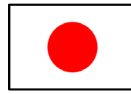


Biomass Power Project in Vietnam utilizing JCM (Joint Crediting Mechanism)



Note: JCM (Joint Crediting Mechanism)

Ministry of the Environment, Japan has been implementing the Subsidy Programme for the JCM Facility Introduction, which provides financial support of up to a 1/2 of the initial investment cost for projects. Representative participants in the Projects shall conduct measurement, reporting, and verification (MRV) of GHG emission reductions.

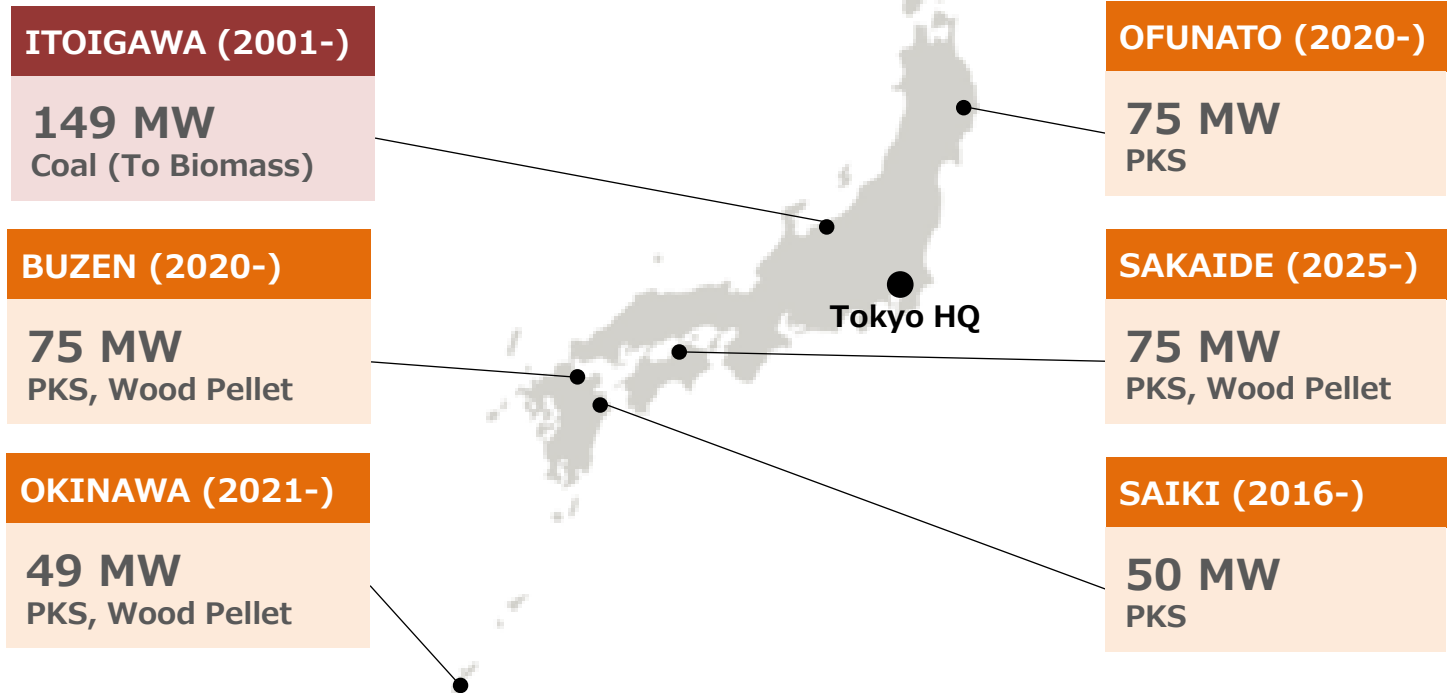


erex Co., Ltd.

Headquarter	Tokyo, Japan
Established	1999
Employee	350
Business Field	Biomass Fuel Trading Power Generation Electricity Retailing

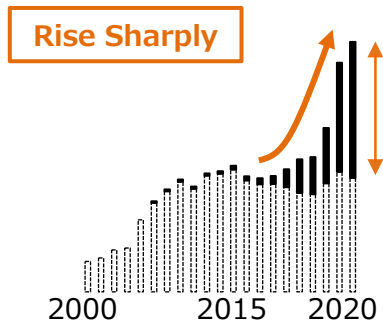


erex Power Plant in Japan **473 MW**

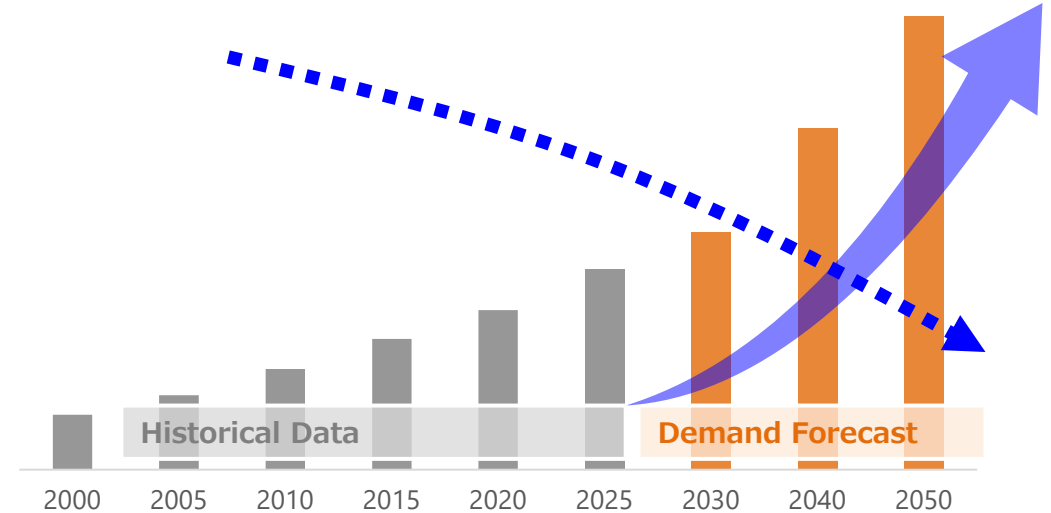
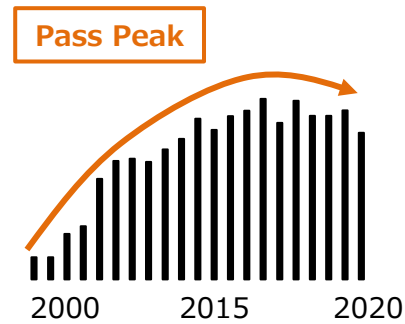


- ✓ Increasing **Electricity Demand** in Southeast Asia.
- ✓ Reducing **Energy Self-Supply Ratio**.

Coal Import



Gas Production



Biomass Power is the best solution.

Stable Power Source

- ✓ Increase **Domestic Energy Supply**.
- ✓ **Stable Power Supply** regardless of Weather Conditions.

Carbon Neutral

- ✓ **Carbon Neutral Energy**.
- ✓ **Huge Biomass Resources** in Southeast Asia.

Job Creation

- ✓ Increase **Farmer Revenue**.
- ✓ Increase **Employment** for Fuel business, logistics and Plant O&M.



- ✓ Northern part is covered in **Forests**.
- ✓ Southern part is a **Rice Agriculture Area**.
- ✓ **Coal Mining** are located in North.

Moisture: **50** %
LHV: **1,900** kcal/kg



Forest Area

Coal Mining Area

Hanoi



Most "Coal Fired Power" located in North

Moisture: **10** %
LHV: **3,200** kcal/kg
High **Ash** and **Si**.

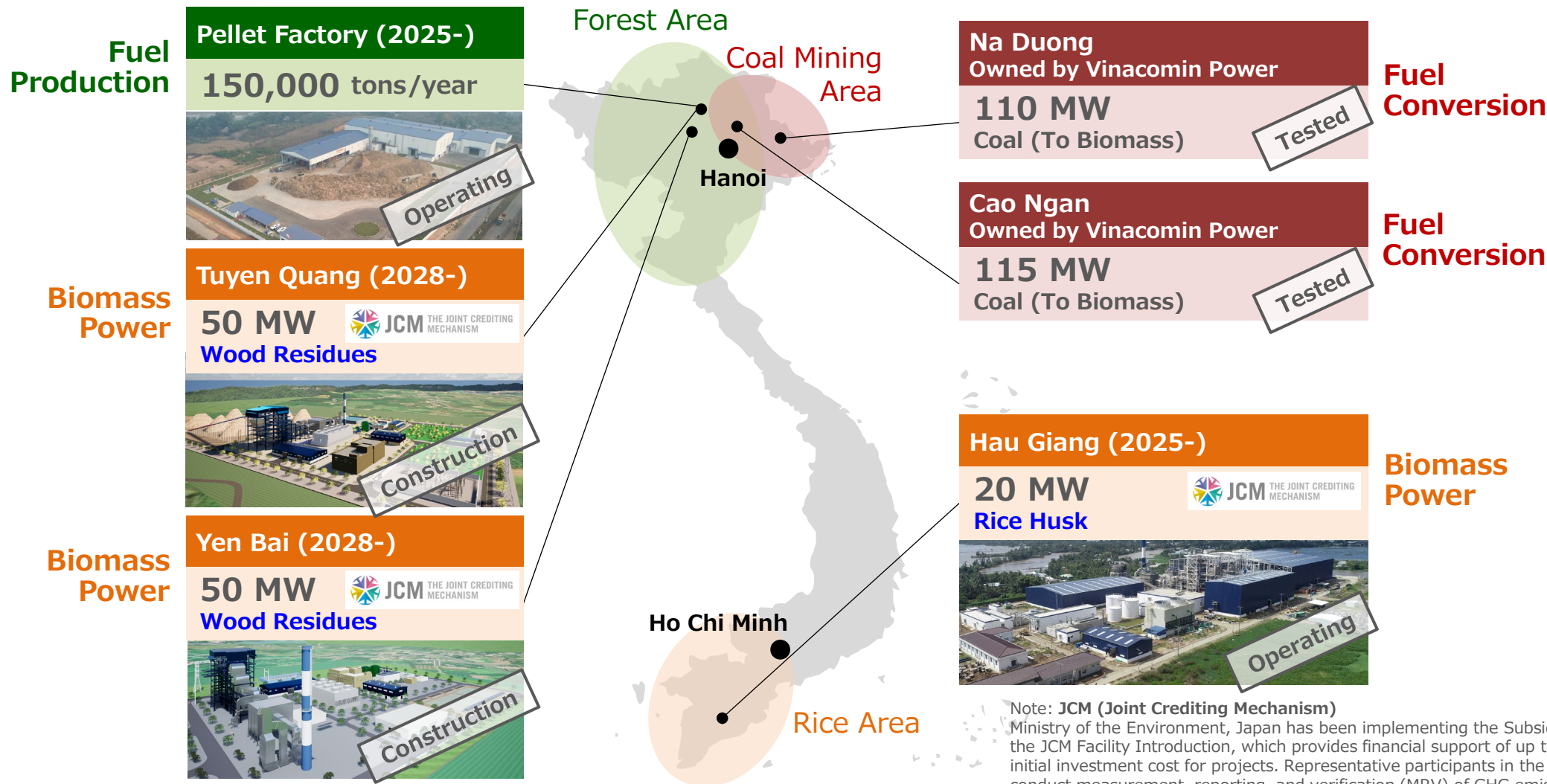


Ho Chi Minh

Rice Area



- ✓ **3 Power Projects** with “Subsidy Programme for the JCM Facility Introduction”.
- ✓ **1 Fuel Production Project.**
- ✓ **Fuel Conversion** of Coal Fired Power.
- ✓ **North : Wood Residues , South : Rice Residues.**

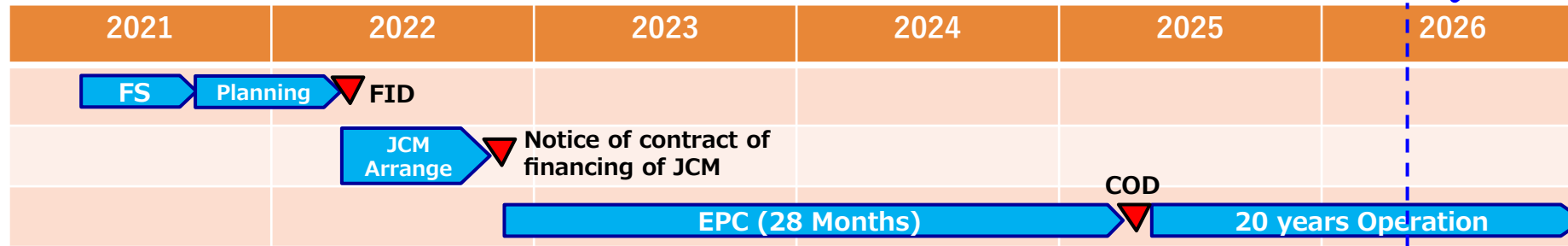


Note: JCM (Joint Crediting Mechanism) Ministry of the Environment, Japan has been implementing the Subsidy Programme for the JCM Facility Introduction, which provides financial support of up to a 1/2 of the initial investment cost for projects. Representative participants in the Projects shall conduct measurement, reporting, and verification (MRV) of GHG emission reductions.

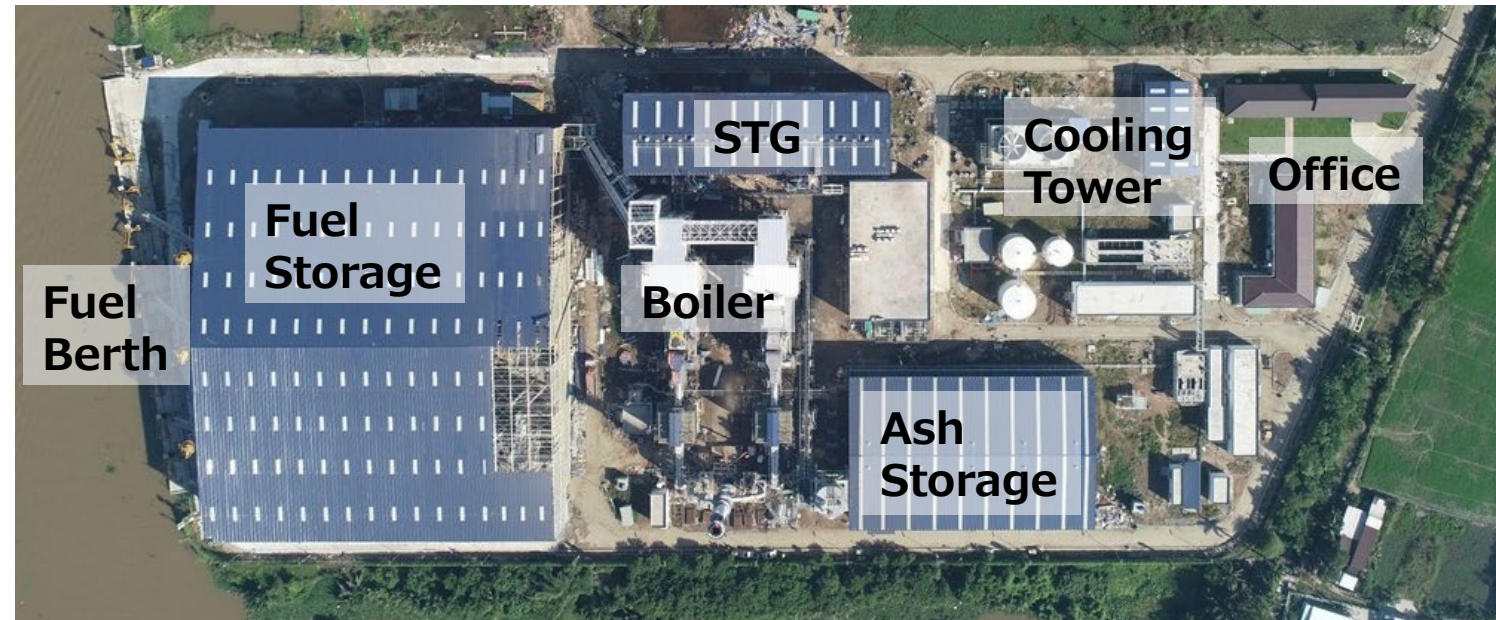
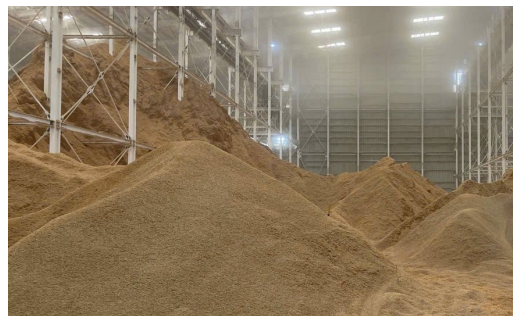
Hau Giang Biomass Power (20MW)

- ✓ **First Commercial Biomass Power Plant in Vietnam.**
- ✓ **"Subsidy Programme for the JCM Facility Introduction"** from the Japanese Government.

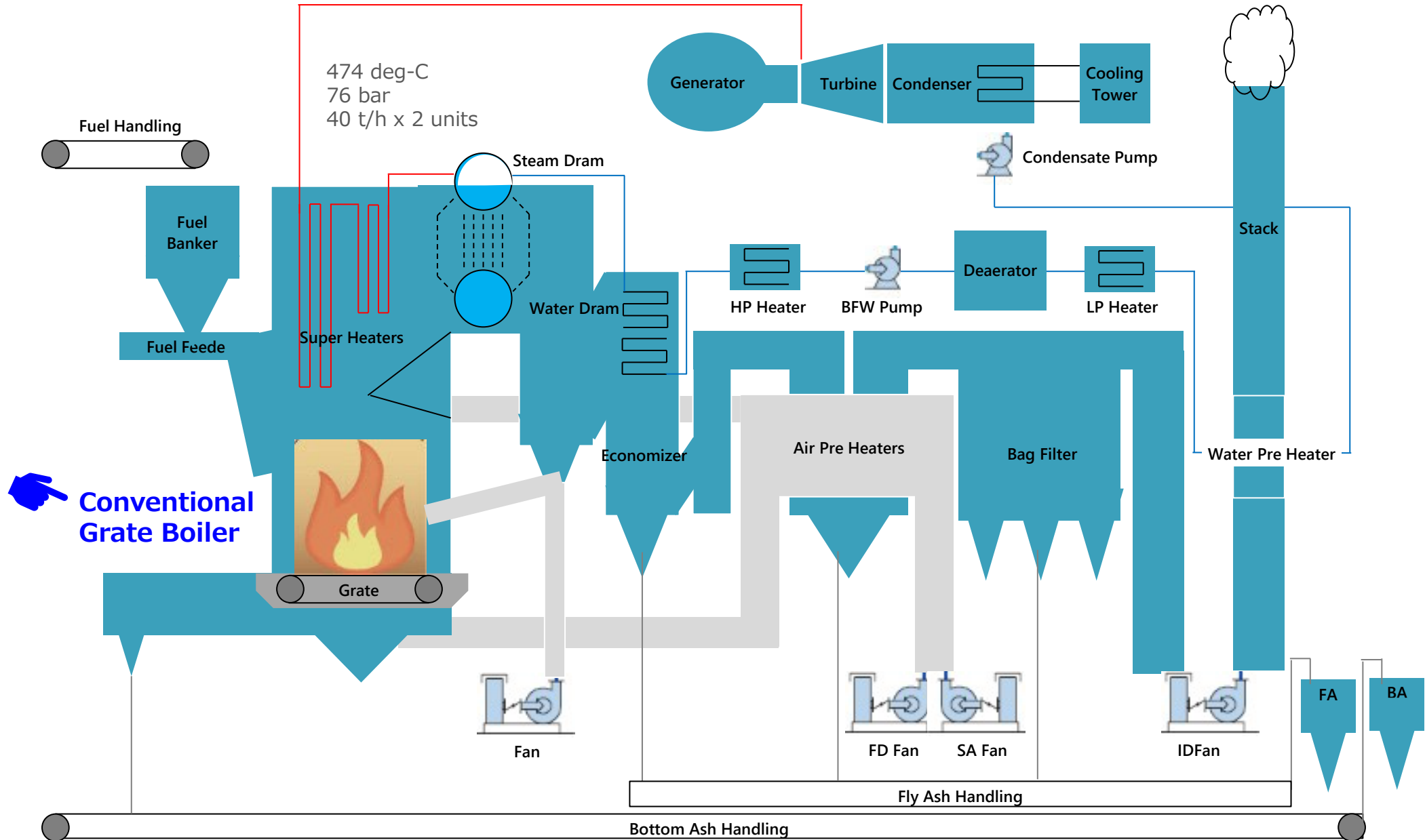
Capacity	20 MW
Fuel	Rice Husk (130,000 tons/year)



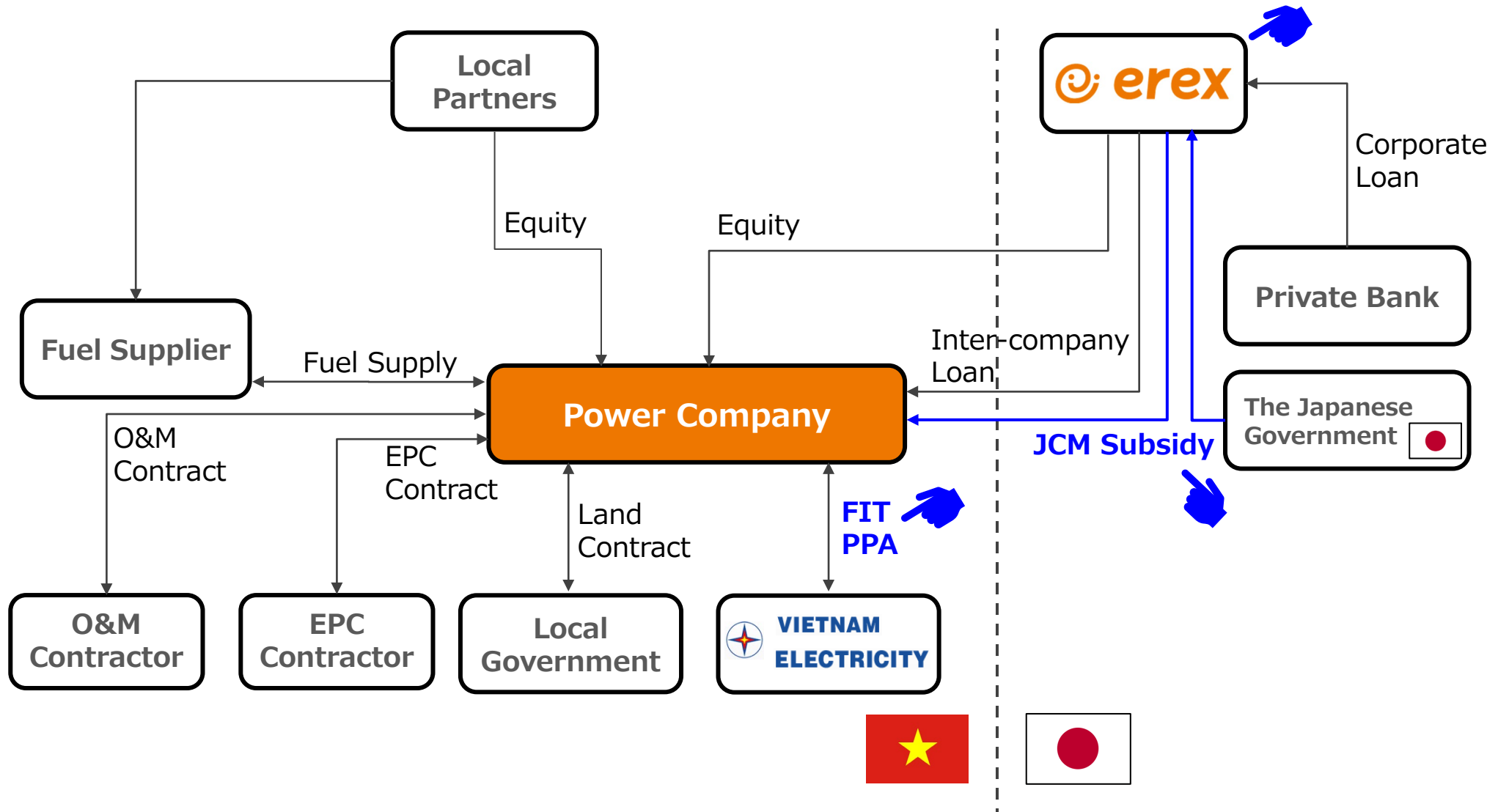
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Conventional Technology in Hau Giang Plant

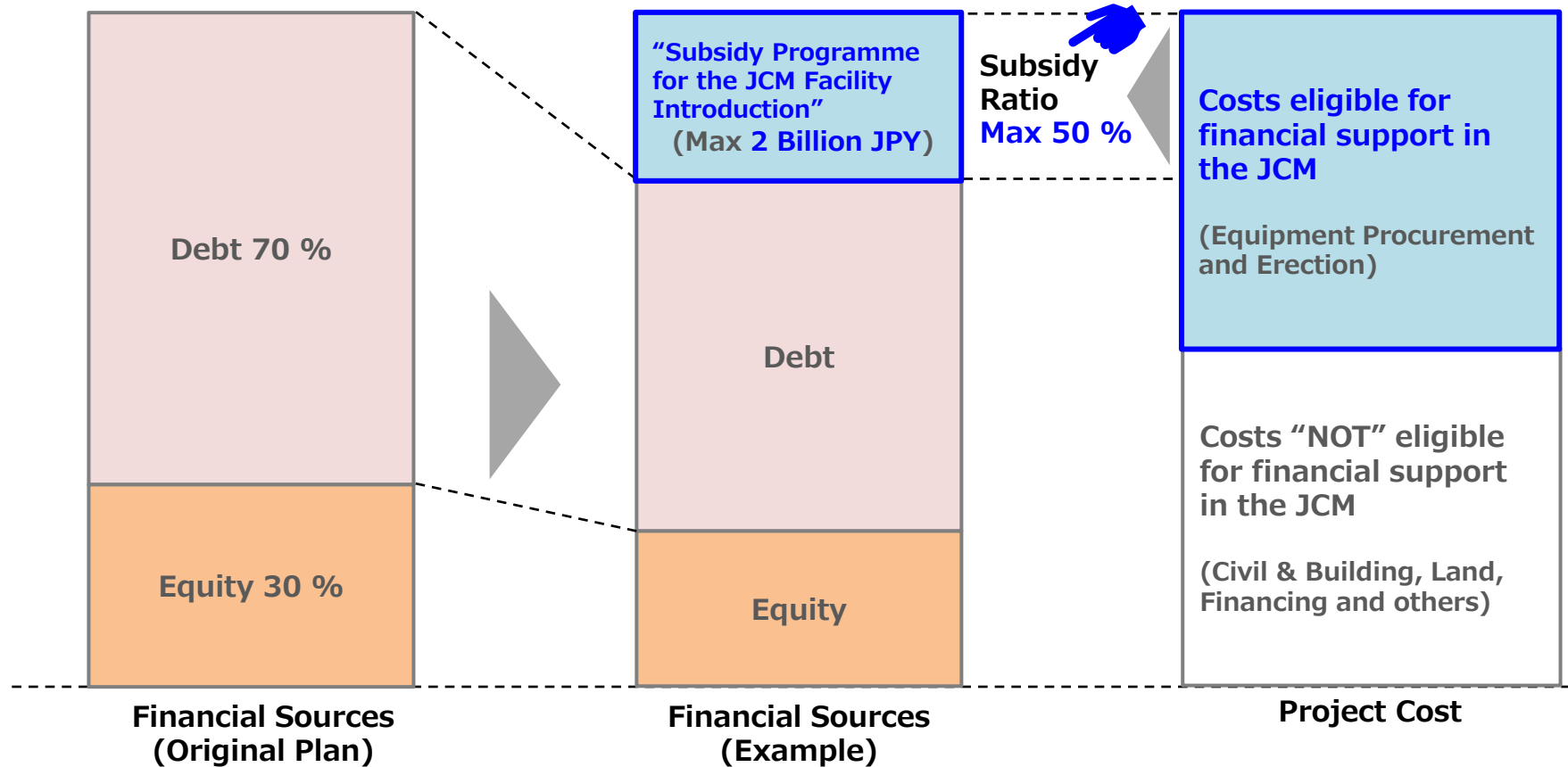


- ✓ “Subsidy Programme for the JCM Facility Introduction” can be applied and received by Japanese Company.
- ✓ Signed FIT PPA with Low Price (¢ 8.47 /kWh).

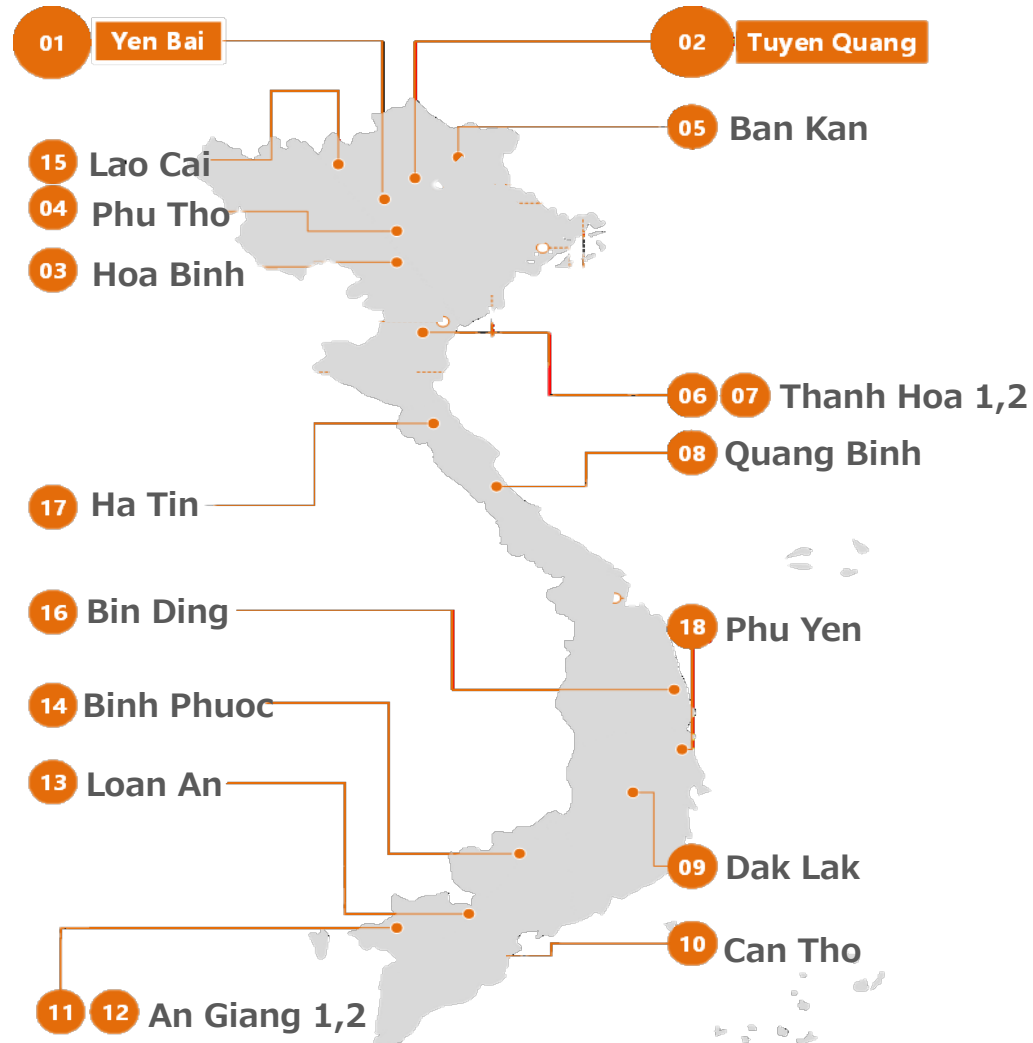


Improvement of Feasibility by JCM Scheme

- ✓ Applicable for **Equipment portion only** (related to CO2 reduction).
Maximum ratio : **50 %**, Maximum amount : **2 billion JPY**.
- ✓ Improvement of the Financial Sources.
- ✓ Produce the **Carbon Credit** as an additional revenue.



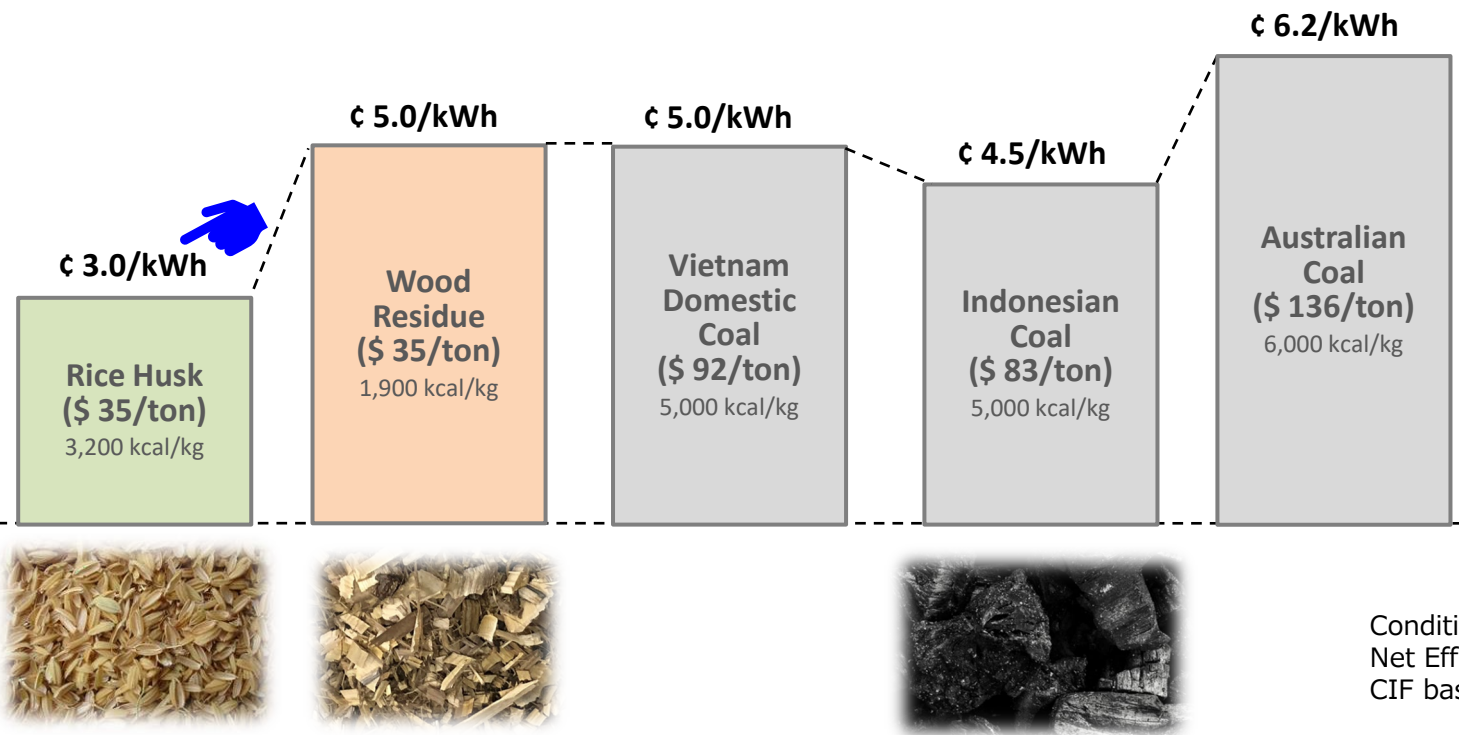
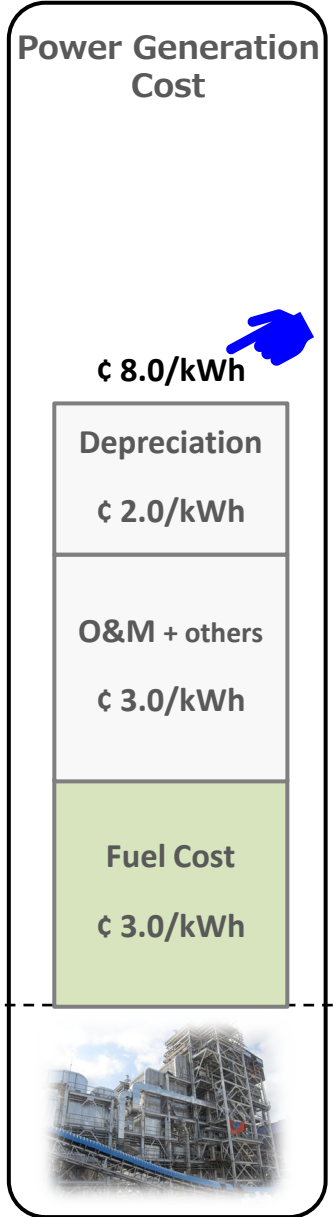
✓ Developing **18 Projects** with over **1100 MW**, if feasible.



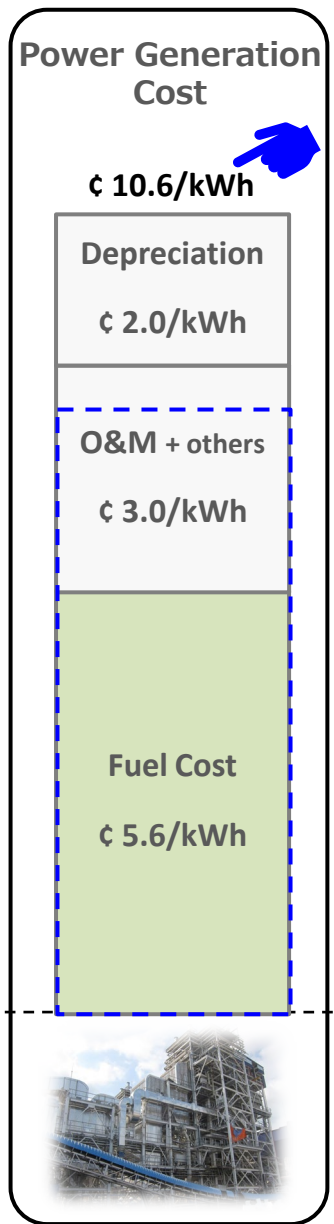
Projects	
1	Yen Bai
2	Tuyen Quang
3	Hoa Binh
4	Phu Tho
5	Bac Kan
6	Thanh Hoa 2
7	Thanh Hoa 1
8	Quang Binh
9	Dak Lak
10	Can Tho
11	An Giang 1
12	An Giang 2
13	Long An
14	Binh Phuoc
15	Lao Cai
16	Bin Ding
17	Ha Tin
18	Phu Yen

Fuel Cost in Vietnam (2024 to 2025)

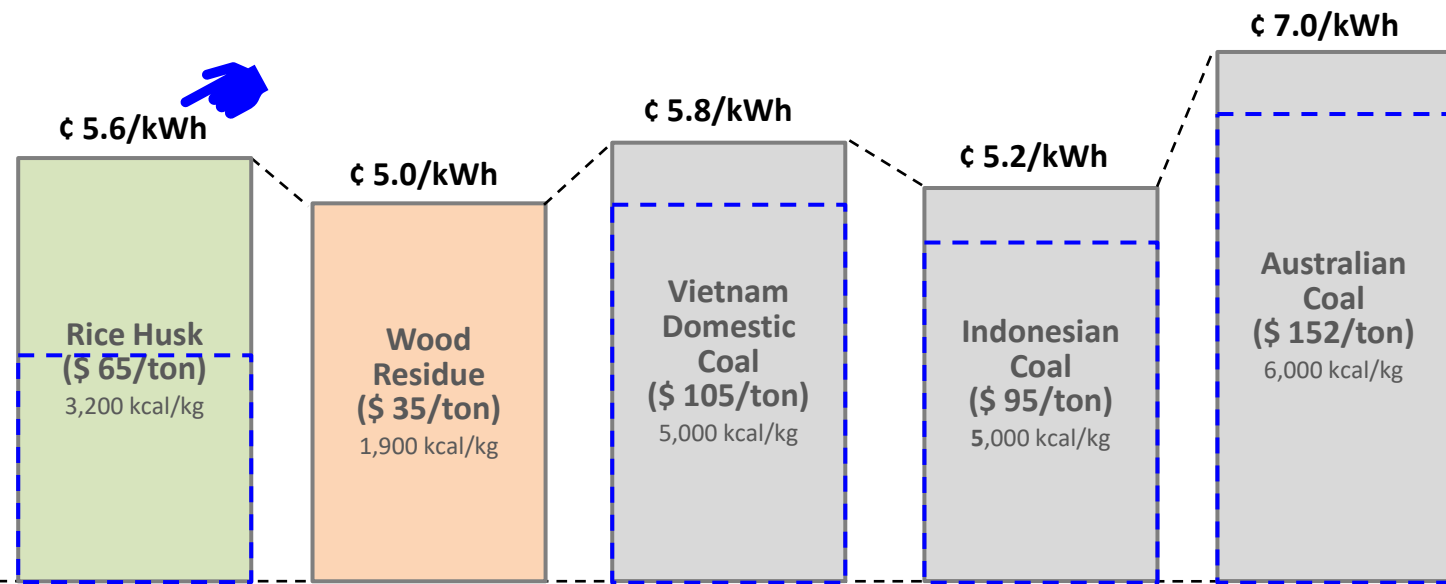
- ✓ Biomass Fuel cost is the **same as Coal cost**.
- ✓ **Rice Husks** are the most competitive in the past.



Conditions:
Net Efficiency 31.5%
CIF basis.

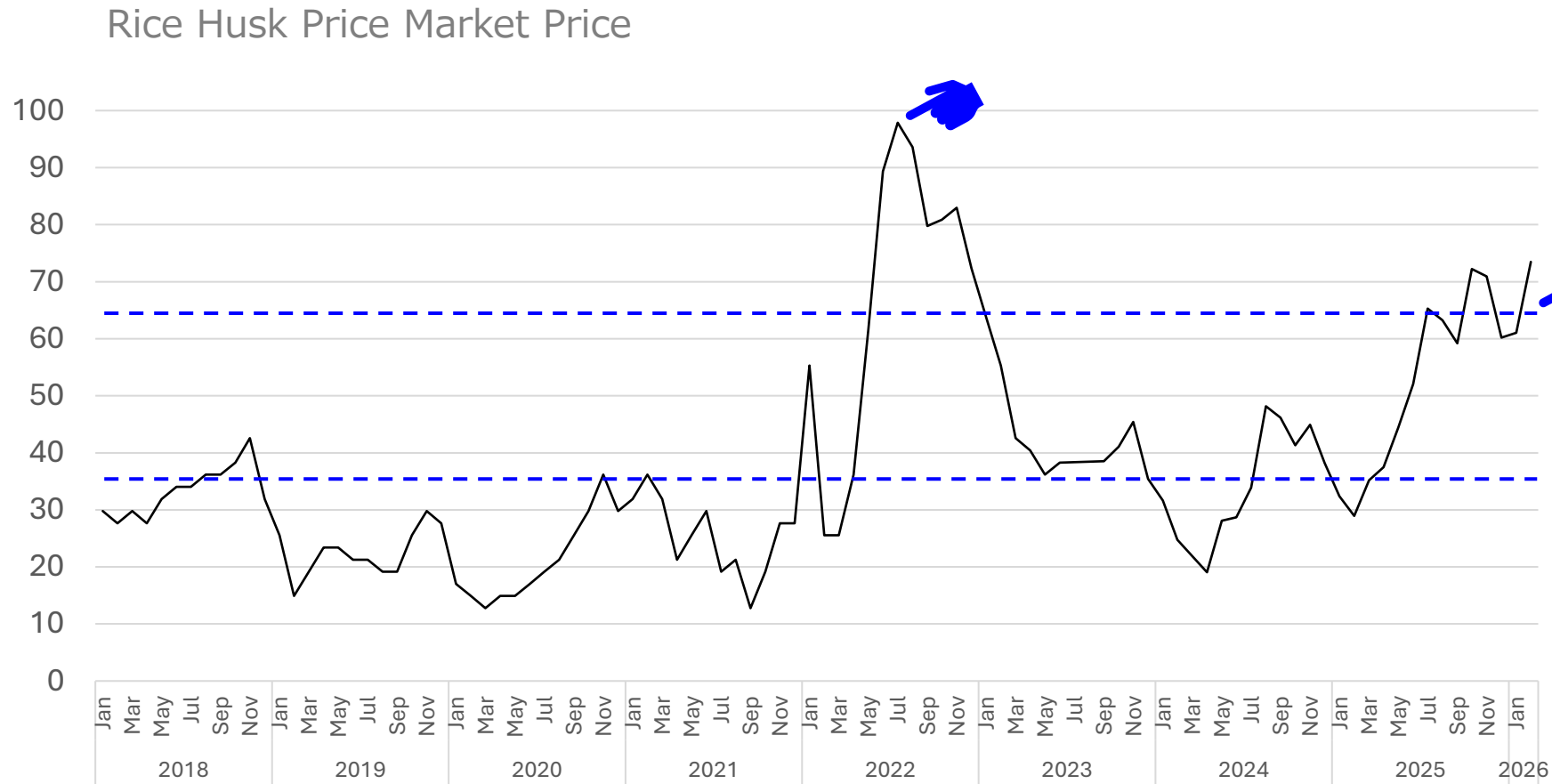


- ✓ **Raised Coal price** due to Middle East situations.
- ✓ **Raised Rice Husk price** due to the change in Rice market.
But **Biomass Fuel price is not significantly changed** in general.
- ✓ **Biomass Fuel is still competitive.**
- ✓ **But FIT (¢ 8.47/kWh) Price is un-reasonable.**



Conditions:
Net Efficiency 31.5%
CIF basis.

✓ Biomass Electricity Price to be **adjusted by fuel price fluctuation in the regulation.**



Fuel Conversion in Coal Fired Plants

- ✓ **20 years operated** Coal Fired Plant must start the **co-firing**, by Gov't Policy.
- ✓ Signed the **MOU** for Co-firing promotion with **Vinacomin Power**, in 2022.
- ✓ **Co-firing Tests** has been conducted in 2025 and 2026.
- ✓ Accelerating the **Commercialization**.



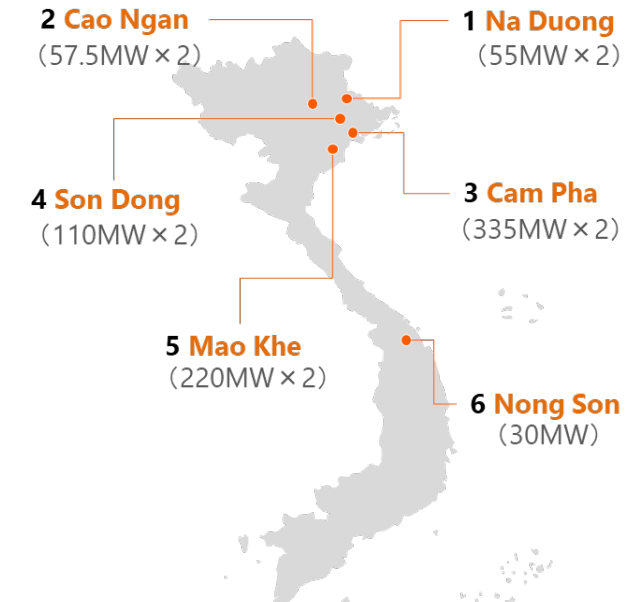
20% Co-firing in 2025
Wood Chip put on the Coal Conveyor.



30% Co-firing in 2026
Wood Pellet was mixed in the fuel yard.

Vinacomin Power Coal-fired Power Plant (Total 1585 MW)

	Plant	Boiler Type	Capacity	COD	Co-firing Test	
					Co-firing Ratio	Fuel Type
1	Na Duong	CFB	55 × 2	2005	20 %	Wood Chip
2	Cao Ngan	CFB	57.5 × 2	2007	30 %	Wood Pellet
3	Cam Pha	CFB	335 × 2	2011	Under Consideration	
4	Son Dong	CFB	110 × 2	2011	Under Consideration	
5	Mao Khe	CFB	220 × 2	2012	Under Consideration	
6	Nong Son	CFB	30 × 1	2015	Under Consideration	



Executive Summary

1. Biomass Power is the **Stable RE-Power** regardless of Weather Conditions.
2. Biomass Power can increase the **Domestic Energy Supply**.
3. **Biomass Fuel Type** to be Selected in consideration of the **Availability in the Region**.
4. **JCM Scheme** contributes to improve the **Project Feasibility**.
5. **Biomass Electricity Price** to be adjusted by Fuel Price Flactuation.
6. **CFB** Coal Fired Power Plants can **easily Convert Fuel** into Biomass.



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