



COP27 Preview: How Much has the World Changed?

1 November, 2022

About: Japan NRG

- One-stop **INTELLIGENCE** | **ANALYSIS** | **EVENTS** platform focused on the broad energy and electricity markets in Japan
- Independent, pragmatic and holistic information about Japanese energy policies, markets, companies and people
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**VENA
ENERGY**
JAPAN



Embassies of G7
Member Nations

Main COP26 recap

GLOBAL

- Paris accord confirmed (1.5°)
- Exit from coal scenario
- \$100 billion/ year in climate aid
- Methane30
- “Revise and strengthen NDCs”
- Voluntary Carbon Trade
- Biodiversity / Deforestation

JAPAN

- Cut CO2 46% by 2030
- Article 6 confirmation
(overseas carbon crediting)
- \$100M for Asia Energy Transition
- Support for “abated” coal
- Outline for coal → ammonia
- “Fossil of the Day”

COP26 vs COP27: 5 Key Differences



**UN CLIMATE
CHANGE
CONFERENCE
UK 2021**

IN PARTNERSHIP WITH ITALY

- COP26: "phase out inefficient fossil fuel subsidies," "phasedown unabated coal," "keep it in the ground," focus on mitigation and Green New Deal recovery, oil majors unwelcome

- COP27: energy subsidies climb into the hundreds of billions, Germany restarts coal, EU funds African gas, US back in a big way, China maybe gets "fossil of the day"



A Measure of Desperation

- ESG led to underinvestment in fossil and exaggerated expectations of VRE rollout
- Now we have *green*flation, *fossil*flation, and *climate*flation
- EU wind is down about 40% YOY, and Vestas is appealing to bureaucrats to save the world!



**Let the Bureaucrats Save the
World at COP27**

Today, it takes a decade of documentation to build a wind energy project.
COP27 must deliver on faster permitting

Need a Broader Portfolio?



"At the end of last year, overall fossil fuels represented 81% of energy consumption. 10 years ago, they were at 82%," says Jeff Currie. "\$3.8 trillion of investment in renewables moved fossil fuels from 82% to 81% of the overall energy consumption."

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- All indications are that transition will be more protracted and expensive
- But the IEA WEO2022 asserts otherwise, predicting a faster transition in the face of the evidence
- But here we are, still stuck at 81-82% fossil

The US is Back (thanks Joe!)

- From **Green Deal**, to **Build Back Better**, to the much vilified Joe Manchin's tech-neutral, tax-incentive financed **Inflation Reduction Act**
- \$370 billion drill-down on decarbonization
- Hydrogen is any color you like
- A GOP win in Nov. 8 midterms may actually bolster tax incentives and help with permitting (win-win!)

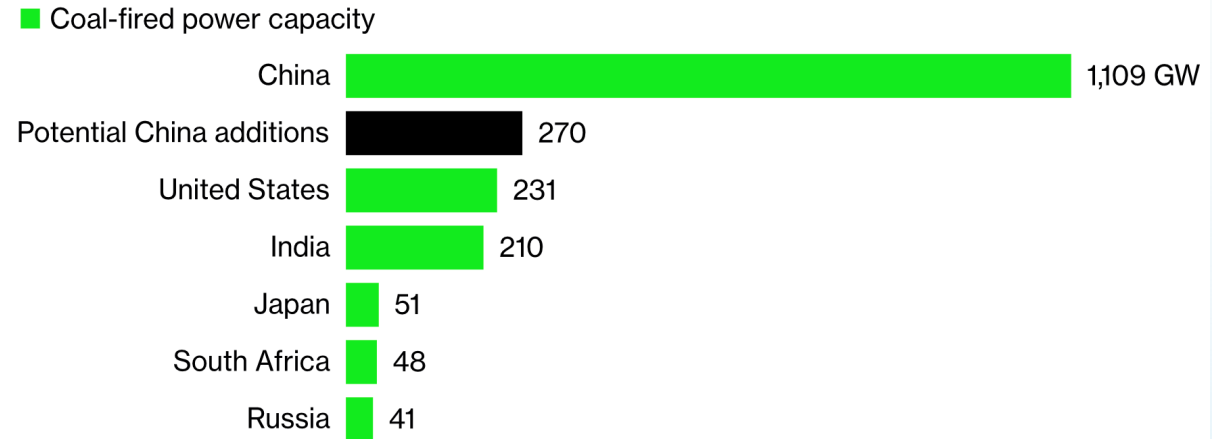


Whither China?

- That's a lot coal capacity!
- Optimists confidently insist the Chinese won't use it (move along, nothing to see here...)
- But China has lots of electrification uses for 1,000 TWh increments of power, eating them up every 2-3 years
- So does it get its first-ever fossil award?

Even More Coal

China could add more new coal power capacity than any other country's existing fleet



Source: BloombergNEF, China Energy Engineering Corp.
Note: Potential China additions shows China Energy Engineering Corp. estimate for 2021-2025

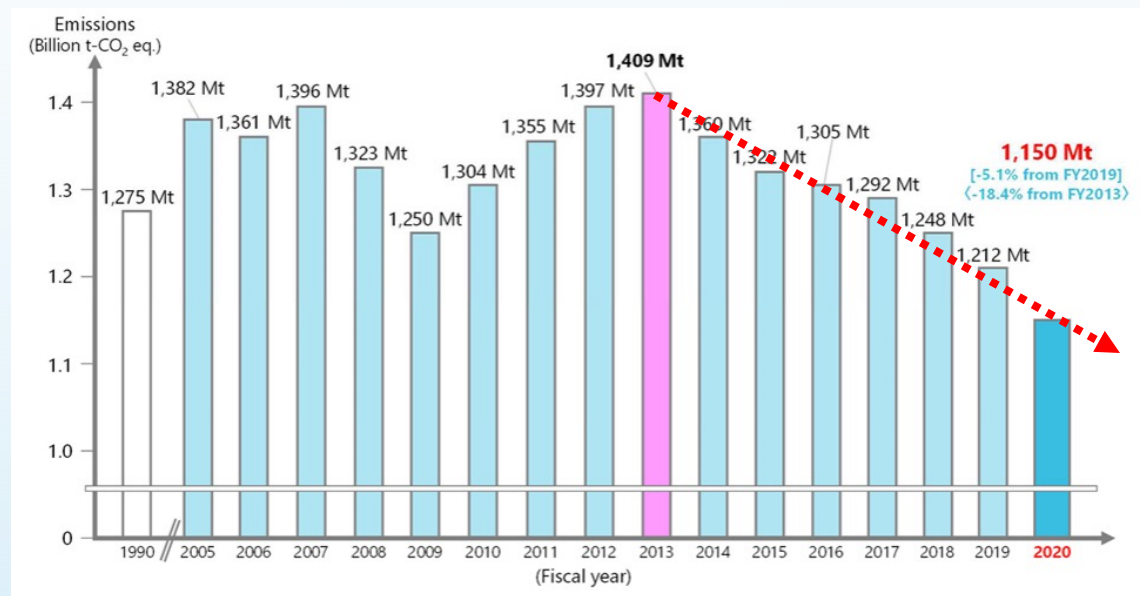


Japan at COP27: Local, Vocal, Multifocal

Japan: On-Course ... But On-Target?

- CO2 emissions down for seven straight years
- Lowest level since FY1990, when recording began
- RE was ~20% of power generation; nuclear 3.9%
- Reasons: drop in travel and supply chain problems
- To hit FY2030 target, need annual CO2 cut of ~3.6%

Year	Tons of CO2 equivalent
FY2013 (April 1, 2013 - March 31, 2014)	1.480 billion
FY2020 (April 1, 2020 - March 31, 2021)	1.149 billion
FY2030 (April 1, 2030 - March 31, 2031)	0.799 billion



GX Marks the Spot

PM Kishida's climate agenda is guided by a platform he calls "green transformation" or GX



Kishida in Action

Three GX Promotion Council meetings held so far with the aim of:

- ◆ Creating a traded, national **carbon price** (FY26)
- ◆ Reviving **nuclear** sector
- ◆ Monitoring consumer impact from energy prices and introducing subsidies

Future developments:

- ◆ Attract **150 trillion yen** for GX over 10 years
- ◆ GX Economic **Transition Bonds**: 20 trillion yen
- ◆ Set up route-to-market fund
- ◆ Bind Japan's strategy to those of other **Asian** nations
- ◆ **10-Year GX Strategy**



It's a (Brave?) New World

- Coal prices paid by Japanese importers +270% YoY (August)
- LNG prices for the same +142% YoY
- Supply shocks: Russia, gas accidents, OPEC
- Japan power prices - double the 5y avg.
- Yen at 32-year low
- Consumer inflation at 33-year high
- BoB inflation is at 9%, rising YoY for 18 straight months
- National trade deficit hit a record low of minus 2.8 trillion yen



What Japan Cannot Offer

- Further NDC tightening
- Accelerated exit from coal
- Standard “net-zero” plan
- Support for RE100
- End to energy subsidies
- End investment in fossil fuels

Key challenges for renewables expansion	
① Intermittency	<ul style="list-style-type: none"> ➢ Solar and wind are intermittent in nature and need adjustable electricity sources to keep balance between demand and supply of electricity. Currently, thermal power plants and pumped-storages are the major backup sources. ➢ <u>Lack of adjustable electricity sources will prevent expansion of renewables, while power companies are increasingly reluctant to keep idle thermal PPs.</u> ➢ Decarbonation of thermal power plants (hydrogen, batteries, Thermal with CCUS/Carbon Recycle, biomass, demand response, etc.) needs to be pursued.
② Securing Grid Capacity	<ul style="list-style-type: none"> ➢ <u>Long distance between areas with renewable potential (e.g. Hokkaido) and electricity demand areas (e.g. Tokyo) increases the transmission costs.</u> ➢ Examining measures to enhance grid connections with relevant cost-benefit analysis is important.
③ Securing Grid Stability (Inertia)	<ul style="list-style-type: none"> ➢ <u>Intermittent renewables do not provide inertia, which makes grid system vulnerable to accidents of power plants and increases blackout risks.</u> ➢ Developing technologies to provide artificial inertia and their smooth deployment is important.
④ Geographical and social constraints	<ul style="list-style-type: none"> ➢ <u>Japan has limited land and sea areas compared to its electricity demands.</u> Farmlands and fishery areas are important for Japan’s economy and societies. ➢ <u>Coordination with various stakeholders is essential to expand renewable energy deployment.</u>
⑤ Cost acceptance	<ul style="list-style-type: none"> ➢ Large investment is needed to expand renewables, as the availability of land areas becomes constraints. ➢ <u>How to digest increasing costs and risks associated with the expansion of renewables is a big challenge for Japan.</u>

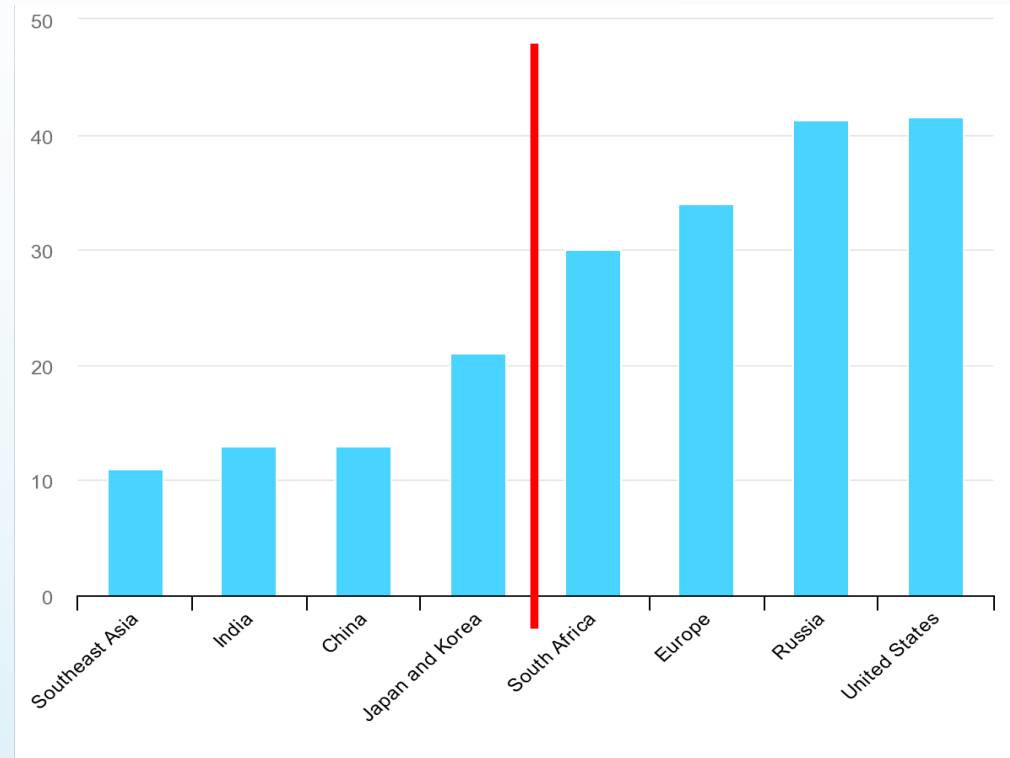
Source: METI

What Japan Can Offer

- Taxonomy rules *for Asia*
- Support for faster climate “aid”, now as the **NCQG**, esp. via credit trade / to regions of geopolitical interest (e.g. Africa, SE Asia)
- Regional support for **CCS** and **ammonia** co-firing
- Focus on **energy security**

“We want to speak on behalf of Asia”

Average age of existing coal power plants



Source: IEA

Japan Believes in a Localized Net-Zero



Different Approaches towards Carbon Neutrality

- All countries need to accelerate their efforts to aim for Carbon Neutrality.
- Although the goal (=CN) is the same, there are various transition pathways, and a country must find realistic and well-tailored pathways in accordance with its situations.
- Combination of early CFP retirement and accelerated deployment of renewables could be costly for many Asian countries.
- Asia needs to examine various pathways, be open to all technologies and energy sources, create innovations and cooperate and engage each other to pursue CN.

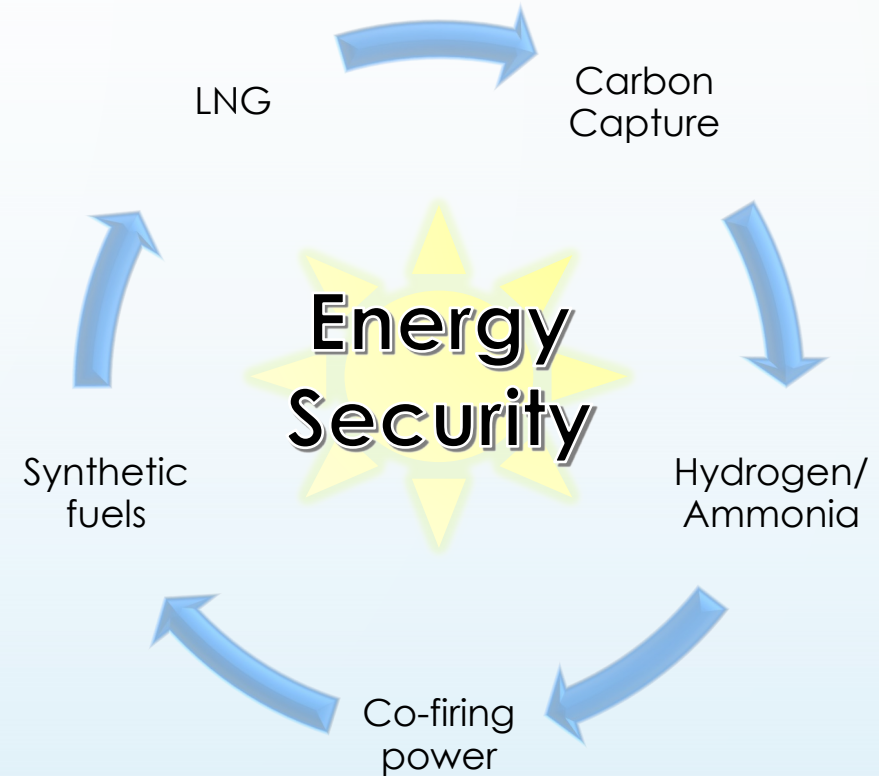
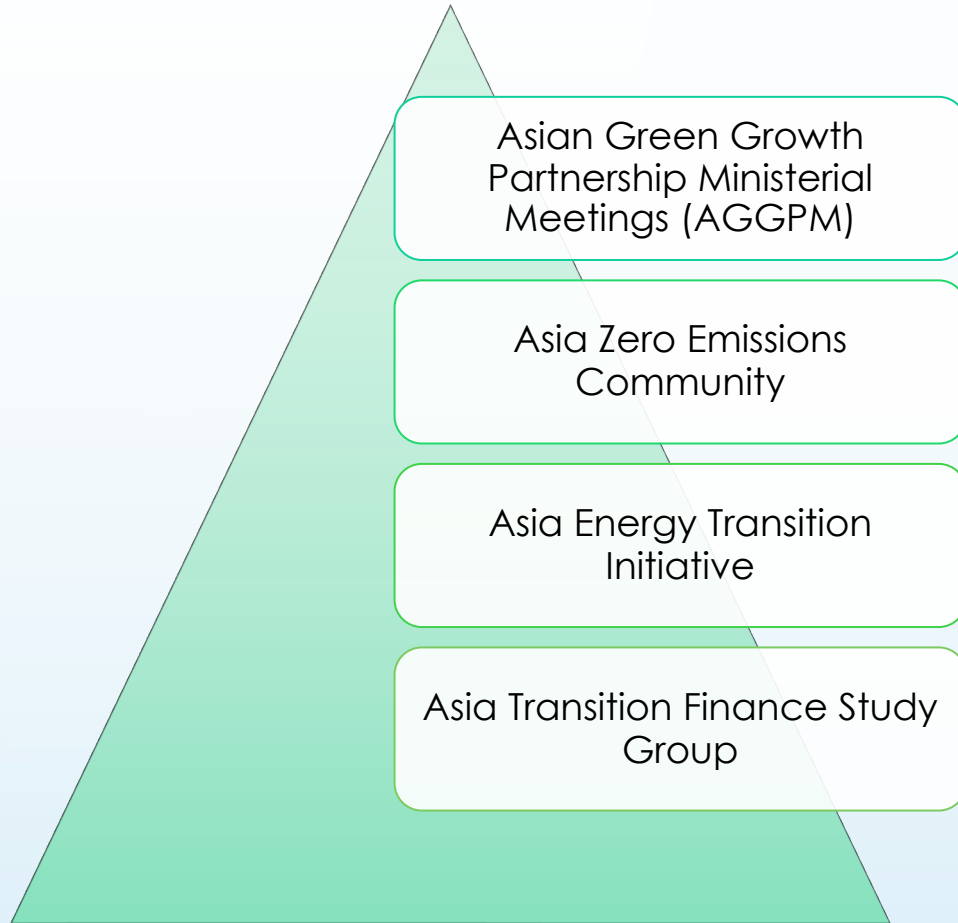
Situations in Europe

- Rich in renewable resources
- Wide and well-connected grid networks
- CFPs are old and disposable
- Abundant cheap gas supply by pipeline
- Nuclear is available
- Flat electricity demand

Situations in Asia

- Limitation in commercially-viable renewables
- Small grid size with limited interconnection
- CFPs are mostly new and not yet depreciated
- Depleting gas reserves
- Nuclear is not available for many countries
- Rapidly growing electricity demand

Japan's Multifocal Roadmap for Asia





For Further Inquiries

Japan NRG looks forward to providing the market with timely and important information and analysis, as well as building the community around energy in Japan.

Please contact us via info@japan-nrg.com for details.