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Regulated Assets

Adapting to a low demand / low carbon environment

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Wholesale Markets
9/5/2017

Part I

- Low demand / low carbon

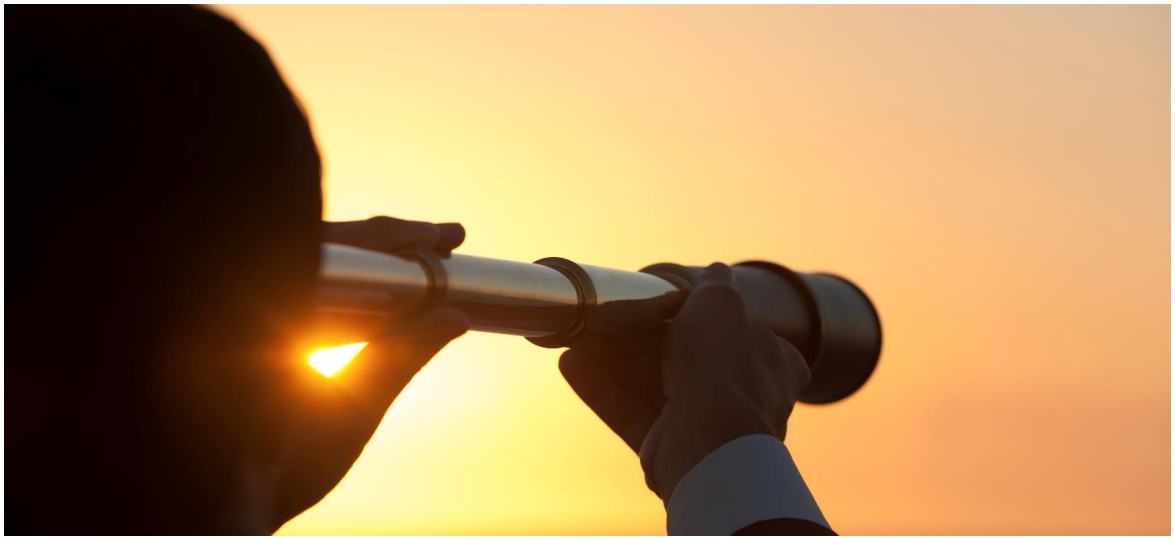
Part II

- Regulated assets

The Present

Decreasing annual demand

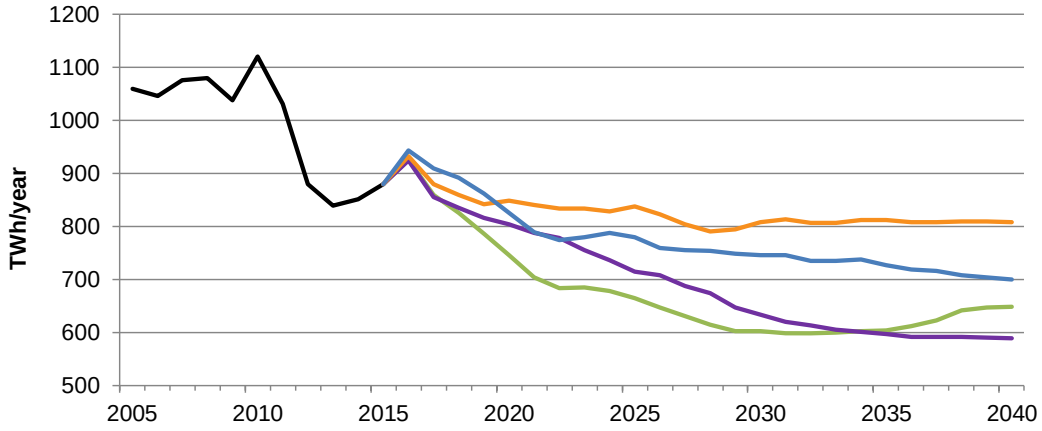
- Annual demand falling (efficiency, insulation, fuel switching, climate)
- Peak demand (1-20) is however not forecast to fall as fast
- Growing gap between annual and peak demand change
- Increasing proportion of cost to consumers from network charges



- Challenge – how do we adapt?

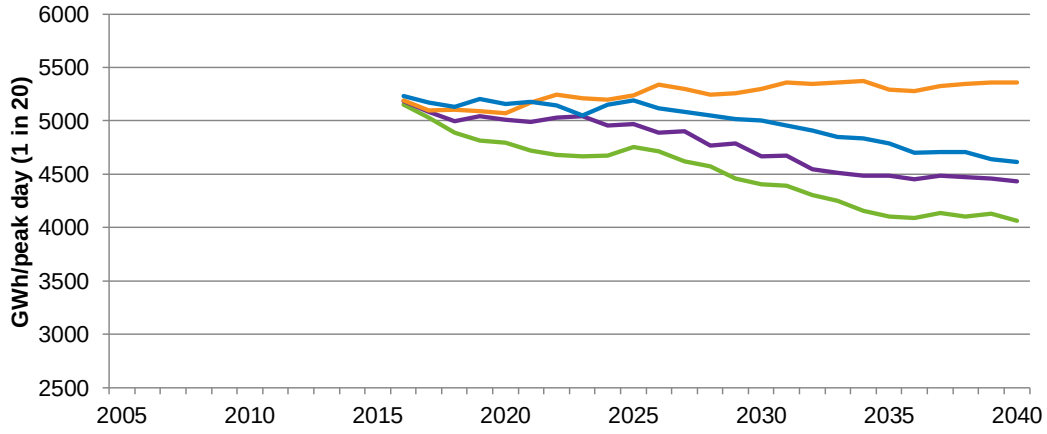
Emerging gap between annual and peak (National Grid FES)

Annual Gas Demand (forecast)



Decreasing average volume

Peak Demand for 1-20 (forecast)



Lower reductions in peak (capacity)

Source: 2016 National Grid Future Energy Scenarios (FES)

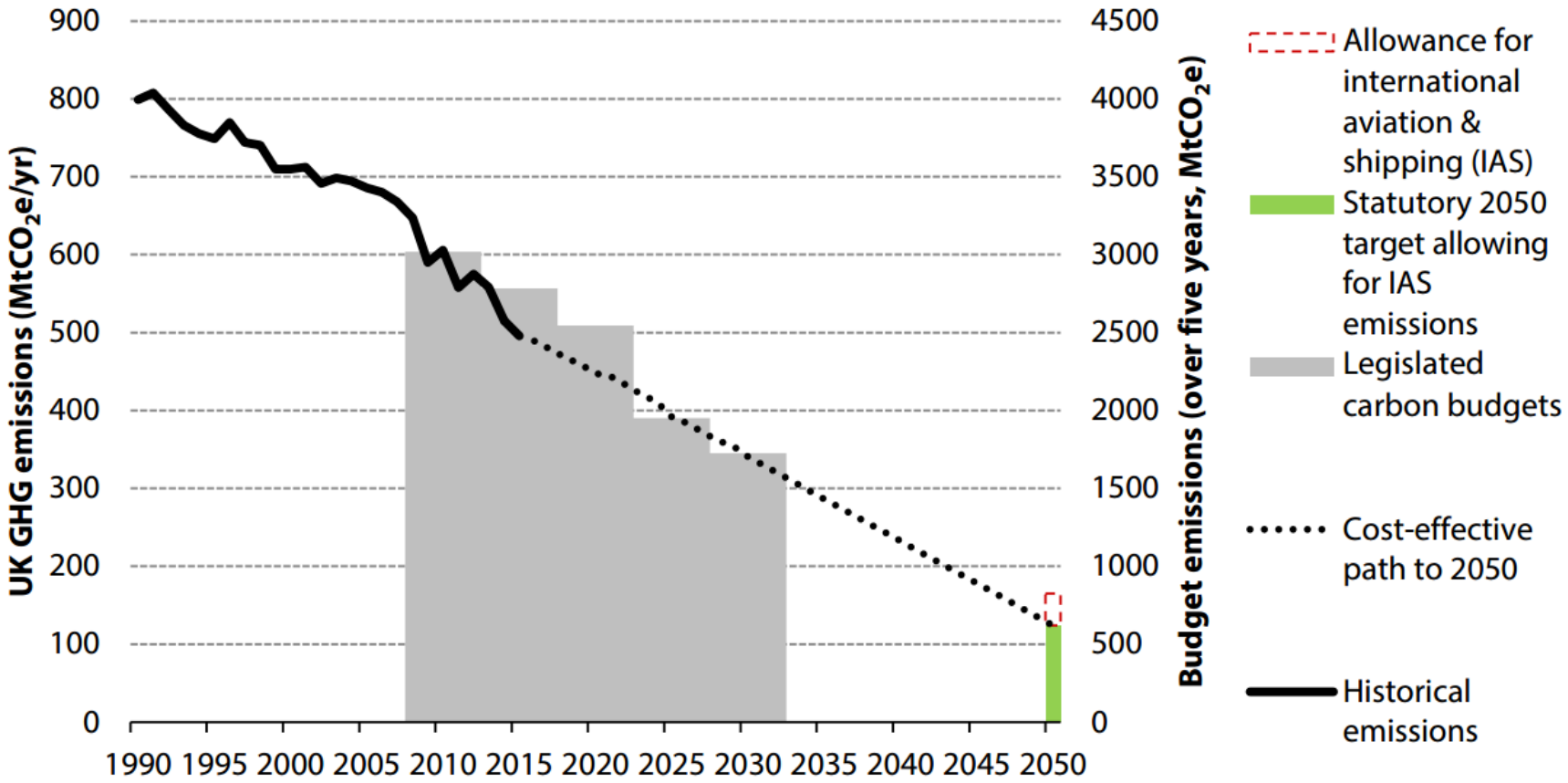
The Future

Decarbonisation remains the long term goal, but the path is unknown

- Decarbonisation 2050 target (80% reduction of CO_2)
- Heating and transport
  - Electrification?
  - Gas HGV?
- Power generation
  - Increasing renewables (intermittent)
  - Lower coal use
- New sources of low carbon gas
  - Bio-methane
  - Hydrogen
- Technology innovation
  - CCS
  - Power2gas

The Decarbonisation Challenge

UK carbon budgets and cost effective path to 2050



Source: Committee on Climate Change 2016

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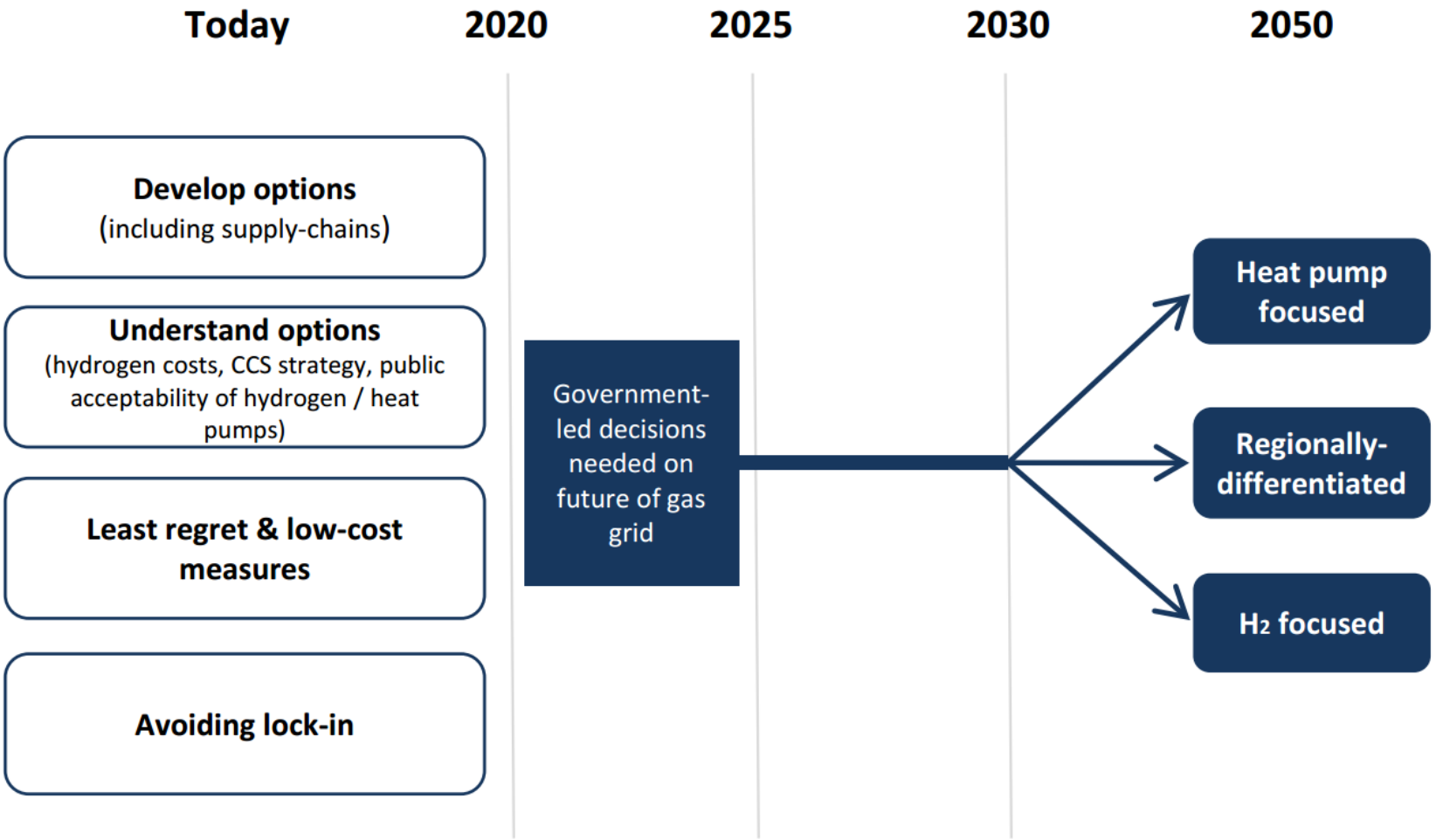
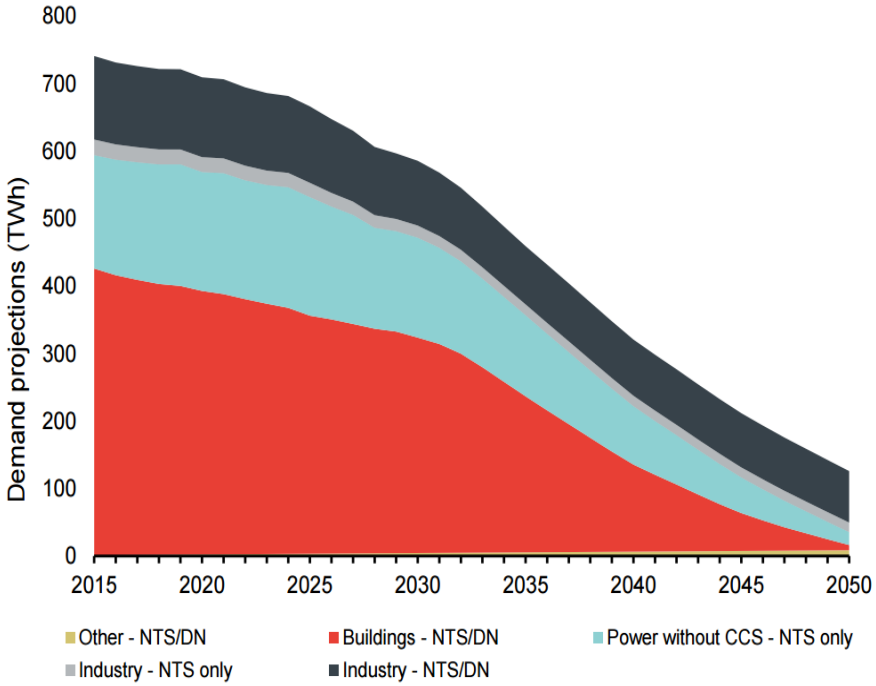
Approaching Decision Points …



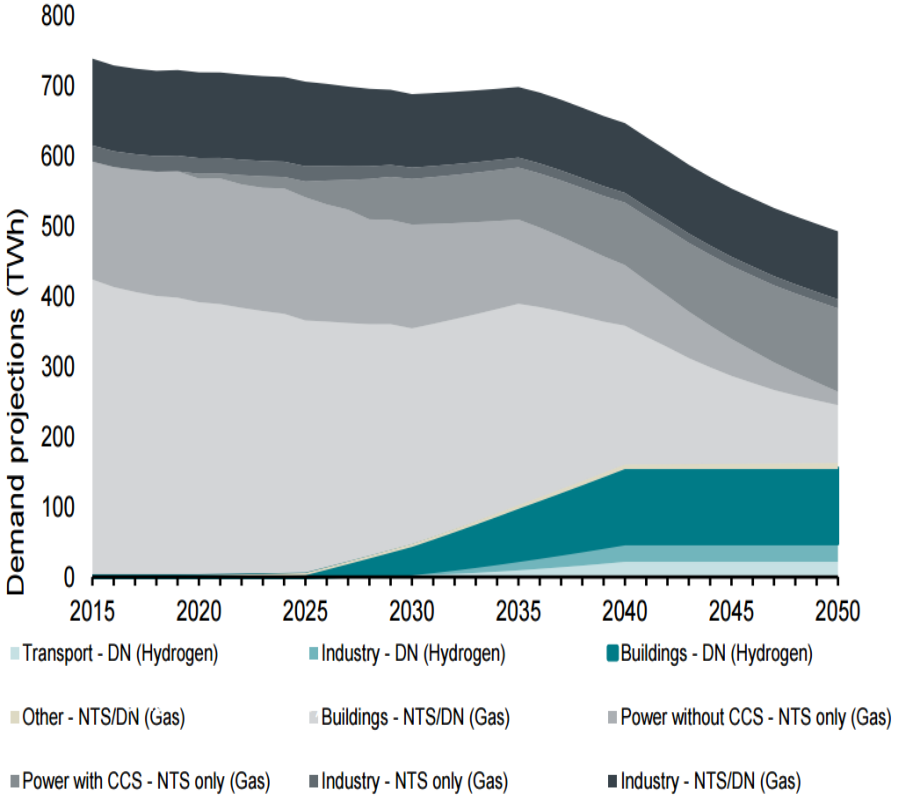
Source: Next steps for Heat Policy – Committee on Climate Change 2016

… Divergent Futures

Scenario 2. (Low Gas - No CCS)



Scenario 4. (Patchwork Hydrogen)



Source: Future Regulation of the UK gas Grid, Frontier Economics (report for the CCC 2016)

Part I

- Low demand / low carbon

Part II

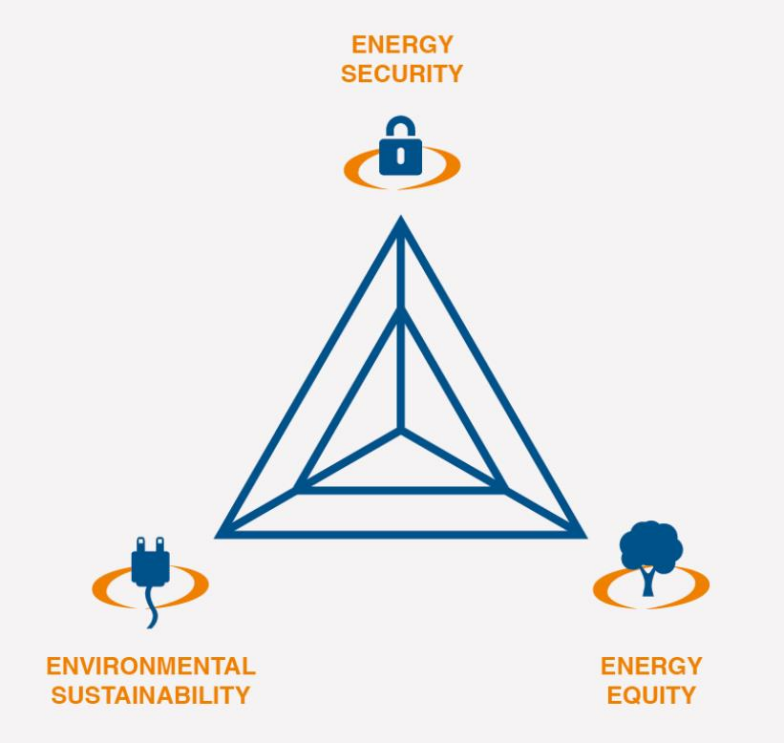
- Regulated assets

Regulated Assets – the challenge

Regulated Assets

- Monopoly assets, inefficient to duplicate
- Subject to new tariff network codes for cost recovery
- Allocated revenue recovery

- Key dilemma is how we balance the Energy Trilemma:
  - **Security** (expectations and reliability)
  - **Affordability** (vulnerable customers)
  - **Sustainability** (environmental impact)



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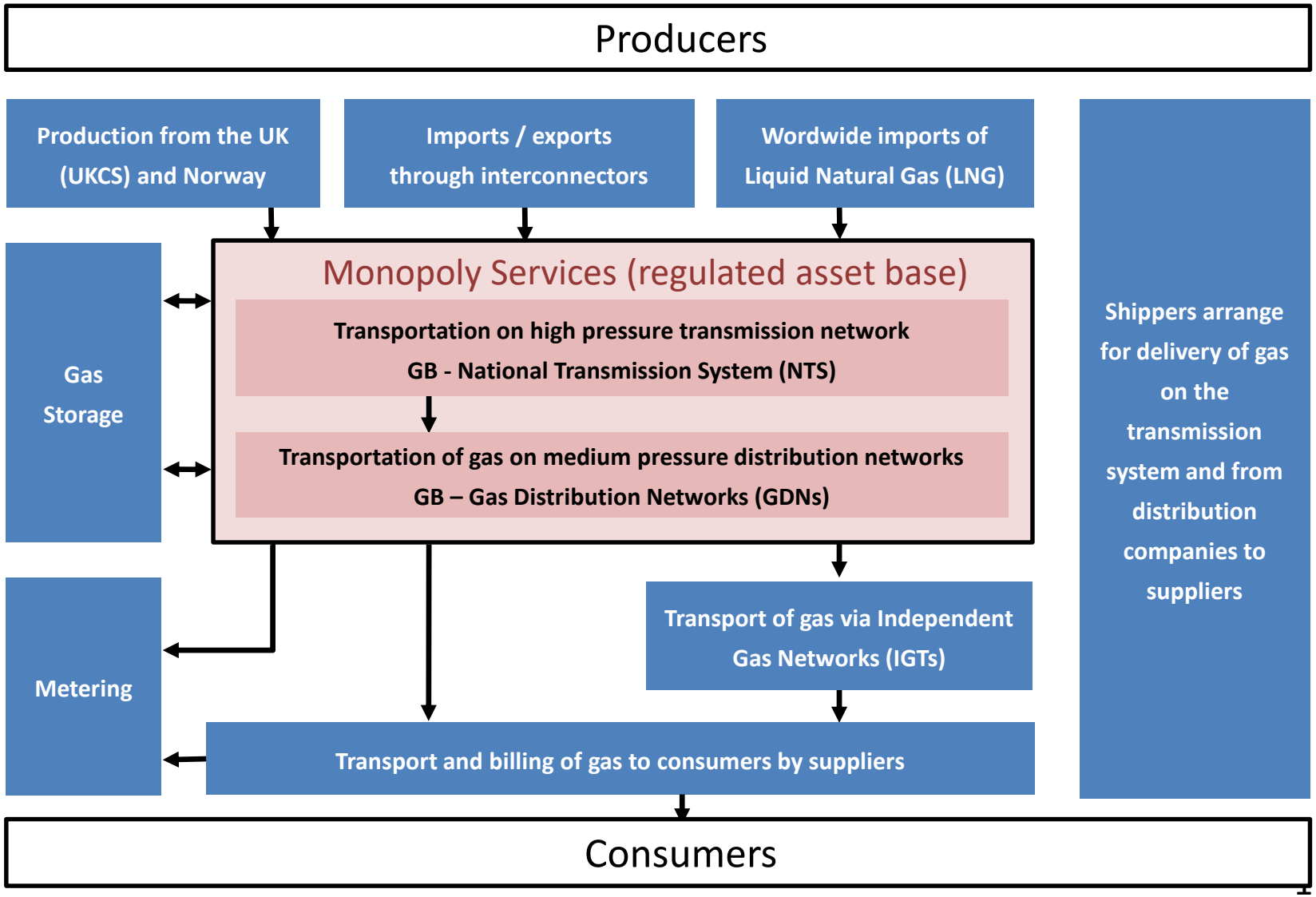
Simplified GB gas industry structure



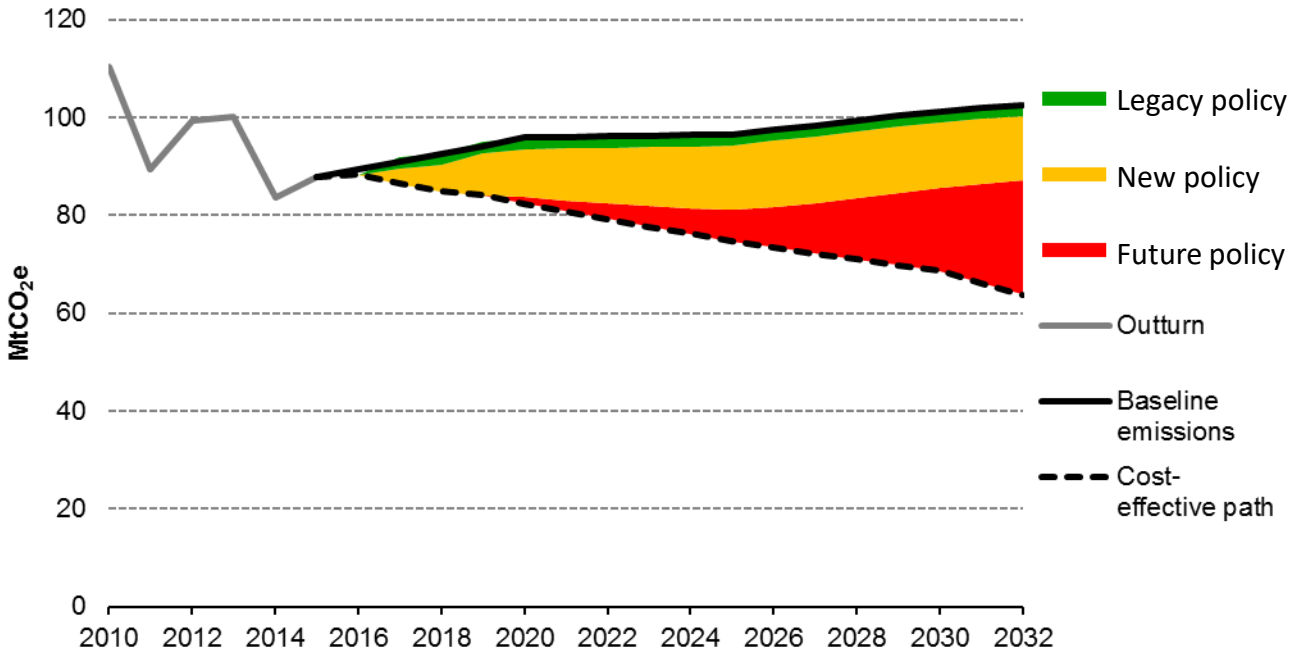
What is appropriate for future regulated networks?

How can future network regulation take into account

- Decarbonisation
- Equity & fairness
- Technology
- Uncertainty

Decarbonisation

How do we ensure we are able to deal with todays and future policies?



Source: Adapted from 'Next steps for Heat Policy' – Committee on Climate Change 2016

Equity & fairness

How do we ensure fairness and equity on regulated assets?

- Infrastructure assets are costly and typically have a long life, raising a number of challenges

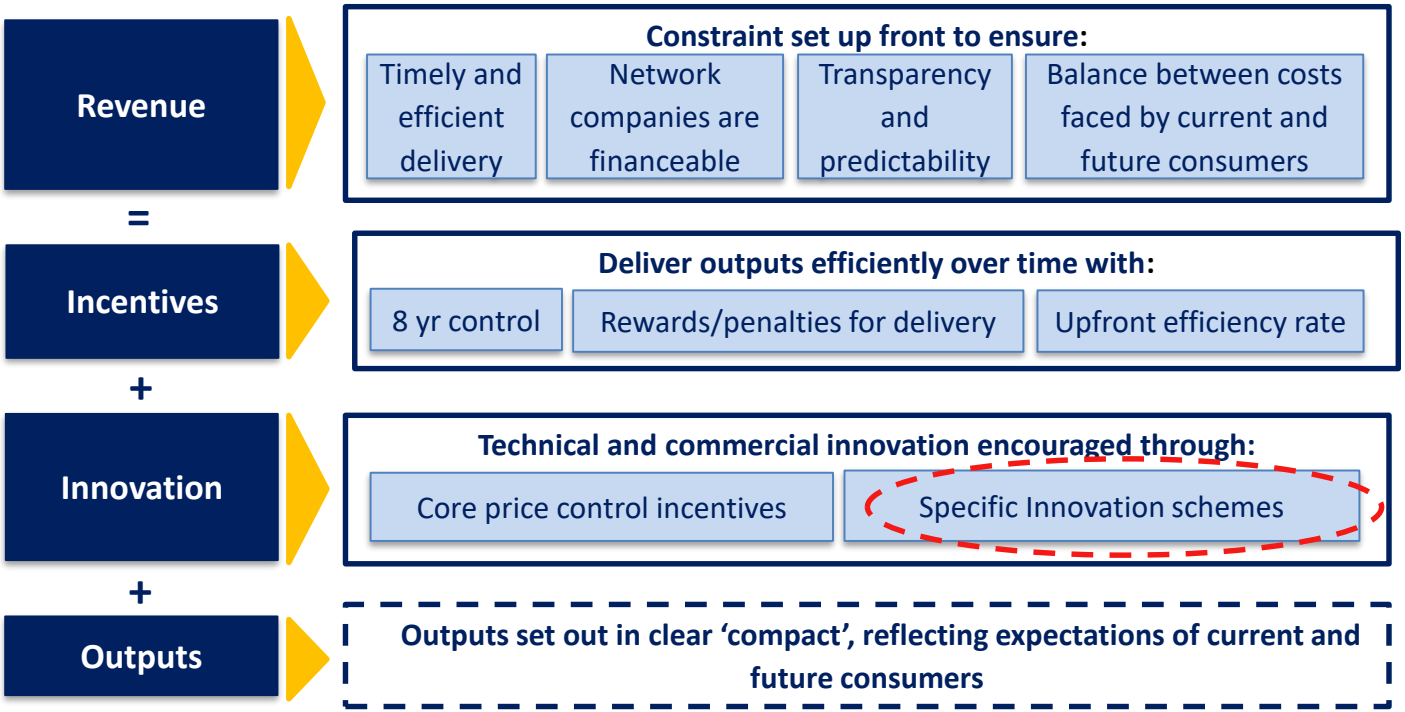
- Challenges relating to timing:
  - Existing customers pay for yesterday's decisions,
  - Future customers pay for today's decisions

- Challenges relating to vulnerable consumers:
  - Ability to fund investments to increase efficiency and reduce consumption
  - Accessibility to new innovations

- Challenges relating to investments:
  - Who should pay for new investments
  - How do we deal will obsolete infrastructure

RIIO – the GB approach to Network Regulation

Technology



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RIIO: specific innovation schemes

- **Network Innovation Allowance (NIA) -** Set allowance that each of the RIIO network companies receives to fund small-scale innovative projects.

- **Network Innovation Competition (NIC) -** Competition (£90m pa) for funding larger more complex innovation projects - one for gas and one for electricity.

- **Innovation Roll-out Mechanism (IRM) –** Facilitates the rollout of proven innovations. Projects must demonstrate: long-term value for money to consumers; environmental benefits; and shown that would not happen under BAU during the current price control.

Objectives of our innovation schemes

Technology

Current approach to incentivising innovation:

- Incentivise networks to make innovation a core part of their core business
- Encourage collaboration between network companies and third parties.
- Deliver financial benefits for network customers.
- Help the transition to a low carbon economy.
- Facilitate sharing of learning across the industry to drive savings and environmental benefits.

As we develop RIIO2 we will need to consider:

- Whether innovation can be incentivised using other mechanisms in the price control.
- How we can capture the benefits of innovation to date and in the future for customers.

Uncertainty

- **In 2006** , Ofgem noted "…the extent of ***uncertainty about future network enhancement***"

- **In 2009,** in summing up the history of UK regulation "Measures have also been introduced to reflect ***increased uncertainty about what networks need to deliver*** "

- **In 2010** "…uncertainty about what needs to be delivered and how best to deliver is likely to remain. It is therefore important that the regulatory framework and network companies are ***flexible and adaptable to changing circumstances***."

> *We expect network companies to manage the uncertainty they face. The regulatory regime should not protect network companies against all forms of uncertainty. The use of uncertainty mechanisms should be limited to instances in which they will deliver value for money for existing and future consumers while also protecting the ability of networks to finance efficient delivery*

*Regulating Energy Networks for the Future: RPI-X@20 History of Energy Network Regulation
https://www.ofgem.gov.uk/ofgem-publications/51984/supporting-paper-history-energy-network-regulation-final.pdf
Regulating energy networks for the future: RPI-X@20 Emerging Thinking

Coping with uncertainty in future price controls?

Uncertainty

- Load related uncertainty
- Price related uncertainty
- Policy risk
- Technology risk
- Financial Parameters

Appropriate mechanisms to cover uncertainties?

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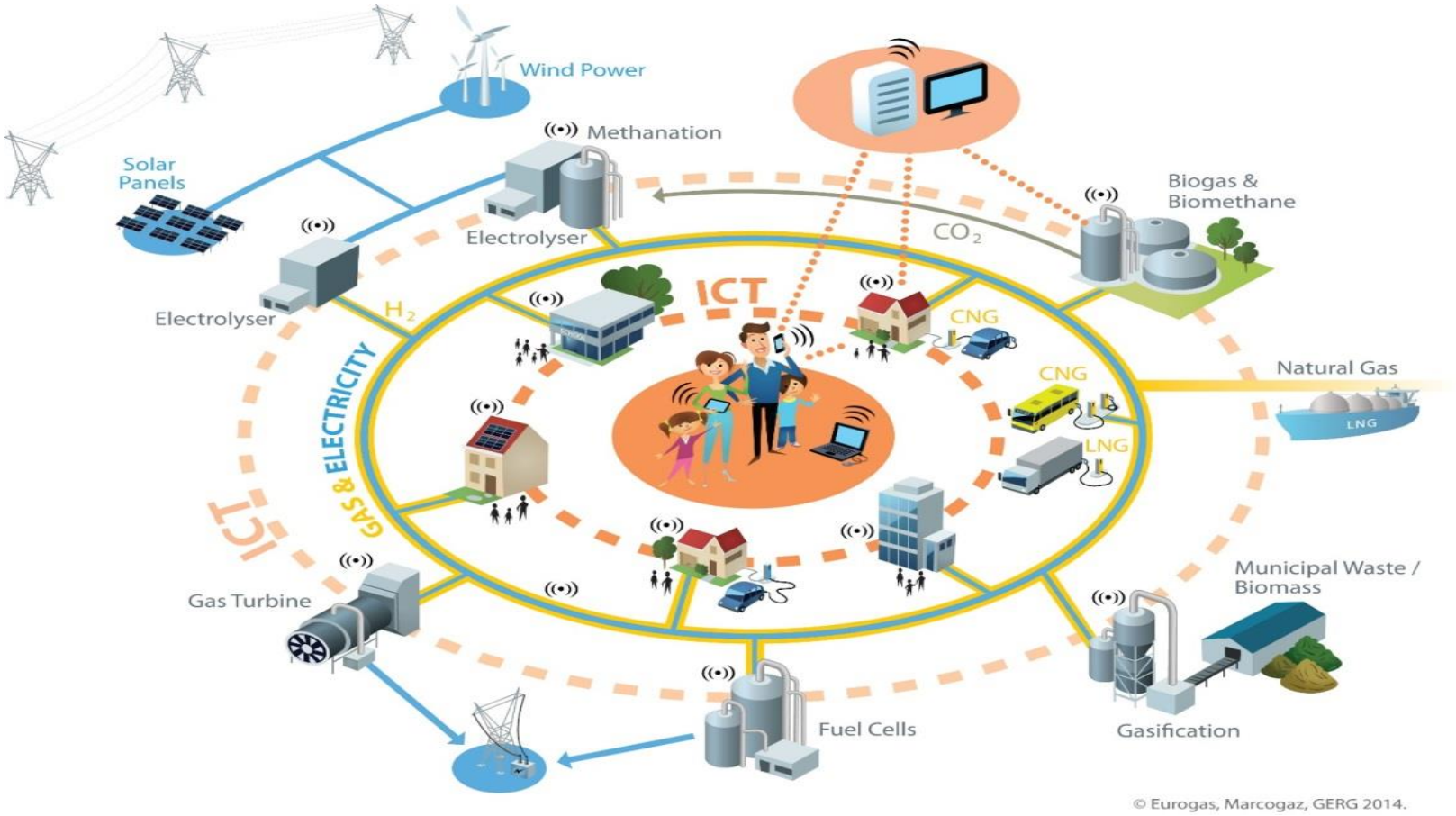
End goal – the smart future!



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Our priority is to protect and to make a positive difference for all energy consumers. We work to promote value for money, security of supply and sustainability for present and future generations. We do this through the supervision and development of markets, regulation and the delivery of government schemes.

We work effectively with, but independently of, government, the energy industry and other stakeholders. We do so within a legal framework determined by the UK government and the European Union.

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