GDF SUEZ | ENERGY EUROPE & INTERNATIONAL

Energy security

and long term arrangements

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Workshop on "Efficiency, Competition and Long Term Contracts in Electricity Markets"

Florence , January 15th, 2009

- Competition does not provide today in Europe the incentives for investments in the electricity and gas sectors that could help security of supply

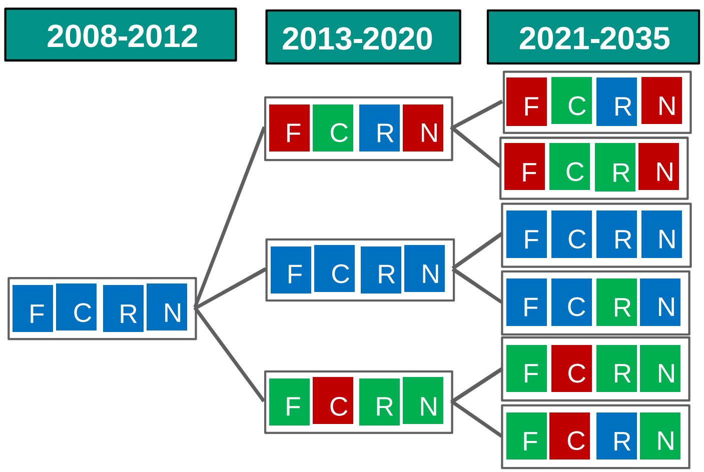
- Financial instruments that would be able to tackle security of supply issues are of a long term and insurance type nature and cannot be found today in gas and electricity markets

- There is little chance that they develop given the tendency of European governments to intervene in case of disruption in favour of their national systems

- **We are left with a basically not tackled energy security issue**

Security of supply issues have to be approached as a risk management issue

Business as usual capacity expansion problem

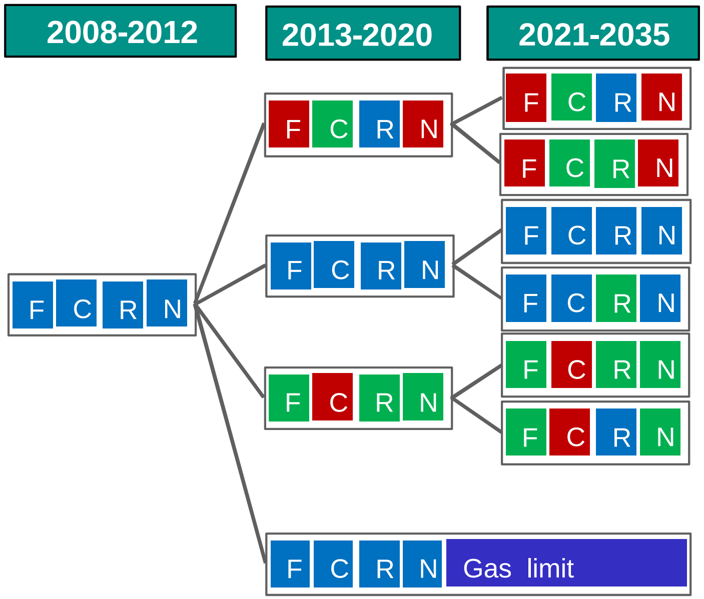


Business as usual risks

Investments should be profitable and offer a hedge against BAU risks: the BAU capacity expansion pattern

Security of supply issues have to be approached as a risk management issue

Security of supply adapted capacity expansion problem

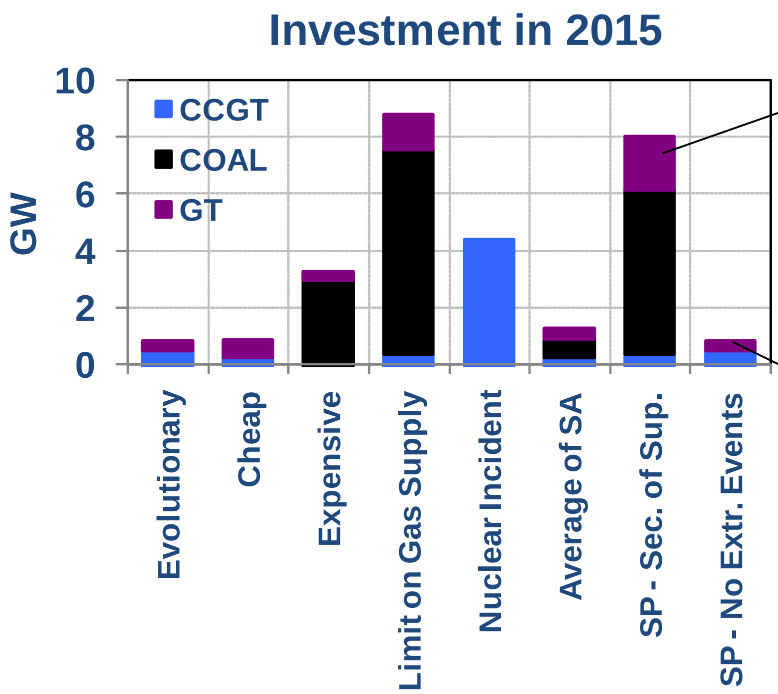


Business as usual risks

Disruption of gas supplies

Investments should be profitable and offer a hedge against BAU & disruption risks: the security of supply adapted capacity expansion pattern

Security of supply issues have to be approached as a risk management issue

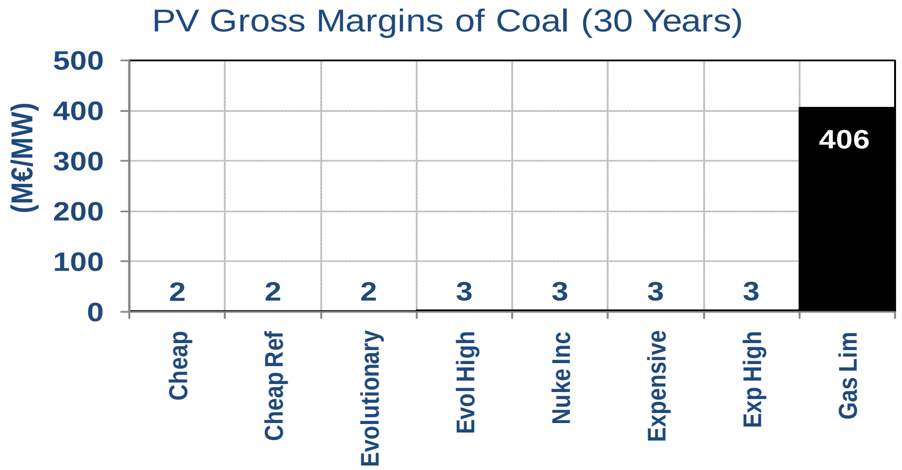


Security of supply adapted investment pattern

More coal units to hedge gas risk

BAU investment pattern

Competition will not spontaneously generate those investments that address security of supply



Very high gross margin in the gas supply disruption scenario, which has a low probability.

Coal investments are needed to secure the supply of electricity from a system operator’s point of view. However, from a company’s viewpoint, it is a rather unattractive investment, as it is a bet against an unlikely event.

Gas plants are attractive most of the time but loose money during disruption

Both plants break even with respect to the <u>whole</u> set of scenarios

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Financial instruments that would be able to tackle security of supply issues are of a long term and insurance type nature and cannot be found today in gas and electricity markets

Electricity intensive consumers have asked for a certain type of security of supply to be protected from price vagaries.

Contracts like Exeltium are sourced in nuclear energy, which is not a redundant/uneconomic capacity and believed to be more economic in the short to medium term horizon.

We are here in the opposite situation: the “redundant” capacities are not economic in the short to medium term. This is a true strategic reserve, something that competition does not normally induce in practice. Financial engineering has never gone as far as creating products to tackle that.

There is little chance that they develop given the tendency of European governments to intervene in case of disruption in favour of their national systems

Even if CDO on these plants did exist, investors are far from being sure to collect these high profits that are the conditions for the market to help in security of supply

Governments in Europe might intervene in case or disruption in favour of their national system. The ex-post market would thus not be competitive but administrated.They might also explain that coal plants are making windfall profits or extraordinary rents that should be taxed.

Investors who rationally expect this intervention will therefore not invest in high-risk plants, even if the market has developed the adequate financial instrument

Conclusions

- Relying on competition to deal with security of supply amounts to relying on the weakest part of competition because it is where the markets are most missing

- Financial instruments that would be able to tackle security of supply issues have a quite speculative payoff , are very poorly understood and have been so far non quantifiable because of our lack of experience with substantial disruption of supply.

- The fact that governments may intervene at the time of settlement to opportunistically modify this latter does not simplify things.