Heat Recovery Steam Generators (HRSGs), 9M'19 Report

The "Report"

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Table of Contents

- Global Market Summary
- Advanced Class Segment Performance
- Unit Size Segment Performance
- On-Grid Technology Utilization: Europe and USA
- Market Share Discussion
- 9M'19 Official League Tables
  - Technology Owner: Share of Ordered Capacity and Ordered Units
  - Manufacturer: Share of Ordered Capacity and Ordered Units
- HRSG Order Data, 9M'19 (the "Data"): Please See Accompanying Spreadsheet

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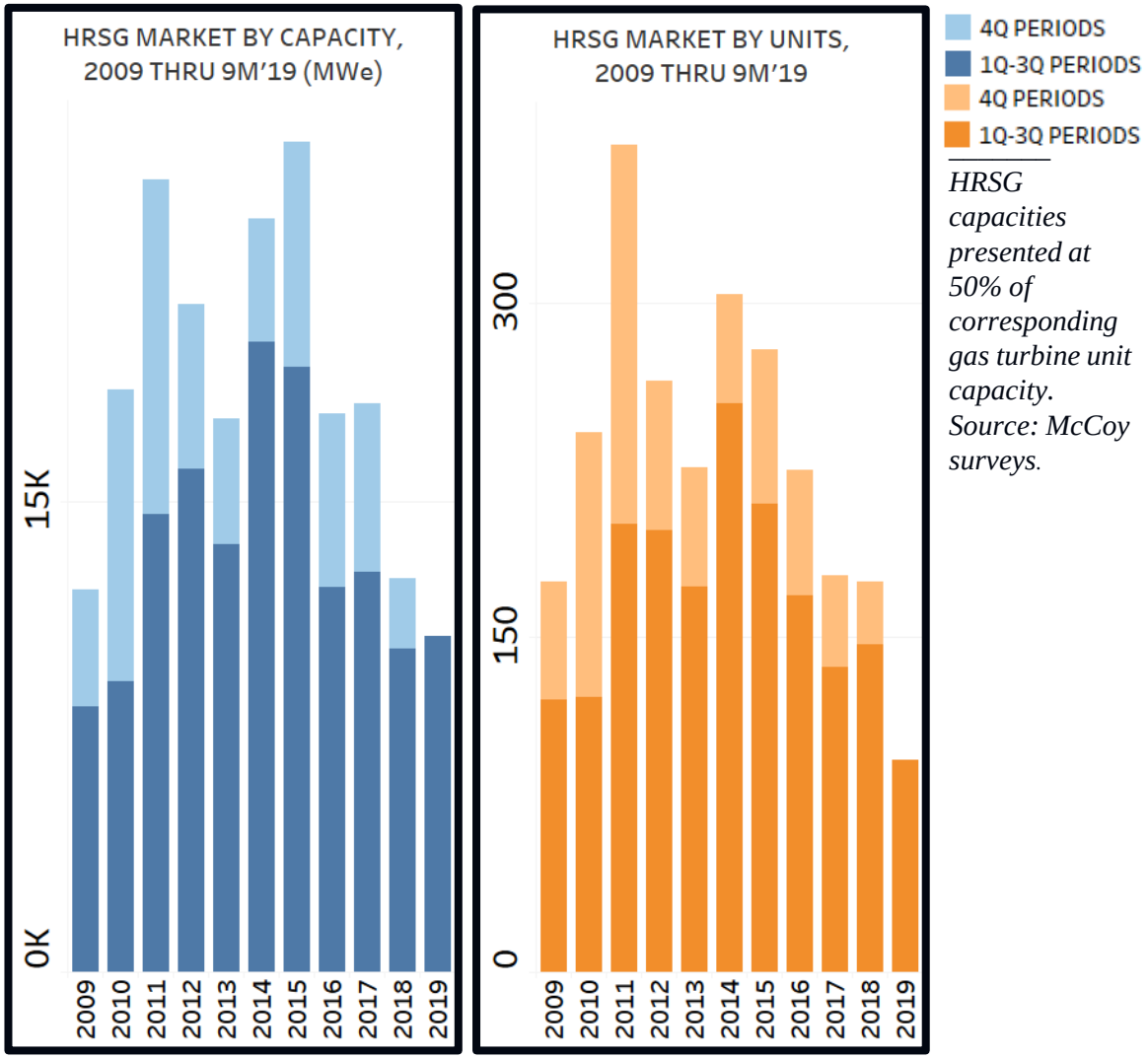
Global Market Summary

The 9M'19 HRSG markets amounted to 95 units and 10.7 GWe of capacity. Capacity volume was up on-year 4% while unit volume was the slowest 9M period in over 20 years (images right).

On the pages that follow we will show how steady demand for advanced class units amid declining overall unit volumes are the primary themes of today's HRSG markets.

We also present on-grid utilization by technology for Europe and the USA which suggests the steady if not brightening prospects for combined cycle technologies.



HRSG capacities presented at 50% of corresponding gas turbine unit capacity. Source: McCoy surveys.

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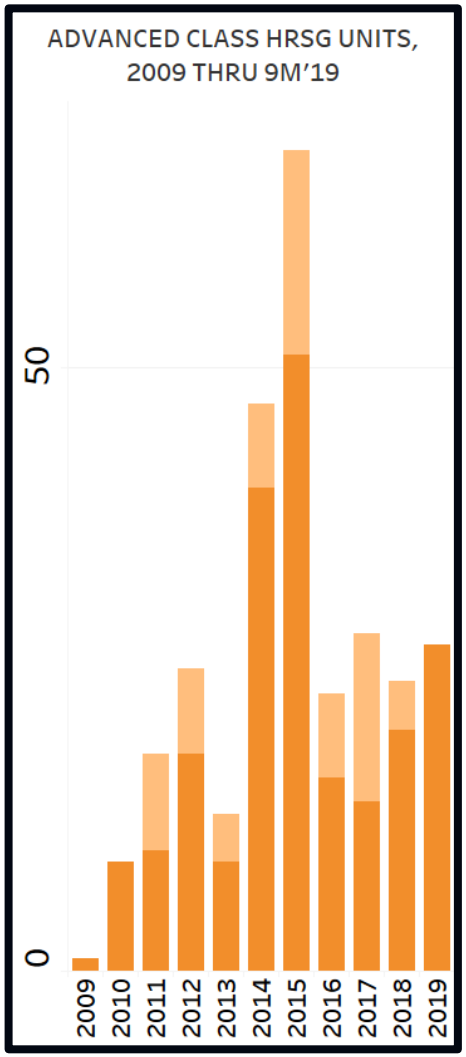
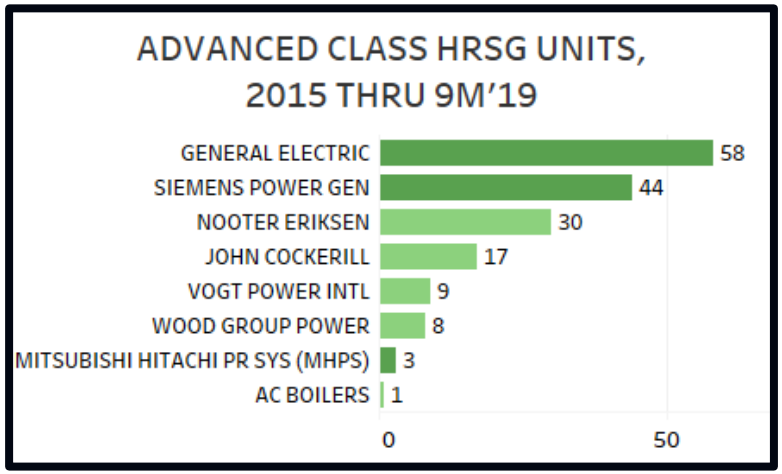
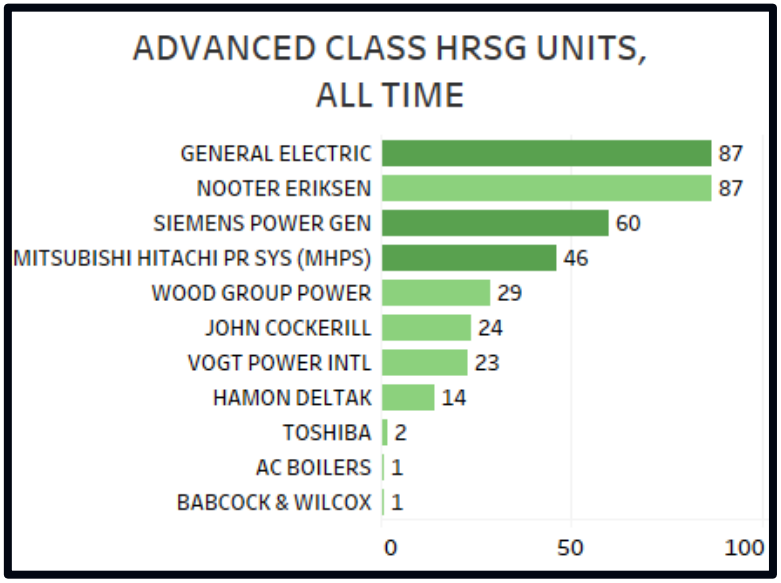
Advanced Class Segment Performance

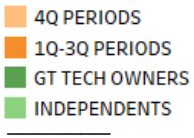
Order count for HRSG units going behind advanced class gas turbines was 27 during 9M'19, the third best 9M performance on record (image near right).

Over the past five years, GE led all technology owners within this segment with 58 units followed by Siemens' 44 and Nooter's 30 (image top far right). GE and Nooter are now tied atop the all-time leader board with 87 each (image bottom far right).









Advanced class are G, H or J class gas turbine technologies. GT Tech Owners own both gas turbine and HRSG technologies; Independents do not own gas turbine technologies. Source: McCoy surveys.

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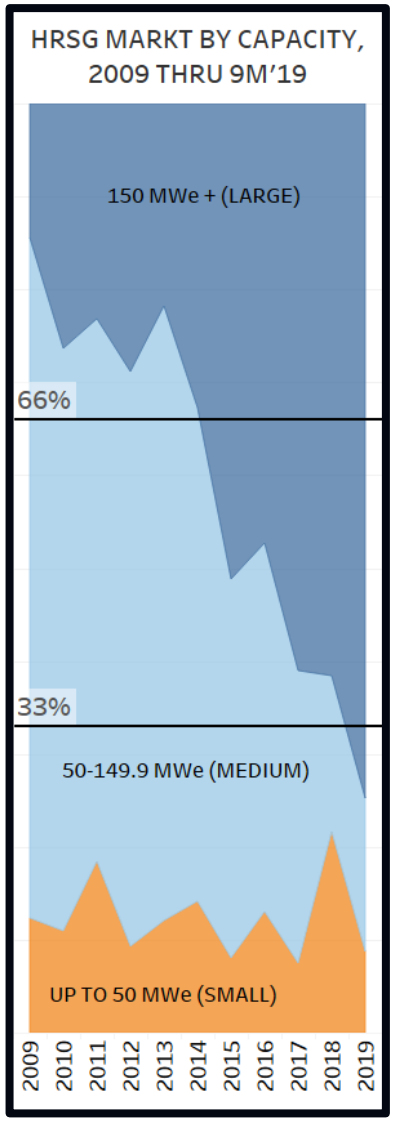
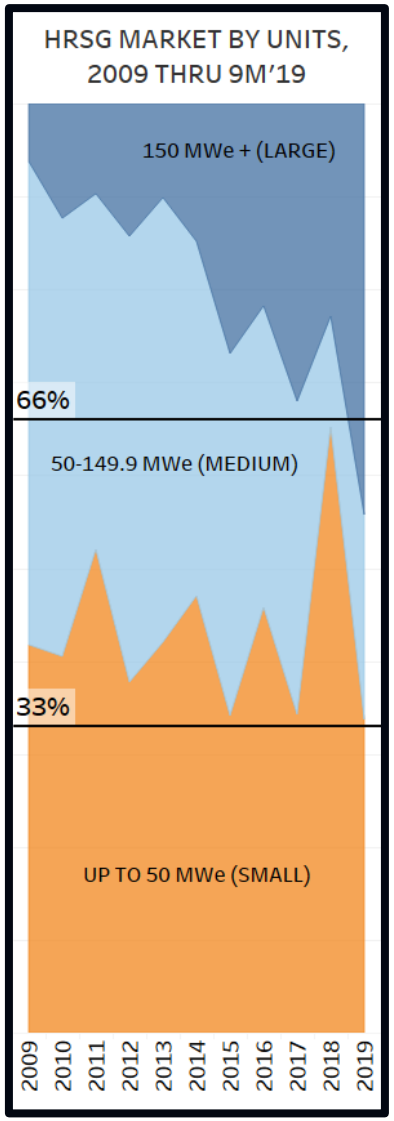
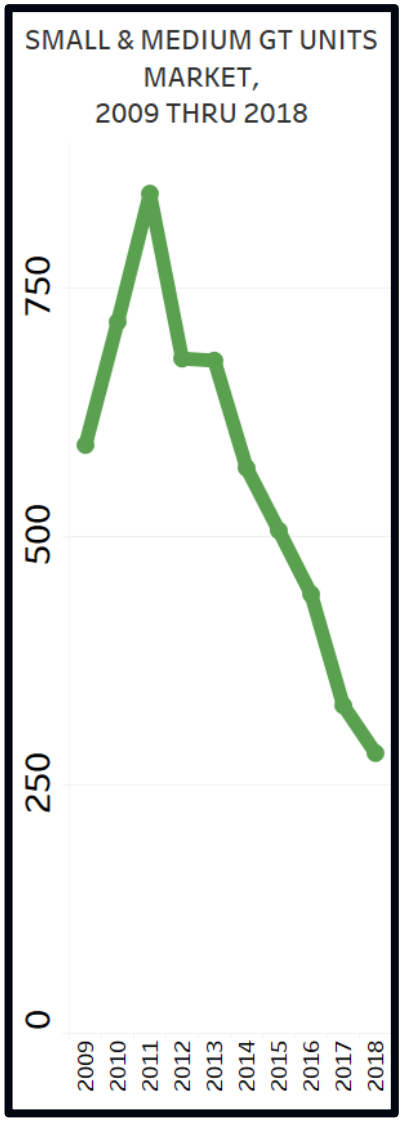
Unit Size Segment Performance

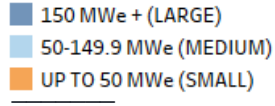
The recent performance of the advanced class HRSG market continues a longer-term trend towards Large units, defined as at least 150 MWe unit capacity (of the HRSG, see images near and middle right).

The primary catalyst has been declining volumes of Small and Medium gas turbines coming through the market over the past several years (see image far right).









HRSG capacities presented at 50% of corresponding gas turbine unit capacity. For far left and middle left images, 12M periods presented except 9M'19. For near left image, gas turbines of 10-300 MWe unit capacity presented which correspond to Small and Medium HRSGs. Source: McCoy surveys.

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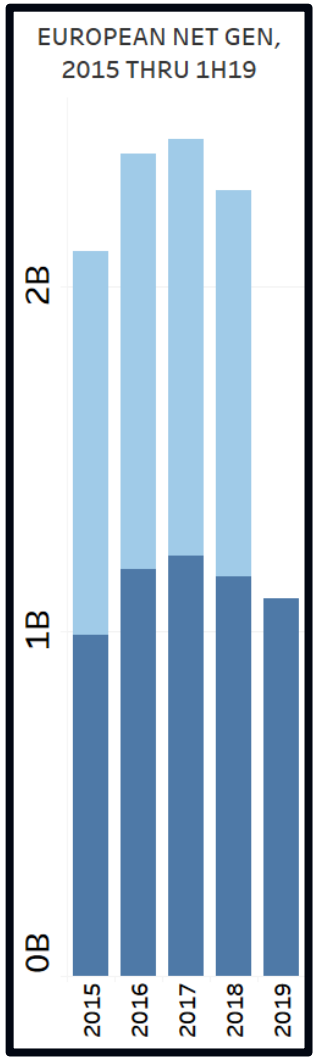
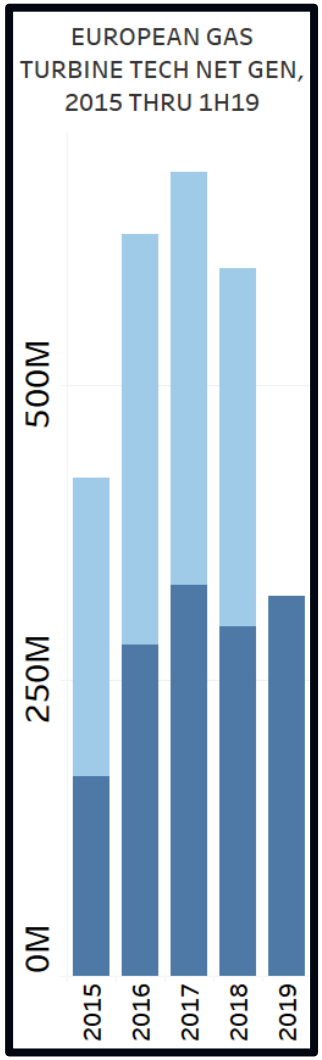
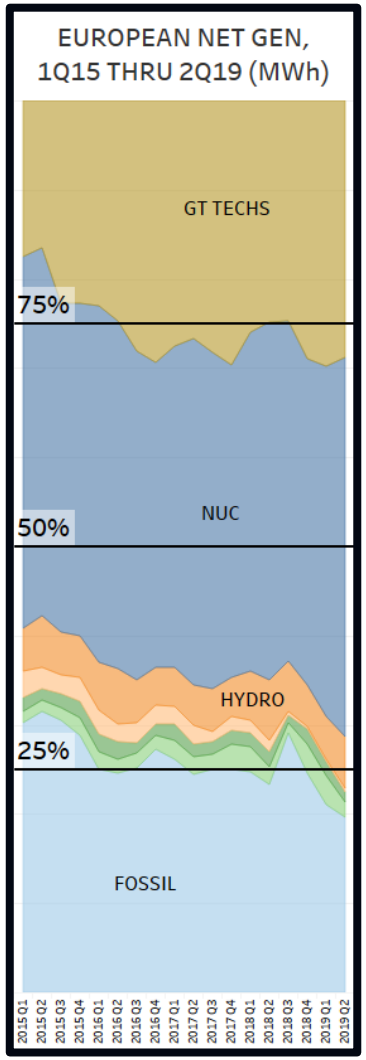
On-Grid Technology Utilization: Europe

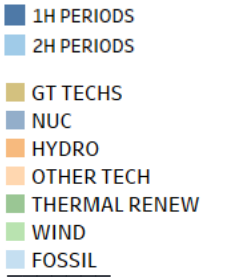
Performance of Europe's fleet of ISO/TSO member power plants declined 6% in 2018 and is down another 6% on-year during 1H'19 (image near right). The gas turbine fleet declined 12% in 2018 relative to 2017 but was up 9% on-year through the 1H'19 period (image middle right).

Through these ups and downs, gas turbine related technologies are accounting for 25-30% of quarterly net generation since 2016, while Fossil technologies are falling below 20% (image far right). Given Germany's announced fossil fleet retirement, gas turbine utilization should gain further in coming years.







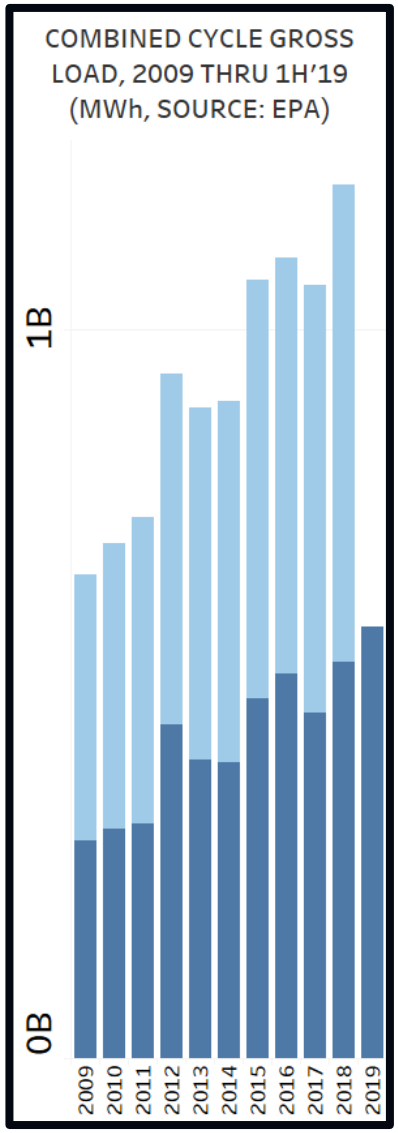


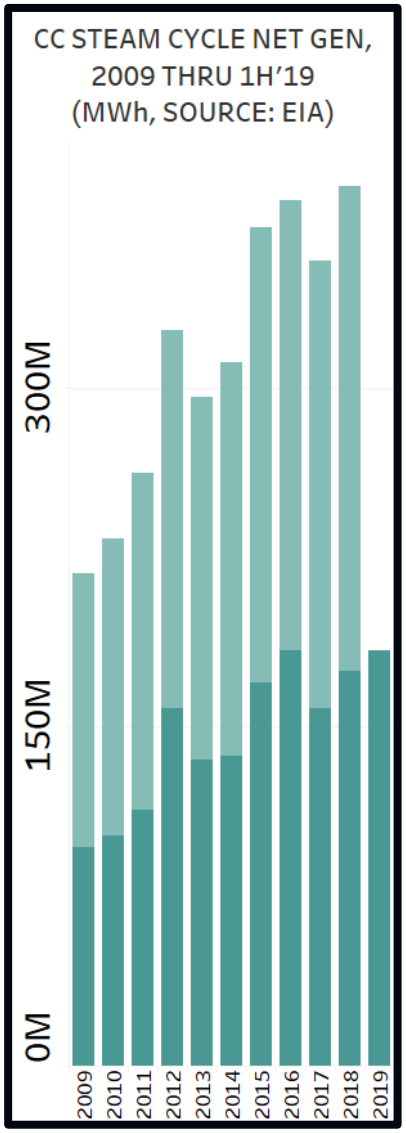
Net Generation of European ISO/TSO member power plants presented; source: NTSOE. Images courtesy of Simpfany.

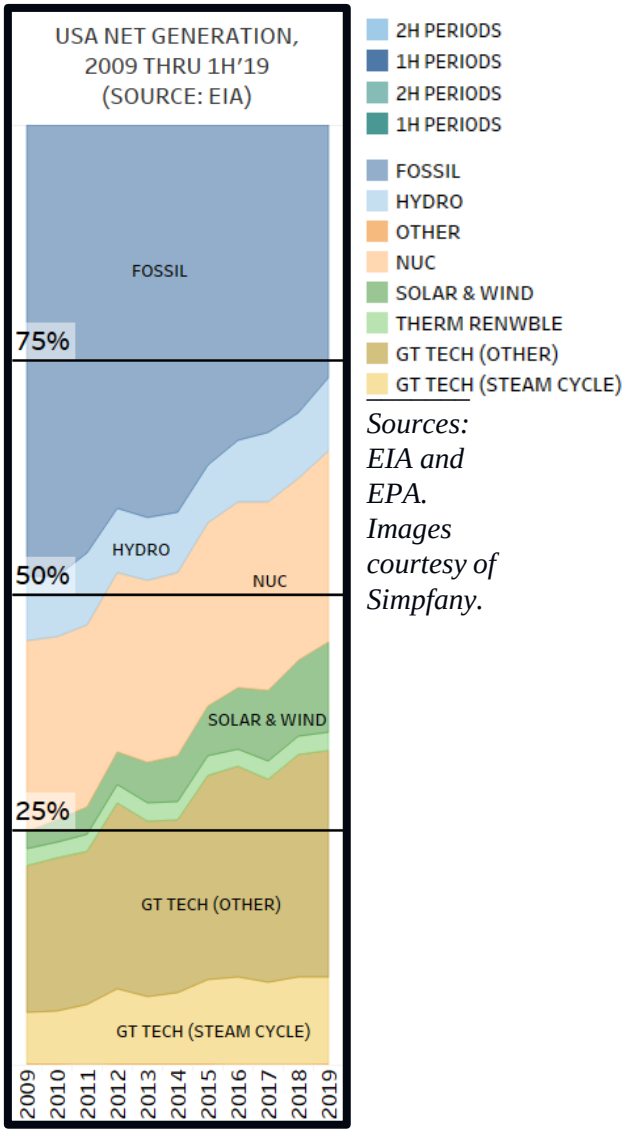
On-Grid Technology Utilization: USA

Turning to the USA market, gross load derived from all combined cycle technologies grew 9% on-year during the 1H'19 (image near right).

Net generation of the steam cycle components of combined cycle technologies grew 6% on-year during the 1H'19 period (image middle right) accounting for 9% of all USA net generation during the period (image far right).







Sources: EIA and EPA. Images courtesy of Simpfany.

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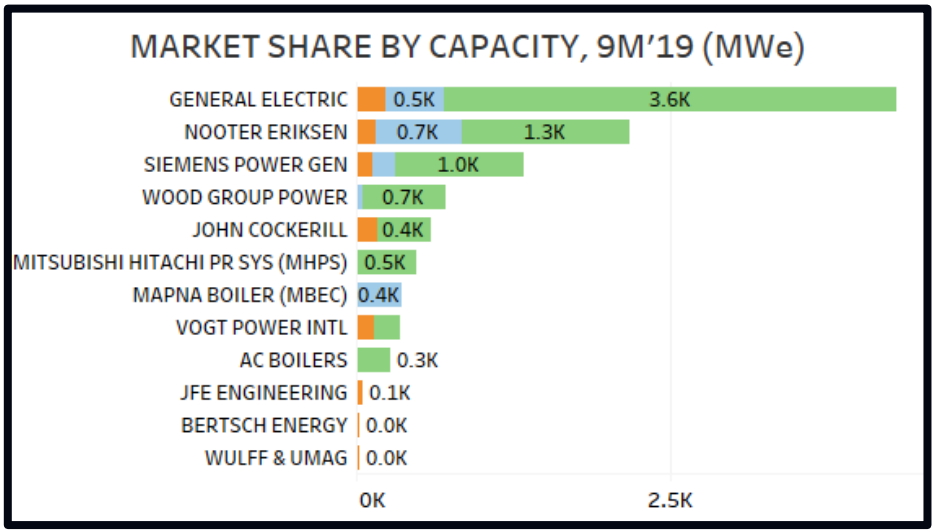
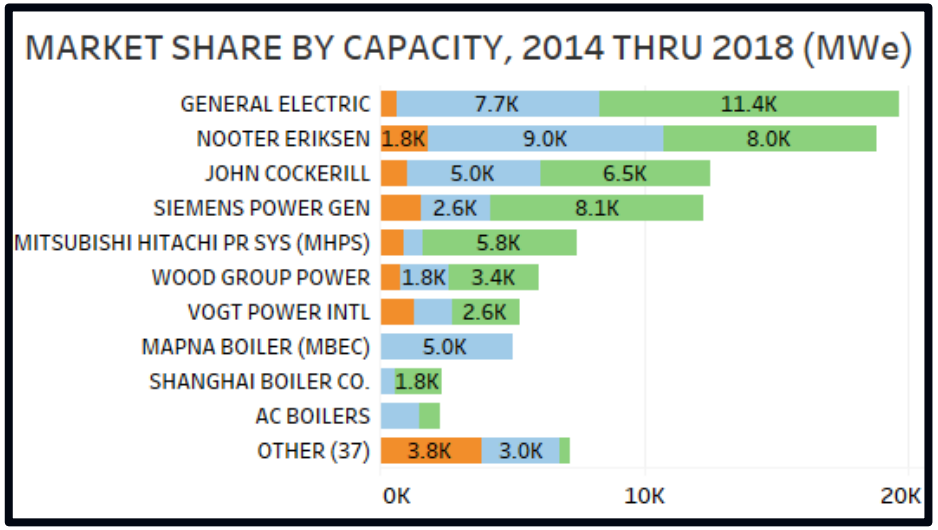
Market Share Discussion

For the 9M'19 period, GE led with 4.3 GWe of capacity or 40% share. Nooter was second with 2.2 GWe and share of 20% (image top right).

For the five-year period ending 2018, GE led all technology owners with ordered capacity of 19.7 GWe and share of 20%. GE's leading position in Large units was the key driver of success. Nooter finished second during the period with 18.8 GWe of order flow and share of 19% (image bottom right).





150 MWe + (LARGE)
50-149.9 MWe (MEDIUM)
UP TO 50 MWe (SMALL)

HRSG capacities presented at 50% of corresponding gas turbine unit capacity. Source: McCoy surveys.

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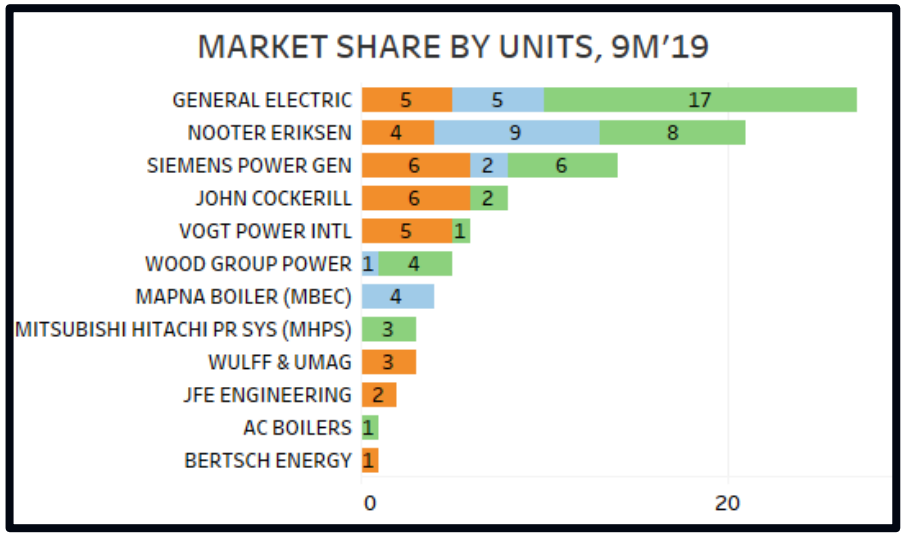
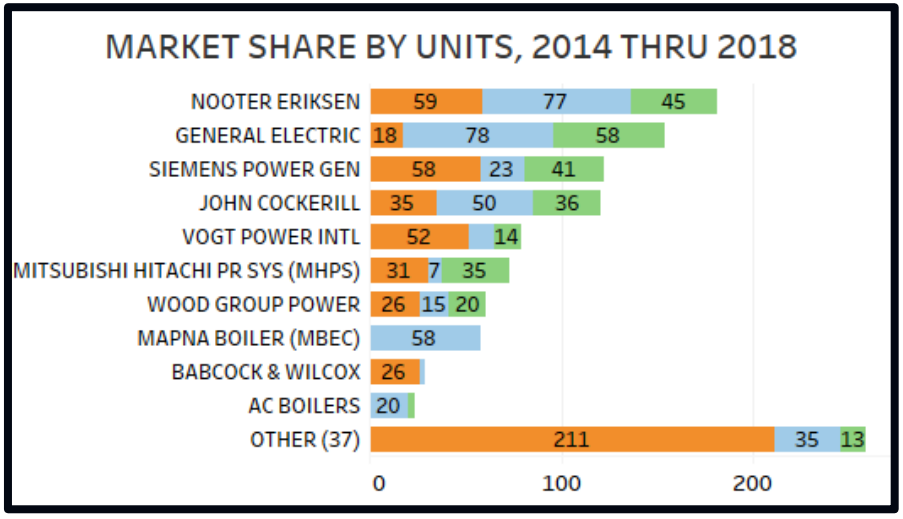
Market Share Discussion

GE also led the 9M'19 units market with 27 including 17 Large units. Nooter was second with 21 which included nine Medium sized units (image top right).

Over the past five years, Nooter's leading share of 15.9% included the leading position in Small units and second positions in both Medium and Large units. GE was second during the period with the leading position in Large units (image top right).





HRSG capacities presented at 50% of corresponding gas turbine unit capacity. Source: McCoy surveys.

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9M'19 Official League Tables – Technology Owner [(i)]

TECHNOLOGY OWNER	MWe 9M'19	MARKET SHARE
GENERAL ELECTRIC	4,309	40.2%
NOOTER ERIKSEN	2,178	20.3%
SIEMENS POWER GEN	1,334	12.4%
WOOD GROUP POWER	715	6.7%
JOHN COCKERILL	595	5.6%
MITSUBISHI HITACHI PR SYS (MHPS)	486	4.5%
MAPNA BOILER (MBEC)	366	3.4%
VOGT POWER INTL	353	3.3%
AC BOILERS	269	2.5%
JFE ENGINEERING	57	0.5%
BERTSCH ENERGY	29	0.3%
WULFF & UMAG	27	0.3%
TOTAL ORDERED CAPACITY	10,716	100.0%

TECHNOLOGY OWNER	UNITS 9M'19	MARKET SHARE
GENERAL ELECTRIC	27	28.4%
NOOTER ERIKSEN	21	22.1%
SIEMENS POWER GEN	14	14.7%
JOHN COCKERILL	8	8.4%
VOGT POWER INTL	6	6.3%
WOOD GROUP POWER	5	5.3%
MAPNA BOILER (MBEC)	4	4.2%
MITSUBISHI HITACHI PR SYS (MHPS)	3	3.2%
WULFF & UMAG	3	3.2%
JFE ENGINEERING	2	2.1%
AC BOILERS	1	1.1%
BERTSCH ENERGY	1	1.1%
TOTAL ORDERED UNITS	95	100.0%

(i) HRSG capacities presented at 50% of corresponding gas turbine unit capacity. Source: McCoy surveys.

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9M'19 Official League Tables – Manufacturer[(i)]

MANUFACTURER	MWe 9M'19	MARKET SHARE
GE POWER	4,309	40.2%
HANGZHOU BOILER WKS	1,918	17.9%
SIEMENS HEAT TRANSFER	1,267	11.8%
BHI	715	6.7%
JOHN COCKERILL	514	4.8%
MAPNA BOILER (MBEC)	366	3.4%
VOGT POWER INTL	353	3.3%
MHPS DONGFANG BOILER	324	3.0%
AC BOILERS	269	2.5%
NOOTER ERIKSEN	260	2.4%
MITSUBISHI HITACHI PR SYS (MHPS)	162	1.5%
WUXI BOILER WORKS	81	0.8%
ISGEC	67	0.6%
STANDARDKESSEL BAUMGARTE	57	0.5%
BERTSCH ENERGY	29	0.3%
WULFF & UMAG	27	0.3%
TOTAL ORDERED CAPACITY	10,716	100.0%

MANUFACTURER	UNITS 9M'19	MARKET SHARE
GE POWER	27	28.4%
HANGZHOU BOILER WKS	19	20.0%
SIEMENS HEAT TRANSFER	10	10.5%
JOHN COCKERILL	6	6.3%
VOGT POWER INTL	6	6.3%
BHI	5	5.3%
ISGEC	4	4.2%
MAPNA BOILER (MBEC)	4	4.2%
WULFF & UMAG	3	3.2%
MHPS DONGFANG BOILER	2	2.1%
NOOTER ERIKSEN	2	2.1%
STANDARDKESSEL BAUMGARTE	2	2.1%
WUXI BOILER WORKS	2	2.1%
AC BOILERS	1	1.1%
BERTSCH ENERGY	1	1.1%
MITSUBISHI HITACHI PR SYS (MHPS)	1	1.1%
TOTAL ORDERED UNITS	95	100.0%

(i) HRSG capacities presented at 50% of corresponding gas turbine unit capacity. Source: McCoy surveys.

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