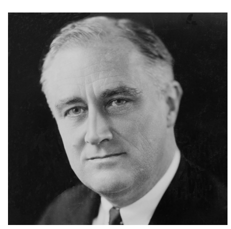
SECURE – SECURING EUROPEAN GAS SUPPLIES

SECURE POLICY RECOMMENDATIONS STAKEHOLDER MEETING

SECURE

“Competition has been shown to be useful up to a certain point and no further, but cooperation, which is the thing we must strive for today, begins where competition leaves off”.

- Franklin D. Roosevelt



AGENDA

- Scope of SECURE Natural Gas
- Recent dynamic issues in security of supply and gas markets
- Security of Supply Index
- SECURE - main conclusions and recommendations

BROAD SCOPE OF STUDY

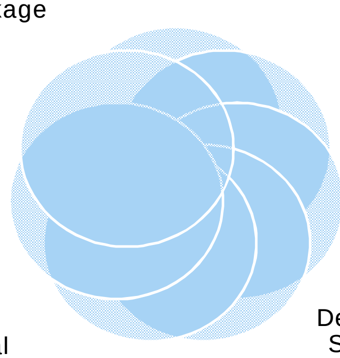
DYNAMIC AND RECENT ISSUES IN SECURITY OF SUPPLY

Ukraine crisis

20/20/20 EU climate package

Increasing oil and gas prices – oil at 147 $ per barrel

New EU Natural Gas SoS regulation



Financial/ economical crisis

Decoupling of oil and gas prices

Delay of projects e.g. Shtokman, Skanled

Shale gas – Technological breakthrough in the US

Belarus crisis

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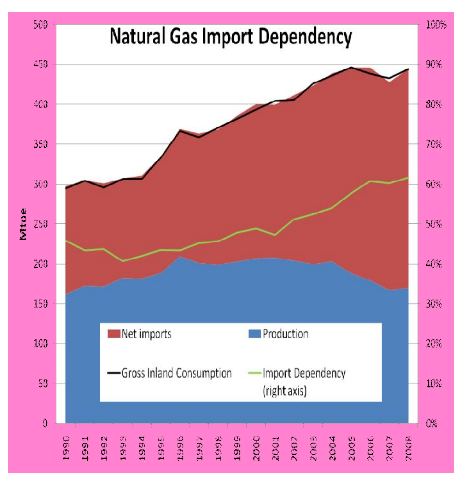
Long term security of supply - Uncertainties about future gas import needs

- EU gas production passed its peak in 1996 and since 2004, production has entered a long term decline
- Gas demand forecasts:
  - The EC and IEA forecasts over the past 5 years show downward revisions
- Volatility of energy prices
- Transit issues
- EU's energy policy (e.g. 20/20/20 targets)
- Worldwide financial and economic turmoil
- Role of unconventional gas



The EU and its suppliers need to reduce this uncertainty together

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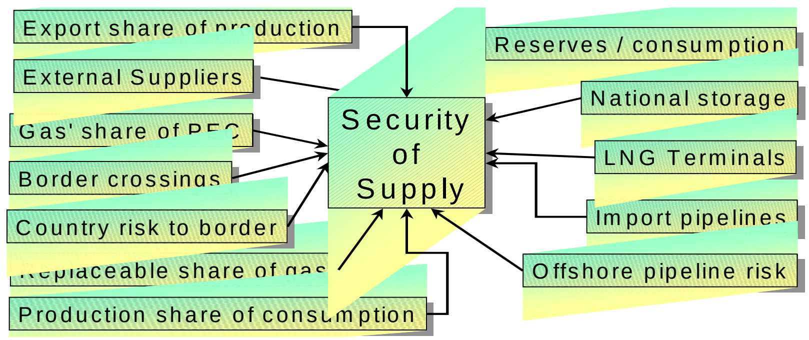
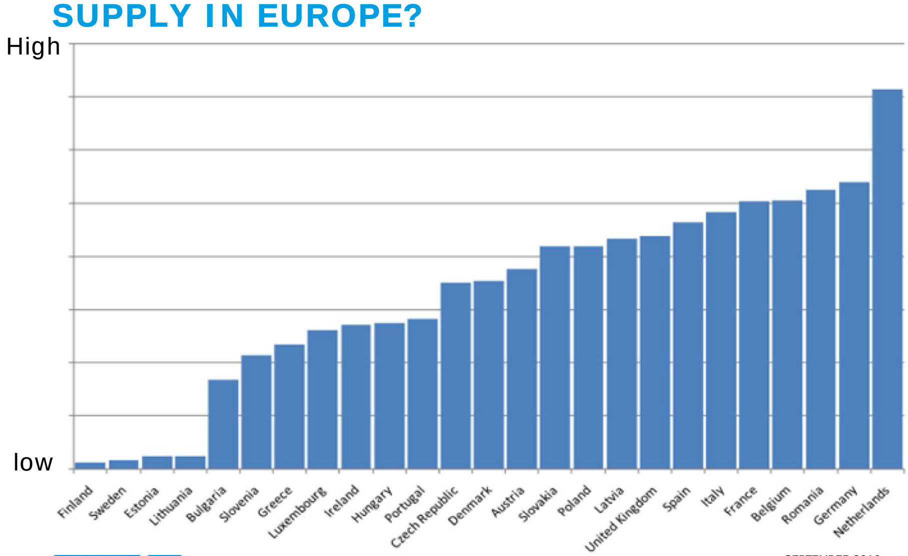
CREATION OF A SECURITY OF SUPPLY INDEX

- Index allows for country specific characteristics
- Allows for assessment of SoS impact of new investments and policies
- Allows for analysis of scenarios

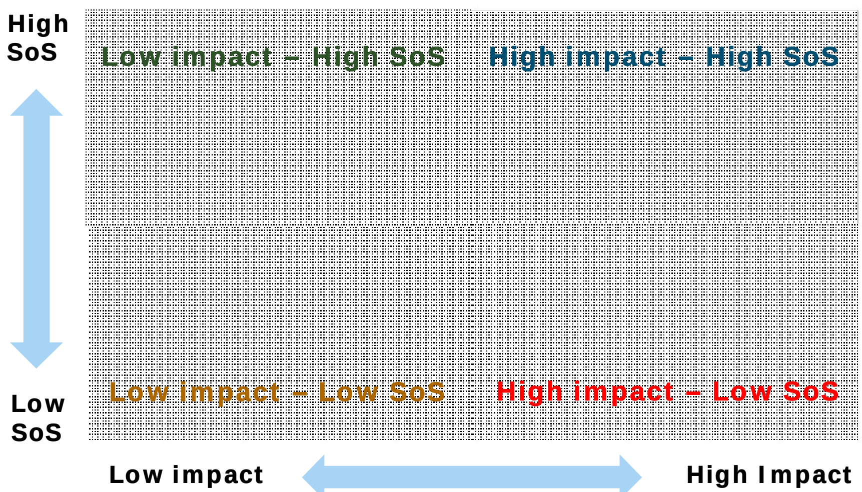


THE PRESENT SITUATION OF SECURITY OF SUPPLY IN EUROPE?



Source: Ramboll SoS index

SECURITY OF SUPPLY IN THE EU – RISK AND IMPACT 2010 2050



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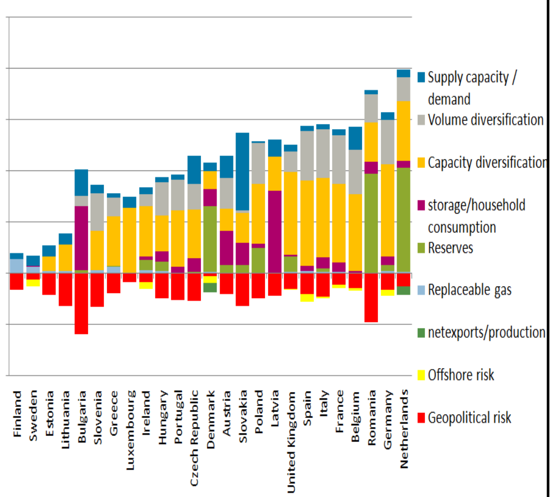
Source: Ramboll SoS index

THERE IS NO SIMPLE RECIPE FOR SOS NOR RESPONSE TO SUPPLY DISRUPTION.

- Natural gas security is both a question external and internal issues e.g. diversification but also demand side and internal factors such as fuel switching and storage.
- All SoS parameters may vary due changes in demand and supply or because they are subject to change of circumstances such as policy.
- Thus securing supply is a mix of measures and forward looking policies.



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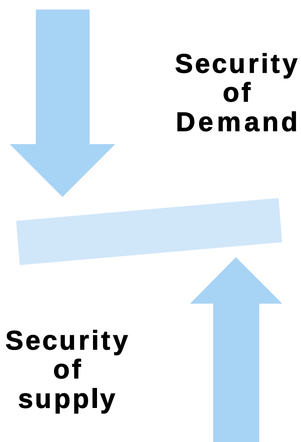
Source: Ramboll SoS index

SECURITY OF SUPPLY / SECURITY OF DEMAND – TWO SIDES OF THE SAME COIN



- Security of Demand
  - Long term contracts
  - Clear EU signals and policy on natural gas

Gas prices should reflect supply and demand in the long run

- Security of supply
  - Flexibility
  - Diversification – routes and sources
  - Interconnection
- Security of transit
- Security of regulation

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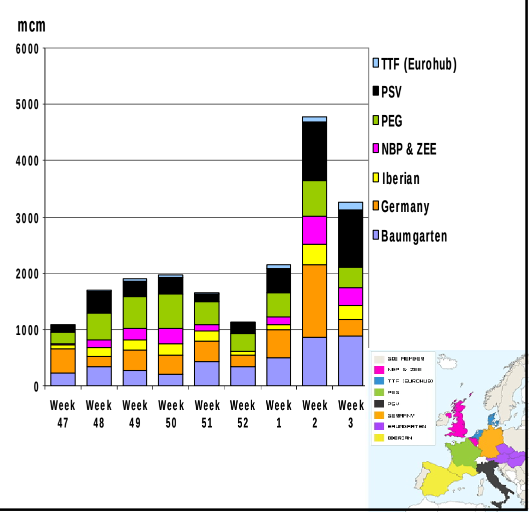
MARKET DEVELOPMENT AND SECURITY OF SUPPLY

- Increase interconnection to allow markets to function
  - Storage
  - Fuel switching
  - Increased production
  - Alternative imports
- Improving markets improves SoS and vice versa
  - Allowing gas to flow where it is needed, when it is needed
- Price signals for investments

Increased market cooperation internally increases SoS

Gas storage withdrawal during Ukraine crisis



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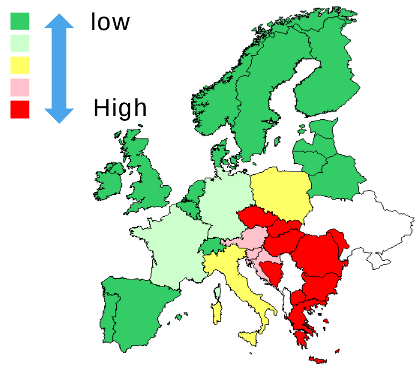
MARKETS ARE HOWEVER NOT THERE YET AS UKRAINE CRISIS SHOWED

- Internal bottlenecks and lack of reverse flow
- Markets value future events lower than governments
  - > Quicker depletion rates
  - > No socio-economic perspective
  - > Lower value of SoS measures
- Markets require unbundling – SoS prefers vertical integration
- SoS can impede market development e.g. strategic storage
- Success of unconventional gas in the US may not necessarily be repeated in Europe
- Financing SoS

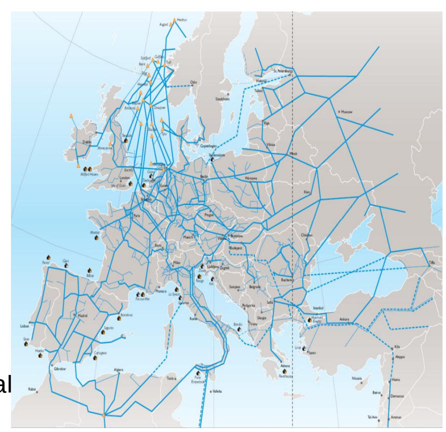
Thus we need regulation as well as continued market development

Impact of 2009 Ukraine gas crisis



REGULATION AND COOPERATION BETWEEN CONSUMERS, PRODUCERS AND TRANSPORTER

- Industry focus shifting from oil to natural gas
- Solidarity and cooperation between consumers and producers
- Strengthening of external cooperation
- Ukraine -Independent Transmission Operator
  - Tripartite setup - Ukraine, EU and Russia
  - Metering
  - Ensure investment
- Legislation regarding unconventional gas to be streamlined and reviewed



Map source: Eurogas Annual report 2008/09

THANK YOU

"It is not the brains that matter most, but that which guides them -- the character, the heart, generous qualities, progressive ideas."

- Fyodor Dostoyevsky

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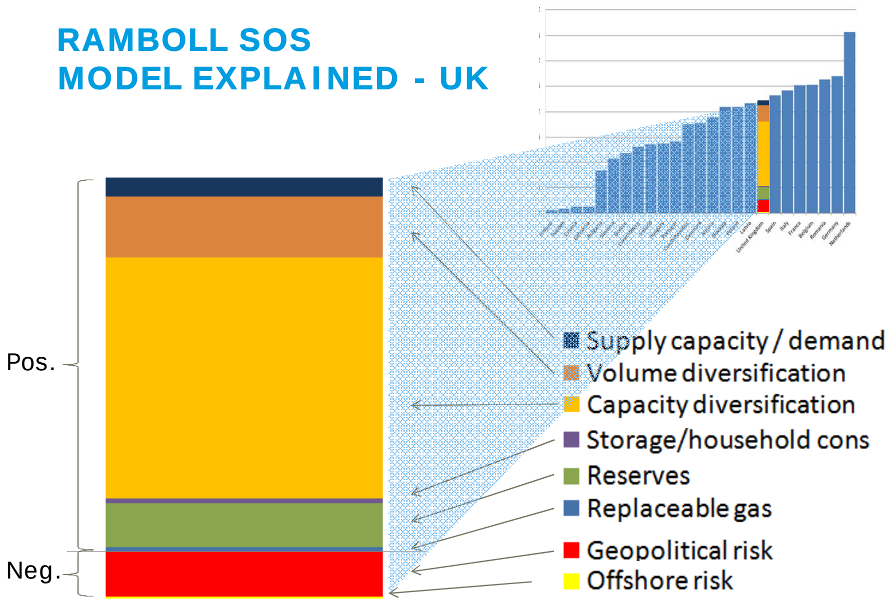
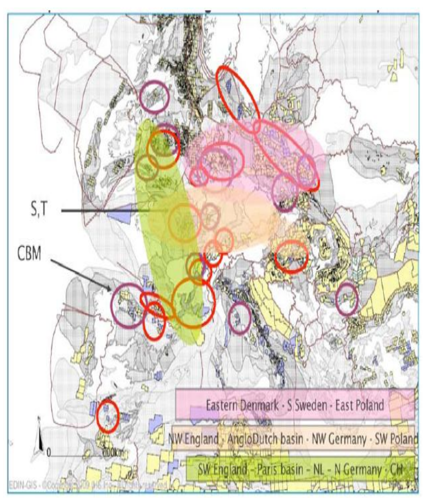
EXTRA

RAMBOLL SOS MODEL EXPLAINED - UK

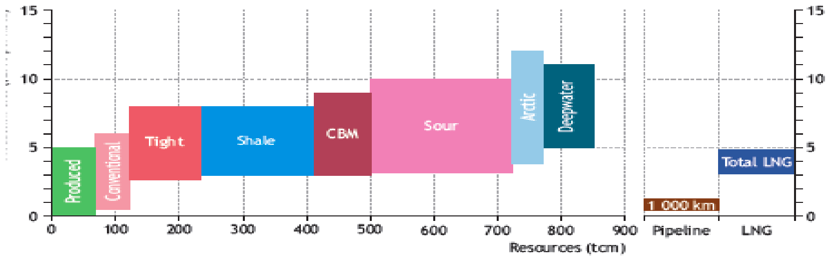


THE UNCONVENTIONAL REVOLUTION STILL HAS A LONG WAY TO GO IN EUROPE

- No lack of potential resources in Europe but unproven
- Lack of knowlege and technology
- Complex resource
- Wells cheap in US but expensive in Europe
- Not the same 'wide open plains'
- Stringent legislation
- And also fundamentally we have the gas and reliable partners



GAS PRODUCTION COSTS



Source: WEO 2009

- Conventional gas may be cheaper than unconventional – but large uncertainty
- Uncertainties of potential for unconventional in Europe
- Security of supply – what is the potential – short and long term
- Costs for gas production should be studied to evaluate the potential of resources in and around the EU

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CONCLUSIONS - SUMMARY

- Security of demand and SoS are two sides of the same coin.
- Security of demand requires the EU to provide clearer signals regarding future gas demand.
- National and regional differences imply that security of supply levels and mitigation tools will necessarily differ between countries and regions.
- The process of gas market development and the continued liberalisation of the EU's markets is not yet fully realised and there is a pressing concern go ahead with these measures.
- EU gas markets have been shown to invest in markets and not necessarily in security of supply.
- The potential of unconventional gas in Europe to significantly impact upon security of supply is presently unclear.
- The increasing focus on natural gas by oil majors should be used to increase cooperation between producers and consumers – dialogue as well as clear policy signals and a stable regulatory environment are key issues.

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RECOMMENDATIONS - SUMMARY

- Increased cooperation between legislators and oil and gas industry.
- Legislative coherency – energy markets sustainability, market development and security of supply.
- Regional differences in SoS call for policy measures and instruments that allow for regional initiatives.
- Further diversification for areas with a current low level of suppliers and routes.
- Commissioning of an independent transmissions operator in the Ukraine composed of the Ukraine, the EU, and Russia.
- Demand flexibility study in order to assess its ability to mitigate security of supply issues.
- Proactive and decisive policy development toward regions that are expected to play a more important role in gas supply in the future.
- Development of a gas demand forecast.
- Legislation regarding unconventional gas production should be streamlined and reviewed