

IEA Energy Efficiency Training Week for Southeast
16-20 July 2018, Jakarta, Indonesia

Southeast Asia approaches to developing efficiency indicators

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Outline of Presentation

Background

- APEC/APERC/ESTO
- Milestone
- Data components

Uses of the data collected

- Uses of data in APEC (SEA)
- Sample analysis using indicators (SEA)

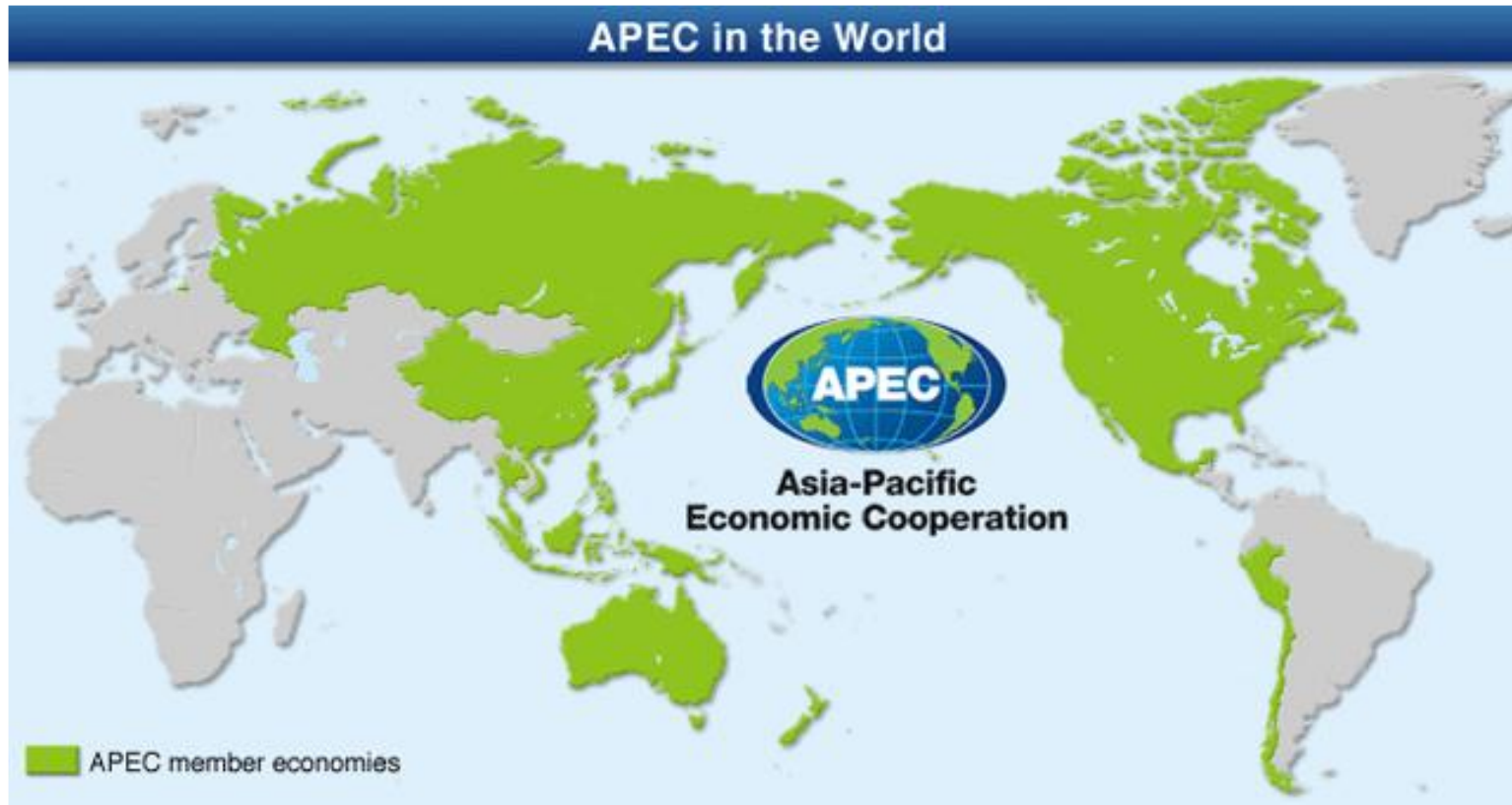
Final thoughts



Background

Asia Pacific Economy Cooperation (APEC)

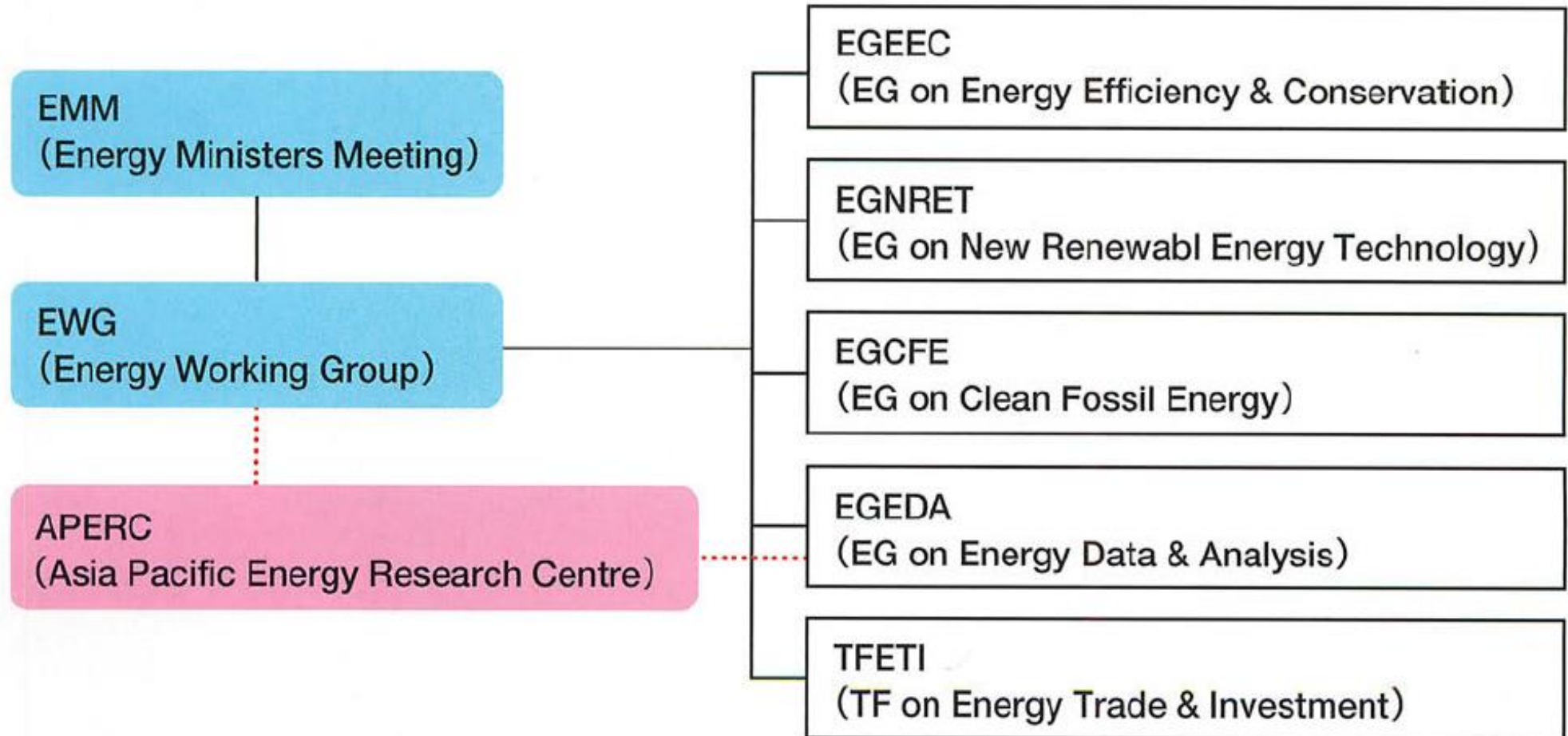
- ❑ An open framework for regional economic cooperation among 21 economies
- ❑ Cooperative and voluntary basis
- ❑ Activities for trade and investment liberalization, business facilitation, and economic and technical cooperation



Australia
Brunei
Darussalam
Canada
Chile
China
Hong Kong, China
Indonesia
Japan
Republic of Korea
Malaysia
Mexico
New Zealand
Papua New Guinea
Peru
Philippines
Russia
Singapore
Chinese Taipei
Thailand
United States
Viet Nam

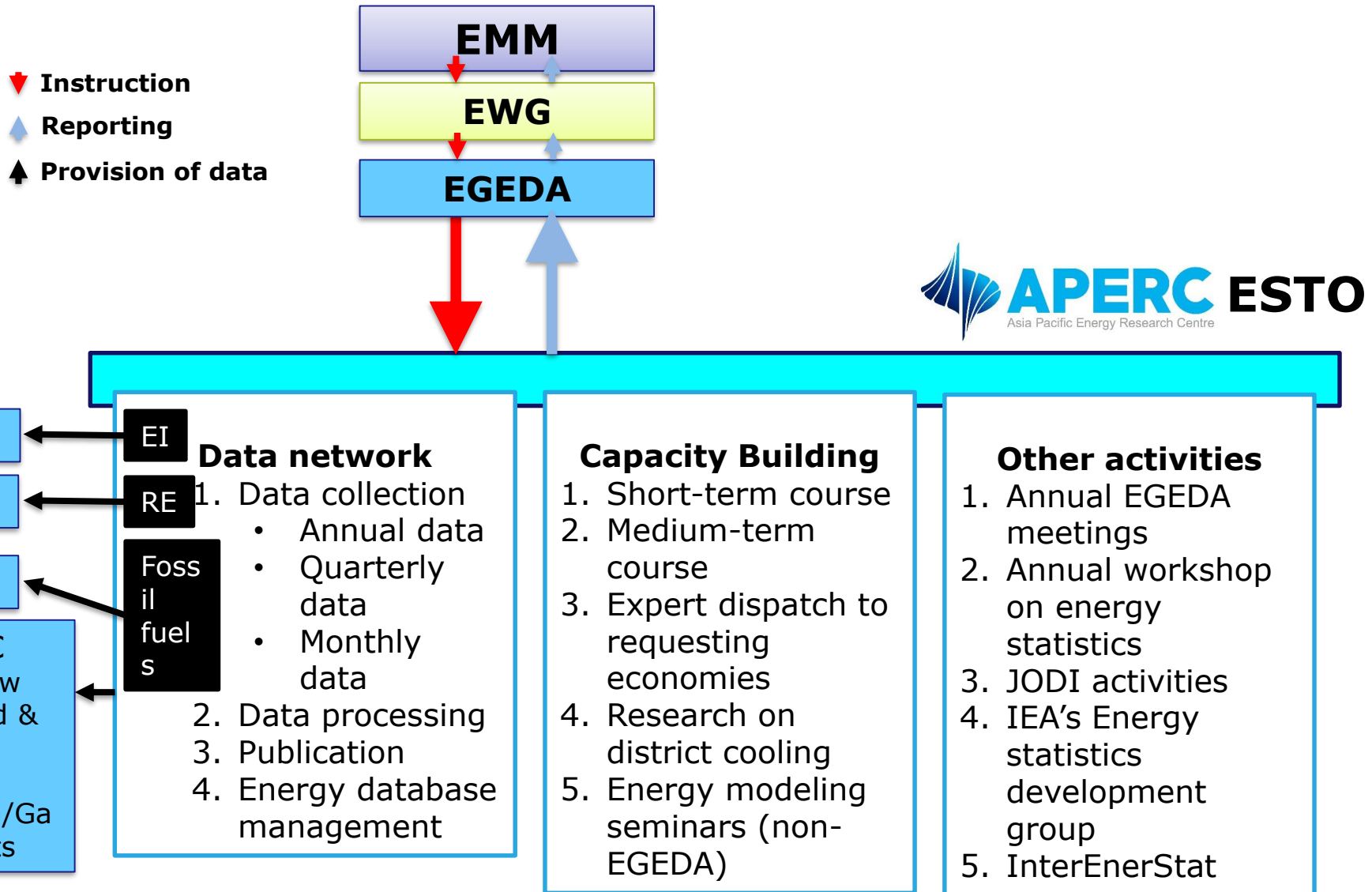
Source: APERC Brochure (June 2015)

Expert Group on Energy Data and Analysis



Source: APERC Brochure (June 2015)

ESTO activities



Milestone



To analyze energy demand and how to improve energy efficiency, detailed information for energy end-use / energy related data are important for policy makers & energy analysts.

EE template components (1)

Commercial and Public Services

- Space Heating
- Space Cooling
- Lighting
- Other Building Energy Use
- Non-Building Energy Use
- Total Energy Use in Commercial Sector

Activity data

- Activity and structure indicators (population, HHs, floor area, etc)
- GDP
- Value added

Residential

- Space Heating
- Space Cooling
- Water Heating
- Cooking
- Lighting
- Refrigerators / Freezers
- Other kitchen facilities
- Laundry facilities
- Television/PC and other Home entertainment
- Other Appliances
- Total Energy Use in Residential Sector

- ❖ Template were pre-filled in by ESTO from annual data collected; Activity data sources varied, mostly came from WB
- ❖ End use data and details on activity may only available from members' own data

EE template components (2)

Transport and Industry Sectors added

Transport sector (by fuel)

- Road transport
- Railways
- Domestic Aviation
- Inland waterways

Activity data

- Number of vehicles (by type, by mode, by fuel type)
- Passenger-km (Passenger)
- Vehicle-km
- Tonne-km (Freight)

Industry sector (by fuel)

- Food products and textiles
- Wood and wood products
- Paper and paper products
- Chemicals, basic pharmaceuticals, petrochemicals
- Non-metallic minerals
- Basic metals
- Fabricated metals
- Motor vehicles, trailers etc
- All Other manufacturing
- Mining and Quarrying
- Construction

❖ Energy data still came EGEDA; more detailed activity data were needed

APEC data dissemination

EGEDA website is the only platform to disclose member economies' data and activities to outside (and inside); which include **SEA**;

The EGEDA website has been improved to show more information, visualisation and allows for online data submission and with new URL for consistency with other EWG expert groups

<http://www.egeda.ewg.apec.org>

The screenshot displays the APERC EGEDA website. At the top, there's a navigation bar with links: HOME, DATABASE, ABOUT, MEETING, PUBLICATION, TRAINING, and ANALYSIS. Below this, a line chart titled 'Crude oil production by region (1000 kl)' shows data from April 2017 to March 2018 for various regions: Other Americas, South-East Asia, Oceania, Other north-east Asia, China, and Russia. The chart shows a general upward trend for most regions, with a notable dip for 'Other Americas' in early 2018. Below the chart, there's a 'Database' section with a grid of links: 'Updating Information' (Annual Data: Energy Balance, Electricity, Others; Monthly Data: Oil, Gas), 'Environment' (CO2 Emissions), and 'Members Only' (Table for Members). To the right of the database grid are links for 'Database Information', 'Processing Information', and 'Standardisation'. Below the database section is an 'Updates' section with a list of recent events and publications. Further down are sections for 'Meeting Summary', 'Training', and 'Analysis Reports'. At the bottom, there's a footer with 'ABOUT', 'LINKAGES', and 'Questionnaire' sections.

Crude oil production by region (1000 kl)

Region	Apr-2017	May-2017	Jun-2017	Jul-2017	Aug-2017	Sep-2017	Oct-2017	Nov-2017	Dec-2017	Jan-2018	Feb-2018	Mar-2018
Other Americas	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000	25000
South-East Asia	45000	45000	45000	45000	45000	45000	45000	45000	45000	45000	45000	45000
Oceania	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
Other north-east Asia	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
China	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000
Russia	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000

Database

Updating Information	Annual Data	Quarterly Data
Monthly Data	Energy Balance Electricity Others	New Format Old Format Others
Oil Gas	Environment CO2 Emissions	Members Only Table for Members (ID and password required)

Database Information **Processing Information** **Standardisation**

Updates

- 18th APEC Workshop on Energy Statistics to be held in Tokyo on 10-12 July 2018 **NEW**
- The JODI World Database has been updated on 18 April with February 2018 data from 68 countries/economies **NEW**
- JODI Information Seminar / Energy Data Transparency Exhibition held in New Delhi on 10-12 April **NEW**
- 20th EGEDA Meeting held in Canberra on 7-9 November 2017
- Energy Statistics 2016 publications released on 31 October 2017 with 2016 as latest data
- 13th International JODI Conference held in London on 10-11 October 2017
- Middle-term energy statistics course held on 4 September to 27 October 2017
- Short-term energy statistics course held on 12-23 June 2017
- 18th APEC Workshop on Energy Statistics held in Tokyo on 4-6 April 2017

Meeting Summary

The 29th Meeting
Canberra, Australia, 7-9 November 2017

The 19th Workshop
Tokyo Japan, 4-6 April 2017

Training

Short term Course
2 weeks (for 2017, from 12 to 23 June)

Middle term Course
8 weeks (for 2017, from 4 September to 27 October)

Analysis Reports

Overview of APEC energy supply and demand

ABOUT

- About EGEDA
- Terms of Reference
- Contact Us

LINKAGES

- Focal Point
- Links

Questionnaire

- Questionnaires, Manuals
- Submission
- Internal Only



Uses of the data collected

How do we use those data?

APEC
Annual
Publication

Overview of energy demand and supply

APEC
Overview

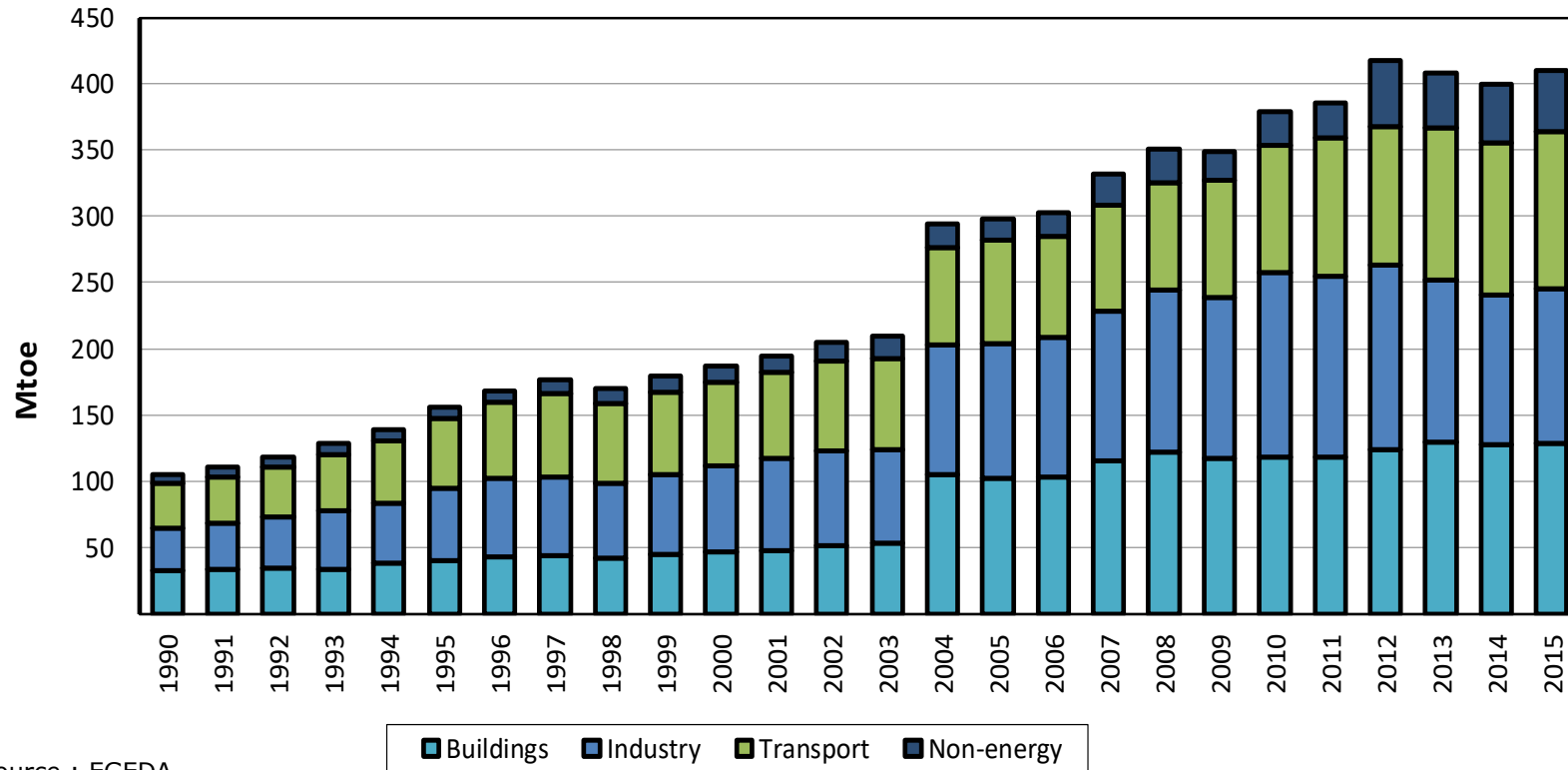
Annual APERC publication summarising current developments in APEC (SEA)

APEC
Goals

Energy intensity reduction of 45% compared with 2005 (collective goal)

Total final energy consumption (1)

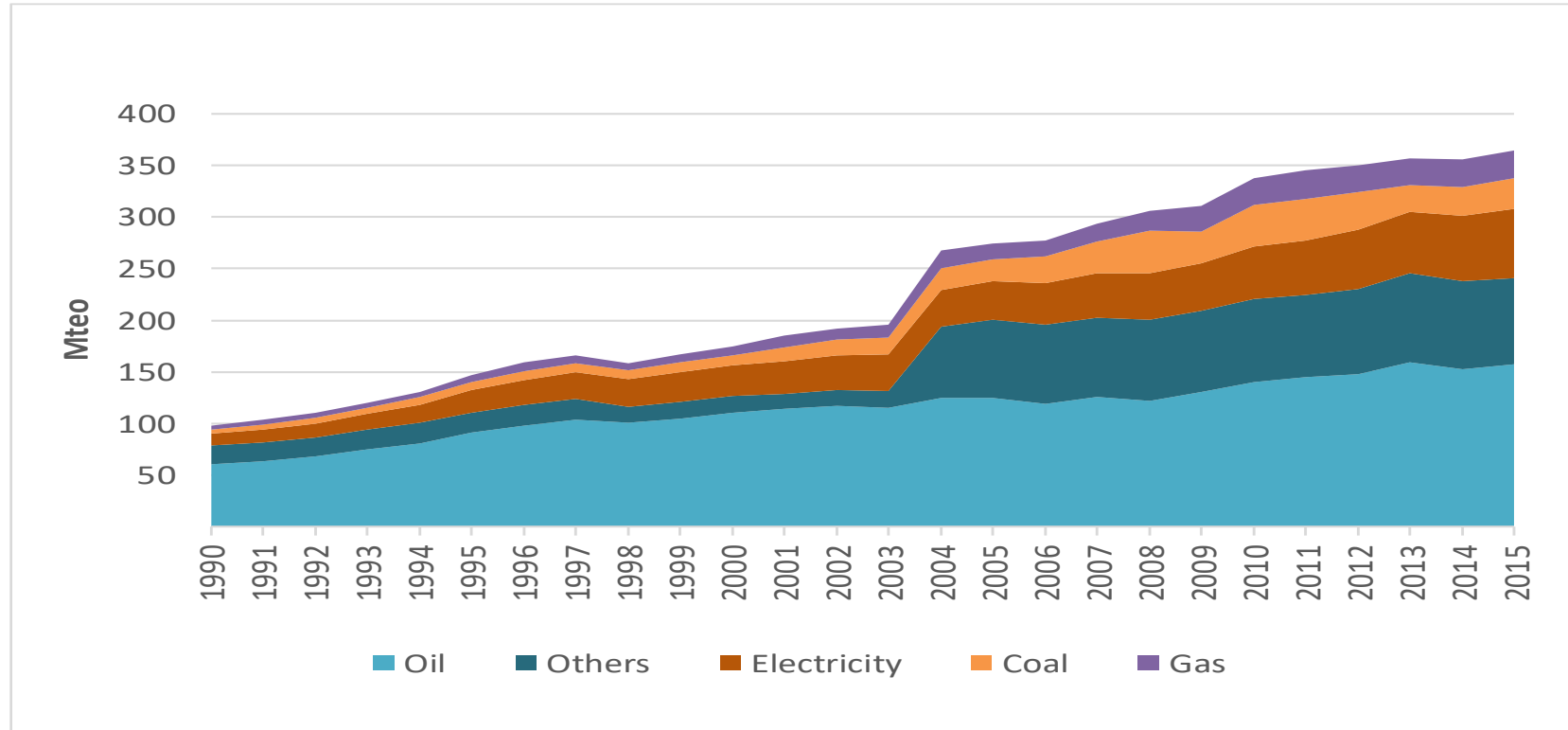
By sector



- ❑ **Total final energy consumption (TFEC) in SEA reached 364 Mtoe in 2015; minimal share to APEC TFEC but was driving the growth (5.4%)**
- ❑ **Buildings dominated the total final energy consumption (35% on average) and likewise driven growth of APEC buildings (5.7%)**

Total final energy consumption (2)

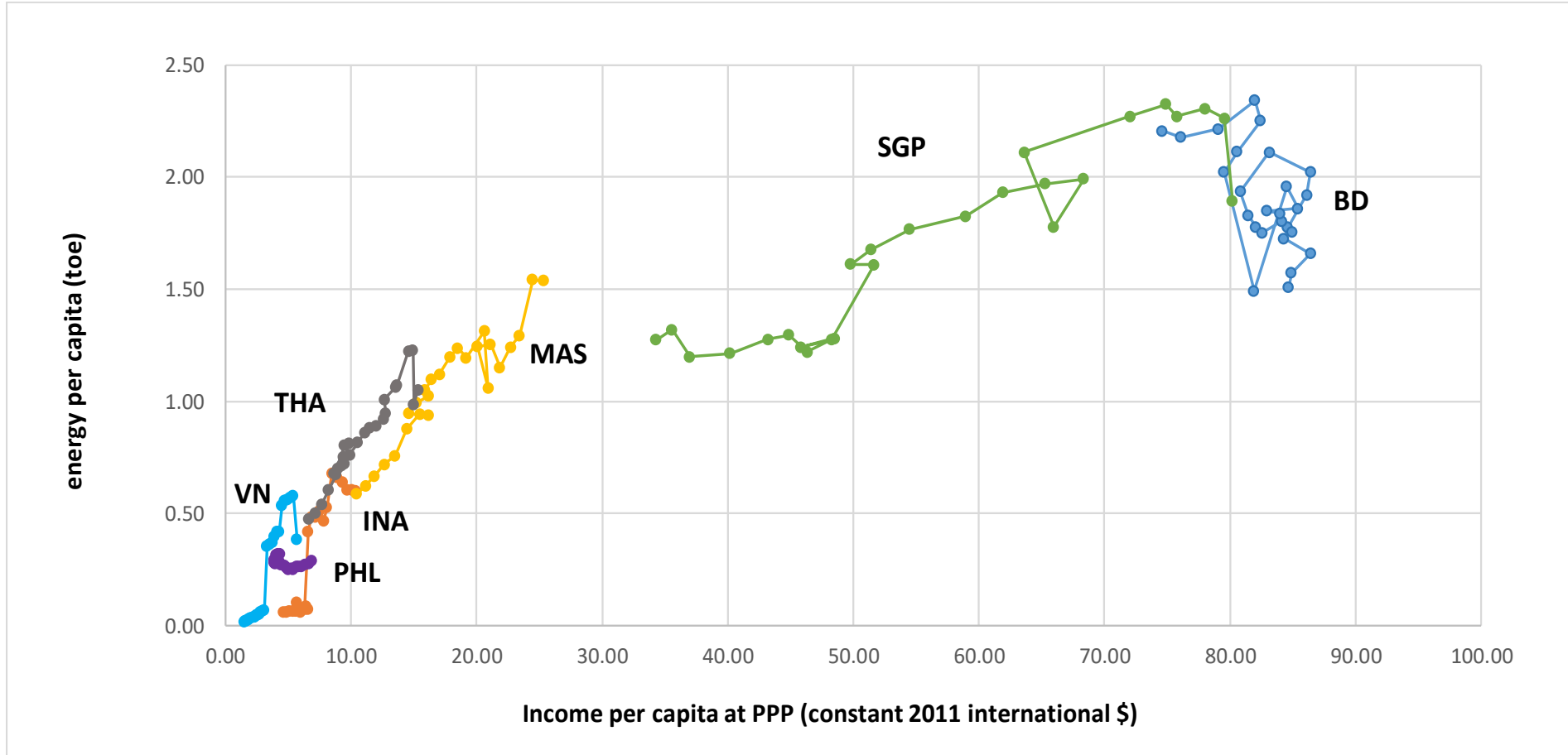
By fuel



Source: EGEDA

- ❑ ***Oil was the major fuel in Southeast Asia (40% on average);***
- ❑ ***SEA oil consumption in transport sector at 5.2% driven APEC growth which was declining since 1990 (-1.9%)***

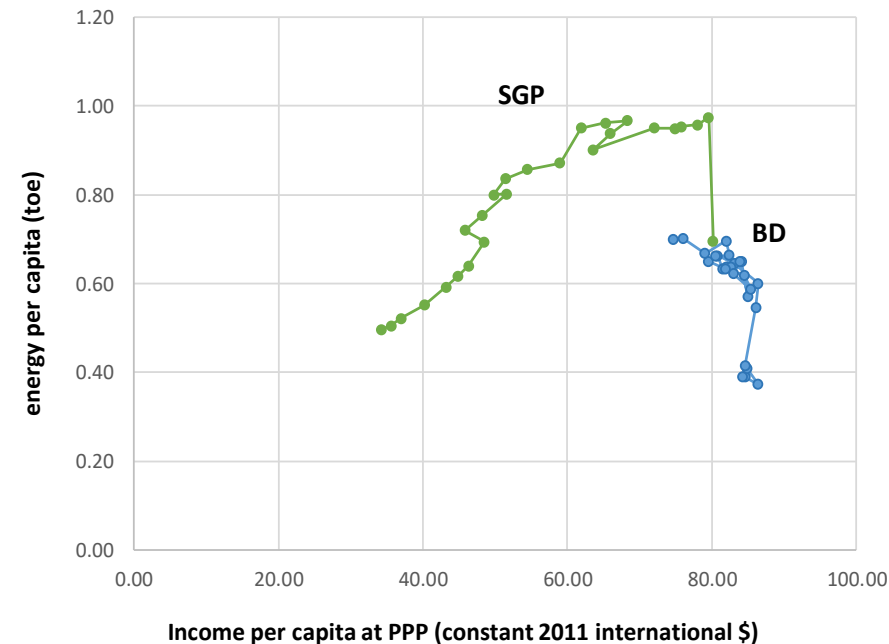
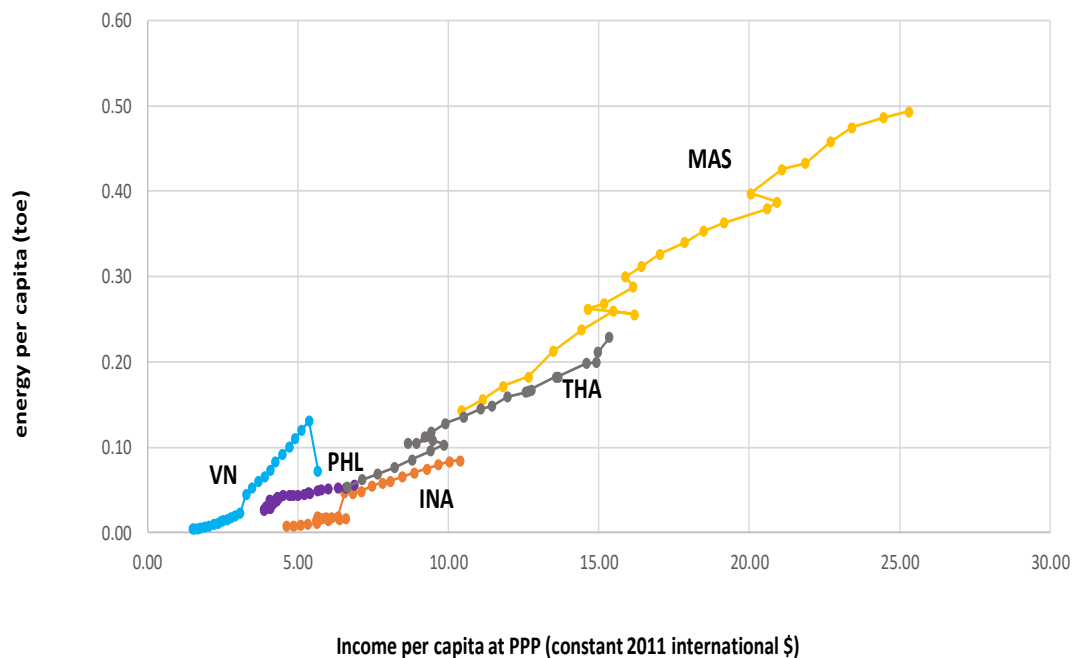
Energy consumption pattern per capita (1990-2015)



Source : EGEDA (energy data), WB (GDP and Population)

Energy consumption per capita varied per economy; economy with higher income per capita obviously has the bigger energy per capita requirement

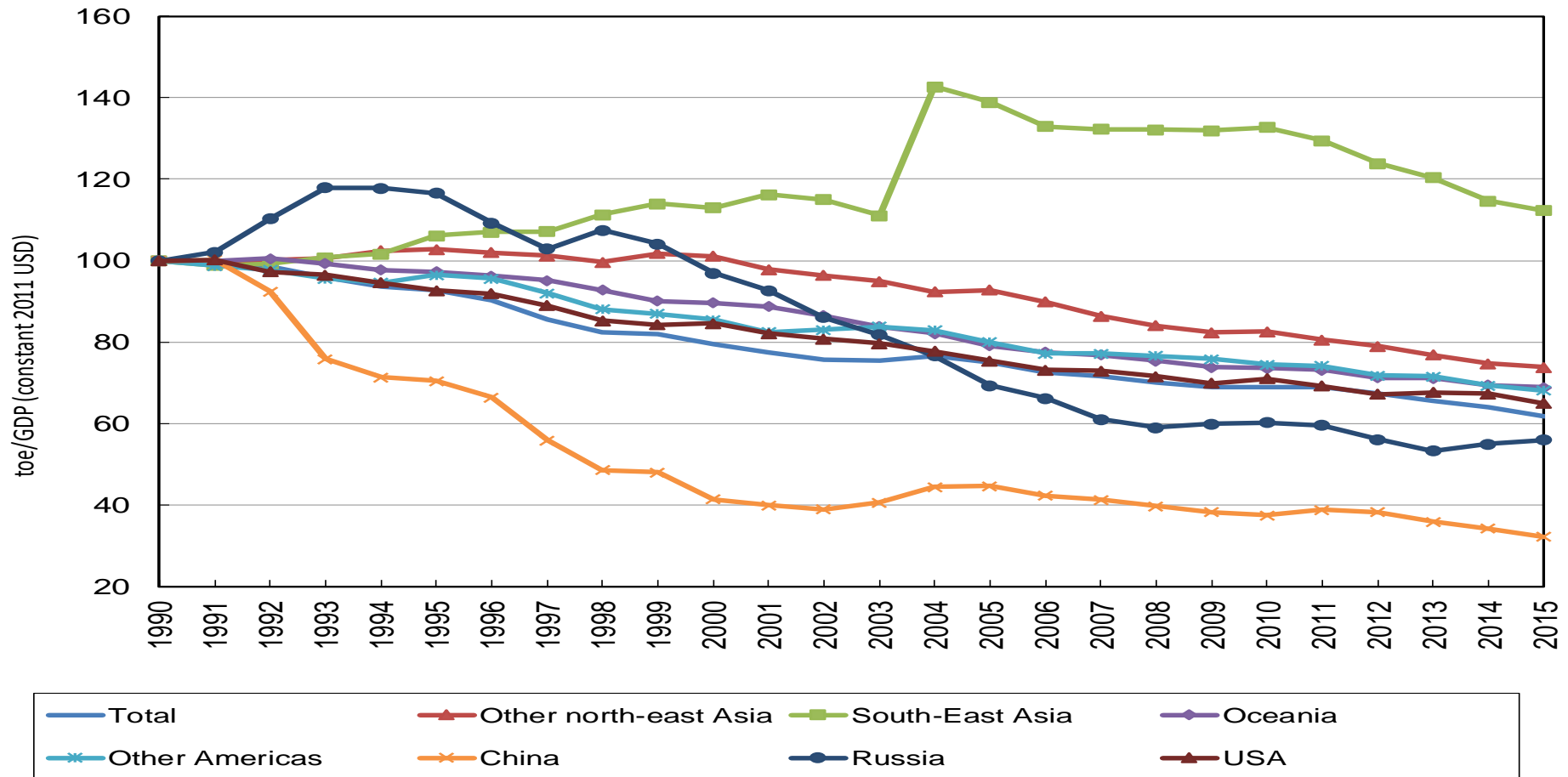
Electricity consumption pattern per capita (1990-2015)



Source : EGEDA (energy data), WB (GDP and Population)

- ❑ **Income was driving electricity consumption per person, as income increases electricity consumption per capita increases; in most economy, electricity consumption grew faster than income per capita**

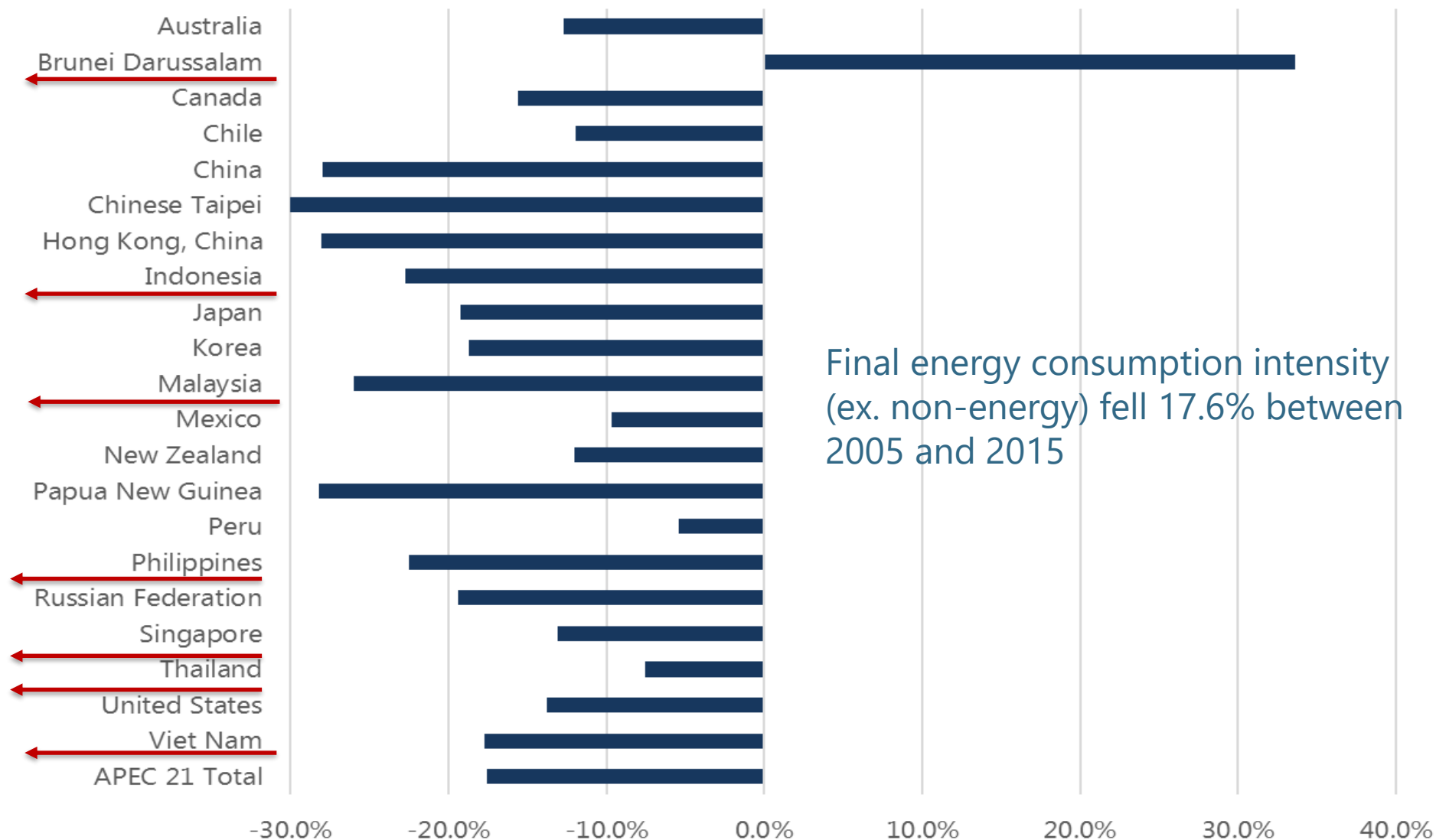
Energy intensity (toe/GDP) (1990=100)



SoI

❑ Energy intensity has improved since 1990; SEA has the biggest potential in APEC

APEC energy intensity goal, 2005 to 2015



Data requirement

Sector	End-use	Indicator	Key data
Residential	Space heating	energy use per floor area heated	Heating energy use Floor area heated
	Space cooling	energy use per floor area cooled	Cooling energy use Floor area cooled
	Water heating	energy use per dwelling	Water heating energy use Total number of dwellings
	Lighting	energy use per dwelling	Lighting energy use Total number of dwellings
	Cooking	energy use per dwelling	Cooking energy use Total number of dwellings
	Appliances	energy use per type of appliance	Appliance energy use by type Number of appliances by type
Industry	N/A	Energy use per unit of output by sector	Energy use by sector Total output by sector
	N/A	Energy use per unit of value added by sector	Energy use by sector Total value added by sector
Transport	Passenger transport	Energy use per passenger km travelled by mode	Energy use by mode Passenger km travelled by mode
	Freight transport	Energy use per tonne km travelled by mode	Energy use by mode Tonne km travelled by mode

Final thoughts

- ❑ End-use data collection is a big challenge to all; data may be available in several agencies;
- ❑ Energy intensity is not an actual measure of energy efficiency, only indication;
- ❑ May need collaboration among agencies;
- ❑ APERC/ESTO will make a study on energy efficiency indicators;
- ❑ Assess template which indicators can be obtained or estimated; needs to be simplified.



Thank you for your kind attention

<http://www.egeda.ewg.apec.org>