

Emerging Opportunities for Gas Engine Plant in the Power Generation Portfolio

One day seminar - Tuesday 26 September 2017

IGEM House, Kegworth DE74 2DA

The background

Current evidence strongly suggests a resurgence of interest in gas-fuelled plant in the UK – both based on gas engines and gas turbines. As the coal stations have been reducing output since their recent peak in 2012, the major part of the shortfall has been provided by gas generation – alongside the increase in renewables, especially wind and biomass.

The concern about capacity margin, as renewable generation continues to increase and coal generation declines further, underlines the need for “clean” replacement flexible generation to provide balancing capacity when needed. With heightened concern about pollution, natural gas would be the fuel of choice.

Whilst there is considerable uncertainty about the future generation mix, some excerpts from National Grid’s FES 2016 are particularly relevant to this seminar:

- Currently 23% of installed capacity is not directly connected to the high-voltage network.
- Small-scale gas and diesel reciprocating engines are currently the preferred technologies for investors. They have advantages over large-scale conventional plant both in terms of reduced capital costs, avoidance of

Transmission Network Use of System costs, and the ability to access multiple markets within the energy sector. This unlocks potential revenues that are not necessarily available to transmission-connected generators.

- There is a considerable amount of growth predicted in these technologies up to the mid-2020s, with small-scale thermal plant providing between 2.7GW to 4.5GW of generation capacity across the range of scenarios considered.

Larger new Low Carbon plant, such as Nuclear and CCS, are planned in addition to expansion of Renewables, but it may be anticipated that new nuclear and CCS are likely to be delayed towards 2030 and beyond. Certainly there is a concern about lack of new investment/delays within Government.

This seminar is aimed at gas engine based plant, its development, operational experience and market roles. IDGTE is planning its 9th International Gas Turbine conference in November 2017 which should complement the gas engine focus of this seminar.

Market conditions

The market in Western Europe, in particular the UK, is likely to be divided between plants of significant

utilisation, such as CHP/Trigen, Industrial process users, landfill and biogas gas plants - and plants of low utilisation, such as emergency standby sets and plants aimed at the Capacity Market, STOR etc. However, the main watchword of all plant in future is flexible operation so that it can cover as many roles as possible.

With higher levels of utilisation, improving engine and plant system efficiency remains the focus of development – whilst low utilisation plant is likely to be dominated by Capex, start reliability and rapid time to full load. There is also a role for some of the older CCGT or reciprocating plant, possibly in a reconfigured arrangement, which widens interest to owners/operators of existing plant.

Views on the size of future market sectors and trends are welcomed and are sure to be the subject of lively debate at the seminar.

Emissions

Concern about air quality and the recent automotive diesel scandal have highlighted the environmental drawbacks of having large fleets of diesel engines in the generation mix – even with relatively low utilisation. Government measures are promoting gas engines instead.

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Are there emissions issues related to gas engines, for instance, methane slip and effective techniques to manage such issues?

Competition

The growth of grid battery storage will impact the capacity market and other grid services such as FFR. Is this seen as principally complementary to fast response generation?

Recent developments and market success of gas engines

Covering the experience and development being carried out by OEMs as well as operational experience and feedback.

Topics and Presenters

■ **National Grid** - Marcus Stewart

Update on Future Energy Scenarios providing an outlook on long-term energy demand, the potential generation mix and the role of different technologies - such as gas fired plant and electricity storage.

■ **GE Jenbacher**

Recent developments in Gas Engines, CHP market success in Germany and Europe, ability of gas engines to start and load rapidly, future trends across Europe. (Speaker TBC)

■ **UK Power Reserve** - Marlon Dey

Awaiting information.

■ **Wärtsilä** - Jonas Haga

Latest engine with world record efficiency. Hybrid plant with batteries for FFR. Fast starting and loading. Two x 50MW gas plants with Centrica.

■ **Centrica** - Mark Hedges, Asset Optimisation

Projects under consideration/ build. Mix includes CCGT, OCGT, gas engines and battery plants. Reasons for choice of plant.

■ **Chevron Lubricants** - Paul Salter

Oil development to match efficiency and operational improvements in gas engines.

■ **Infinis**

Experience of operating gas engines. Fleet moving towards capacity services. (Speaker TBC)

■ **UK Research Centre for Electrical Storage & Applications, University of Sheffield** - Dr Dan Gladwin

Evaluation of grid connected battery and flywheel energy storage system.

■ **Flexitricity** - Alastair Martin

What's next after engine farms? The role of flexibility in behind-the-meter and cogeneration distributed energy resources.

This seminar will follow a successful format, with a series of presentations as indicated, followed by multi-stream workshop sessions - which will look in more depth at some of the topics covered in the presentations and introduce some additional topics not covered to broaden the subject matter content.

Provisional Programme

9.00 Registration

9.15 Keynote speaker

9.55 Presentation 1

10.35 Tea/coffee break

10.55 Presentation 2

11.35 Presentation 3

12.15 Presentation 4

12.55 Lunch

1.35 Presentation 5

2.15 Presentation 6

2.55 Tea/coffee break

3.15 Workshop Session 1

3 streams

3.45 Workshop Session 2

3 streams

4.15 Workshop Session 3

3 streams

4.45 Finish

5.15 Optional evening meal

(Start your journey home after the rush-hour)

Seminar Price

Delegate £285.00 (ex VAT)

IDGTE Member £242.25 (ex VAT)

Student/Retired £100.00 (ex VAT)

Registration Form

available from

www.idgte.org

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