



Main challenges for gas infrastructure in a rapidly changing (energy) world

Pascal De Buck | Fluxys

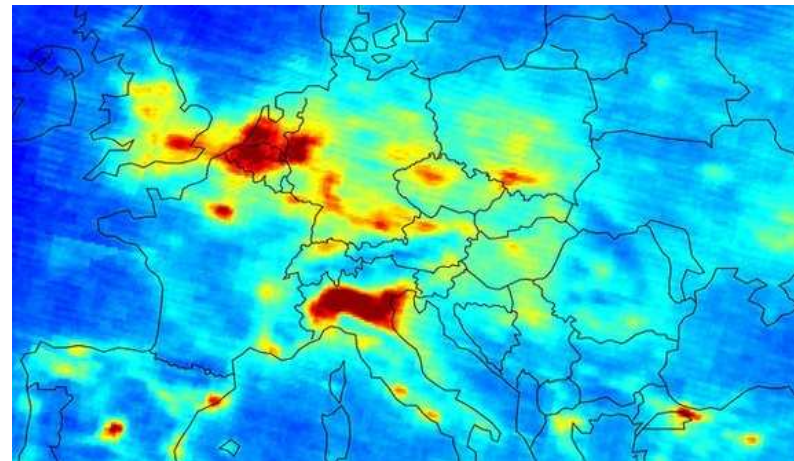
Complexity
Sector coupling
Market fragmentation
Big data
End of fossil fuels
All electric world
Cyber security
Ambiguity
Energy mix
Short-term capacity market
Paradigm shifts
Green gas
Regulatory framework
Volatility
Uncertainty

POLICIES ON CLIMATE CHANGE AND AIR QUALITY: WHAT FUTURE FOR GAS INFRASTRUCTURE?

Ambitious 2030 targets
towards a low-carbon economy

- At least **40%** reduction in **greenhouse gas emissions** compared to 1990
- At least **27%** **renewable energy**
- At least **27%** **energy efficiency** compared to business as usual

Attacking the invisible killer

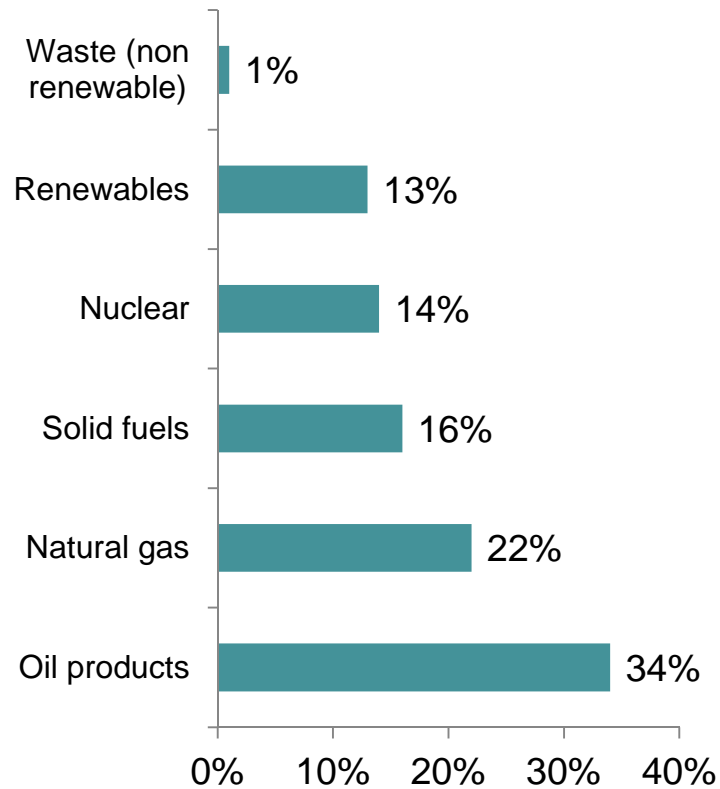


Premature deaths from air pollution
estimated at c. 400,000 per year

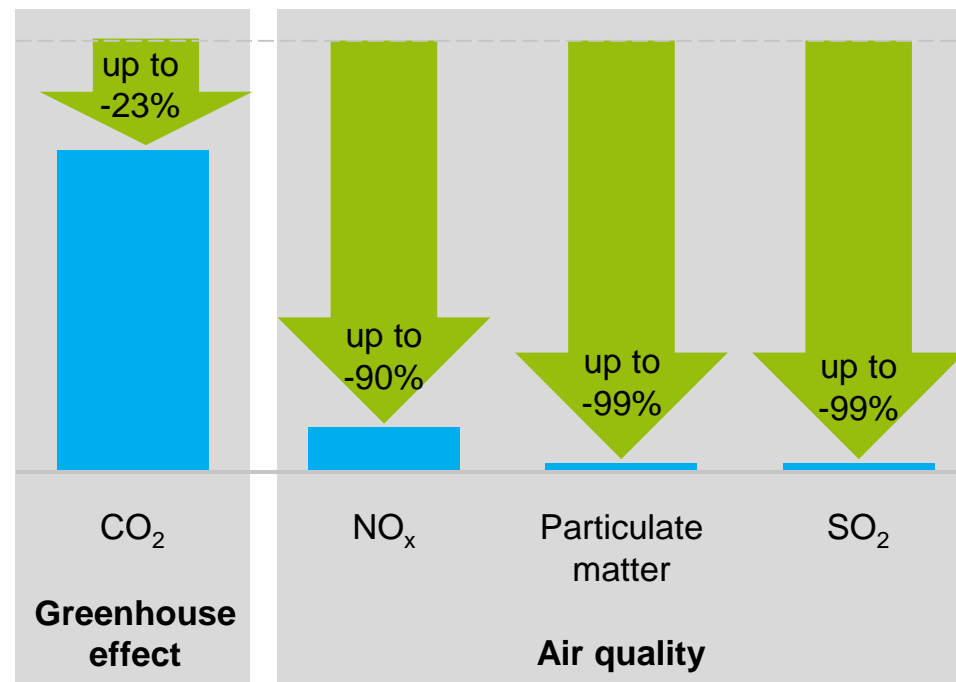
[Environmental satellite European Space Agency – nitrogen oxide
levels over Europe]

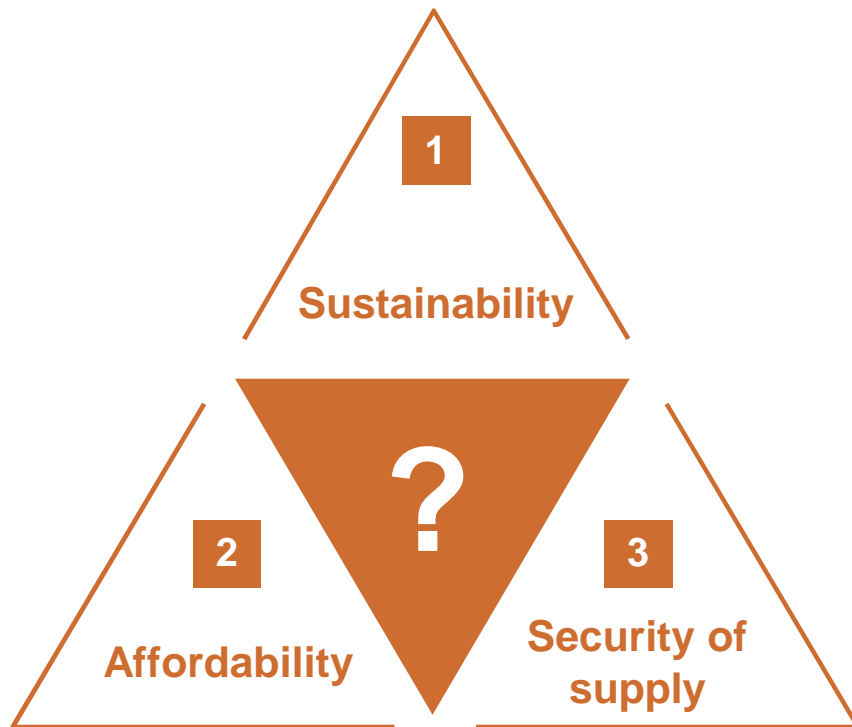
THE CASE FOR NATURAL GAS: BEST EMISSION PROFILE AMONG FOSSIL FUELS

Europe's primary energy mix



Emissions: natural gas compared to diesel, petrol, fuel oil or heavy fuel oil





OUR ANSWER:
GAS & GAS INFRASTRUCTURE
ARE AN INTEGRAL PART OF
THE SOLUTIONS TO FIGHT
CLIMATE CHANGE AND
IMPROVE AIR QUALITY

- No single option will do the job alone
- Use each energy source where it brings most benefits
- Keep options open and work with a mix of solutions

► Today and in the medium run: natural gas

Natural gas: best emission profile
among fossil fuels ► immediate results

- Heating
- Mobility: cars, vans, trucks & ships
- Industry

► In the longer run: infeed of green gas
in the existing infrastructure as well

Power-to-gas



Biomethane



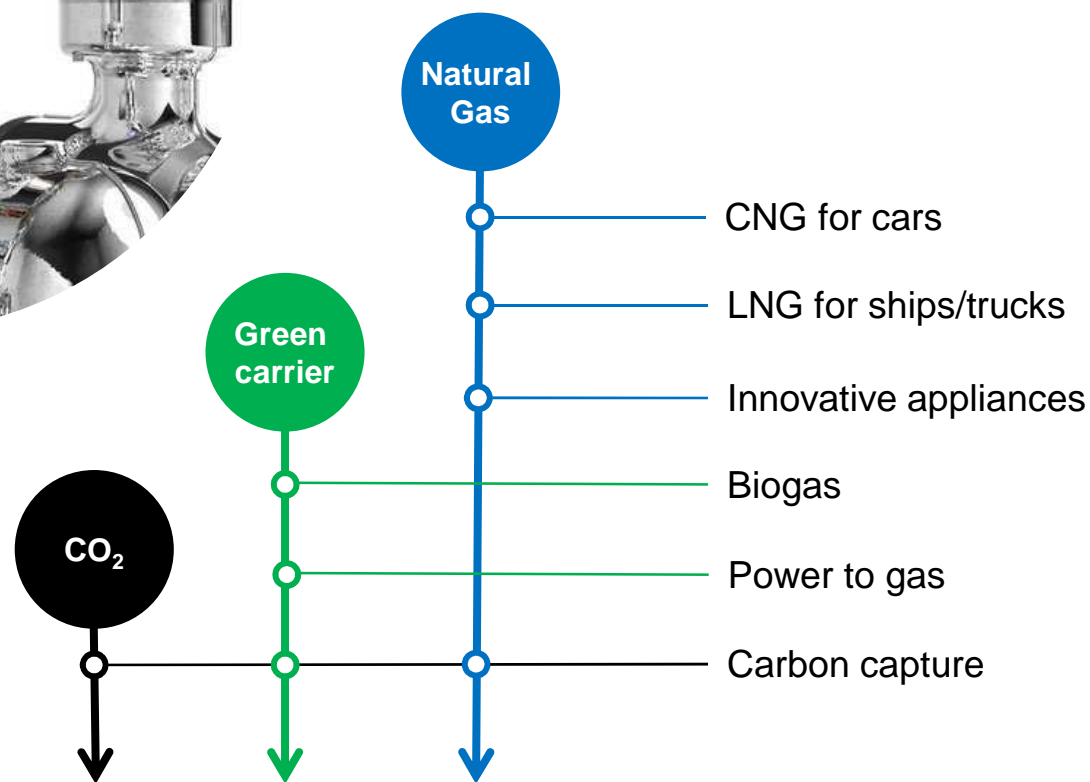
INNOVATION IS KEY



- Sustain gas infrastructure utilisation
- Support development of new markets
- Make gas attractive and our industry a seductive working environment for today's and tomorrow's generations



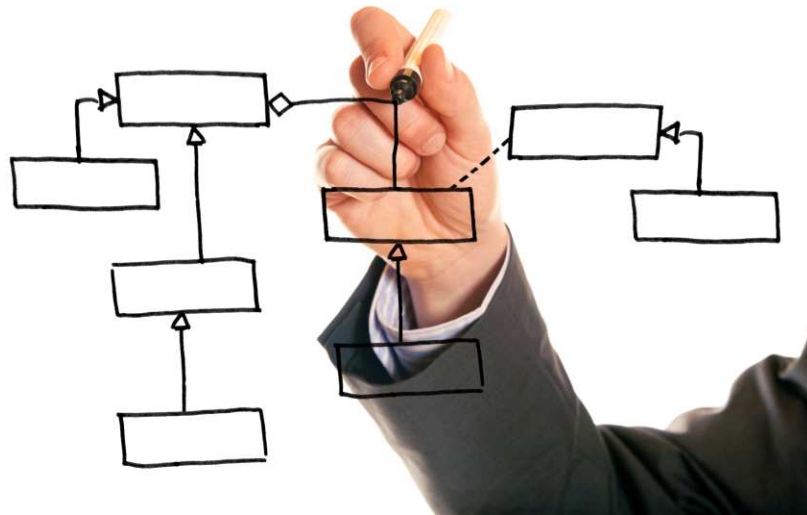
INNOVATION AVENUES: MAKING SENSIBLE CHOICES





HOW TO BRIDGE THE GAS MARKETING GAP?

- Strong marketing needed to reverse image
- Gas market fragmented since EU unbundling requirements



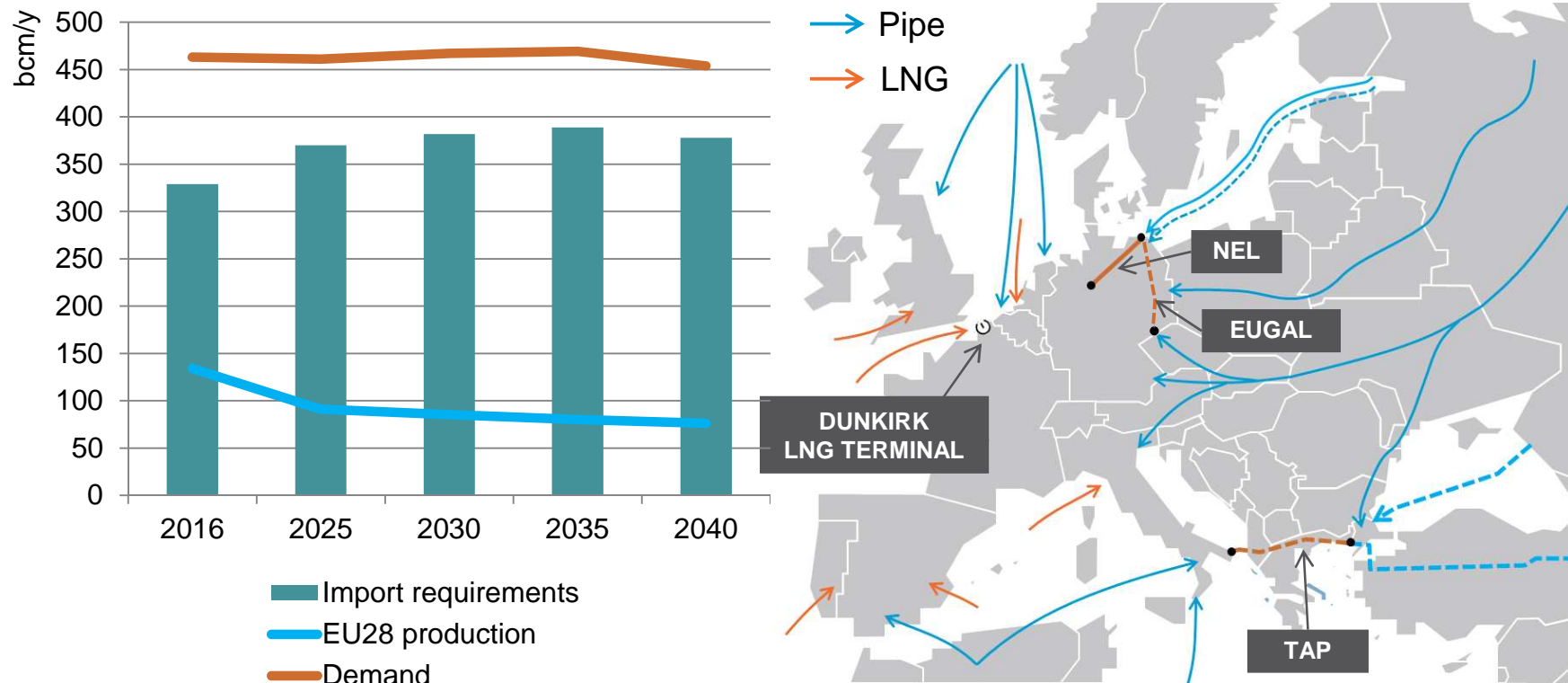
REGULATION & UNBUNDLING: OUR EXPERIENCE

- The value of being proactive and anticipating options: organise rather than undergo change
- Opportunity to build business model and strategy focused on infrastructure valorisation

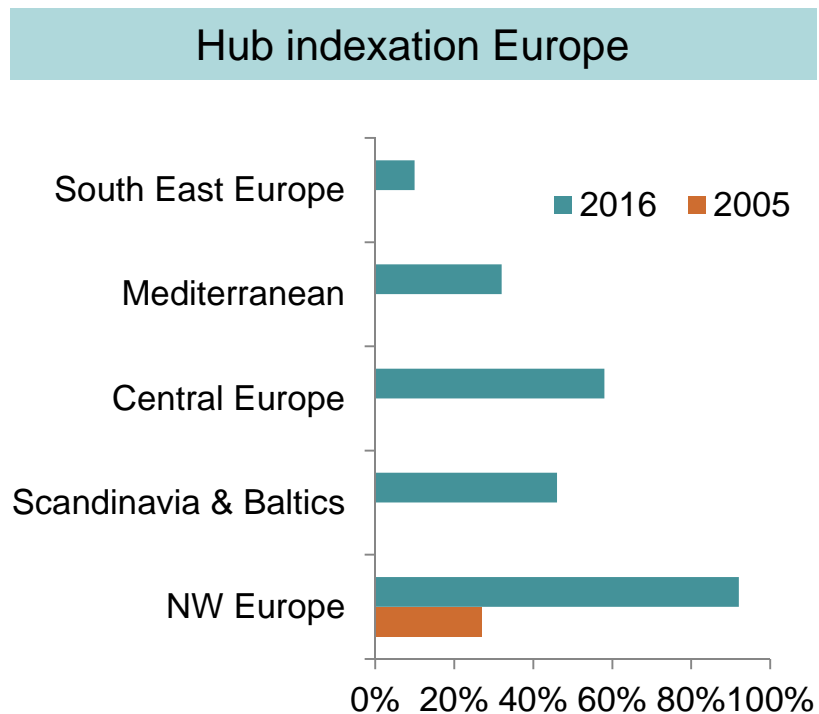
HOW TO COPE WITH THE SHORT-TERM CAPACITY MARKET?



NEW INFRASTRUCTURE FOR BULK FLOWS INTO EUROPE: BACKBONE OF LONG-TERM CONTRACTS

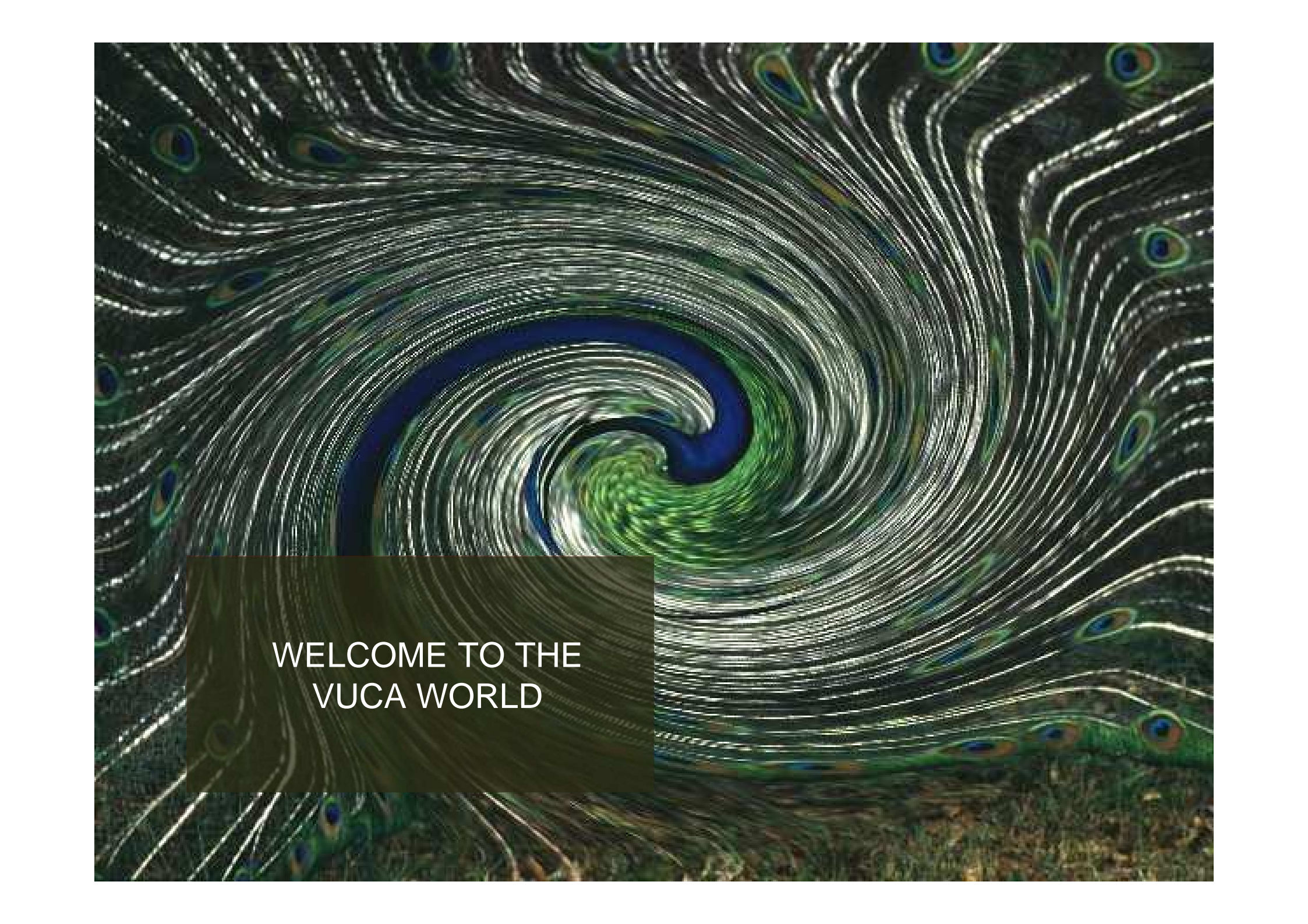


CONTRACT DURATIONS FOR EXISTING ASSETS: CAPACITY FOLLOWS SUPPLY



[IGU Wholesale gas price survey 2017]

- Expiry of initial long-term contracts or exemption periods
- Market preference for short-term capacity
- Pay per use:
 - > Where is the money for keeping capacity available?
 - > Products and pricing are key
 - > Efficiency efforts required
- And what about investments in existing assets?



WELCOME TO THE
VUCA WORLD

PARADIGM SHIFT

COMMAND & CONTROL

OWNERSHIP

HIERARCHY & SILOS

COLLABORATION

CHANGE READINESS

AGILITY

KEY TAKE AWAYS

- Gas and gas infrastructure partner of renewables in the energy transition
 - Today and for decades to come: natural gas
 - Innovation avenues to integrate green gas as additional renewable energy source next to wind and sun
- We need to bridge the gas marketing gap
- Anticipate regulation to keep ahead of business
- Short-term capacity market requires increasing efficiency
- In this VUCA-world: new ways of organising our business

