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Competitiveness of US Gas Turbine Manufacturers

*William H. Day
Managing Director, Gas turbine
Association*

- Alstom
- GE Energy
- Florida Turbine Technologies
- Meggitt Sensing Systems
- Pratt & Whitney
- OPRA Turbines
- PW Power Systems
- Rolls-Royce Energy Systems
- Siemens Energy
- Solar Turbines

Acknowledgement

The information on the following charts is from a study commissioned by the Gas Turbine Association and performed by ICF International, 3/29/13.

To see the full study, go to the GTA website www.gasturbine.org and click on the “Hot Topics” tab. Then click on “GTA White Paper on R&D Funding”.

- US-based manufacturers currently have a large share of the simple cycle and combined cycle market.
- With the expansion of European mfrs to the US, the only other major producer of heavy frame units in the US is Japan.
- Due to the Fukushima disaster, the Japanese government is funding large R&D to improve CC efficiency as an alternative to decreased nuclear power.
- Without an expansion of US government R&D funding, US-based mfrs will lose their competitive advantage in the US electricity market.

- Foreign mfrs will gain a large share of the US market for new electric generating capacity over the next 25 years unless US mfrs develop advanced NGCCs.
- The study forecasts an increase in US jobs with new capacity expansion.
- If US-based NGCC efficiency targets are not met and foreign mfrs meet theirs, there will be fewer US jobs as GT mfg is increasingly done offshore.
- Developing high-efficiency NGCCs will reduce the growth of CO₂. AS US NGCCs will be more efficient than foreign ones, other countries will produce less CO₂ as well.

Projected Combined Cycle Build Out

Exhibit ES-1
Projected Combined Cycle Build Out

CCs	Actual as of 2013		2037 - Foreign government investment Case		2037 – Enhanced US investment Case	
	MW	%	MW	%	MW	% of Total
US	191,100	84%	191,900	42%	327,745	72%
Non-US	35,196	16%	262,432	58%	128,371	28%
Total	226,296	100%	454,333	100%	456,115	100%

Source: Ventyx and IPM output

- In the Foreign government investment case, without increased US government R&D funding US mfrs will become much less competitive.
- Market share would drop to 42% from 84% today.

Projected Jobs Impact

Exhibit ES-2

Projected Jobs Impact on the US Economy

Select Years	Foreign government investment Case	Enhanced US investment Case	Delta
2020	26,000	23,000	-3,000
2030	16,500	203,000	38,000
2035	172,000	208,000	36,000
Annual Average	90,000	102,000	12,000

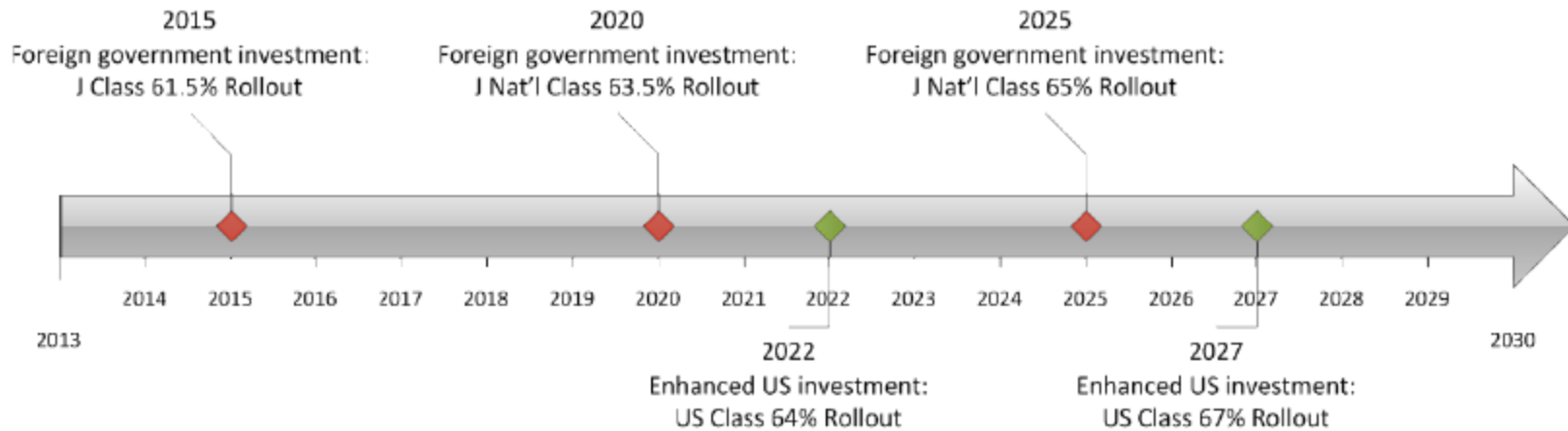
Source: IMPLAN output

The Enhanced US Investment case supports 36,000 (~ 20%) more jobs vs. the Foreign Government case by 2030.

Timeline of Advanced Combined Cycles

Exhibit 1-1

Rollout Timeline of Advanced Combined Cycles



- Funding needed for advanced NGCCs: \$50 million per year for 7 years
- Representative Tonko (D-NY) introduced bill 112H2781 on 5/31/13 to provide for the R&D funding