



EGNRET 48  
29 March 2017  
Jeju Island, Republic of Korea

# APEC Renewable Energy Statistics

**Edito Barcelona**  
Asia Pacific Energy Research Centre



**Asia-Pacific  
Economic Cooperation**

# Outline of Presentation

APEC Energy Statistics

Renewable Energy Data Collection in APEC

Pre-2004

2004-2014

2015

Current Situation of Renewable Energy Data in  
Non-OECD member economies of APEC

Way Forward

## Annual energy supply and demand

- Coal and coal products, oil and oil products, natural gas, electricity & heat and new & renewable energy
- Supply, transformation and consumption as well as non-energy use
- Data are presented in energy balance format

## Quarterly energy supply data

- Production, imports, exports and stock change
- Primary coal products, primary and secondary oil products, natural gas and electricity

## Monthly oil and gas data

- Supply and demand of oil (JODI Oil) and Natural Gas (JODI Gas)

# APEC Energy Statistics (2)

## CO<sub>2</sub> emissions from energy consumption

- Submitted by some member economies
- For economies that don't have official data, the coordinating agency calculates the CO<sub>2</sub> emissions using the IPCC methodology

## Energy prices data

- Imports
- Wholesale
- Consumer

## Other energy related data

- Net electricity generating capacity
- Socio-economic and demographic data obtained from WB
- Production of energy intensive products such as iron & steel, cement, pulp & paper and ethylene



# Renewable energy data in the APEC database

## Pre-2004

- Consumption of non-commercial biomass (used in households) were not strictly collected; member economies may or may not submit
- Result: no biomass data were reported by several economies before 2004

## 2004-2014

- The “new” reporting format required the submission of all renewable energy data
- Data collected were: **fuelwood and woodwaste, bagasse, charcoal, other biomass, biogas, industrial waste, municipal solid waste, and liquid biofuels**
- Some of the non-reporting economies submitted biomass data
- China and Malaysia have no data on non-commercial consumption of biomass

## From 2015

- Biomass is further disaggregated into: **wood & straw pellets/briquettes, fuelwood, woodwaste, bagasse, rice husks, straw, charcoal, other vegetal and agricultural waste, other primary solid biomass, 4 kinds of biogases, industrial waste, renewable and non-renewable municipal wastes, black liquor and 4 kinds of biofuels**

# Biomass data in the APEC energy database

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Australia	4719	4723	5004	4846	4781	4803	4823	4957	5176	3523	4657	4141	4146	4410	4359
Brunei Darussalam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Canada	13407	12484	13662	13432	14622	13880	13306	12956	12005	11444	11383	12572	12596	13183	13426
Chile	4716	4714	4782	4540	4774	4830	4955	5193	5324	5506	4894	5902	9378	10235	7326
China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hong Kong, China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indonesia	-	-	-	-	38199	43525	44365	44214	44781	44988	45820	45190	45526	45996	50024
Japan	4568	4241	4309	4216	4393	4342	4375	4562	4636	3810	4396	4163	4009	4427	4743
Republic of Korea	197	142	160	178	141	292	287	281	266	299	329	412	751	953	2098
Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mexico	8933	8625	8500	8537	8592	8870	8661	8665	8518	7949	8074	7921	8107	8868	8673
New Zealand	1082	1068	1145	1149	1235	1229	1217	1164	1082	997	1121	1133	1126	1072	1078
Papua New Guinea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peru	1778	1758	1770	1738	1880	1845	1914	2065	1840	2524	2455	2009	1993	1932	1942
Philippines	6397	6282	6166	6050	5934	6143	6353	6562	6771	6970	7190	7400	7602	7852	8045
Russia	4006	3665	3573	3479	3485	3505	3424	3661	3107	2937	2944	3025	3452	3030	2769
Singapore	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chinese Taipei	-	-	-	-	207	210	161	766	582	534	389	354	278	235	292
Thailand	-	-	-	-	11472	12155	13592	14136	11880	11434	12828	11966	9510	12381	12332
United States of America	55026	48288	46301	49661	51966	54033	52498	51543	50450	46535	52605	52142	50806	54611	56598
Vietnam	-	-	-	-	13997	14807	14860	14870	14724	14722	13890	14005	14121	13673	12745

no report before 2004  
no data on biomass use in households

Source: APEC Energy Database

# Definition of renewable energy products

## Wood and straw pellets/briquettes

- Products which has been agglomerated from wood residues by compression with or without the addition of a small quantity of binder. Briquettes are fuel comprising of small blocks of dried, highly compressed wood made without a binding agent.

## Wood waste

- Yard trash and types of waste typically generated by sawmills, plywood mills, and woodyards associated with the lumber and paper industry, such as wood residue, cutoffs, wood chips, sawdust, **WOOD** shavings, bark, wood refuse, wood-fired boiler ash, and plywood or other bonded materials that contain only phenolic-based glues or other glues that are approved specifically by the administrative authority.

## Bagasse

- fuel obtained from the fibre which remains after juice extraction in sugar cane processing

## Rice husks

- the outermost layer of protection encasing a rice grain. It is a yellowish color and has a convex shape. Typical dimensions are 4 to 6 mm, having a ground bulk density of 340 kg/m<sup>3</sup> to 400 kg/m<sup>3</sup>.

# Definition of renewable energy products (2)

## Straw

- a single stalk or stem, especially of certain species of grain, chiefly wheat, rye, oats and barley

## Charcoal

- the solid residue from the carbonisation of wood or other vegetal matter through slow pyrolysis

## Other vegetal and agricultural waste

- Solid primary biofuels not specified elsewhere, including vegetable husks, ground nut shells, pruning brushwood, olive pomace and other wastes arising from the maintenance, cropping and processing of plants.

## Other primary solid biomass

- products not specifically mentioned above. This includes agricultural wastes such as nut shells, poultry litter, crushed grape dregs, palm oil bunches, etc. The quantity of fuel used should be reported on a net calorific value basis.



# Definition of renewable energy products (3)

## Landfill gas

- Biogas from the anaerobic fermentation of organic matter in landfills

## Sewage sludge gas

- Biogas from the anaerobic fermentation of waste matter in sewage plants

## Other biogases from anaerobic fermentation

- Other biogases from anaerobic fermentation not elsewhere specified. Two of the largest sources of these biogases are the fermentation of energy crops and the fermentation of manure on farms.

## Biogases from thermal process

- Biogases from thermal processes (by gasification or pyrolysis) of biomass. Biogases from thermal processes are a mixture containing hydrogen and carbon monoxide (usually known as syngas) along with other components. These gases may be further processed to modify their composition and can be further processed to produce substitute natural gas.

# Definition of renewable energy products (4)

## Industrial waste

- Non-renewable waste which is combusted with heat recovery in plants other than those used for the incineration of municipal waste.

## Municipal solid waste

- Household waste and waste from companies and public services that resembles household waste and which is collected at installations specifically designed for the disposal of mixed wastes with recovery of combustible liquids, gases or heat

## Black liquor

- The alkaline-spent liquor obtained from the digesters during the production of sulphate or soda pulp required for paper manufacture. The lignin contained in the liquor burns to release heat when the concentrated liquor is sprayed into a recovery furnace and heated with hot gases at 900°C. Black liquor is used as a fuel in the pulping process.

## Liquid biofuels

- Liquids derived from biomass and used as fuels. These include biogasoline, biodiesel, bio-jet kerosene and other liquid biofuels.



# Way Forward



## Collection of data using the revised format

- More detailed renewable energy data are collected starting on the 2015 data. ESTO expects to receive the data by the end of March 2017

## Further revisions to the data collection format

- The number of products that may be collected could increase depending on the need of the EWG

## Uploading the data in the APEC energy database

- ESTO hopes to be able to upload the more detailed renewable energy data in the APEC energy database

EGEDA would continue to cooperate with EGNRET in the monitoring of the APEC renewable energy doubling goal.





**Thank you for your kind attention**

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