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Under Two Crisis We Are Facing

Battling climate change through energy cooperation

22 OCT 2020

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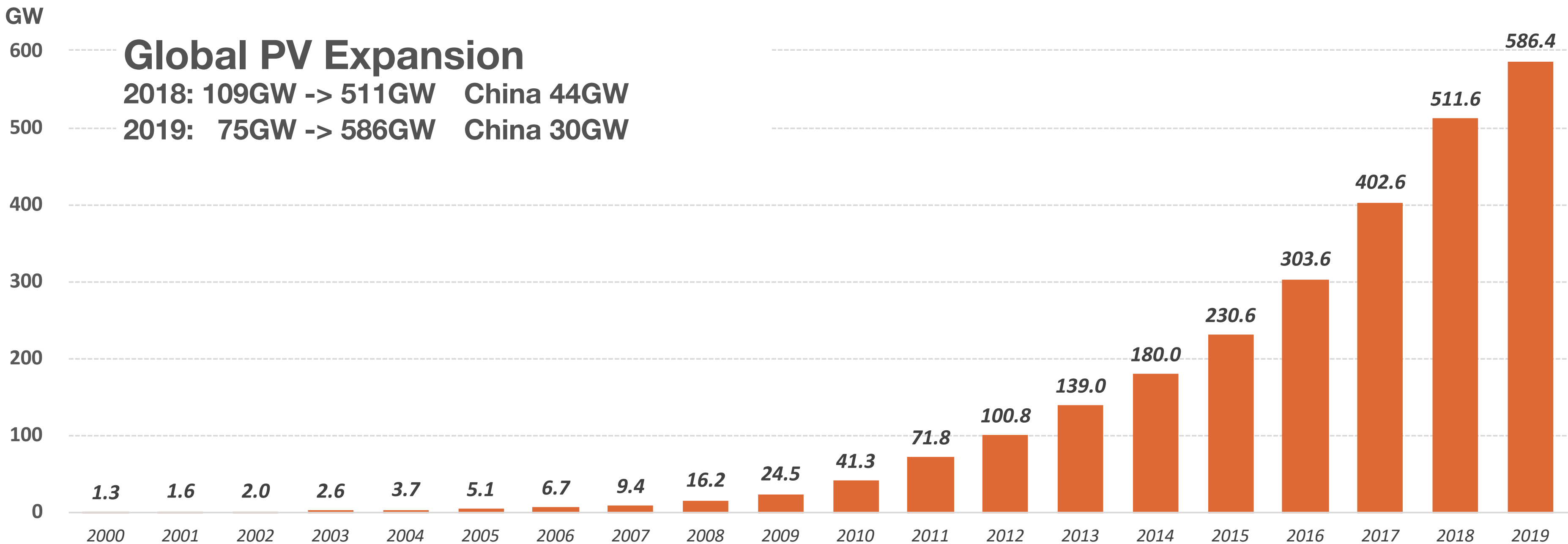
Global Energy Transformation



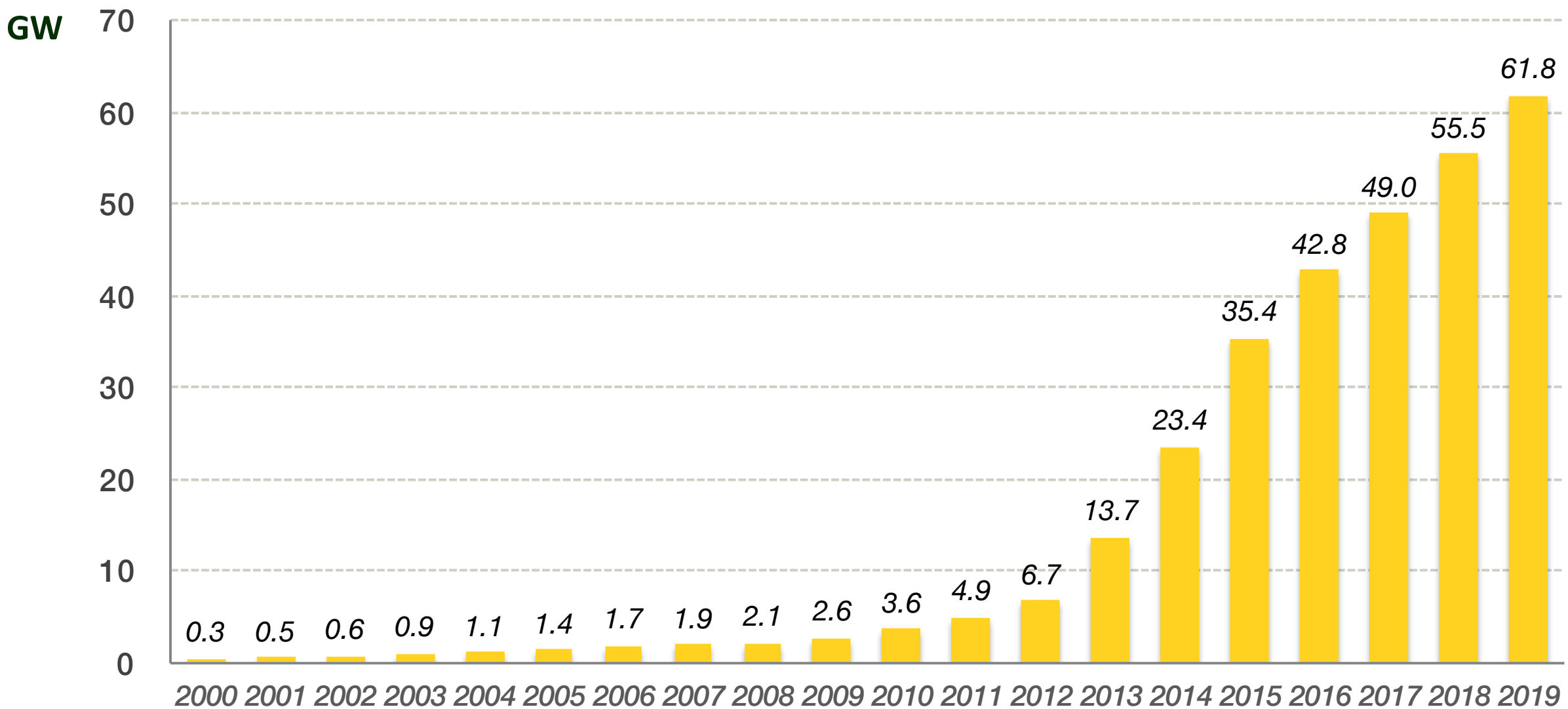
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-from 2000
-solar x 450
reached
586GW

-from 2000
-solar x 200
reached
62GW



Japan's PV Expansion
x 200 from 2000 (x17 from 2010)
2019: 6GW -> 62GW

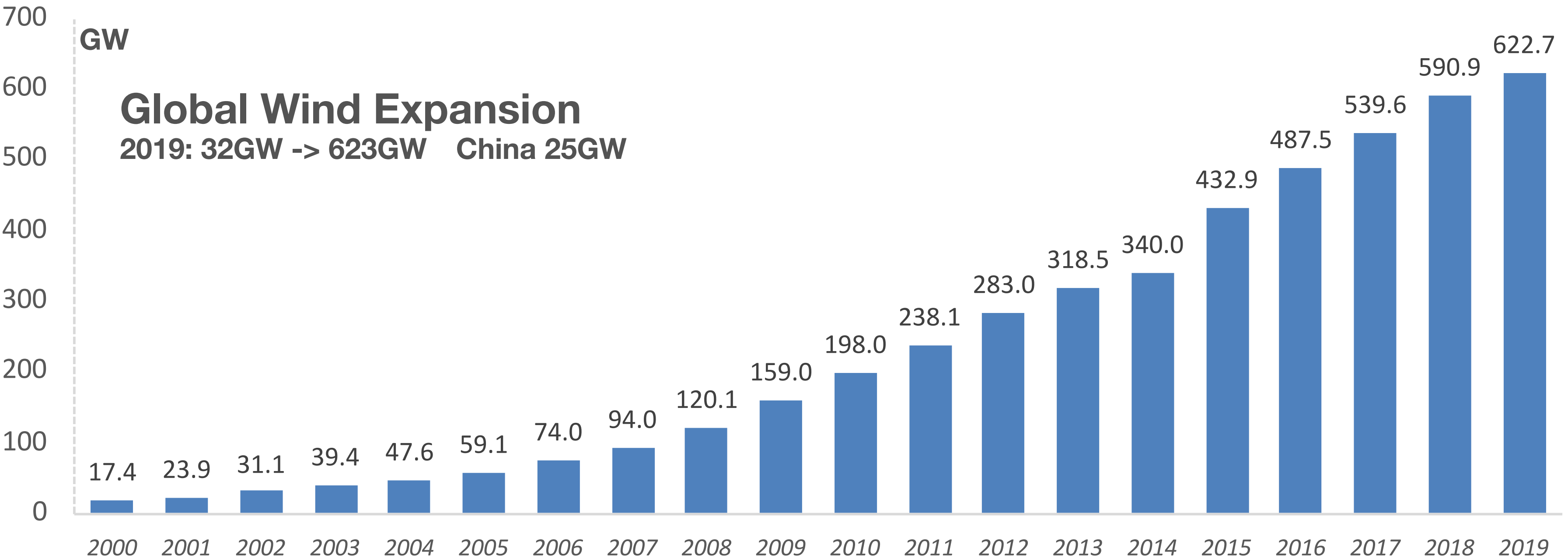


Global Energy Transformation



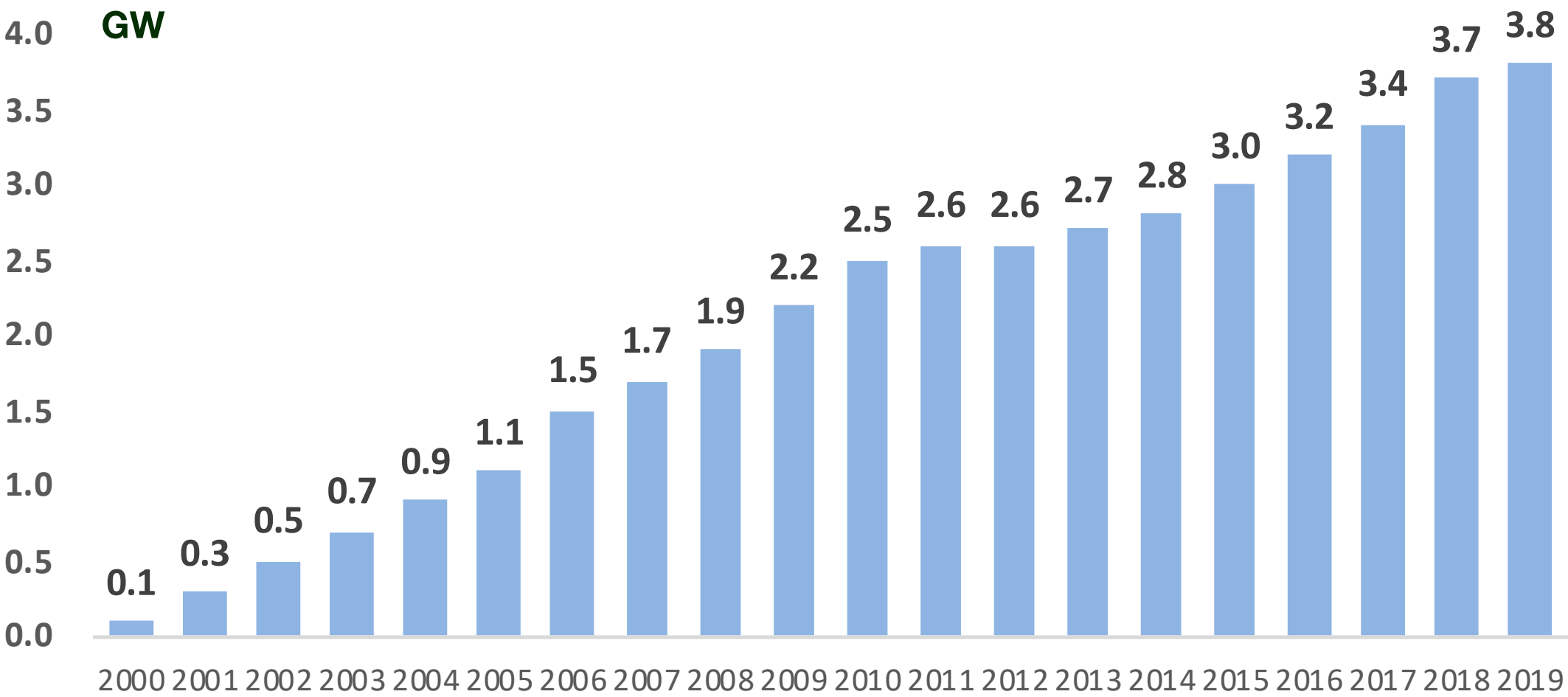
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-from 2000
-wind x 36
reached
623GW



-from 2000
-wind x 38
reached
4GW

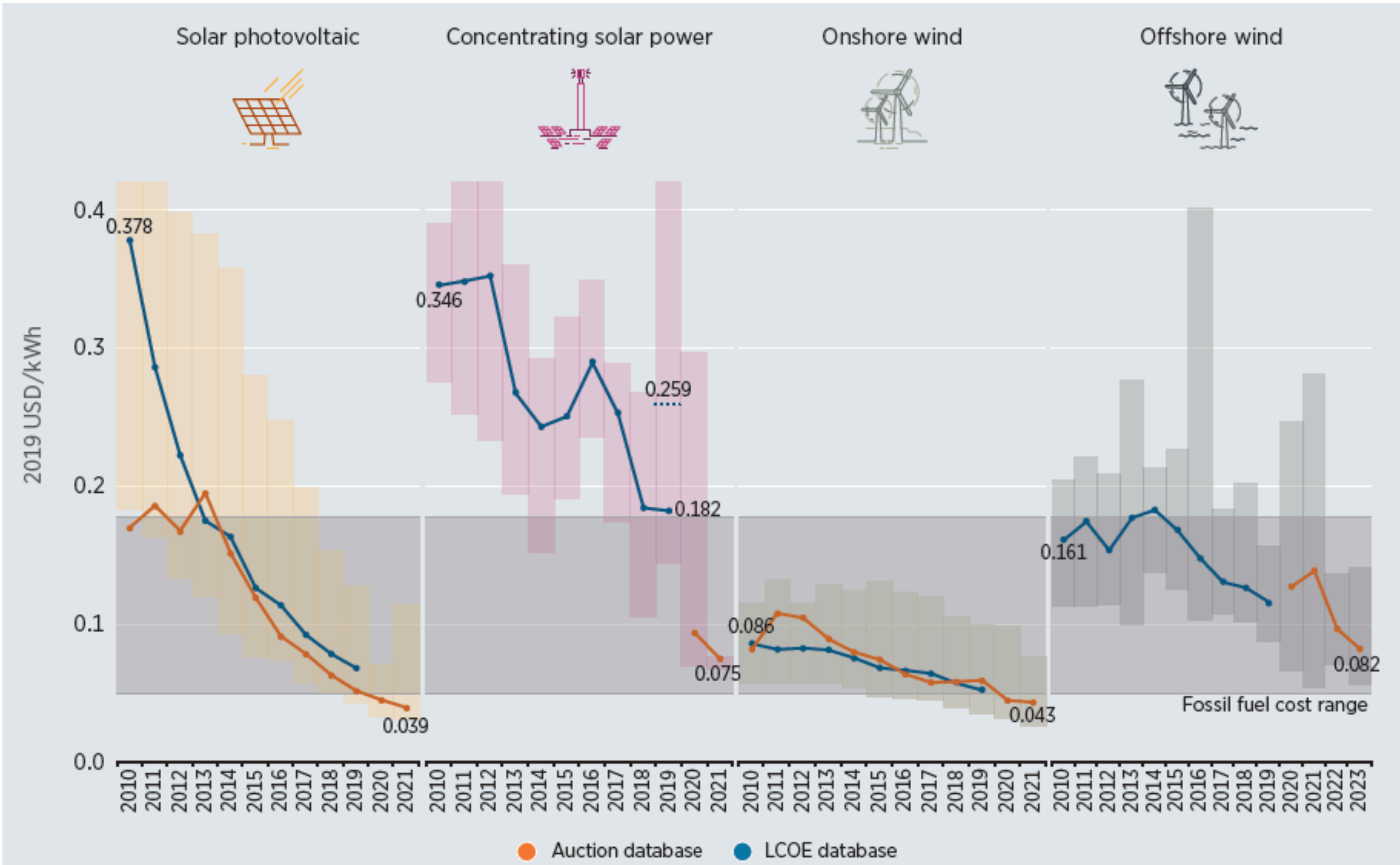
Japan's Wind Expansion
x38 from 2000
2019 total: 3.8GW



Global Energy Transformation



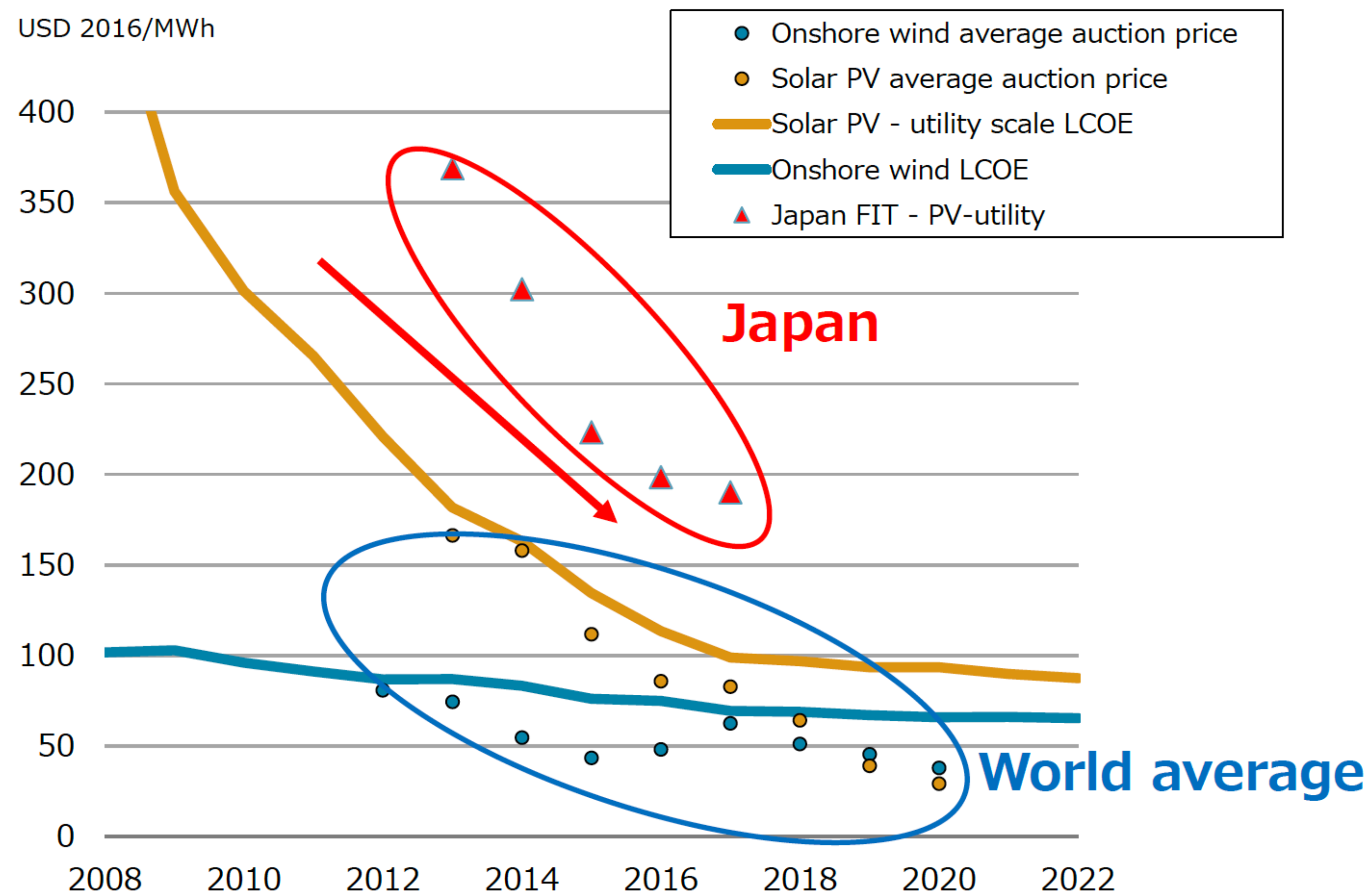
Global average LCOE, auction prices and PPA



Note: For CSP, the dashed blue bar in 2019 shows the weighted average value including projects in Israel.

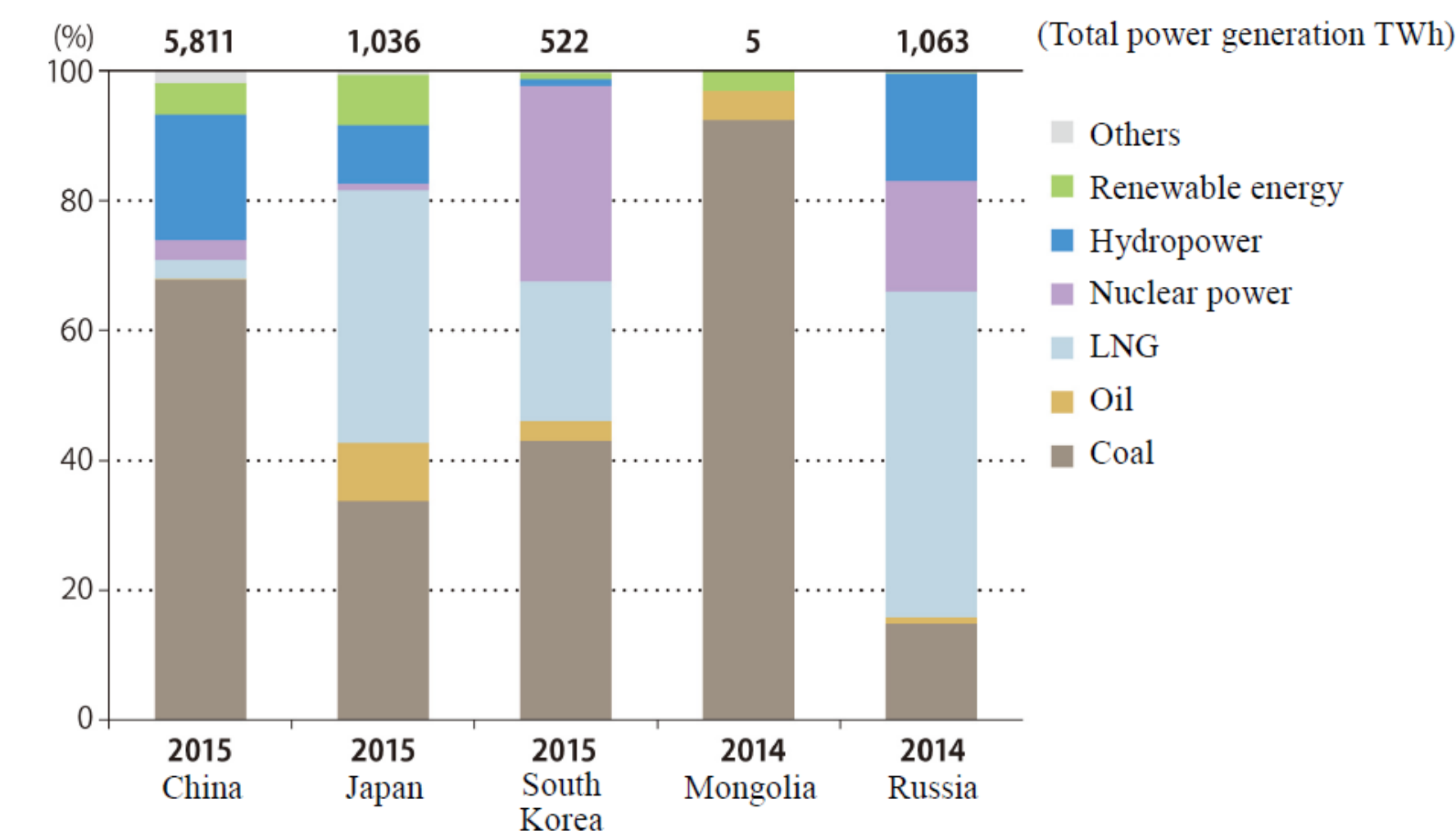
Power Generation Costs 2019, IRENA 2020

Global renewable LCOE trend

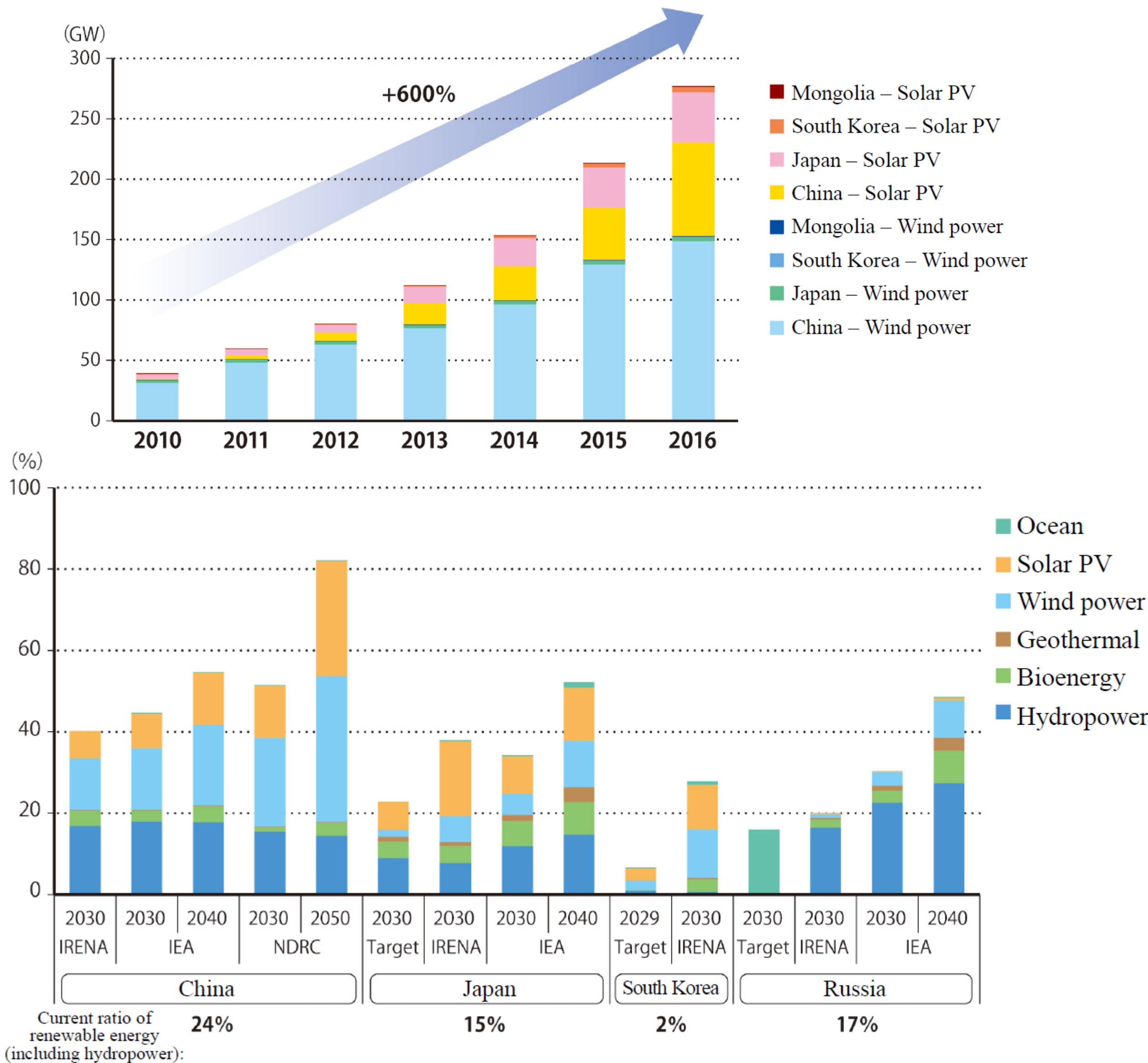


Source: IEA Renewables 2017

Asian Energy Transformation



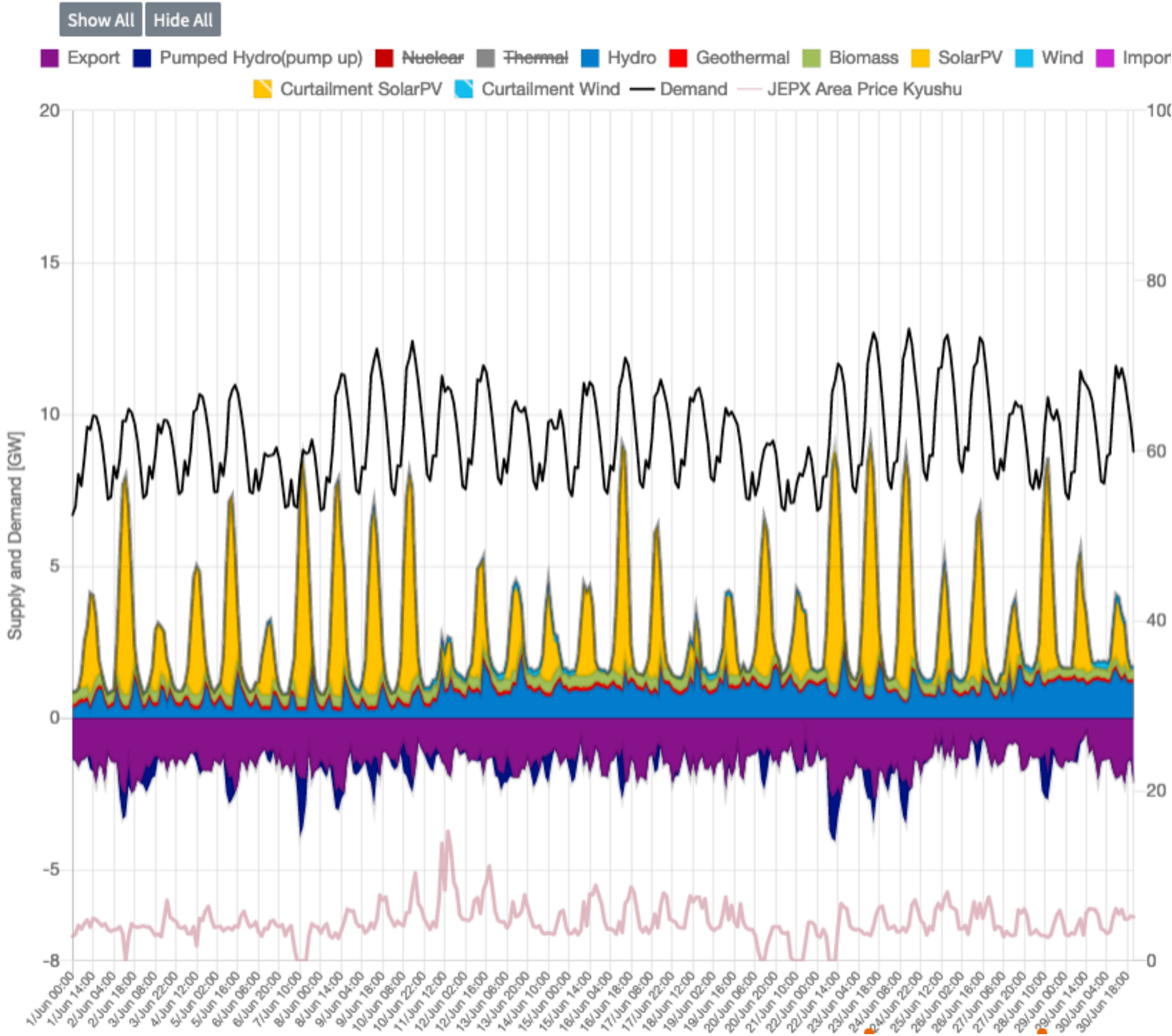
Currently, mutual complementarity of power supply structures among Northeast Asian countries is not so much expected. On the other hand, each country has been actively promoting investments in domestic renewable energy.



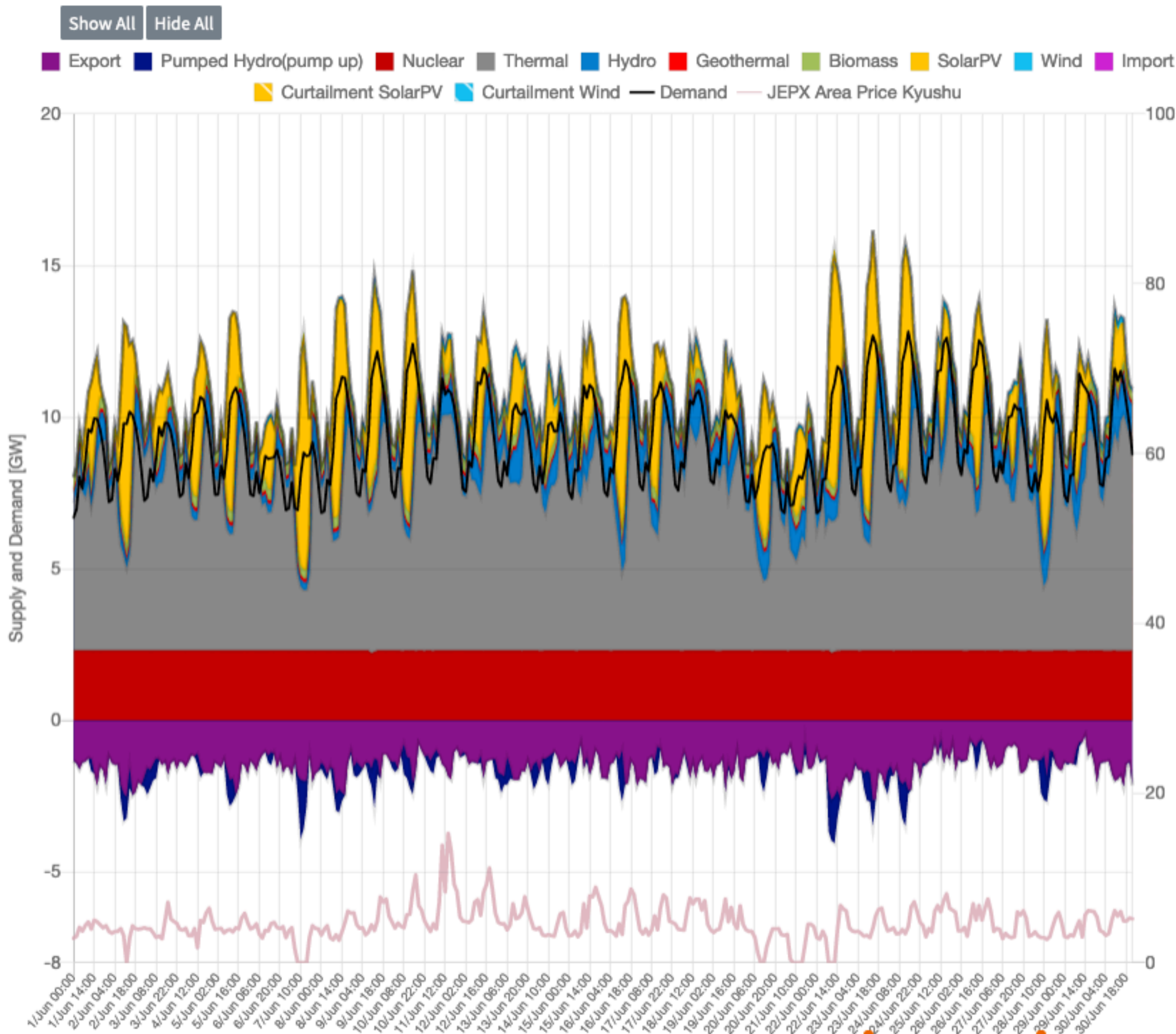
Japan Energy Transformation



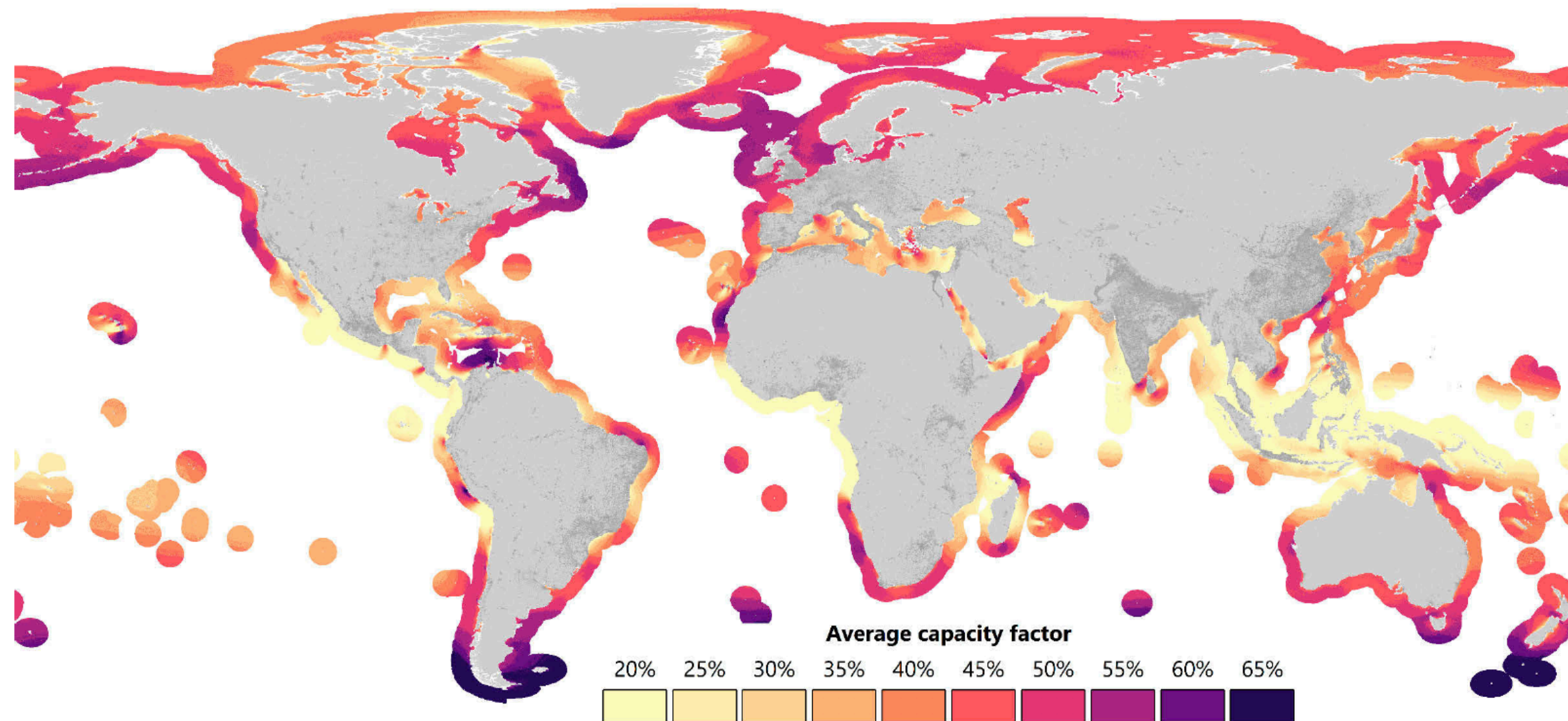
Power Supply & Demand Chart: Kyushu Area(From 1/Jun/2020 to 30/Jun/2020)



Power Supply & Demand Chart: Kyushu Area(From 1/Jun/2020 to 30/Jun/2020)



Average simulated capacity factors for offshore wind worldwide



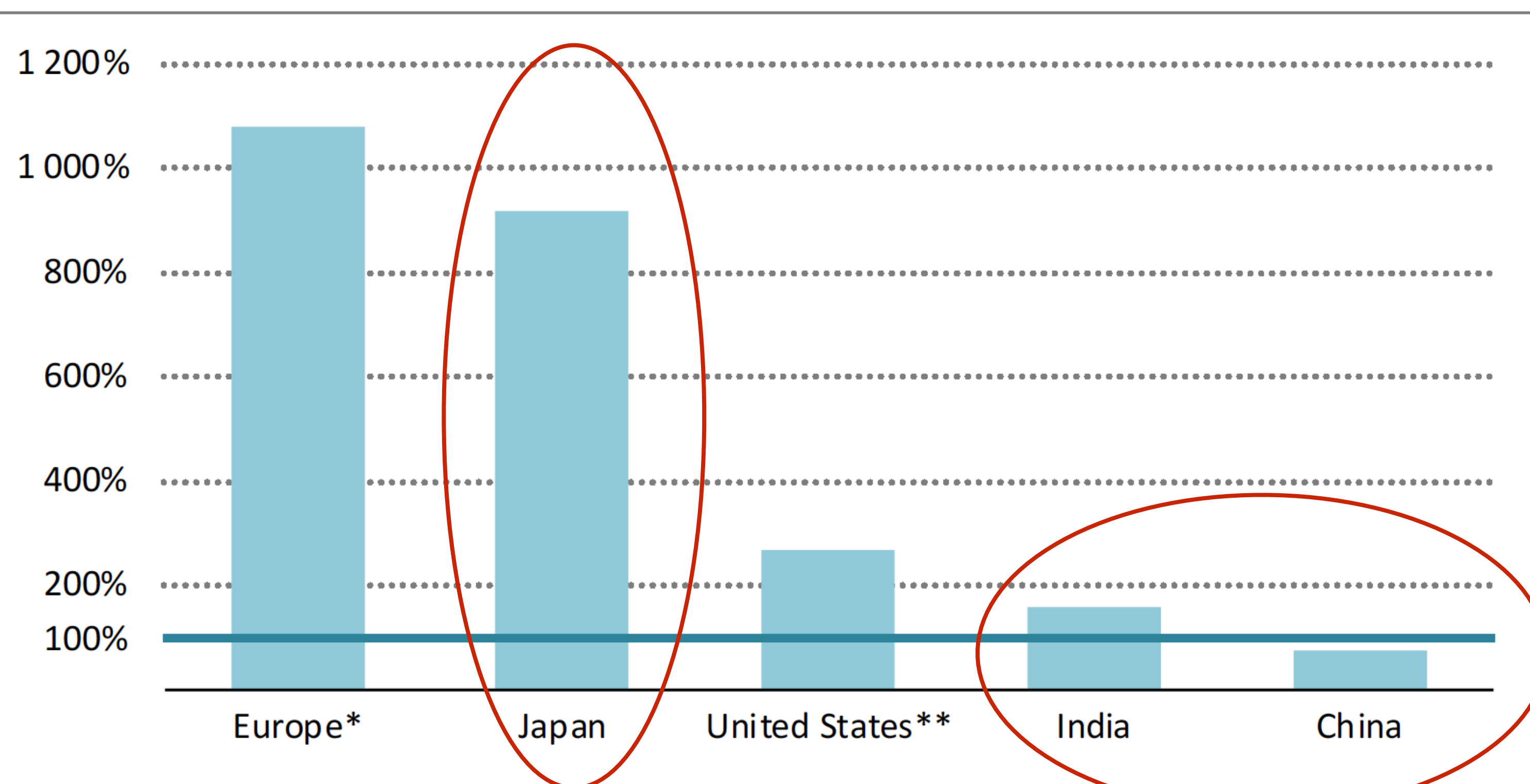
Average capacity factors reflect the quality of the wind resources available offshore around the world

Notes: Inland dots depict population density of more than 500, 2 000 and 8 000 people per km² with darker shades of grey.

Source: IEA analysis developed in collaboration with Imperial College London based on Renewables.ninja.

- Potential of renewables is very high

Ratio of technical potential to domestic electricity demand by region in the Stated Policies Scenario, 2040 IEA



Based on technical potential, many regions could cover more than or nearly all of their domestic electricity demand from offshore wind alone

* Potential excluding Greenland and overseas territories. ** Potential available excluding Alaska and Hawaii.

Source: IEA analysis developed in collaboration with Imperial College London.

source: IEA 2019, Offshore Wind Outlook

Asian Energy Transformation

Asia Super Grid

Asia Super Grid is a concept to maximize RE use in Asian region

North East Asian countries are very close compare to European nations; Souya - Sakhaling 43km, Fukuoka-Busan 200km.

Big consumption areas - economically very active areas are close to each other.

Combining three countries, China, Korea and Japan, the biggest electricity market emerges. Covers 75% of power generation and 77% of electricity consumption in Asia.

In Asian region, especially Mongolia, Russia and China, there are vast potential of renewables which can cover whole electricity consumption in the area.

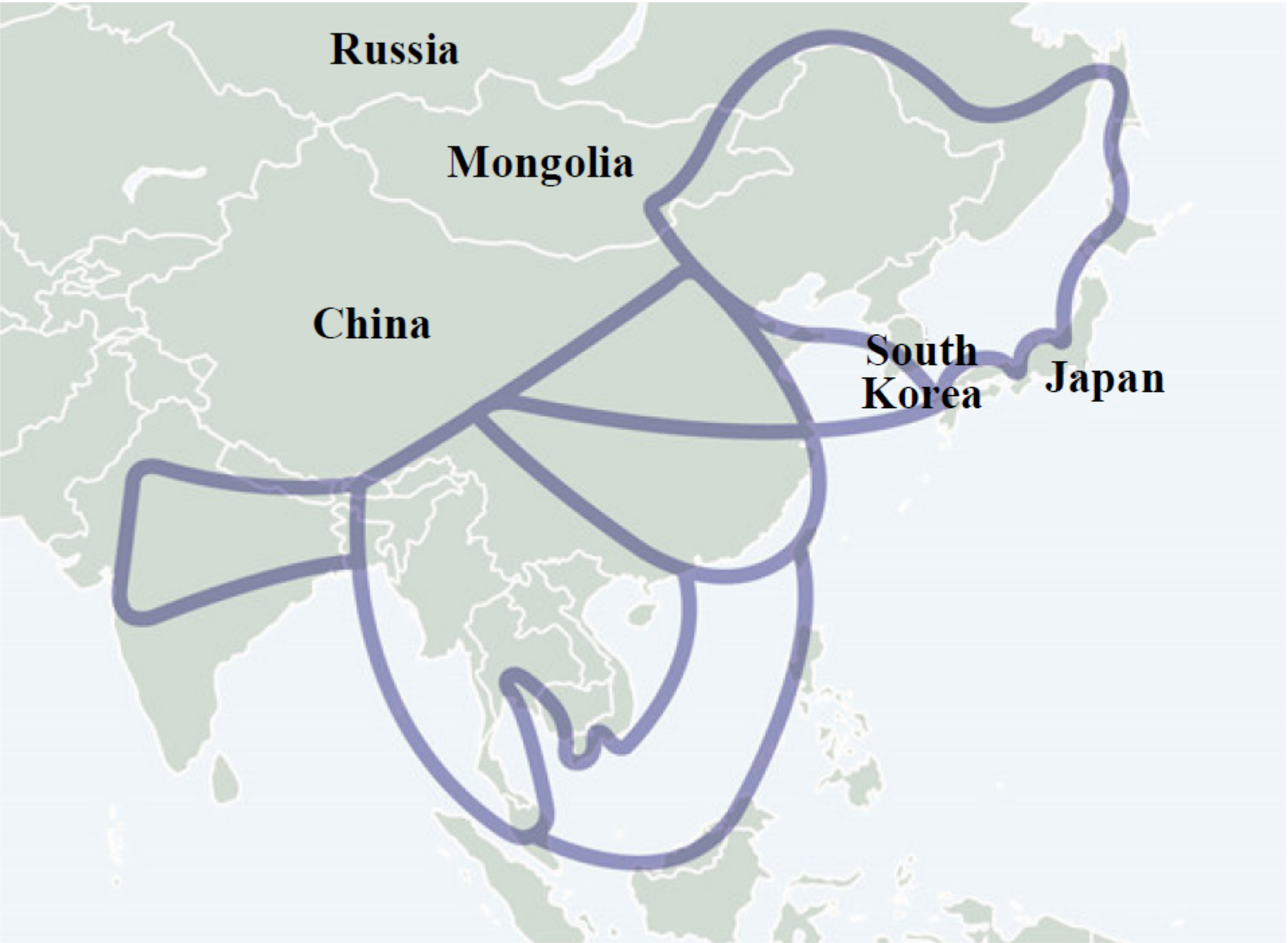
	GDP (in billion dollars) Figures in parentheses are GDP per capita (in thousand dollars)	Population (in million people)	Electricity generated (in TWh)	CO ₂ emissions (in million tons CO ₂)
China	8,909 (6.5)	1,376	5,811	9,154
Japan	5,986 (47.2)	127	1,036	1,208
South Korea	1,267 (25.0)	50	522	649
Mongolia	12 (3.9)	3	5	18
Russia	1,616 (11.0)	143	1,063	1,483
Northeast Asia	17,790 (~10.5)	1,699	8,437	12,512
World	74,889 (10.2)	7,349	24,098	33,508
Share of Northeast Asia	20-25%	20-25%	30-35%	~37%
Source	World Bank *Constant 2010	United Nations	BP; For Mongolia, figure from IEA in 2014	BP; For Mongolia, figure from IEA in 2014

Source: Created by Renewable Energy Institute based on data released by national governments and international organizations.

Asian Energy Transformation

Asia Super Grid

Scheme name	Scheme owner	Year of scheme proposal
North East Asian Electrical System Ties	Korea Electrotechnology Research Institute and ESI in Russia	2002
GOBITECH Initiative	Seoul Office of Hanns Seidel Foundation, etc.	2009
Asia Super Grid	Renewable Energy Institute	2011
Asia Pacific Power Grid	Japan Policy Council	2011



Renewable Energy Institute has proposed “Asia Super Grid” based on renewable energy. The goal is to utilize renewable energy across Asia by connecting China, South Korea, Russia, and Japan via an international power grid using solar and wind power generated in Mongolia as the main power supply.

Mongolia



Japan

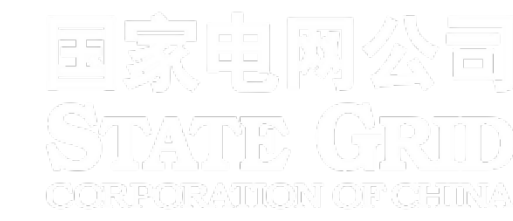


India



Paradigm Shift in Energy

Peace in Asia



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