Energy Policy & Energy Markets
What's the future for CCGTs?

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Natural tension in energy markets between policy makers and investors

Aims of policy makers		Aims of investors
To ***secure*** energy supplies & fulfil the ***decarbonisation*** agenda at the most ***affordable*** cost	***VS***	To secure a return on investment by building the ***right*** plant in the ***appropriate*** location at the ***right*** time

> Mentality of policy makers is critical in defining this relationship

Economic Efficiency		**Central Planning**
Be clear on macro objectives		Technology-specific interventions
Fewer highly-focused interventions	***VS***	Complex interactions with markets
Simple generic instruments		Complex interactions between policies
"Set framework & let market decide"		**"Picking winners then unpicking problems"**

Mindset of policy makers changed from design through to implementation

Electricity Market Reform[1]		
Contract for Difference	**Capacity Mechanism**	**Carbon Price Support**
"Support investment in low carbon technologies"	*"Support security of supply"*	*"a tax to underpin the carbon price in the EU ETS"* *"provide long-term certainty"*

> Original intentions were sound, however policy design didn't recognise wider market & regulatory interactions

> Has led to piece-meal changes

• Technology-specific auctions "*picking winners*" • Lack of competition for some technologies	• Network charging model created unexpected investment signals • Rules changes every year	• Original ambitions tempered by industrial customers concerns • No clarity on trajectory beyond 2021

1. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65634/7090-electricity-market-reform-policy-overview-.pdf

The reality: Tension between policy & markets

As illustrated by the Capacity Mechanism

- Policy makers intervene by setting the objective:

  "…deliver target level of capacity at lowest net cost…"

- The market determines the type of investment that fulfils this objective
  - Small-scale embedded gas & diesel engines out-competing larger scale OCGTs & CCGTs
- Shortfalls in policy-making process created a ***policy expectation*** that wasn't met by the market outcome
- Policy-makers reaction: further intervention

  "…buying more capacity, and buying it earlier…"
  - However this prolongs risk of unintended consequences

So what technologies do we expect the current market & policy framework to deliver?

- **Low carbon – next and future decades**
  - Steady growth of wind, especially offshore
  - Slow replacement of existing nuclear capacity

- **Contract for Difference**
  - Success could suppress energy prices, increasing future burden on Government
  - Low carbon growth will limit exposure of GB prices to international commodity prices

- **Peaking Plant – need is now**
  - Needed for black start
  - New engines or OCGT

- **Capacity, Flexibility, Embedded Benefits**
  - Reliance on Embedded Benefits suppressing CM prices
  - True value of flexibility obfuscated

- **Energy Storage – some need now but mostly next decade**
  - Strong growth expected when price low enough (mid 2020s)
  - Some near-term deployment for balancing & embedded benefits

- **Capacity, Flexibility, Embedded Benefits, Energy (arbitrage)**
  - Capacity value limited to ability to maintain delivery
  - Competition with mobile storage?
  - Diminishing returns on value of arbitrage

- **Interconnectors – now and next decade?**
  - Growth driven by regulatory support
  - Large deployment may reduce case for new CCGTs

- **Cap & Floor, Energy (arbitrage), Capacity**
  - Value based on structural price differentials that could be eroded by greater harmonisation
  - Diminishing returns on value of arbitrage
  - Assumption that imports are zero carbon, 'green-washing'?

- **CCGTs – need for new is in next decade**
  - Reducing CCGT energy requirement so expect reducing load factors
  - Aging plant may need re-investment or replacement by new in 2020s

- **Capacity, Energy, Flexibility**
  - **Existing:** Maintenance cycle vs capacity cycle?
  - **New:** Uncertainty over future spread value
  - Balancing Services framework uncertain

Do we need to worry about CCGTs?

- Policy for energy delivery focusing on de-carbonisation
- Security policy focusing on delivering peaking plant / short-term storage that is remunerated outside of the market
  - If framework creates wrong build signals, then risk of building too much of the wrong type of plant?
- Most projections (NGC, BEIS, others) see a continued need for significant CCGT capacity through to and beyond 2030
- However large-scale gas plant face massive uncertainties over what energy delivery will be asked of them
  - Imports uncertain, nuclear roll-out uncertain, growth from heat & EVs uncertain
- Unintended consequences of other policy interventions pose a risk to the economics of CCGTs, which if ignored could create security of supply problems

What's the 'so what'?

- We need to encourage smarter grids, but to maximise benefits DSOs will have to learn how to communicate with the TSO more effectively
- Rise of smaller, more modular, technologies is leading to growth of de-centralised generation and lower usage of all networks
- Centralised gas generation will remain fundamental both to balancing the electricity system and resolving the energy trilemma
- To do so at least cost to the consumer, the commercial incentives that policy creates needs to be central to policy-making, rather than trying to double-guess the 'right' outcome
- Grid charging models need to change to create the right incentives to invest in the right generation assets in the right locations
- We need to start considering how smart power grids and gas grids will interact in the future

Thank you for listening

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