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Wärtsilä contribution to the ENTSOG Consultation on its Ten-Year Network Development Plan (TYNDP) 2011-2020

Wärtsilä – Leading European Energy Technology Provider

- Wärtsilä is a global leader in complete lifecycle power solutions for the marine and energy markets.
- In 2009, Wärtsilä's net sales totalled EUR 5.3 billion with 18,000 employees. The company has operations in 160 locations in 70 countries around the world.
- More than 4500 Power Plants distributed over 166 countries are based on Wärtsilä technologies and almost 10 000 engine-driven units offer 45 GW of reliable power capacity around the clock.
- Wärtsilä plants are flexible in following the actual demand and produce the necessary electricity typically from natural gas, bio fuels or heavy fuel oil.
- In 2009 Wärtsilä's research and development expenses totalled €141 million. The R&D efforts are strongly focusing on fuel flexibility, energy efficiency, operational characteristics and emission reduction.

The Main Features of Wärtsilä Technology:

- Wärtsilä represents a truly flexible power generation alternative for a modern electrical grid, offering flexible fuel alternatives, flexible operating modes and high efficiencies.
- Wärtsilä modular power plant technology based on multiple units in parallel allows for rapid installation and easy addition of capacity.
- Wärtsilä provides optimum solutions for load following and grid balancing.
- Wärtsilä technology based on reciprocating engines offers excellent balancing services to the modern electrical grid thus facilitating the integration of intermittent renewable energy.
- Wärtsilä power plants require a very short start-up time thus fulfilling the secondary control requirement of providing full load within 5 minutes without the need of spinning at zero load.

Demand

ENTSOG Question:

What is your opinion on ENTSOG's approach to demand? Do you think that ENTSOG should apply a demand definition based on more criteria than climatic conditions?

Wärtsilä Answer:

ENTSOG's approach to demand is technically sound and climatic conditions are a key factor in this respect. However, what is missing is the need to account large fluctuations in demand for gas stemming from temporary,

regional shortfalls in renewable energy generation. In addition to being major source of energy, gas will also be the prime source of backing up intermittent renewables. Gas also has a significant role in future maritime transportation. As the share of renewable energy generation rapidly increases over the coming decades, demand fluctuations for gas will become more frequent and more dramatic. Fluctuations on a regional scale will require an import network that is both flexible and robust. Moreover, once the gas is imported it is of paramount importance that the network and market is flexible enough to deliver it to where it is needed on short notice.

ENTSOG Question:

If yes, what parameters should be used?

Wärtsilä Answer:

As of yet there are no effective parameters for assessing this. The ENTSOG and European Commission should initiate a joint study to understand the parameters – taking into account the issues such energy trading rules and gas quality harmonization - that can be applied to such regional, large-scale fluctuations in demand due to the increased share of intermittent renewable energy in the EU's generation portfolio.

ENTSOG Question:

Is the current comparative approach to demand outlooks published by other organisations/stakeholders sufficient or should more analysis be done? (Please consider that currently only the PRIMES and ENTSOG data are provided on country basis).

Wärtsilä Answer:

The current comparative approach to demand outlooks is sufficient however will need to be developed given uncertainties in the consistency of future demand according to the level of renewable energy in the future energy generation on a country-specific basis.