Regional Training Workshop on the Production of SEEA-Energy Accounts and Use of Energy Information for Policy

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Session 10: Energy statistics, balances and accounts for energy policy

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UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

ASIA PACIFIC
ENERGY PORTAL
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Energy is fundamental for socio-economic development. The availability of and access to energy and energy sources are particularly essential to poverty reduction and further improvements in standards of living

Detailed, complete, timely and reliable statistics are essential to monitor the energy situation at a country level as well as at an international level. Energy statistics on supply, trade, stocks, transformation and demand are the basis for any sound energy policy decision.

Why do policy makers need energy statistics?

1. Formulation of energy policies and monitoring their impact on the economy.

2. Monitoring of national energy security.

3. Planning of energy industries' development and promotion of energy-conserving technological processes.

4. Environmental policy, especially greenhouse gas emission inventories, and environmental statistics.

Energy efficiency targets in selected countries

Economy	Policy Document	Year	Energy Efficiency Target
Australia	National Energy Productivity Plan (NEPP)	2015-2030	Improve Australia's energy productivity by 40% between 2015 and 2030
China	13th Five-Year Plan for Energy Development	2016-2020	By 2030, reduce energy intensity by 15%, compared to 2015 levels
Indonesia	Government regulation No. 79/2014 on National Energy Policy	2014	Reduce final energy intensity 1% per year up to 2025
Lao PDR	National EE&C Policy towards 2030	2016	By 2030, reduce national energy demand by 10% by 2030 and reduce energy consumption level by around 1% per year on average, compared to BAU
Myanmar	National Energy Policy, Strategy and Road Map	2016	Reduce energy consumption by 12% by 2020, 16% by 2025 and 20% by 2030, compared to 2012 levels
Nepal	National Energy Efficiency Strategy	2019	Double the average improvement rate of energy efficiency in Nepal from 0.84% per year, which existed during the period of 2000 -2015 to 1.68% per year in 2030
Republic of Korea	Energy Master Plan: Outlook and Policies to 2035	2014-2035	Final energy consumption and electricity demand will be reduced by 13% and 15% respectively relative to the BAU scenario by 2035
Russian Federation	Decree No. 321 on the approval of the State Programme on Energy Efficiency and Energy Development	2014	By 2020, reduce energy intensity of GDP by 13.5%
Singapore	Sustainable Singapore Blueprint 2015	2015	Realise a 35% energy intensity improvement by 2030, compared to 2005
Thailand	Thailand Power Development Plan 2015-2036 (PDP2015)	2015-2036	Reduce energy intensity by 30% by 2036, compared to 2010 levels
Turkey	National Energy Efficiency Action Plan (NEEAP)	2017-2023	Reduce the primary energy consumption of Turkey by 14% by 2023

Renewable energy policy highlights

Economy	Policy Document	Year	Electrification Target
Armenia	Scaling Up Renewable Energy Program (SREP): Investment Plan for Armenia	2014	21% of electricity generation from renewables by 2020, and 26% by 2025
Australia	Renewable Energy (Electricity) Amendment Act 2015	2015	23.5% (33,000 GWh) of electricity generation form renewable energy sources by 2020 (reduced from 2010 target of 41,000 GWh)
Bangladesh	Seventh Five Year Plan	2016-2020	10% renewable electricity generation by 2020
Brunei Darussalam	Nationally Determined Contributions	2016	At least 10% of electricity generation from new and renewable energy sources by 2035
Cook Islands	Nationally Determined Contributions	2016	100% renewable electricity generation by 2020
Fiji	Nationally Determined Contributions	2016	The target is for the renewable energy share in electricity generation to approach 100% by 2030
Indonesia	Government Regulation No. 79/2014 Concerning the National Energy Policy Nationally Determined Contributions	2016-2019	Increase the share of new and renewable energy to at least 23% by 2025, and to at least 31% by 2050
Kazakhstan	Ministerial Order No. 478 on Approval of Targets for the Development of the Renewable Energy Sector	2016	3% of electricity generation from renewable energy sources by 2020

Key indicators used in EE and RE policies

Primary Energy Intensity

- Ratio of TPES to GDP measured in MJ per USD 2011 PPP. Energy intensity indicates how much energy is used to produce one unit of economic output. A lower ratio indicates that less energy is used to produce one unit of economic output. TPES made up of production plus net imports minus international marine and aviation bunkers plus-stock changes.

Renewable electricity output

- Renewable electricity is the share of electricity generated by renewable power plants in total electricity generated by all types of plants. Renewable energy sources are identified as hydro, geothermal, solar, wind, tide and wave, solid biomass, biogasoline, biodiesel, other liquid biofuels, biogas, and municipal waste.

Share of renewable energy in total final energy consumption

- RE share in total final energy consumption is the percentage of final consumption of energy that is derived from renewable resources. RE consumption includes consumption of energy derived from: traditional solid biofuels, modern solid biofuels, hydropower, wind, solar, liquid biofuels, geothermal, and other RE.

Потенциал солнечной энергии и расположение солнечных электростанций*, 2018
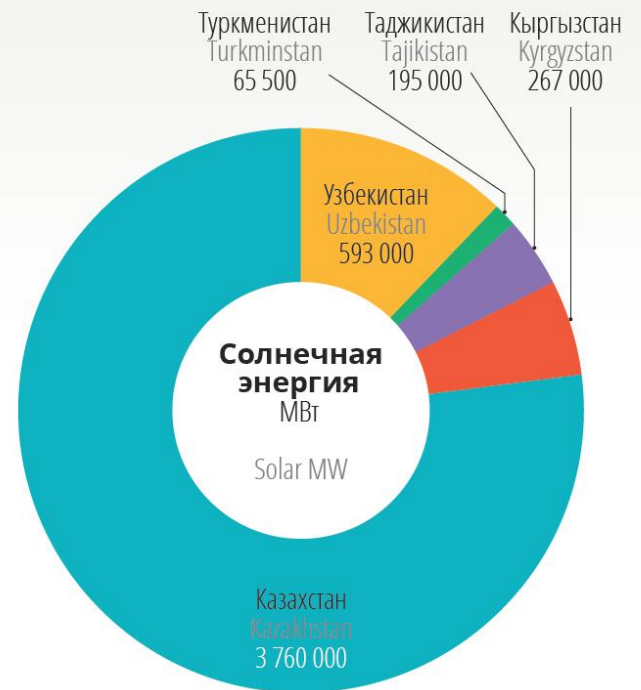Solar Potential and Solar Power Plant Locations*, 2018

> › Регион обладает высоким солнечным и ветроэнергетическим потенциалом (с учетом сезонности). Однако в настоящее время некоторые страны лишь начинают его осваивать.

* Включая существующие и заявленные мощности

* Includes existing and announced installations.

Потенциал фотоэлектрической энергии кВт-ч/кВт пик

Photovoltaic power potential (kWh/kWp)

1 2 3 4 5 6

Мощность электростанций (МВт)

Power Plant Capacity (MW)

0 - 5   5 - 25   25 - 50   50 - 100   Строящиеся
Under construction

Технический потенциал
Renewable Energy Technical Potentials in Central Asia

Туркменистан
Turkminstan
65 500

Таджикистан
Tajikistan
195 000

Кыргызстан
Kyrgyzstan
267 000

Узбекистан
Uzbekistan
593 000

Солнечная энергия
МВт

Solar MW

Казахстан
Kazakhstan
3 760 000

› The region benefits from high solar and wind potential in many areas, subject to seasonal shifts. However, these potentials have just begun to be exploited by some countries.

Скорость ветра и расположение ветровых электростанций*, 2018
Wind Speed and Wind Power Plant Locations*, 2018

ВИЭ в Центральной Азии

Таджикистан
Tajikistan
2 000

Кыргызстан
Kyrgyzstan
1 500

Туркменистан
Turkmenistan
10 000

Узбекистан
Uzbekistan
1 600

энергия
ветра
МВт

Wind MW

Казахстан
Kazakhstan
354 000
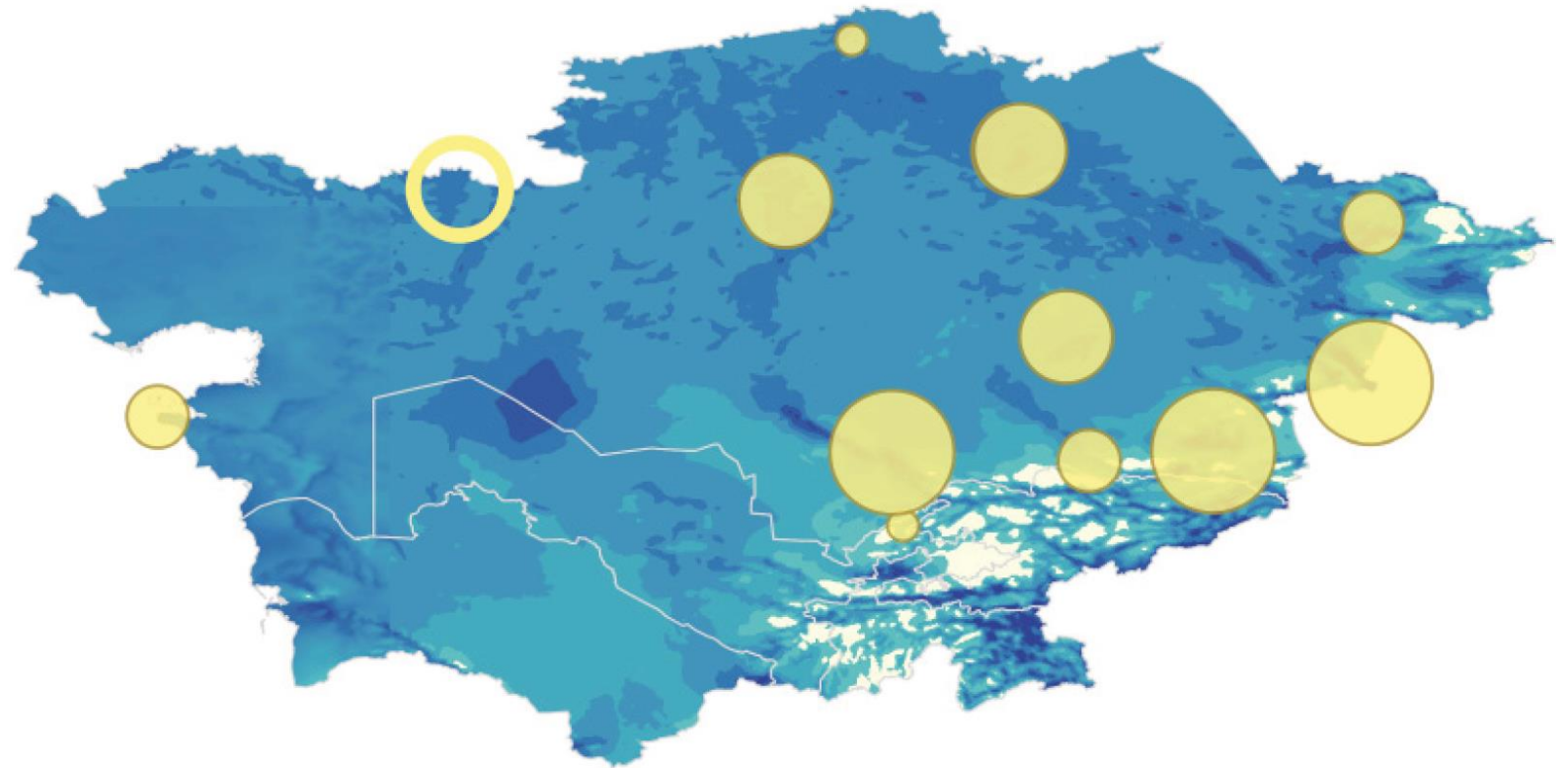
Средняя скорость ветра на высоте 80 м, м/с
Mean wind speed at 80m, m/s

| 0 | 2.25 | 4.5 | 6.75 | 9 |

Мощность электростанций (МВт)
Power Plant Capacity (MW)

0 - 5   5 - 25   25 - 50   50 - 100   Строящиеся
Under construction

ASIA PACIFIC ENERGY PORTAL

ENERGY INFORMATION FOR THE ASIA-PACIFIC REGION
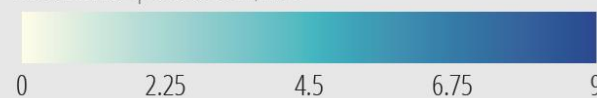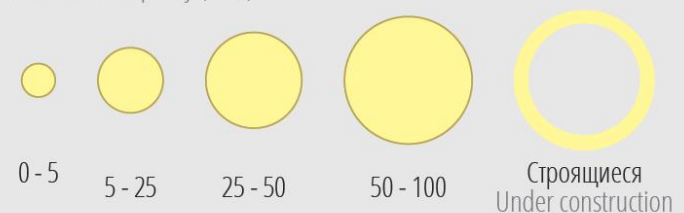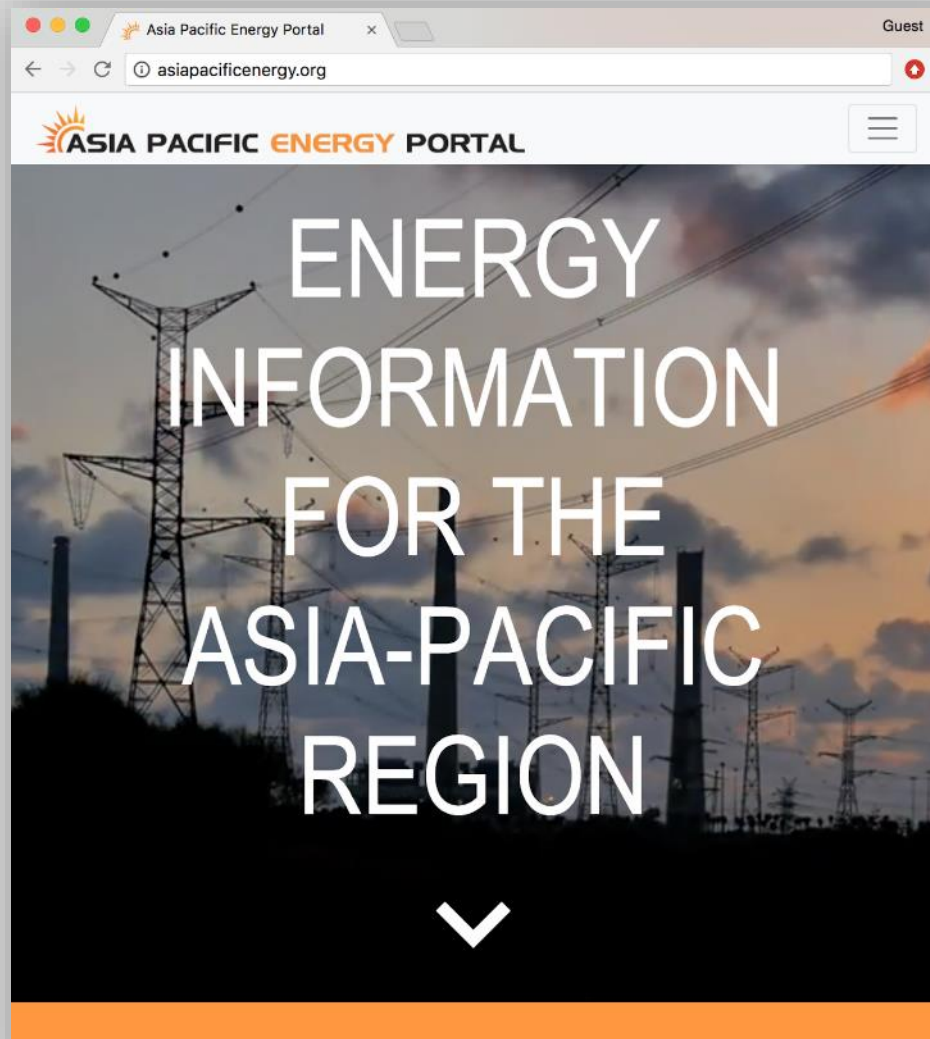
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- ▶ Access
- ▶ Renewables
- ▶ Efficiency
- ▶ Environment
- ▶ Fossil fuels
- ▶ Trade
- ▶ Investment

200+ **data sets** from seven leading data providers integrated into one interface

3,000+ **policy and programme documents** that can be searched and compared within an interactive library

7,000+ **power plants** mapped with associated metadata

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Supports research, analysis, and, ultimately, informed decision-making for current and future development efforts

INDICATORS: review past national progress and trends

COMPARISON: view national progress within broader global/regional contexts

TRADE FLOWS: national and regional energy imports and exports, based on UN Comtrade data

- Data visualization interface is low-friction, making mapping and charting of regional and national data quick and easy.
- All charts can be downloaded or shared through a unique URL
- All data is interactive and tied to a timeline to support research needs and identify shifts and trends within the energy sector.

UNdata — A world of information

UNcomtrade

THE WORLD BANK

iea

IRENA — International Renewable Energy Agency

Bloomberg — NEW ENERGY FINANCE
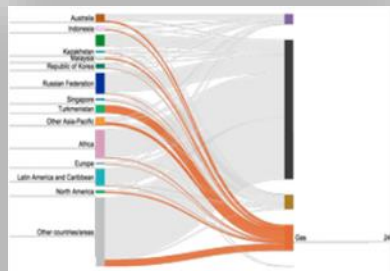
200+ data sets

TRADE FLOWS

Access flow diagrams for national and regional energy imports and exports, based on UN Comtrade data.
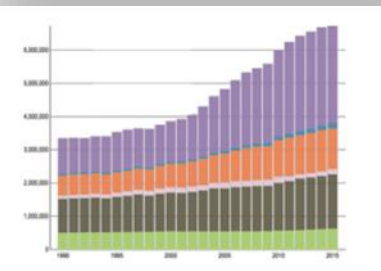
INDICATORS

Interact with data through chart visualizations for more than 200 data sets from leading international data providers.
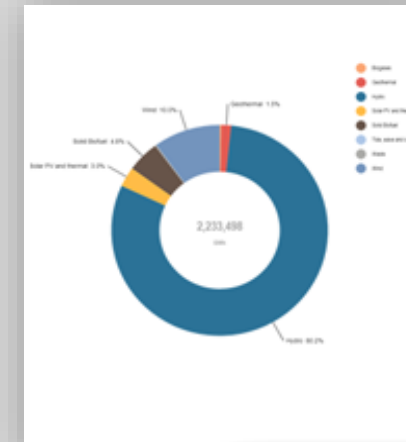
COMPARISON

Create a custom data set comparison table. Choose your own indicators and countries.

POLICY: SEARCH, TIMELINES, MATRIX & COUNTRY PAGES

The Portal is the largest energy policy database available for Asia and the Pacific

SEARCH: text enabled search and filter function, enables easy access to the database

TIMELINES: easily navigate policy timelines and view the progression of policy and regulation implementation over time

MATRIX: provides an immediate glimpse on policy content by creating a "heatmap" of policy attributes by country.

COUNTRY PAGES: access an overview of major policies and initiatives for each country to give you a general "profile" of that member state

- Enables policy information exchange and supports regional cooperation among Asia-Pacific leaders.
- The policy section of the Portal is a tool to support analysis and comparison of policy documents, but it does not replace the carrying out of in-depth research and analysis.

▶ Access
▶ Renewables
▶ Efficiency
▶ Environment
▶ Fossil fuels
▶ Trade
▶ Investment

100+ attributes

Policy Search

Use a smart search function to locate policies, programme information, and more. Search keywords over thousands of documents and filter results by country, scope, and other attributes.

Policy Timelines

Plot national policies on timelines according to themes such as energy access, efficiency, and renewables.

Policy Matrix

Quickly locate policy content categorized under more than 100 attributes, such as energy access priorities, renewable energy targets, and energy efficiency action plans.

INFRAMAPS: Powerplants, Resource Potential & LNG Terminals

Spatial data creates an ecosystem of data, revealing and visualizing new patterns and perspectives on regional energy infrastructure development

POWERPLANTS: infrastructure location answers the what, where and when of energy generation

RESOURCE POTENTIAL: supports regional planning and renewable resource optimization

LNG TERMINALS: mapping of liquefaction and regasification terminals tracks uptake in LNG

- Location is critical to better understanding data and making appropriate and informed decisions;
- Analyzes spatial relationships, such as: connectivity, inclusion, and adjacency.
- Improve energy infrastructure planning and identify weaknesses or vulnerabilities in energy systems
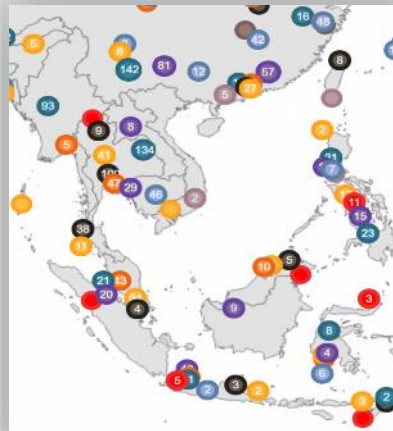
- Coal
- Gas
- Oil/Diesel
- Nuclear
- Hydro
- Wind
- Solar
- Geothermal
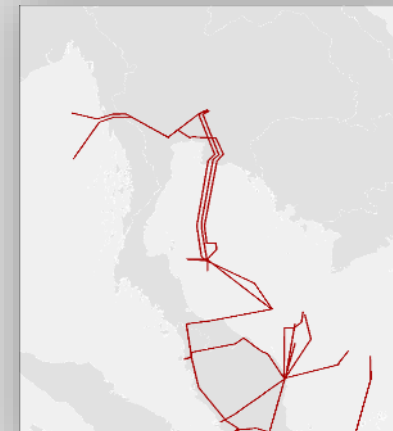- Biomass
- Marine
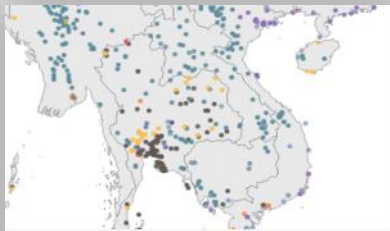
7000+ Power Plants

POWERPLANTS
More than 7,000 power plants have mapped across the Asia-Pacific region. Interact with data points to view power plants and attributes.

LNG
More than 60 LNG liquefaction and regasification terminals have been mapped across the Asia-Pacific region. Interact with data points to view LNG terminals and attributes.

RESOURCE POTENTIAL
Renewable resource potential has been mapped for the Asia-Pacific region. Overlay powerplant data to view resources and powerplants.

Evidence based decision making & tracking policies
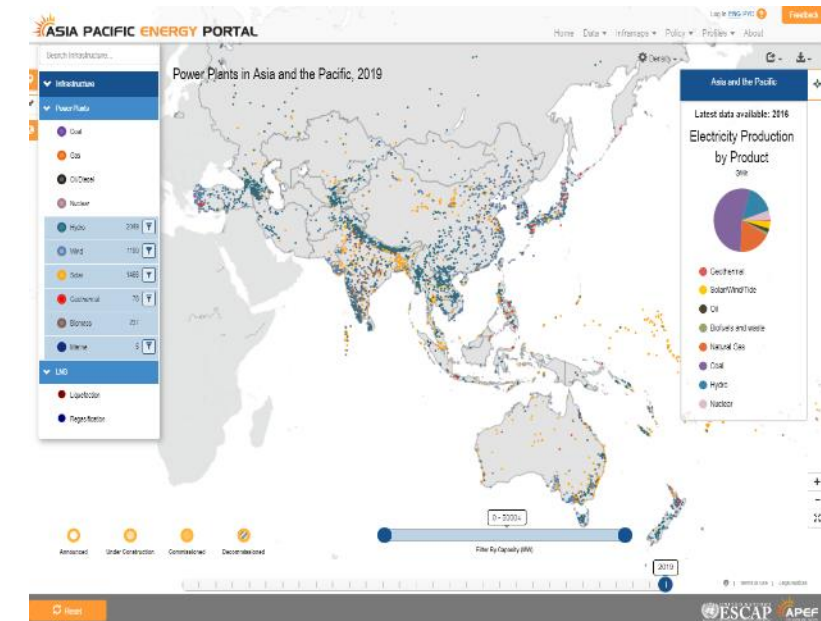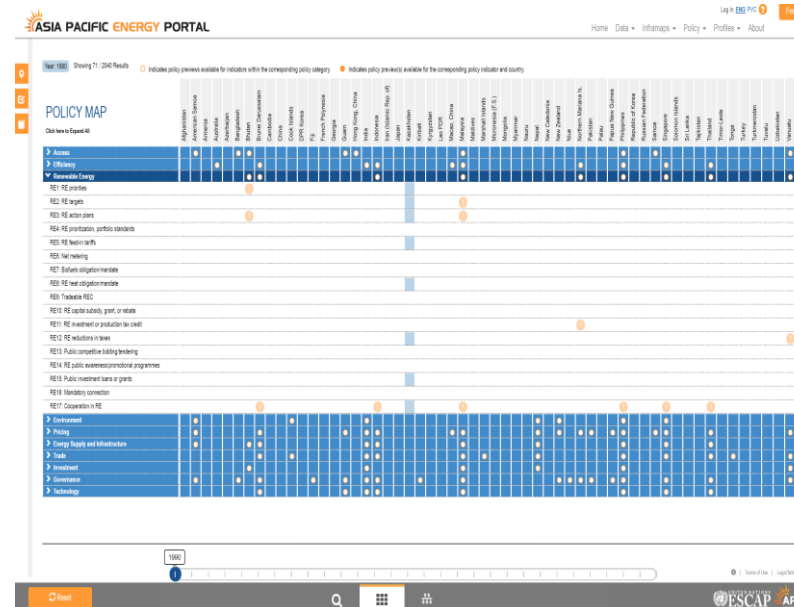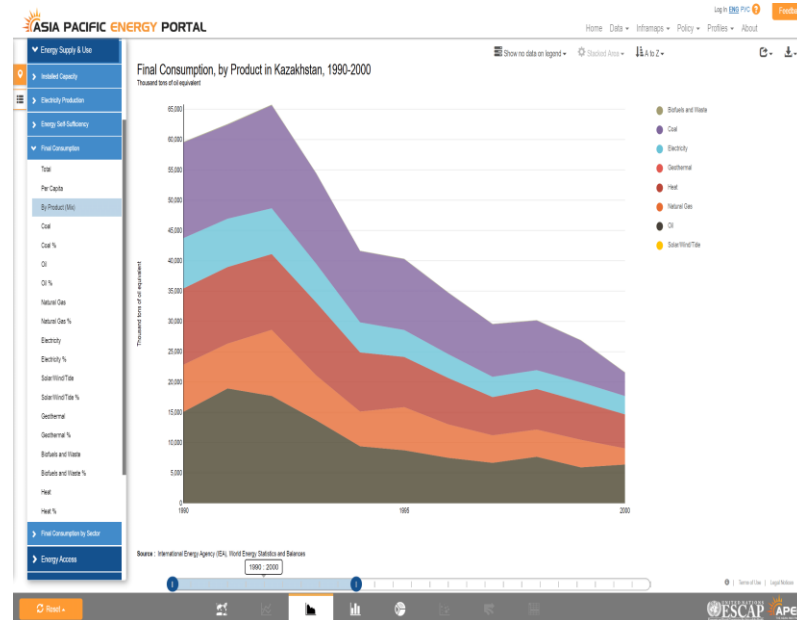
Combining Data, Policy and Infrastructure data, is what makes the Asia Pacific Energy Portal a unique and powerful tool.

THANK YOU

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