

17 January 2019

Policy Seminar - EU-Japan Center for Industrial Cooperation

"EU and Japan Long-Term Climate Change Strategies"

Formulate a Long-term Reduction Strategy that Leads the World in the Decarbonization Process



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5 Pillars of Recommendation

1. Reinforcing Domestic Emissions Reduction Measures to Make Japan a Leading decarbonized Economy
2. Achieving Electricity Decarbonization with Renewables before 2050
3. Announcing it from Japan to Phase Out Coal-fired Power Plants
4. Decarbonizing Materials Industries
5. Early Implementation of Basic Rules for a Decarbonized Society

Japanese RE Target in 2030

- Less than half of the global standard level -

Target Country	GHG Emissions Reduction			Share of Renewable Energy Sources Electricity
	2030	2050	Base Year	
Germany	(55%) (Interim Target)	(80~95%)	1990	<ul style="list-style-type: none"> • 55-60% (by 2035) • More than 80% (by 2050)
UK	(57%) (The 5 th Carbon Budget :2028-2032)	More than (80%)	1990	<ul style="list-style-type: none"> • 30% (by 2020)
France*	(40%)	(75%)	1990	<ul style="list-style-type: none"> • 40% (by 2030)
EU*	(40%)	(80~95%)	1990	<ul style="list-style-type: none"> • 32% of final energy consumption (by 2030) • RE: More than 50%
US	(26~28%) (In 2025)	More than (80%)	2005	California <ul style="list-style-type: none"> • 60% (by 2030), 100% (by 2045) New York <ul style="list-style-type: none"> • 50% (by 2030) Hawaii <ul style="list-style-type: none"> • 100% (by 2045)
Japan	(26%)	(80%)	FY 2013	<ul style="list-style-type: none"> • 22-24% (in FY 2030)

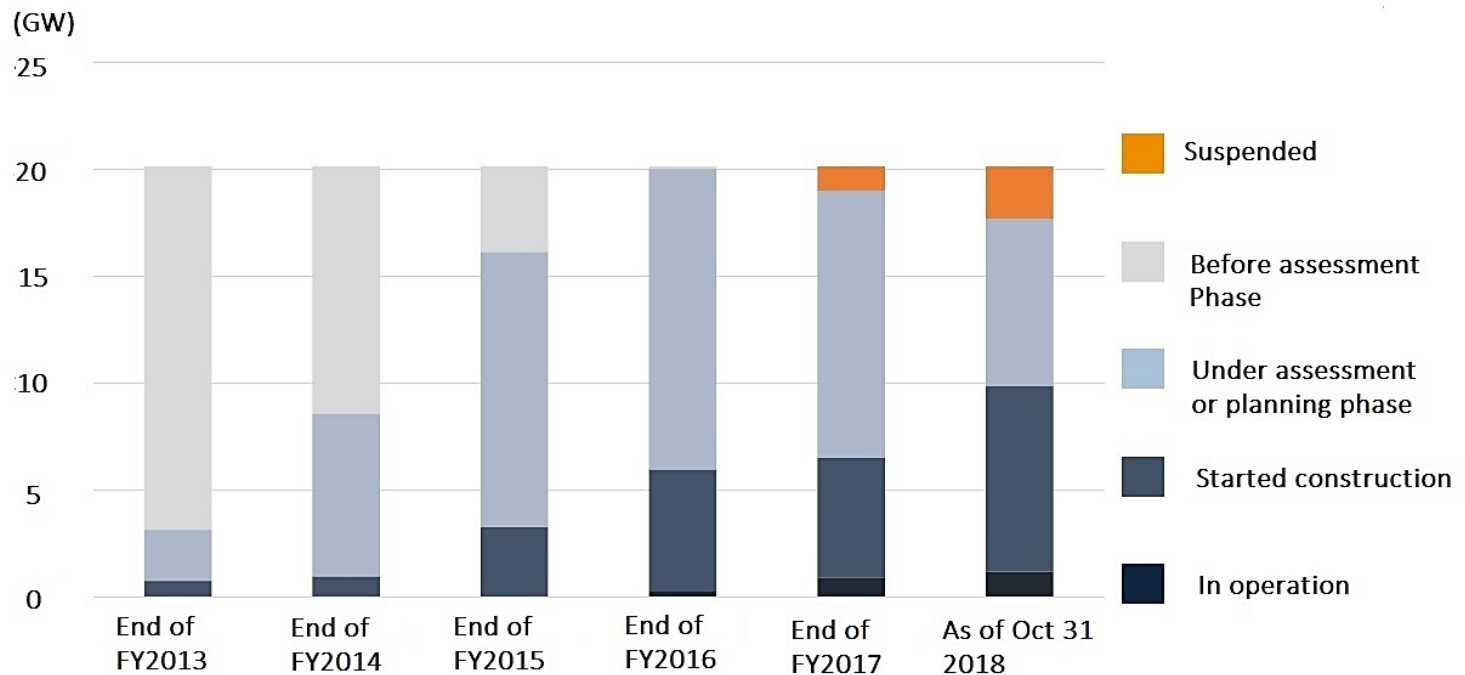
Remarks : In November 2018, the European Commission presented a long-term strategy for a climate neutral by 2050 and also, the French Government released a draft of revised long-term strategy aiming to become carbon neutral in 2050.

Coal-fired Power Plants in Japan

- Planning & construction are still ongoing -

- The 5th Strategic Energy Plan states that electricity supply in Japan will continue to rely on coal power more than 25% even in 2030.
- At present, 16.8GW projects are underway for new construction. Of them, 8.8GW projects have already started construction.

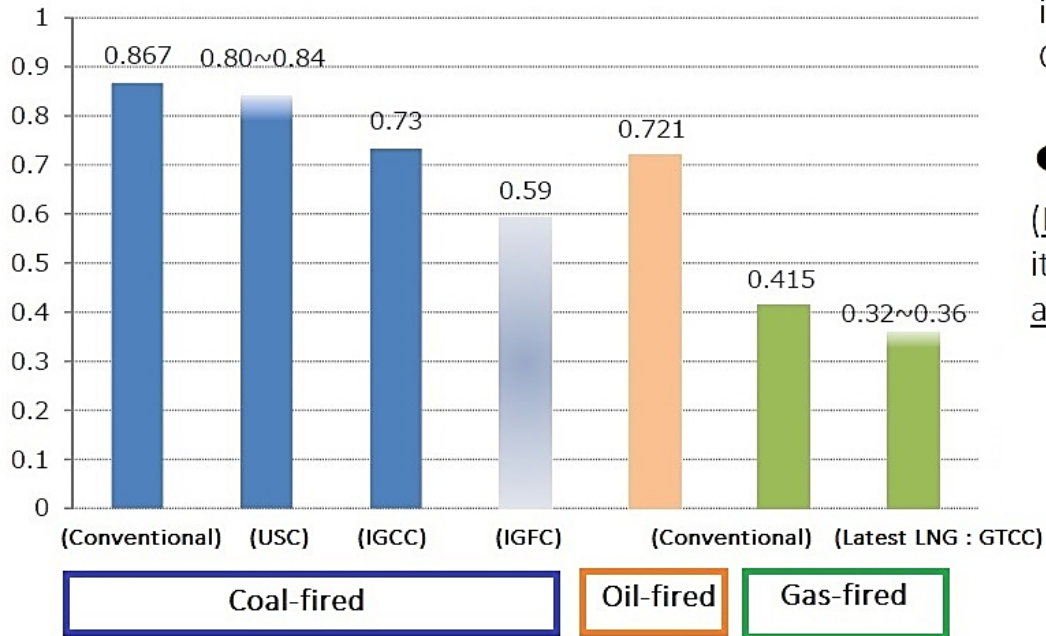
Recent Trends of Coal-fired Power Plant Development Plans in Japan



“State of the Art” coal-fired emit more than double amt of CO₂ relative to natural gas power plants

CO₂ Emission Factor of Fossil Fuel Power Plants

Emission Factor(kg-CO₂/kWh)



- Coal-fired plants emit 0.730 - 0.867kg, in contrast, LNGs emit 0.320 - 0.415kg of CO₂ per 1kWh generaton.
- Even high-efficient coal (IGFC in demonstration phase), its emission factor is 0.59kg-CO₂ /kWh, or approx. twice as much as the lateset LNG(GTCC).

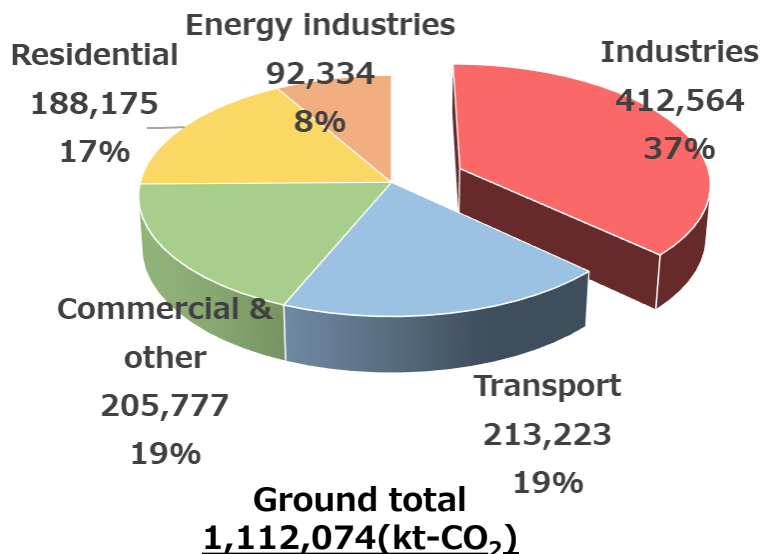
* IGFC :
 - Demonstration phase would be completed around 2021
 - Commercialization target is 2030's

CO₂ Emission Sources in Japan

- Materials Industry is the Dominant Sector-

- In FY2017, Japan's total GHG emissions were 1,294 Mt-CO₂e.
- Among them, CO₂ emissions derived **from fuel combustion** were 1,112 Mt-CO₂ or **86%** of total GHG emissions.
- The dominant core was **industrial sector**, which share amounted **37%**.
- Notably, **materials industry** such as iron and steel emitted **26% of CO₂** in Japan.

CO₂ Emissions from Fuel Combustion
(FY 2017, after allocation of power & heat)

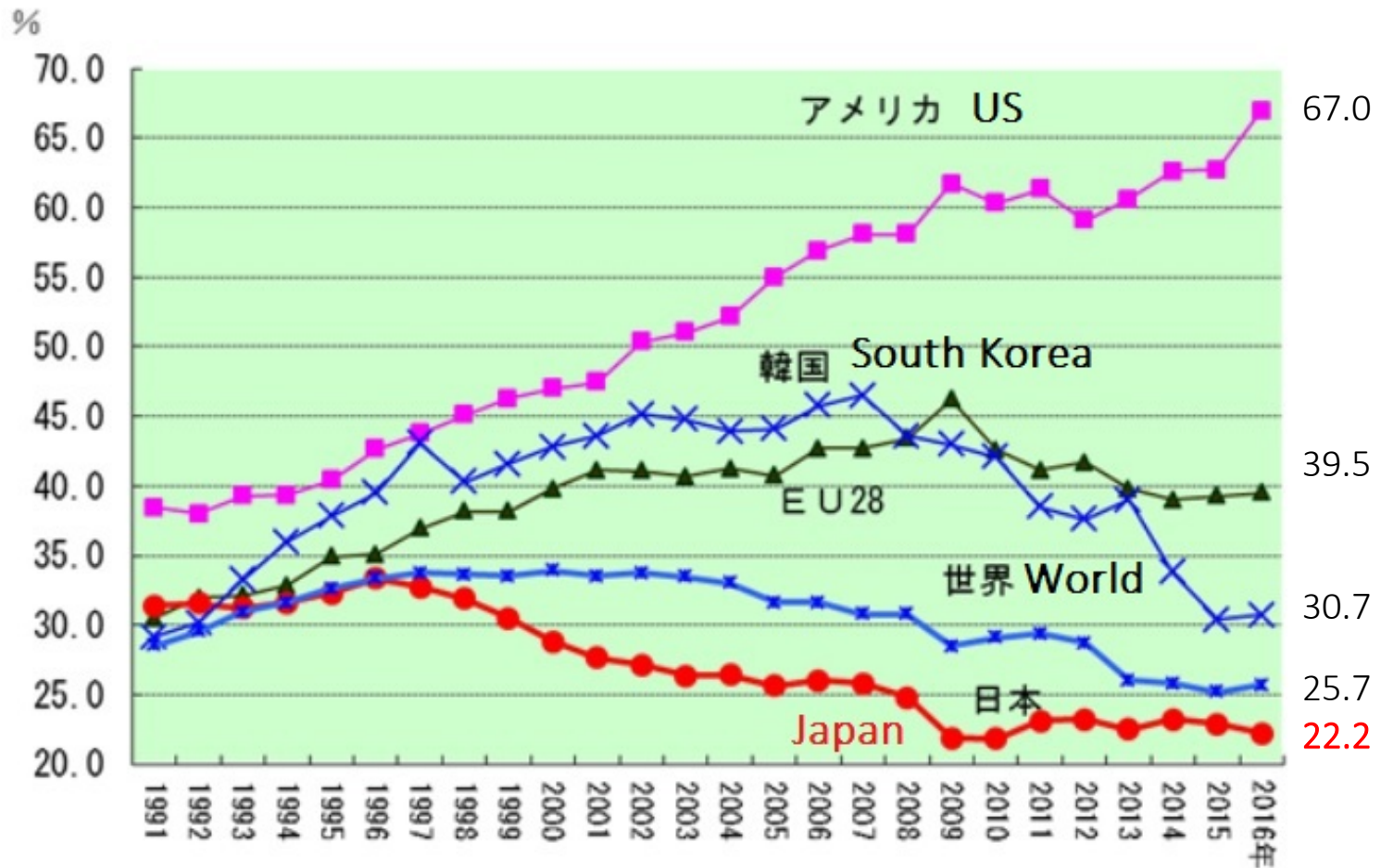


Sectoral breakdown	kt-CO ₂	Share in industrial sector	Share in ground total
Agriculture, forestry, fishing, mining and construction	26,536	6%	2%
Manufacturing industries Sub total	386,028	94%	35%
Food processing, beverages	20,936	5%	2%
Textile	8,790	2%	1%
Pulp, paper and paper products	22,999	6%	2%
Chemicals	61,717	15%	6%
Ceramic, stone and clay products	31,493	8%	3%
Iron and steel	163,388	40%	15%
Non-ferrous metals	8,897	2%	1%
Machinery	50,330	12%	5%
Other manufacturing industries	17,478	4%	2%
Industrial Sector Total	412,564	100%	37%
Ground Total	1,112,074	-	100%

**26% by
4 sectors**

Iron and Steel Industry in Japan - Low EAF Share -

* EAF : Electric Arc Furnace

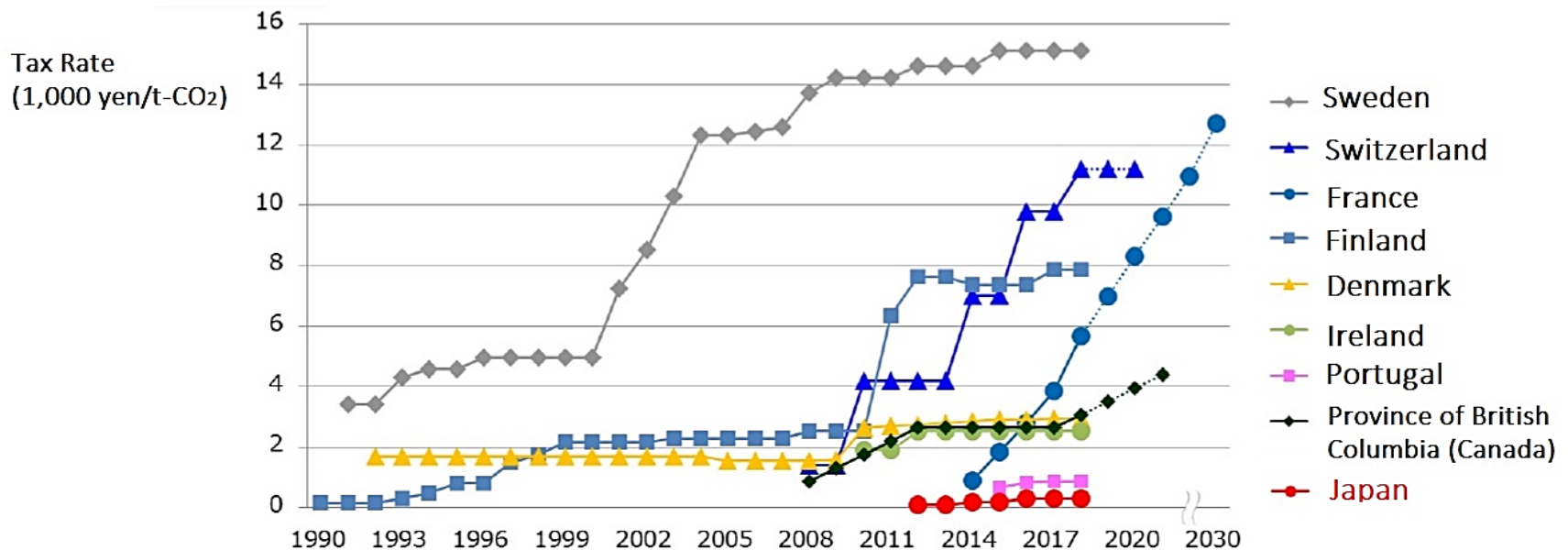


Carbon Tax Rate in Japan - Extremely Low Level -

Carbon Tax Rate Comparison among Main Implemented Countries

- * Tax rate has increased in most of the countries below.
- * The Government of France has large rate increase plan for mid and long-term.
- * In Japan, tax rate increase has already completed in April 2016 for "Climate Change Mitigation Tax". However, it remains in fairly low level relative to other countries.

Trend and Outlook of Carbon Tax Rate in Main Implemented Countries



Cost for Coal Usage in Japan

- Only one-fifth compared to natural gas -

Domestic tax rate for each fuel per t-CO₂ emission (Incl. fuel price itself)

