

The 1st Workshop for APEC Initiative for Enhancing Quality of Electric Power Infrastructure

*for High Quality Electric Power Infrastructure Procurement
from the perspective of Technology & Product Supplier*

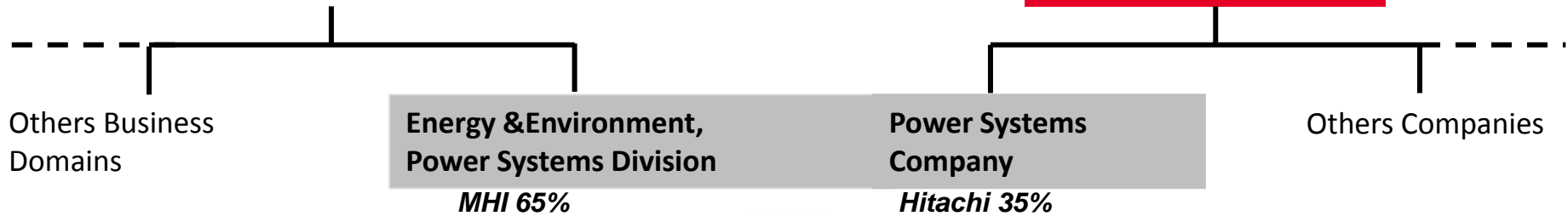
August 25, 2015

Masafusa Atsuta



MITSUBISHI HITACHI POWER SYSTEMS, LTD.

Establishment of MHPS



*Thermal Power Generation systems of
"Mitsubishi Heavy Industries" and "Hitachi",*

*are integrated on February 1, 2014 .
Now known as*



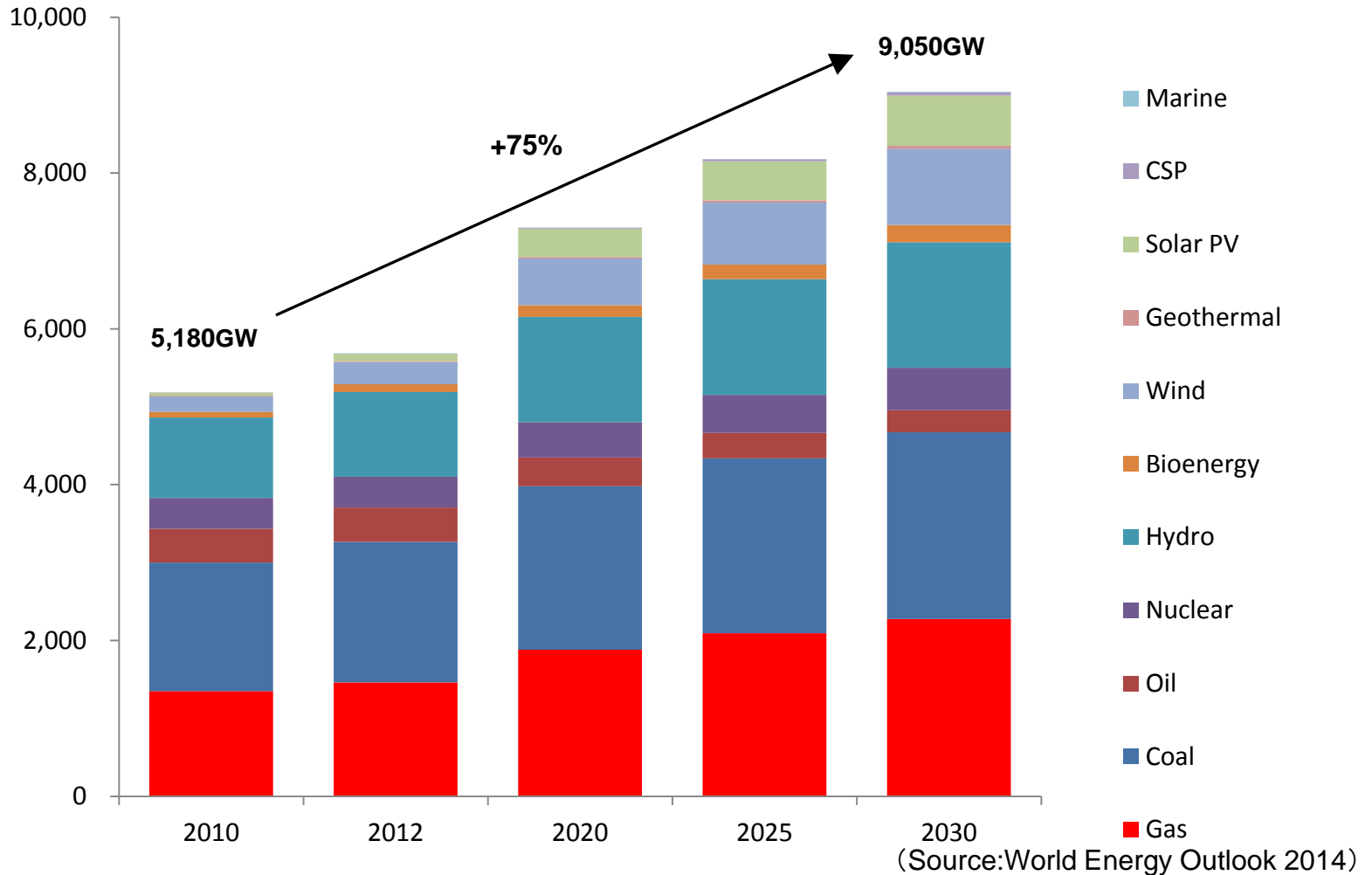
Employee approx. 23,000
(incl. 7,600 outside
Japan)

MITSUBISHI HITACHI POWER SYSTEMS

Energy Outlook in the World



Gas and Coal fired thermal power plant plays important role as a Generating Asset





Products & Services



Gas Turbine Combined Cycle (GTCC) Power Plants



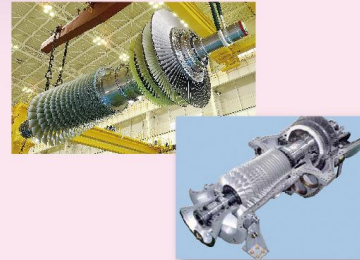
Integrated coal Gasification Combined Cycle (IGCC) Power Plants



Environmental Plants SCR (DeNO_x) Systems
Flue Gas Desulfurization



Gas Turbines



Boilers



Generators



Boiler & Turbine Generation Plants



Geothermal Power Plants



Steam Turbines



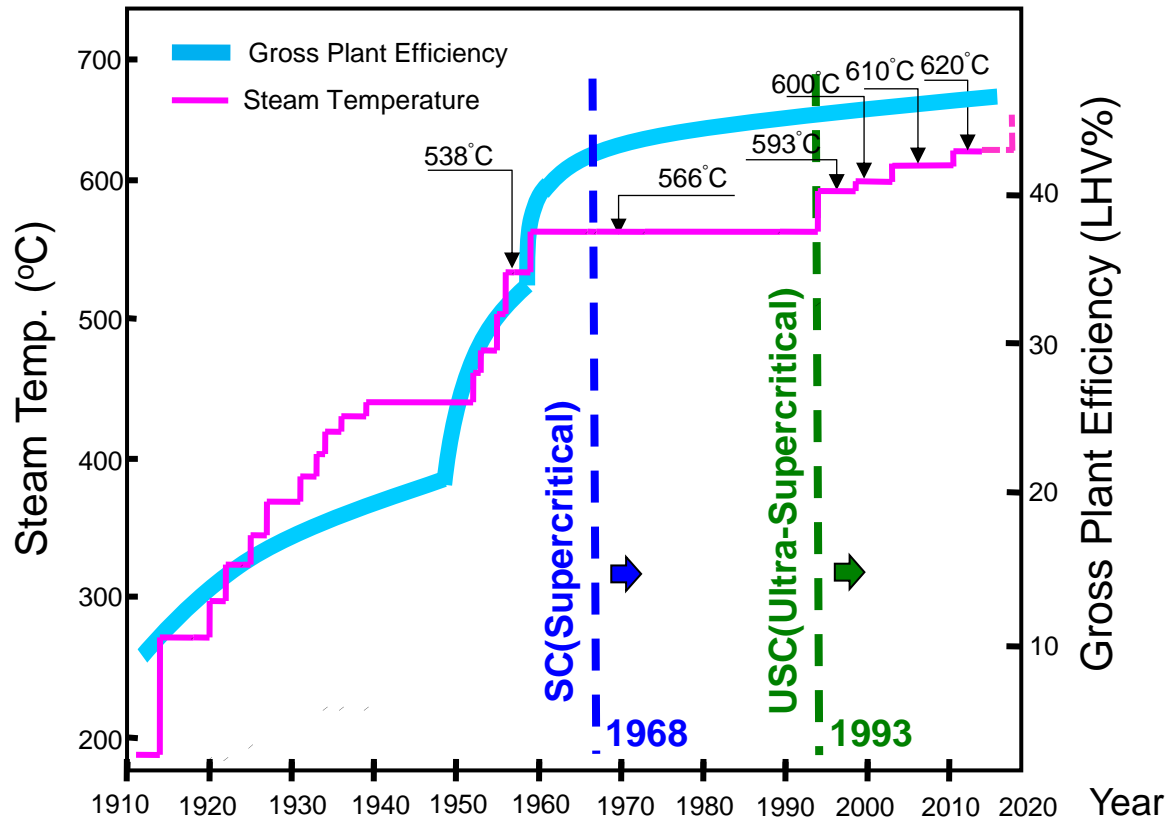
Power Generating Plant Peripheral Equipment



Efficiency vs Steam Condition for Coal Fired Plant



History of steam condition and thermal efficiency in Japanese thermal power plant

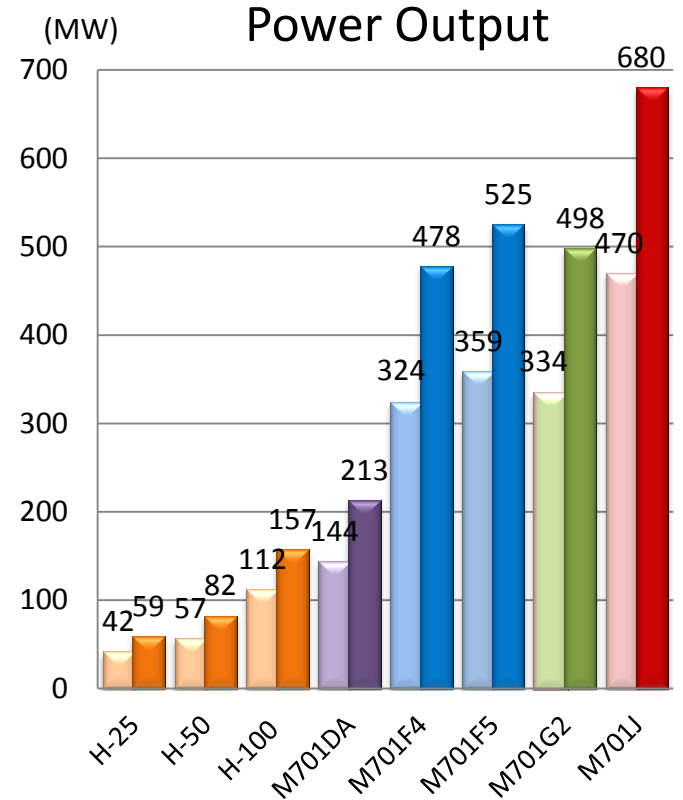
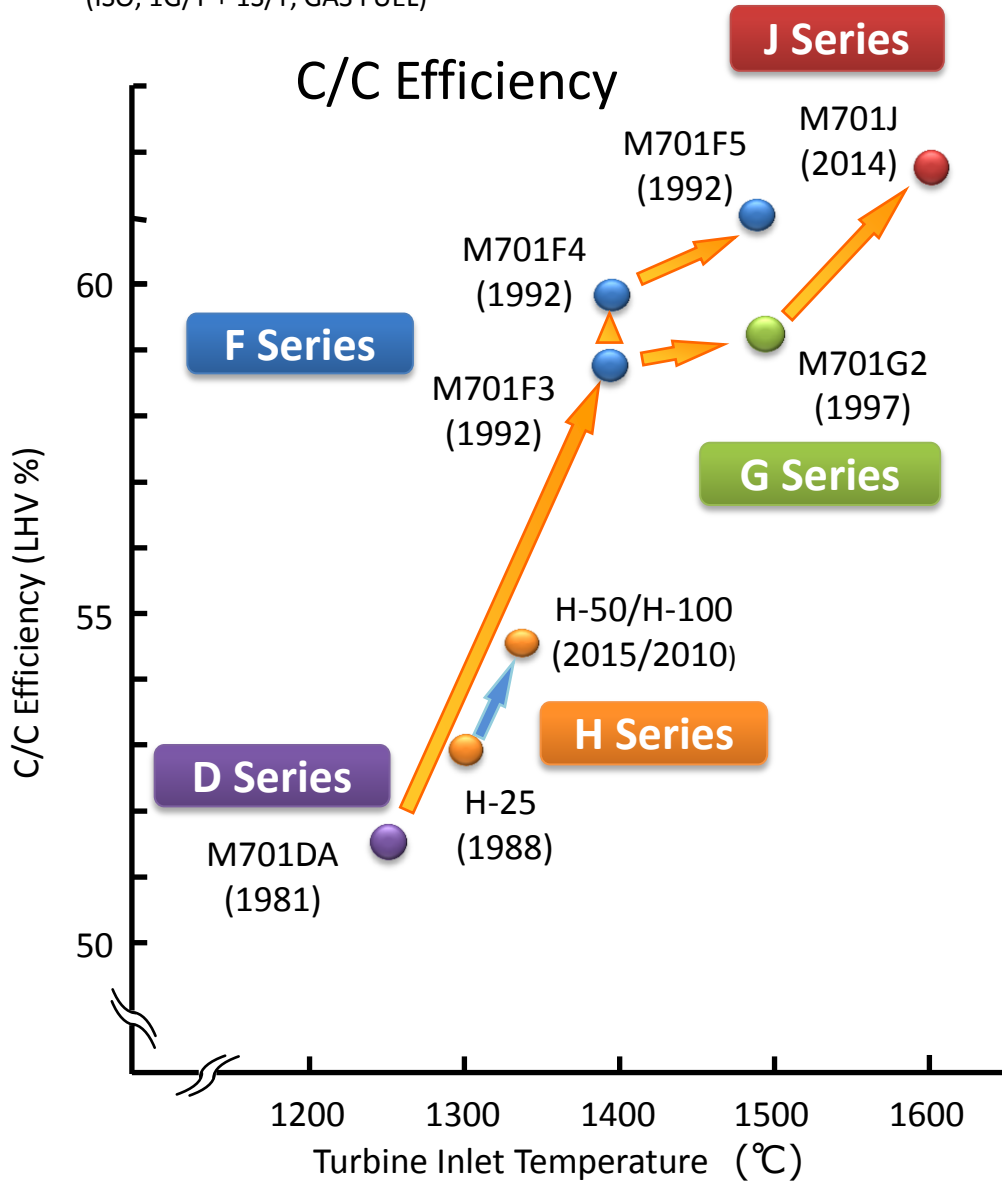


- Higher steam temperature and pressure improve thermal plant efficiency
- In other words, SC/USC technology provides economical power production, fuel energy saving, lower carbon emission and environment-friendly

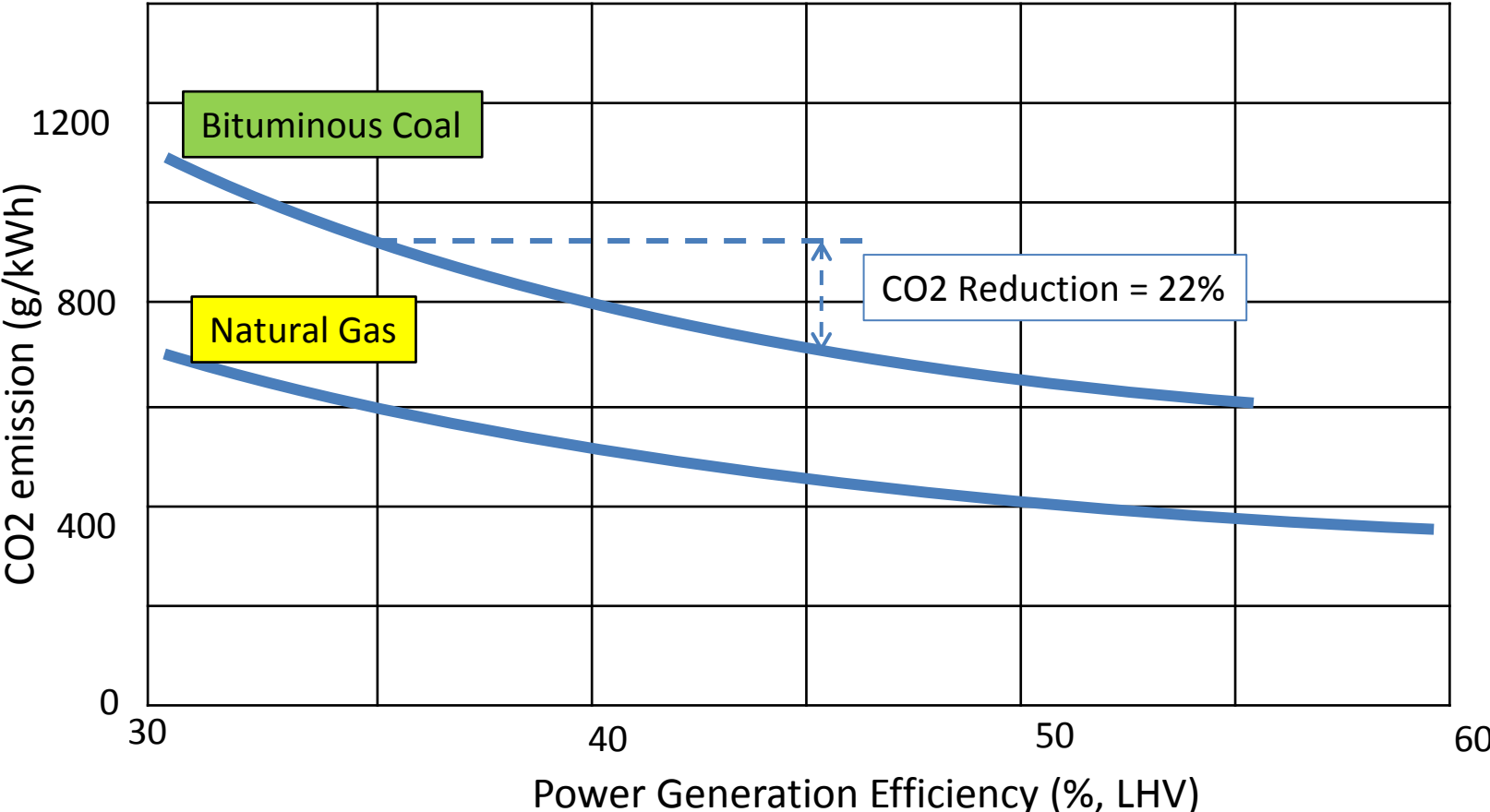
MHPS Gas Turbine Performance (50Hz)



(ISO, 1G/T + 1S/T, GAS FUEL)



CO₂ Emission and Efficiency of Power Plants with Coal and natural Gas



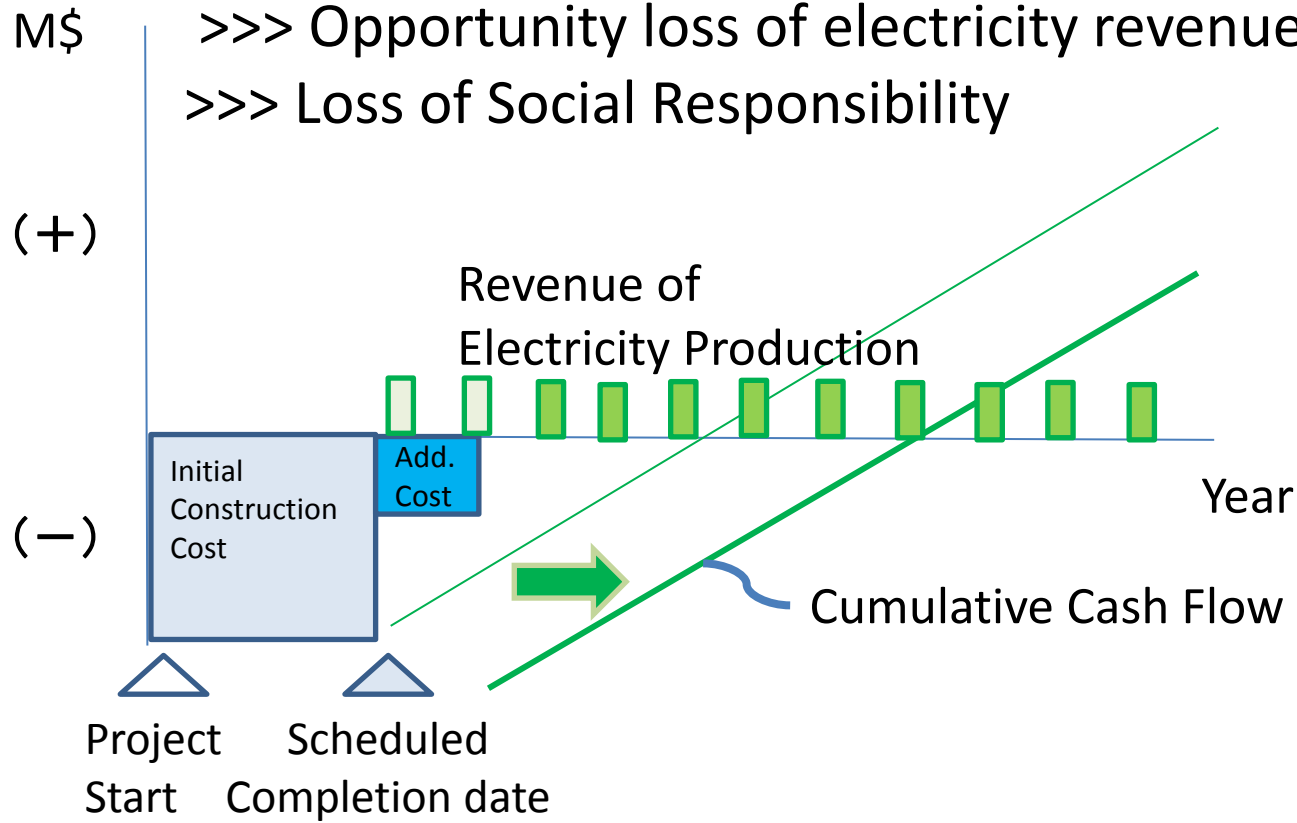
Schedule Control

Delay Penalty from contractor(s) and supplier(s) and Beyond



A delay in construction completion happens,
Penalty for delay does not cover;

- >>> Opportunity loss of electricity revenue and
- >>> Loss of Social Responsibility



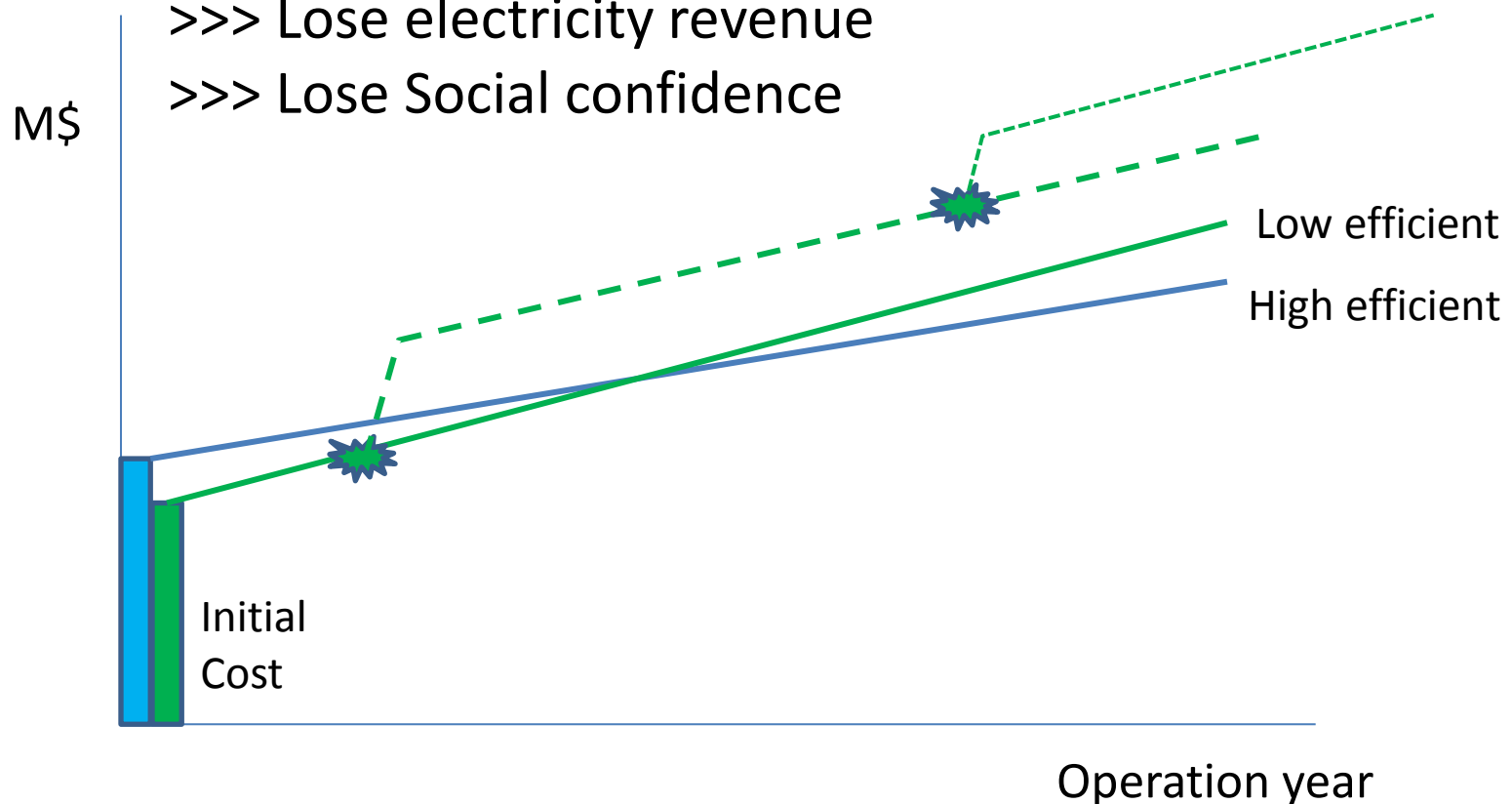
High Efficiency and Reliability of Product

Changeover in Total Cost with Initial and Operation Cost and Beyond



Once an incident happens,
Increase Maintenance cost
In addition;

- >>> Lose electricity revenue
- >>> Lose Social confidence



Suggestion to Secure the high Initial performance and availability



- ONLY experience records show REALITIES
- Ask utility companies next to you about their records on the product and the project execution
- Open dialogue between you and the utilities will be the most reliable source for you to make the best choice
- For qualification purpose by documentation, records in countries outside of supplier's home country show FACTs objectively.