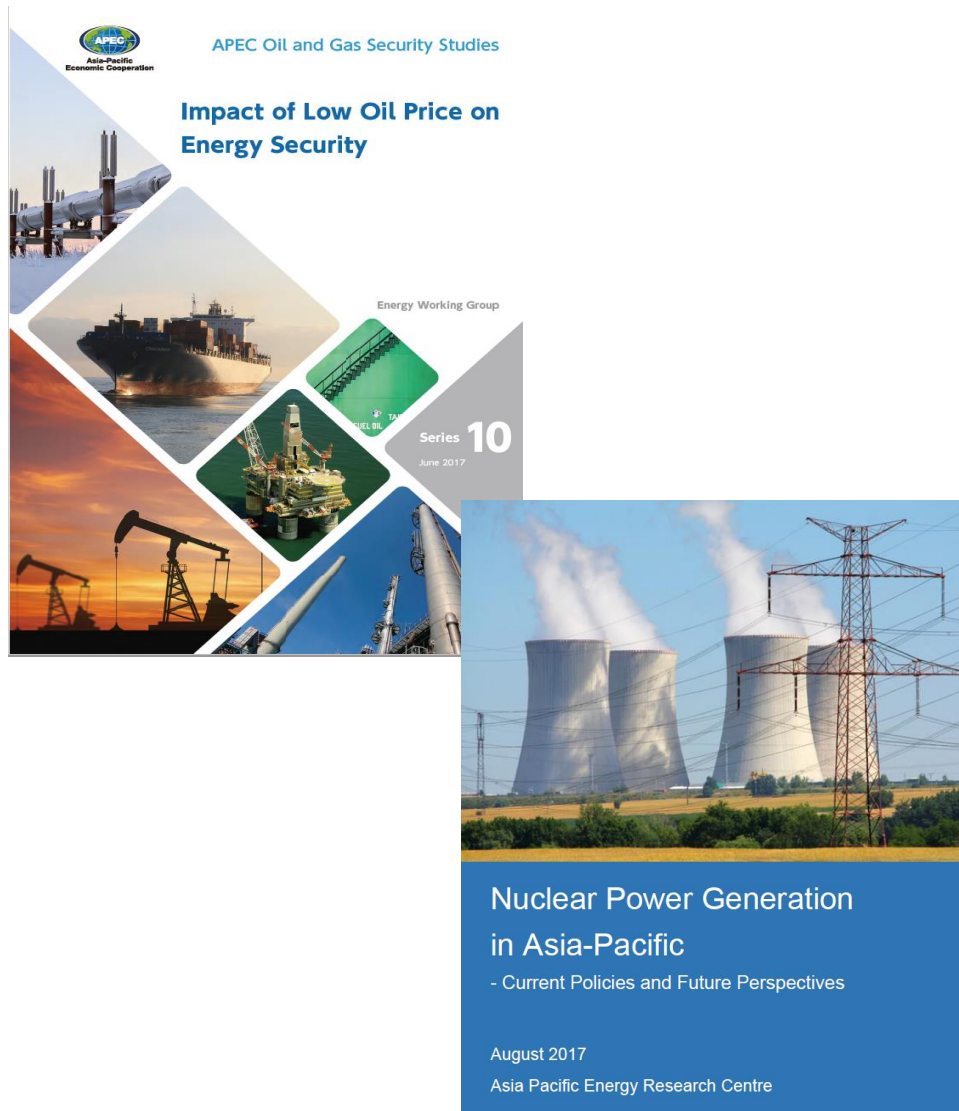
- Demand Outlook
- Production
- Trade Outlook

3. Prices

4. References

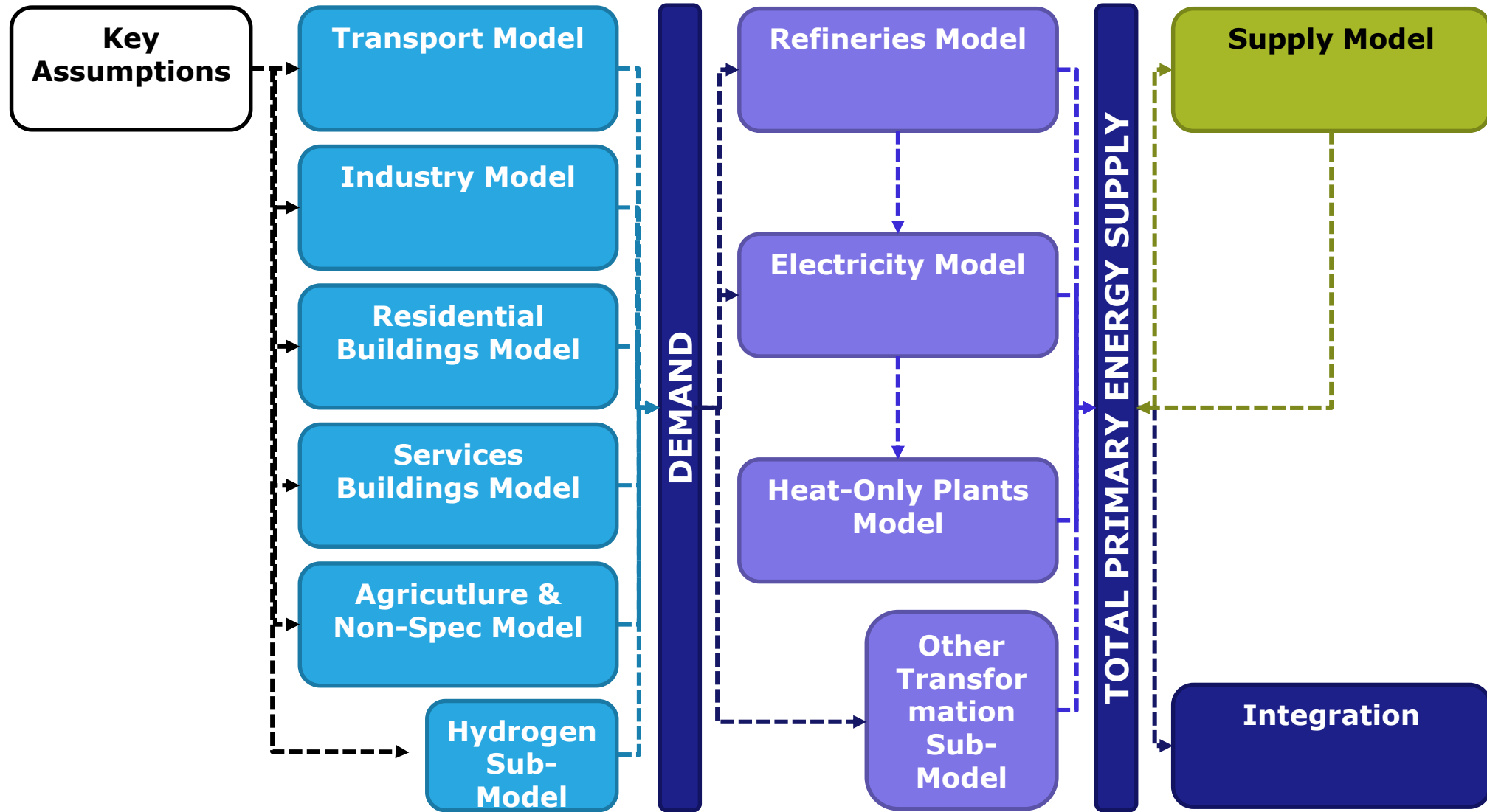
For more information, visit <http://aperc.iecej.or.jp/file/2018/3/12/APEC+Coal+Market+Report+2017.pdf>

Recent topical research focuses on supply



1. Energy security of APEC economies and the changing downstream environment (OGSS)
2. Investment in the natural gas supply chain in Asia Pacific (OGSS)
3. Perspectives on hydrogen in the APEC region
4. Nuclear power generation in Asia-Pacific
5. Impact of low oil price on energy security (OGSS)
6. Natural gas security in APEC (OGSS)
7. Geopolitical implication of Iran nuclear agreement

APERC needs data to model demand, transformation, supply



Models are voracious data consumers!

Buildings: Consumption by end use

Appliance efficiency

Furnace efficiency

Industrial: Clinker-to-cement ratio

Average energy intensity of current cement kilns

Clinker production

Average energy intensity of blast furnaces, basic oxygen furnaces, electric arc furnaces

Secondary (recycled) aluminium production

Transportation: Tonne kilometres, passenger kilometres

Energy consumption for passengers, freight

Energy demand by mode

Vehicle stock by type

Models are voracious data consumers! (2)

Renewables: Installed cost, wind, solar, etc.

Sales price, wind, solar, etc.

Subsidies provided

Biofuels potential

Biofuels feed stock

Heat: Output capacity

Refineries: Feedstock mix: heavy, medium, light

Number and capacity of refineries

Major units and capacity: cracking, hydro-skimming, reforming, etc.

Utilization rates, calendar day and stream day

Output and grades of products: gasoline, diesel, jet, fuel oil

Models are voracious data consumers! (3)

- Power:**
- Generation capacity: coal by plant type, natural gas by plant type, hydro by size, solar by plant type, wind by location
 - Storage capacity by power/energy
 - Transmission and distribution line length
- Supply:**
- Reserves and resources by fuel type: proved, probable, and possible
 - LNG liquefaction and regasification capacity
 - Pipeline length by transmission, distribution
 - Import/export origin/destination by volume



Thank you for your kind attention!

<http://aperc.ieej.or.jp/>