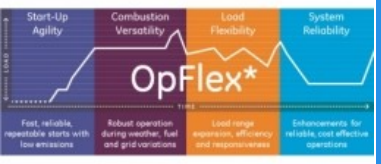
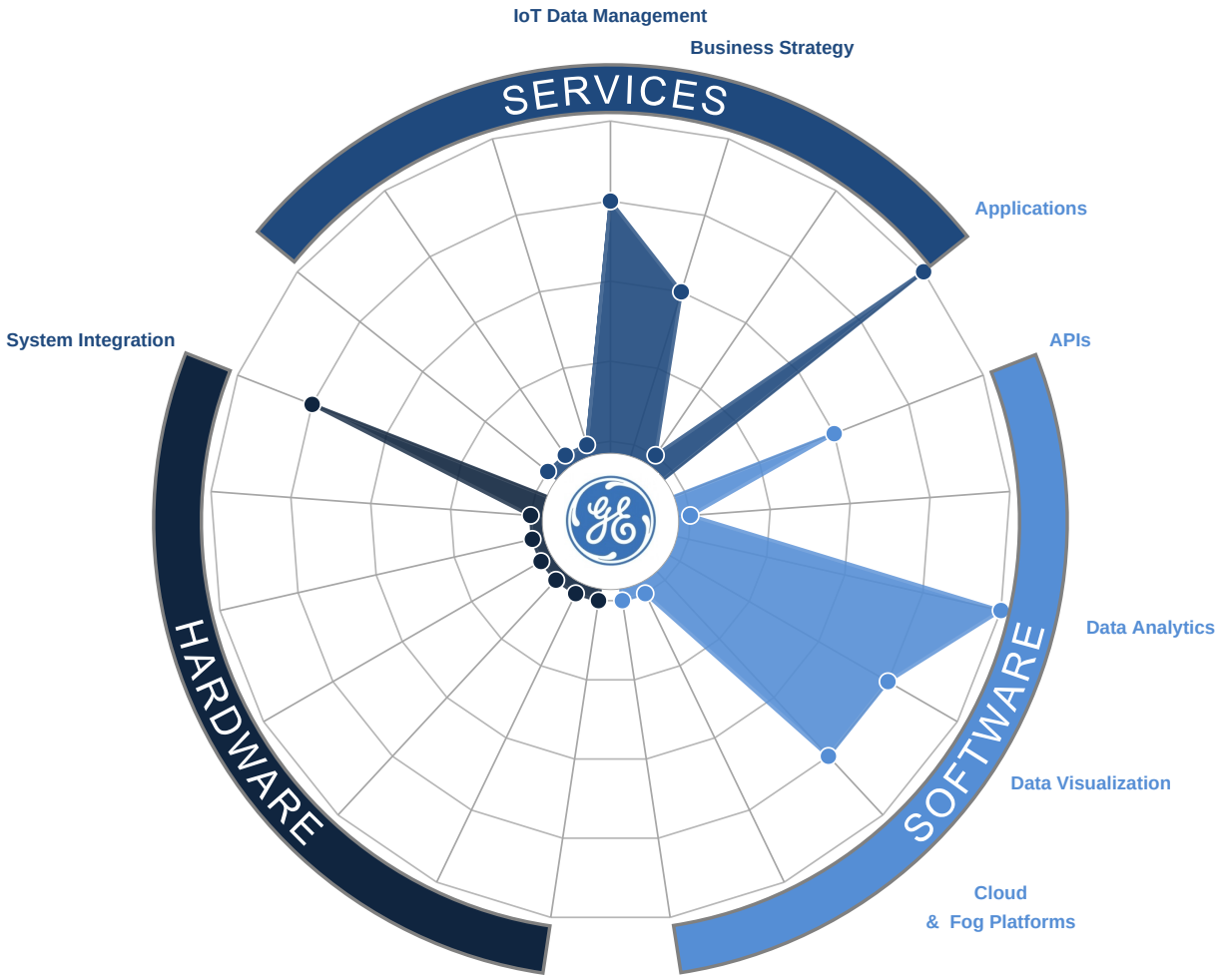


E.ON Gets Faster, Lower Cost Cycles with OpFlex Solutions



Overview

Applicable Industries

- Oil & Gas
- Smart Grid

Applicable Functions

- Production - Manufacturing
- Maintenance

Challenge

E.ON's plants ran 4000+ hours per year, now see fewer than 1000+ hours of profitable operation. E.ON needed a fast, reliable and low-cost cycle plants.

Customer

E.ON is one of the UK's leading power and gas companies - generating electricity, and retailing power and gas - and they are part of the E.ON group, one of the world's largest investor-owned power and gas companies. They employ around 12,000 people in the UK and more than 79,000 worldwide.

Solution

GE developed an OpFlex advanced controls technology retrofit package that enables agile and robust combined cycle starts. This package consists of OpFlex Variable Load Path (VLP) which enables GT load and exhaust conditions to be customized to best match bottoming cycle needs, and OpFlex AutoTune MX, which provides fully automated combustor tuning to ensure robust GT operation across the full load range and whole VLP operating space.

Software Components
- OpFlex Variable Load Path (VLP)
- OpFlex AutoTune MX

Solution Type

IT

Solution Maturity

Cutting Edge (technology has been on the market for < 2 years)

Operational Impact

Impact #1	Time-to-Market - Programming time, production time, and installation time are shortened during the introduction of new products.
Impact #2	Energy Efficiency - The amount of energy used in production processes can be lowered and made more efficient.
Impact #3	Total Cost of Ownership - Total cost of ownership is lowered due to reduction in cost and project time.

Quantitative Benefit

Benefit #1	E.ON demonstrated 40% faster and 50% less costly combined cycle plant starts.
Benefit #2	The solution helped E.ON result in 60% more operating hours and starts to cmpared to non-graded plants.
Benefit #3	The solution has been proven in operation more than on 10 unitsat 5 different sites with more than 20,000 cumulative hours and 1,000 starts.

E.ON Achieves Faster, Lower Cost Combined Cycle Plant Starts with GE's OpFlex Solutions

40% faster combined cycle plant starts

50% less costly combined cycle starts

60% more operating hours and starts over plant without OpFlex solution

Challenge

E.ON is one of the UK's leading power and gas companies — generating electricity, and retailing power and gas.

Many gas-fired combined cycle power plants in Europe are unable to be economically dispatched due to high gas prices, low power demand, and low power sale prices.

Plants that ran 4,000+ hours per year, now see fewer than 1,000 hours of profitable operation. Even that is often only possible in real-time power markets and only when spark spreads are high, such as when intermittent renewable power (wind, for example) needs to be quickly replaced).

Successful operation in this time-sensitive environment requires combined cycle plant starts that are fast, reliable, and low-cost, similar to what is possible with simple cycle plants.

Solution

GE, in partnership with E.ON, developed an OpFlex advanced controls technology retrofit package that enables agile and robust combined cycle starts. This package consists of OpFlex Variable Load Path (VLP), which enables GT load and exhaust conditions to be customized to best match bottoming cycle needs, plus OpFlex AutoTune MX, which provides fully automated combustor tuning to ensure robust GT operation across the full load range and whole VLP operating space.

Results

With GE's OpFlex Variable Load Path and AutoTune MX, E.ON demonstrated 40% faster and 50% less costly combined cycle plant starts, resulting in up to 60% more operating hours and starts compared to non-upgraded plants.

The solution has been proven in operation more than on 10 units to date at 5 different sites dating to 2013, with more than 20,000 cumulative hours and 1,000 starts through December 2015.

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