

Forecasting gas markets

New disciplines needed this century

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Patron



Host

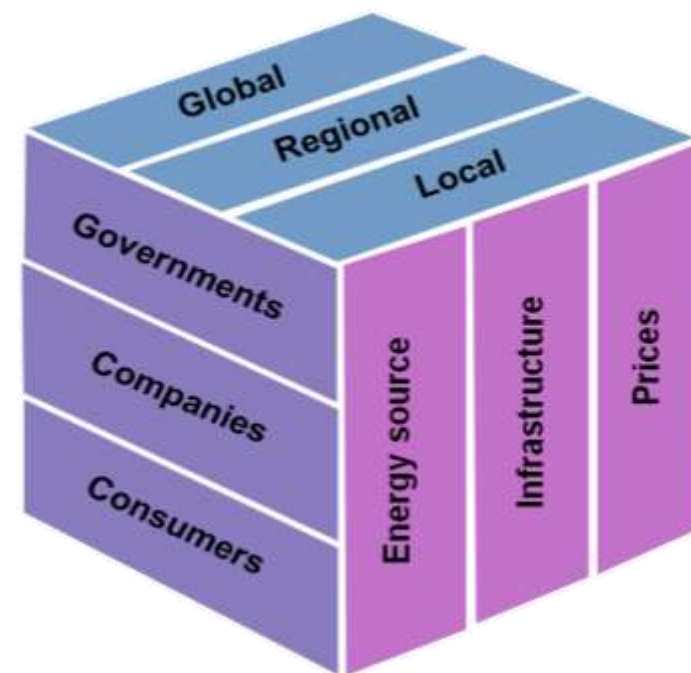


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Gas markets are less predictable – “precious” resource or commodity?

- Many markets are less predictable
 - Gas demand could increase or fall
- Prices matter more than before
 - Also, becoming more volatile
- Politics matter more in free markets -frequent goal changes
- Investors diverse
- Infrastructure vital
- Technology improves
- Many surprises last few years!



Future gas prices – the conventional view

- For many years, supply cost curves have prevailed
 - Uniform rationality assumed
- Some supply cost curves show gas above oil parity in 2025
- Conventional view that a “fair” price of gas is 80% of oil
- We will show that prices could develop in many ways!



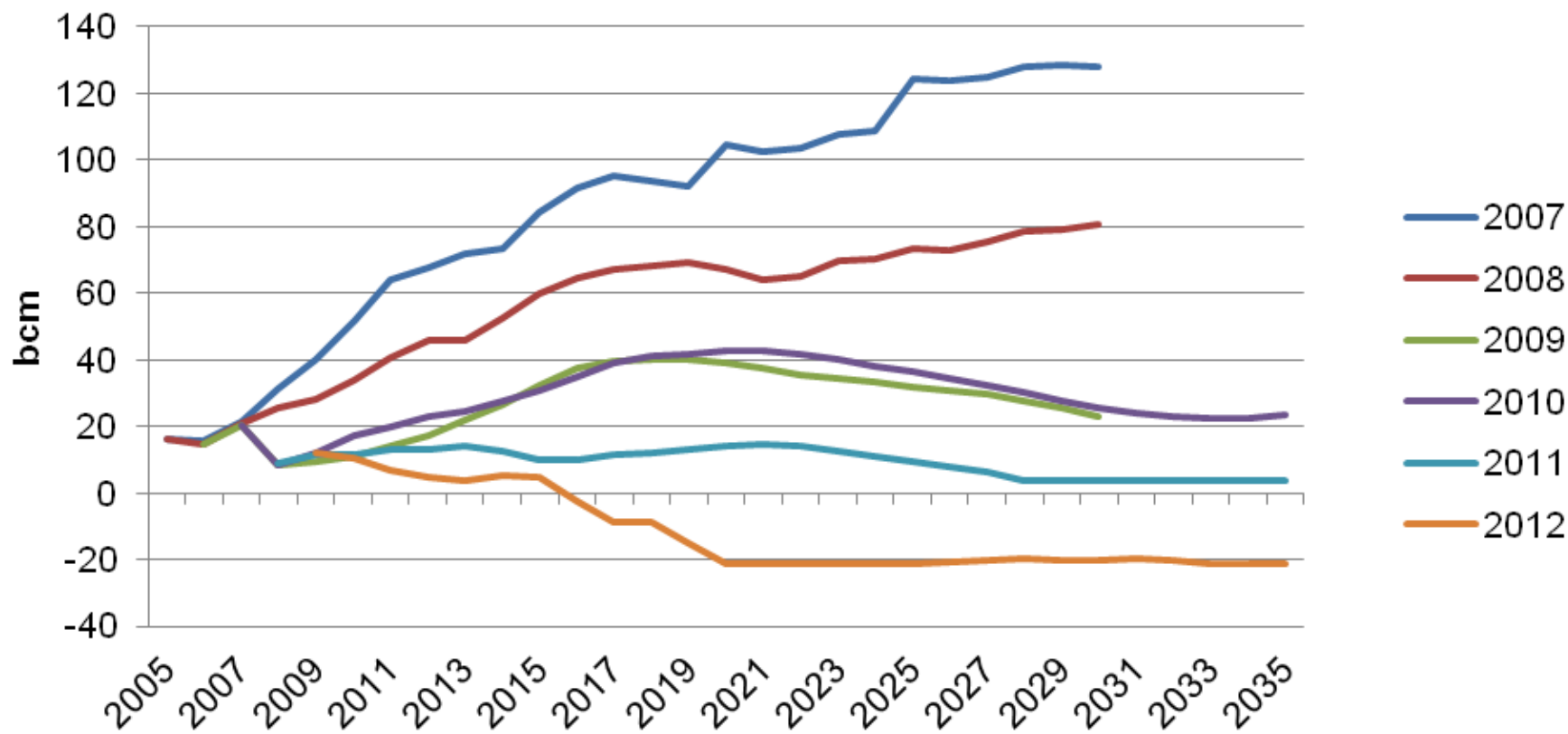
Future demand – the conventional views

- “Gas is the best fuel for all markets”
quick, easy, clean and flexible
- “We have seen strong growth,
this will continue”
- Now, prices, risks, responsibilities and outlook is much
more complex
- This presentation will show new ways of thinking that
could support this



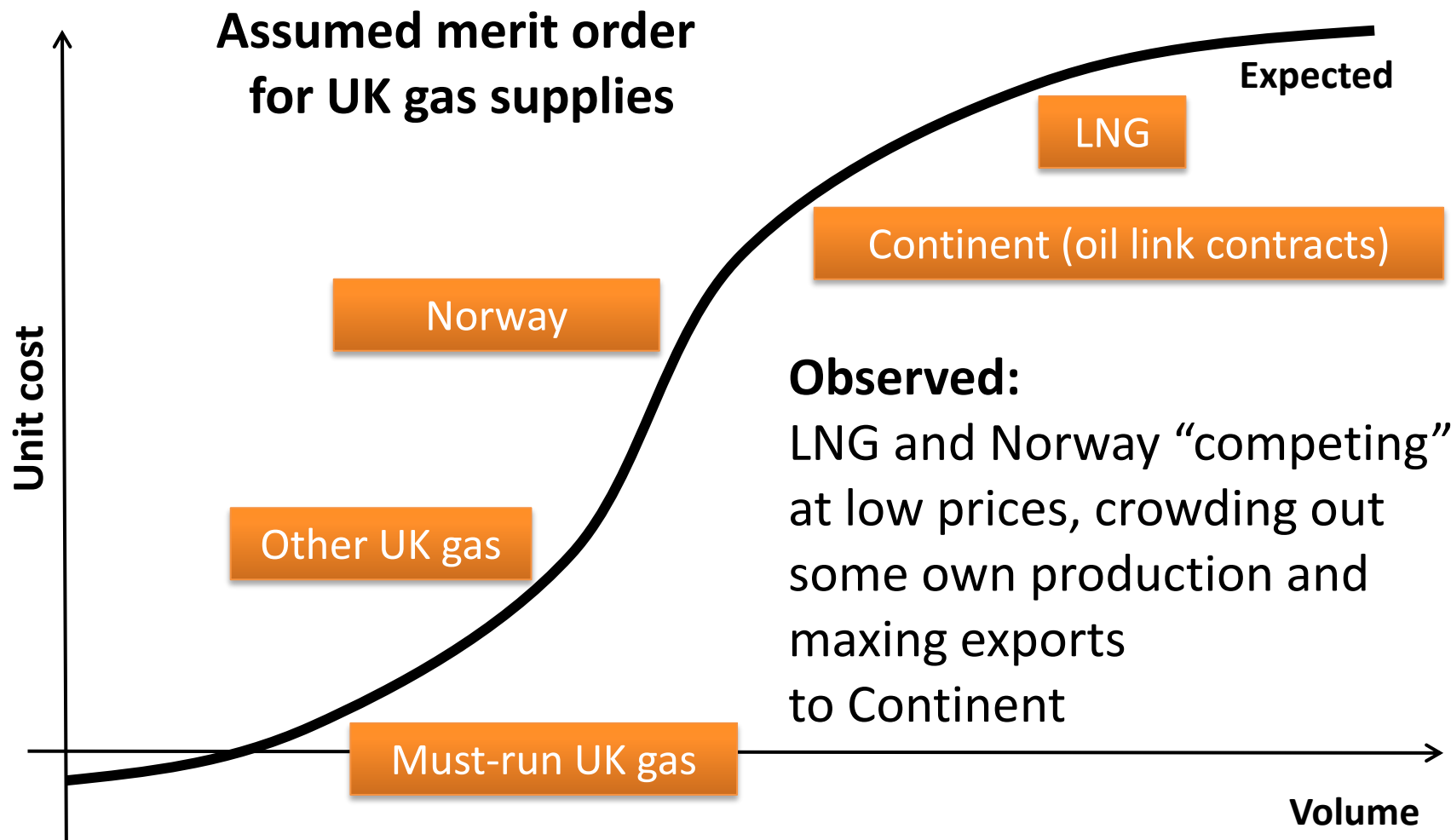
Even comprehensive models fail We suggest new ways of forecasting

Reference scenario for US net imports of LNG (2007-2012)



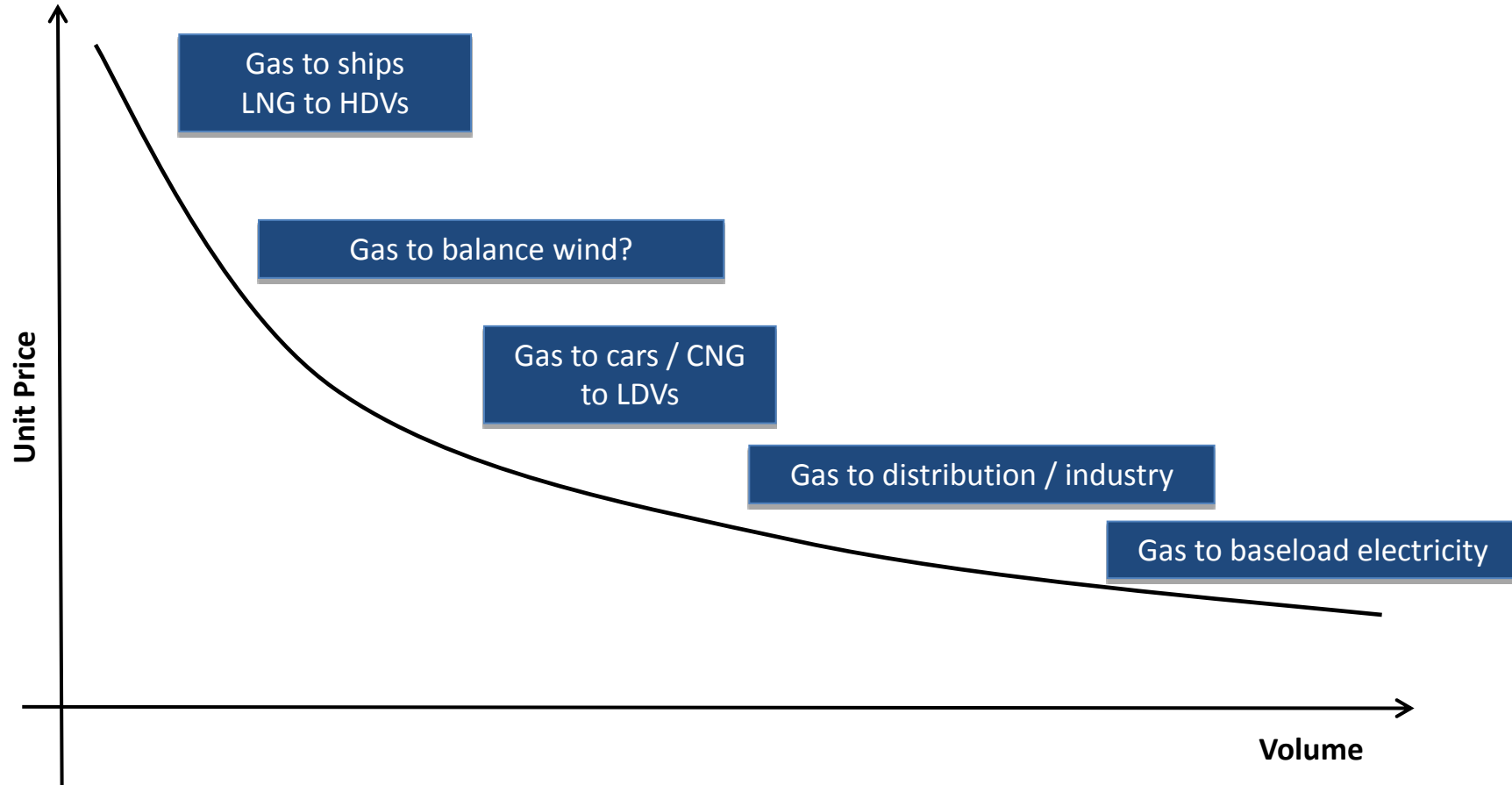
Data: Energy Information Administration (EIA), Annual Energy Outlook (AEO) 2007-2012

Supply costs curves don't always work...



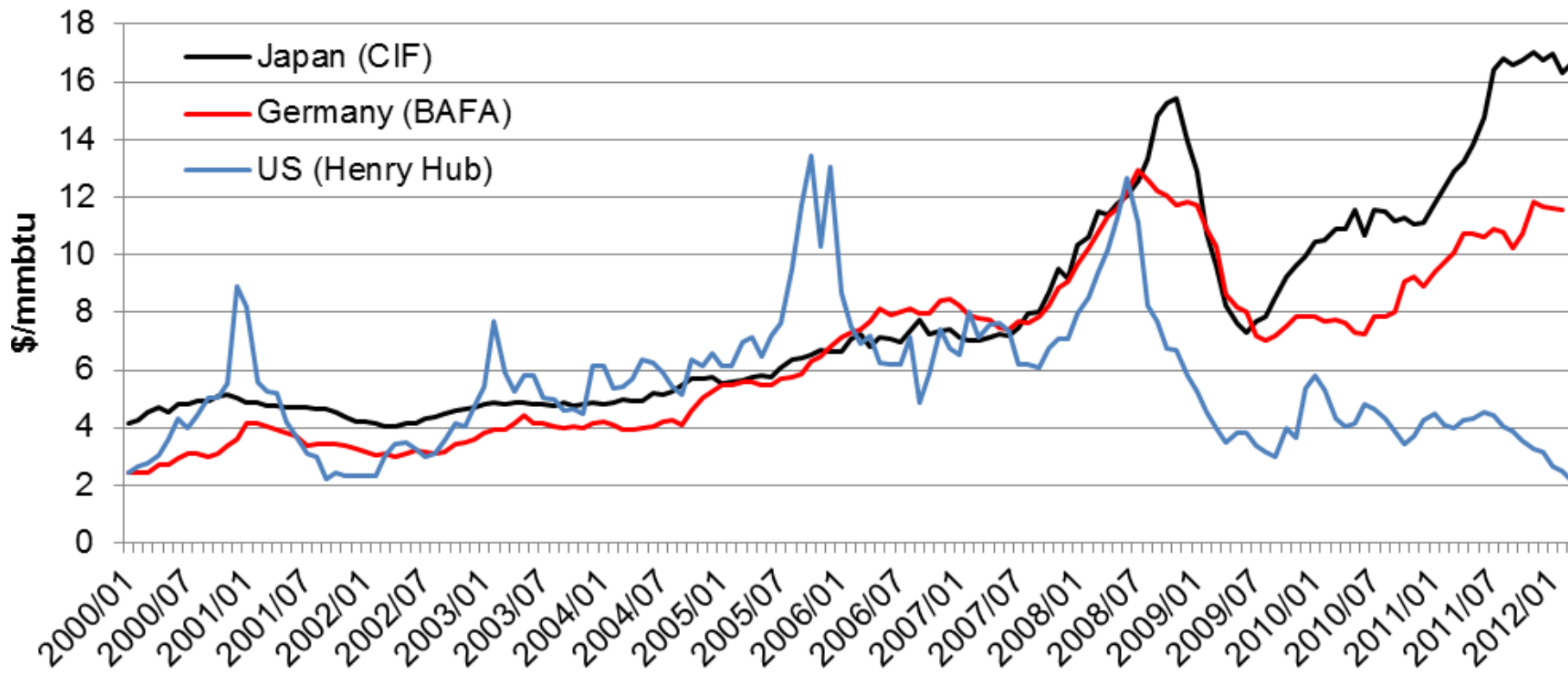
...so demand curves could be useful

Assumed demand curve



Which is the most relevant price ?

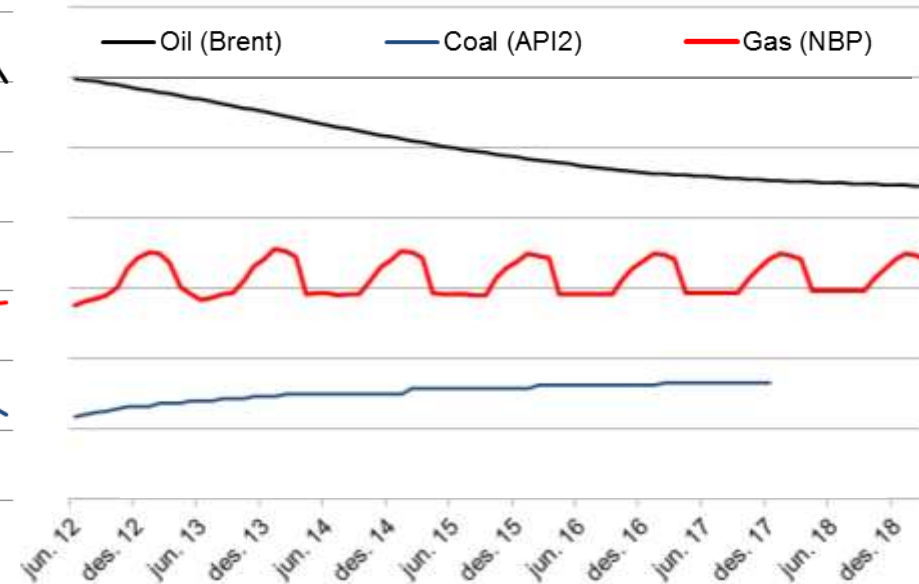
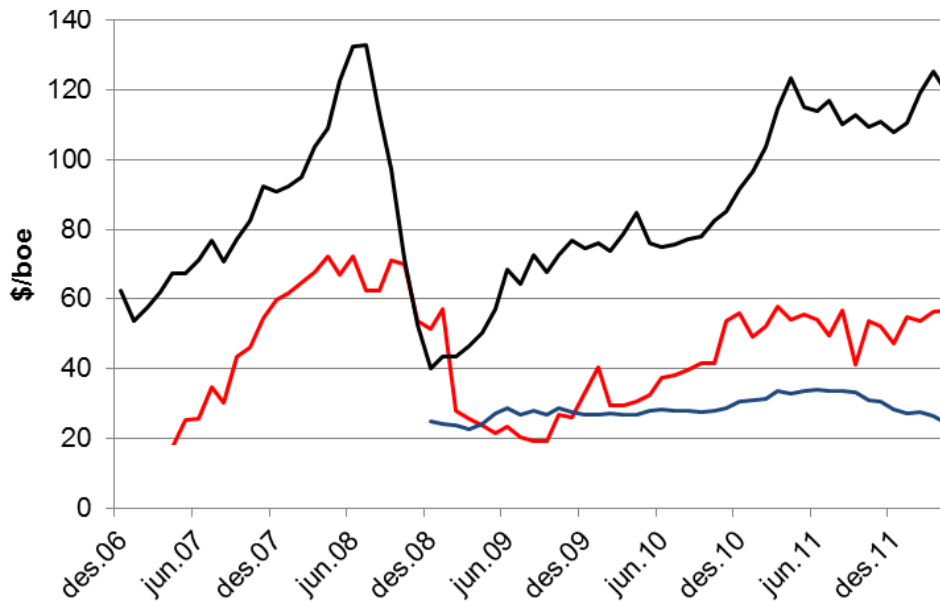
Average monthly prices: US (HH), Germany (BAFA), Japan (CIF)



Data: Japan Trade Statistics, EIA, BAFA – May 2012

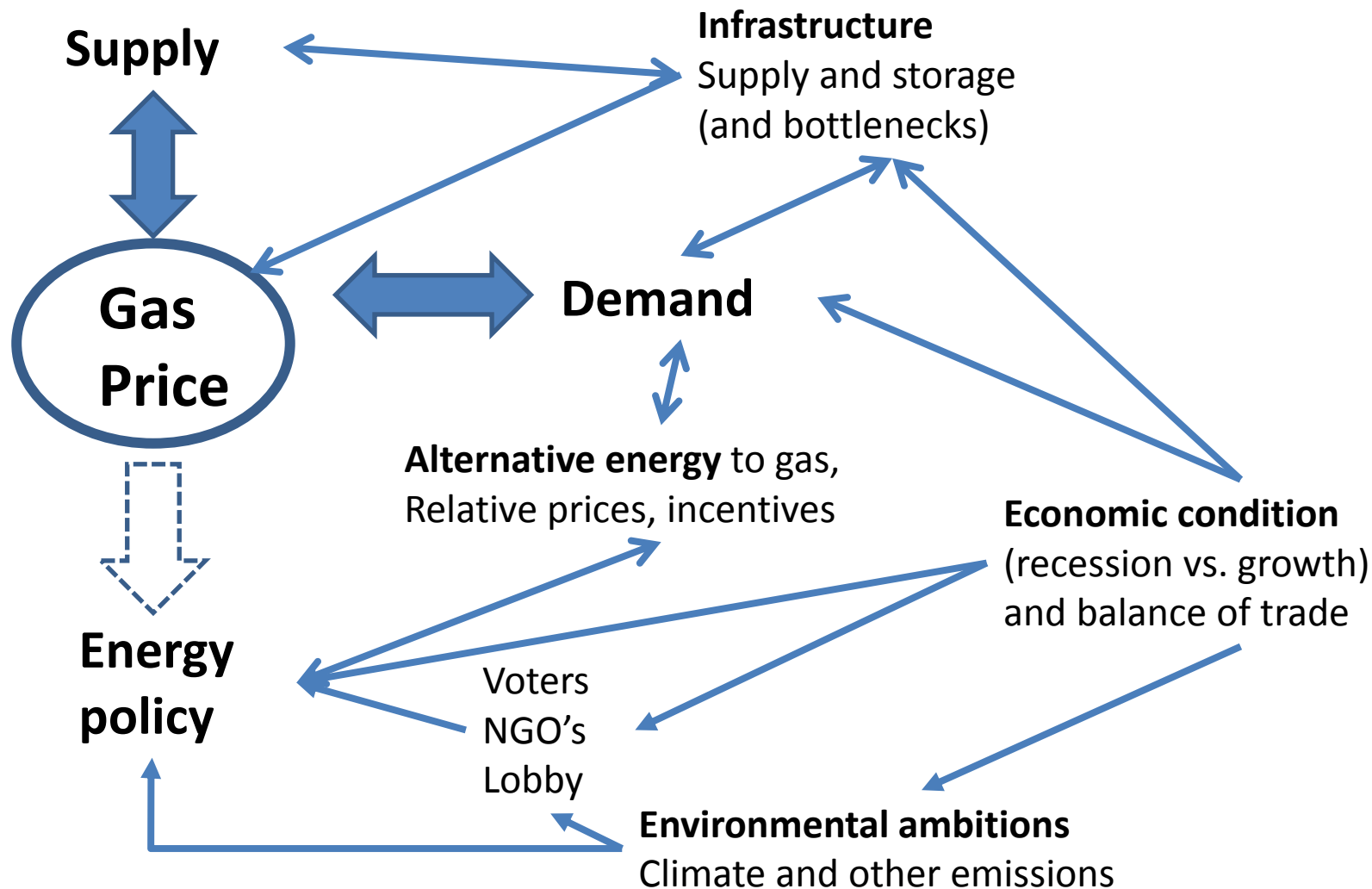
Gas prices: Coal as floor more relevant than oil as ceiling?

European historic spot and forward prices for oil, gas and coal



Data: EIA, ECB, Montel – May 2nd, 2012, 18h00

The picture is complex – Drivers change over time

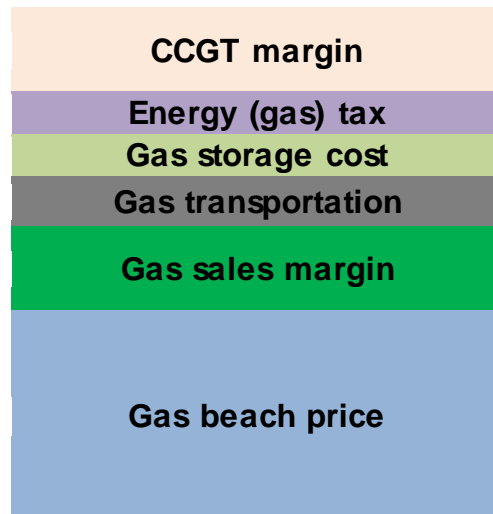


Balancing power – how attractive?

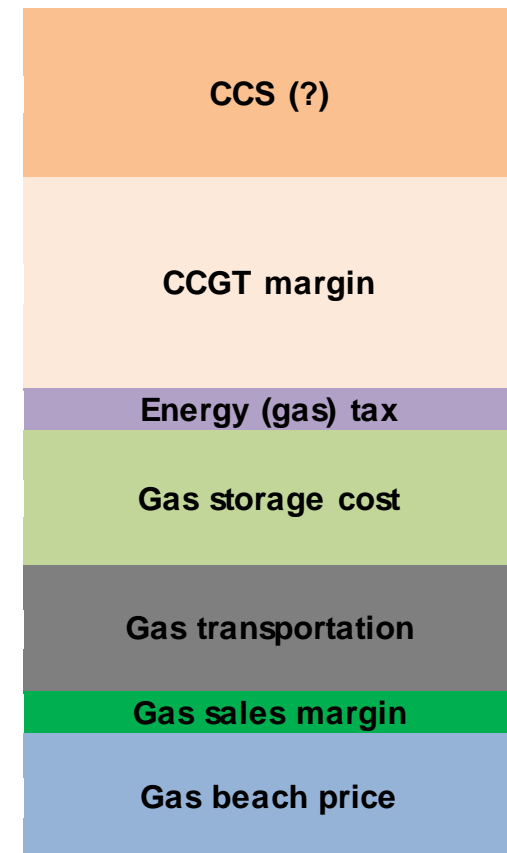
- Starting point:
 - Gas has an advantage in ramping up and down
- Margin would be shared by many
 - Many costs to deduct from the peak electricity price
 - Netback for gas less attractive?

Illustrative sketch: Gas balancing wind

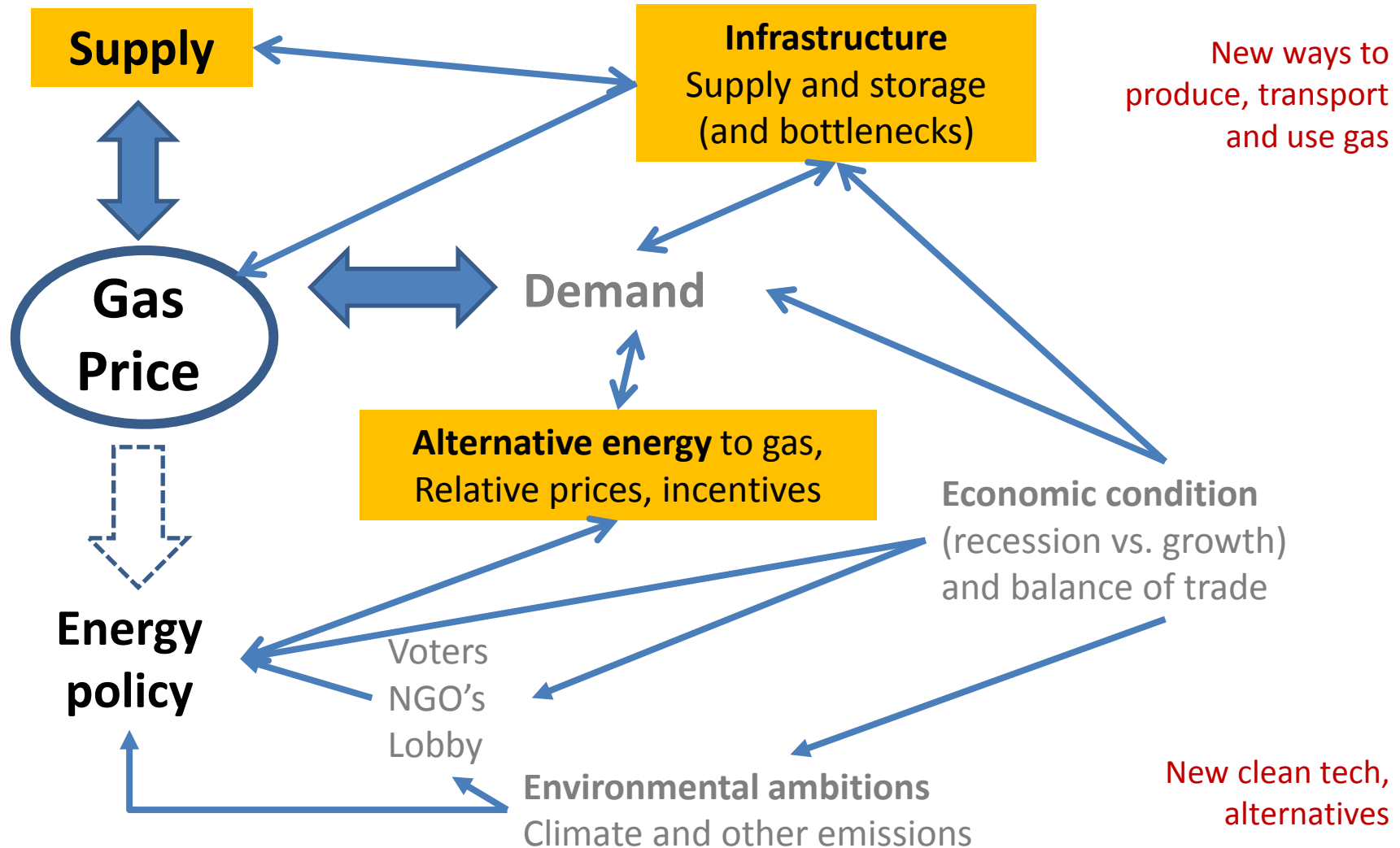
Baseload electricity



Peak electricity



Technology is important & impacts several elements



Infrastructure often key to new activity

- Seen as a necessary investment in integrated companies
- Liberalisation, regulation, specialisation has changed this
- More rather than less – normally best for society

LNG trucks – virtual pipelines?



Source: paccar.com

But so do human factors: Bias and preferences

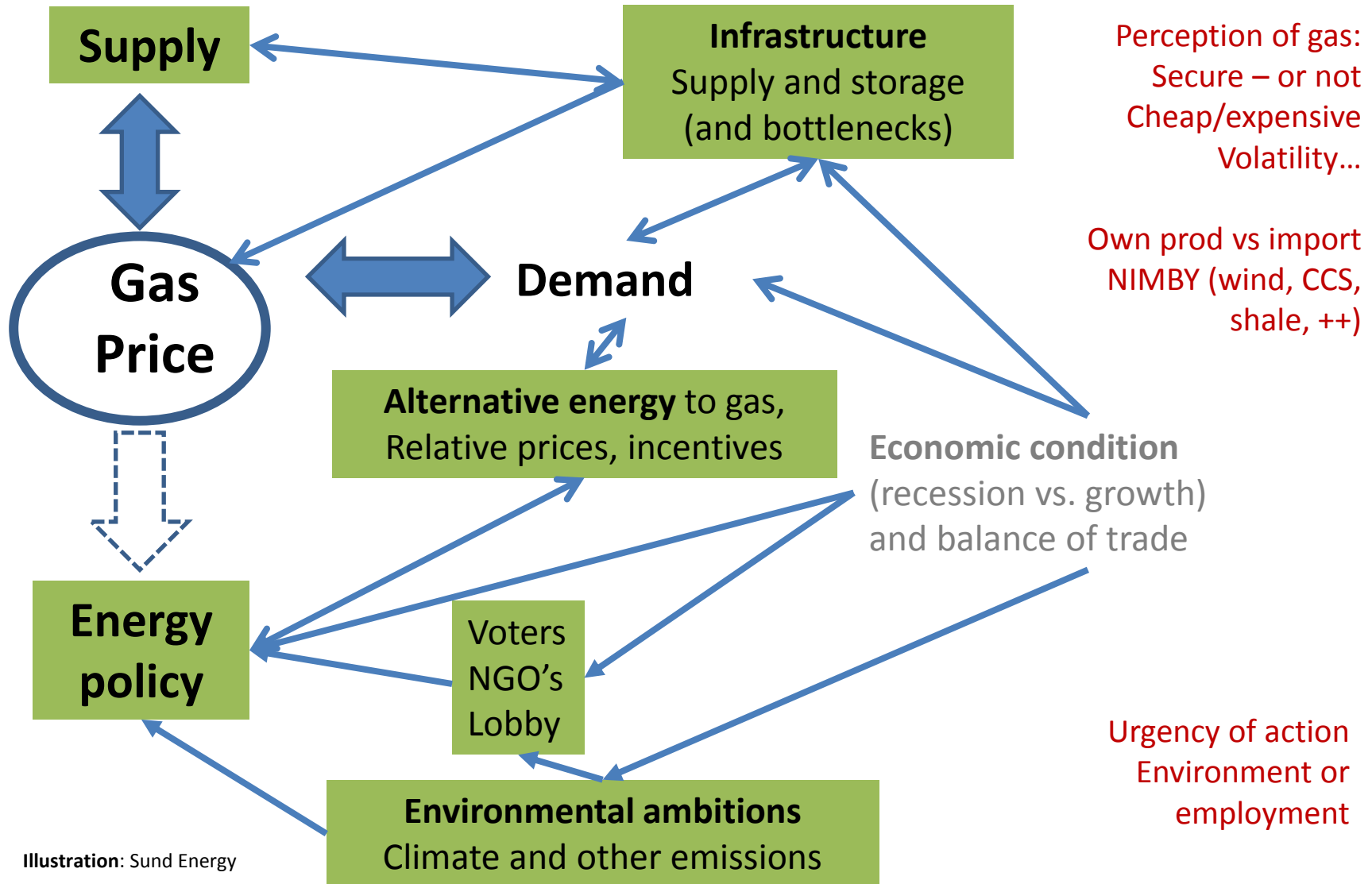
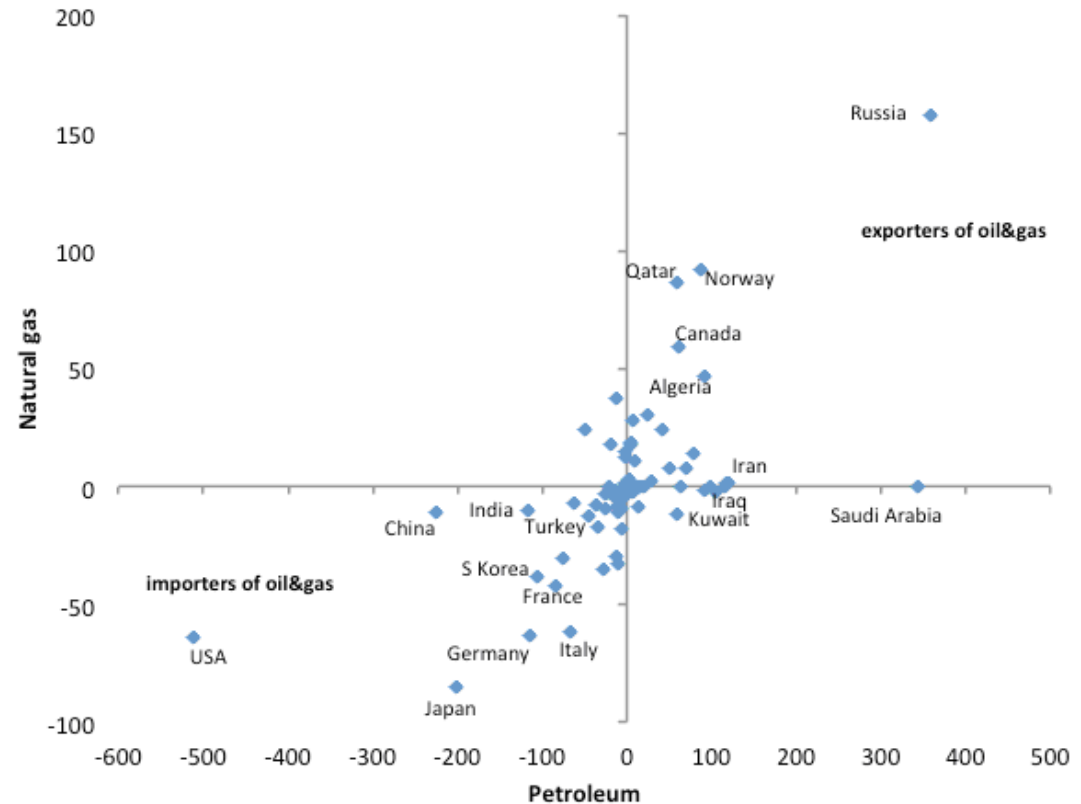


Illustration: Sund Energy

Even countries have personalities: Macho vs. careful

- Resource matters:
Leading exporter vs
securing supplies
- Money matters:
Cost of imports vs
support to own
energy
- Perception of
strength vs
vulnerability

Net imports and exports of oil and gas



Source: Blázquez and Martín-Moreno, April 2012 – Emerging Economies and the New Energy Security Agenda (ARI)

Geopolitics and other political aspects

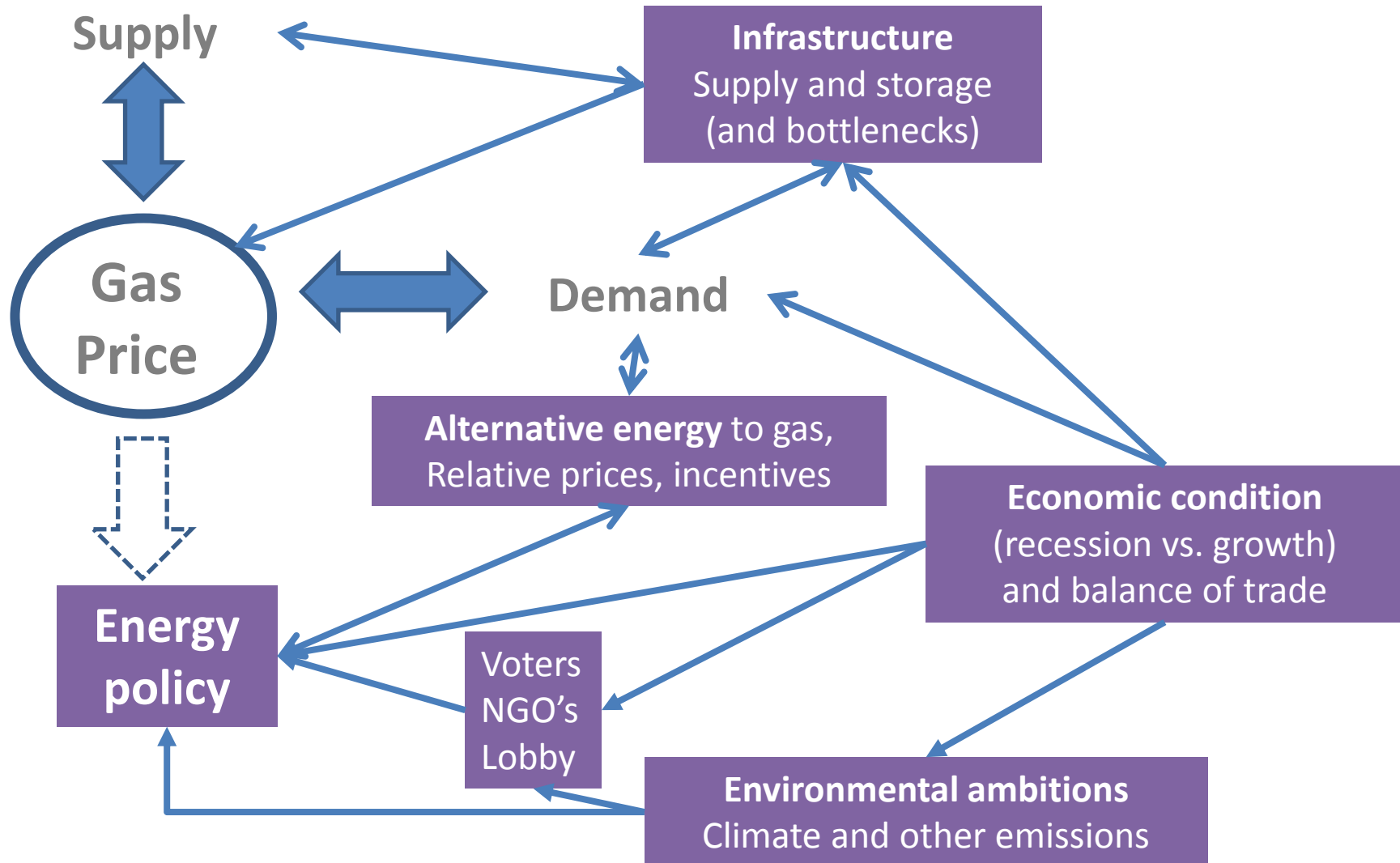
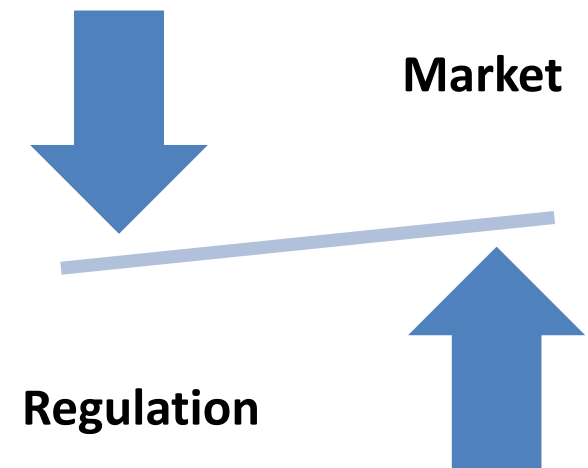


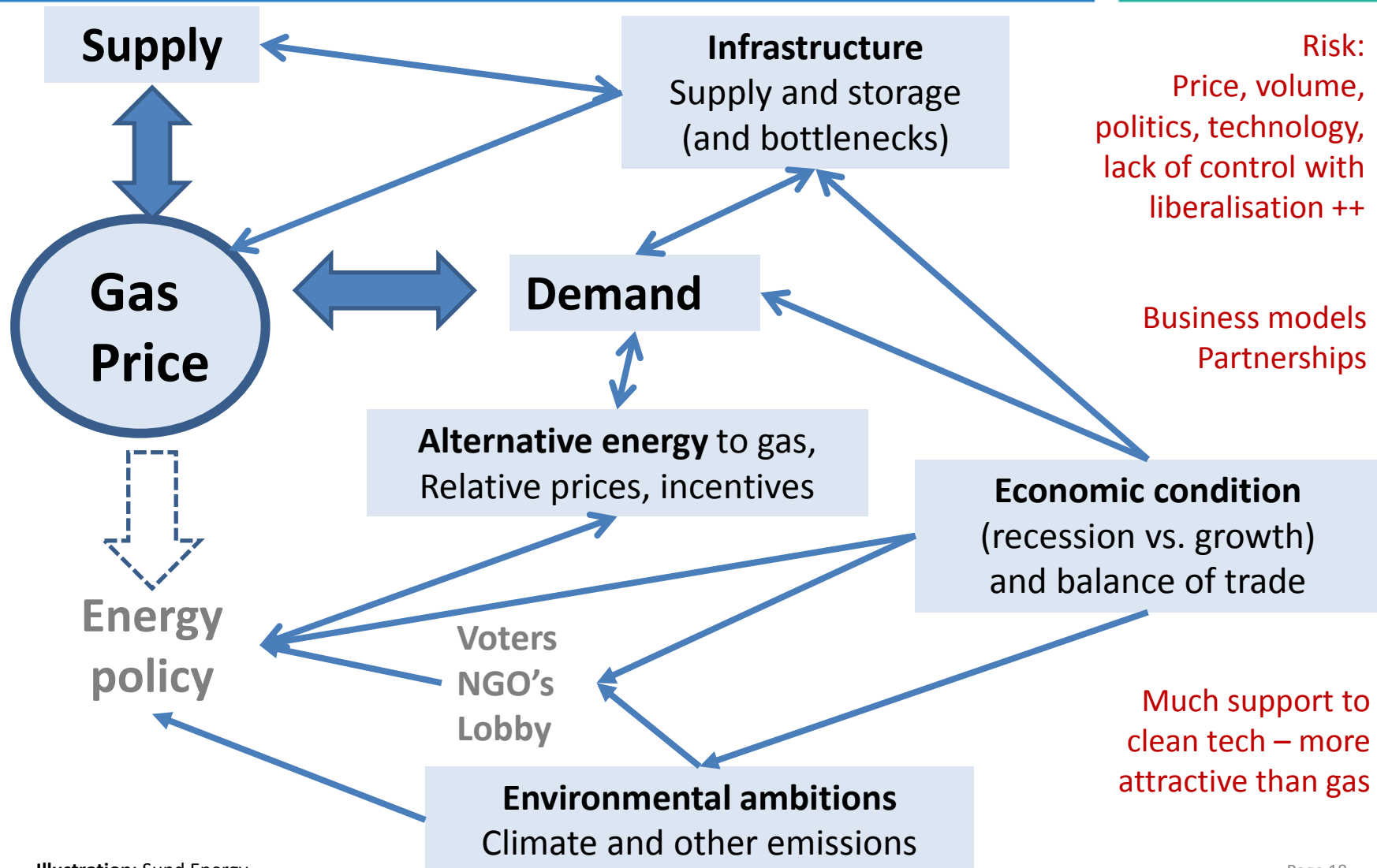
Illustration: Sund Energy

Dilemma: Role of government

- All countries would like to have secure supplies of critical energy
- How to set requirements in a liberalised world?
- Until this is clear – political risk is one of the largest barriers to investment
- Easy way out for the governments (or their TSOs) – book capacity



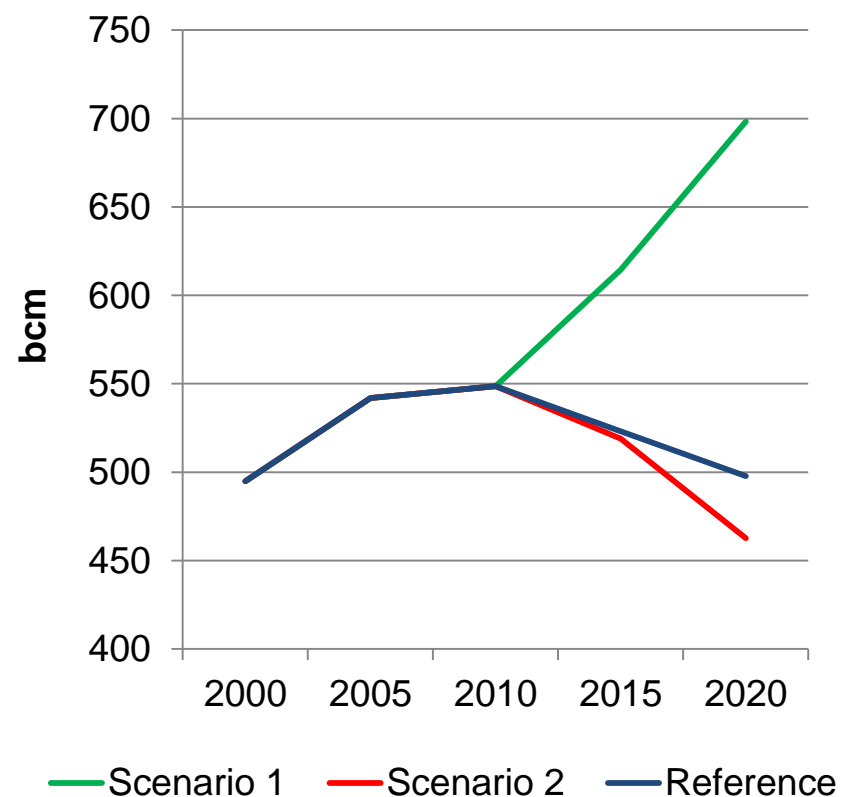
Investors are diverse – preferences, alternatives, drivers



Future gas demand is uncertain: Two scenarios to illustrate

- Scenario 1: Affordable + available
 - More base load
 - More use in transportation
 - More imports needed
- Scenario 2: Managed supplies of “precious” gas
 - Higher prices + lower volume
 - Mainly peak load in electricity
 - More renewables
 - More shale gas
 - Less imports
- This logic is relevant for other geographies, too

EU27 - Scenarios for natural gas use



Data: PRIMES; Sund Energy

What do we do next?

- We need to be more critical to old models
 - Review assumptions, rely less on models only

- We need to think more before using models
 - Second order impacts come quicker in a dynamic world

- Prepare business models and investments for agility
 - Optionality gives strength and robustness

- Let's learn from surprises and avoid some in the future!

We are happy to discuss further!

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