



2018 Asia Pacific Energy Leaders' Summit

3D Vision - New Energy Perspectives

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Some lessons from the UK



**Closing the gaps – the future
of policy and business**

**Look ahead – you may
need to change course!**

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Full Ahead

I see no hazards...

- ❖ The energy system is in transition
- ❖ We need it 'smart' and 'renewable'
- ❖ Roadmaps, work plans & innovation
- ❖ Oh – and some funding please

- The transition is driven by the three Ds: Decarbonisation, Decentralisation and Digitalisation
- Or is it five Ds? Adding Democratisation and Disruptive technologies
- There is a remarkable shift from centralisation and “The Economy of Scale”, to de-centralisation and the “Economy of Flexibility”
- This change is now being seen to be far more complex than simply the technology and commercial offerings... **it challenges policy-makers and regulators**





Will the captain please report to the bridge...

- ❖ The GB energy transition requires **35** new power system functions to be implemented
- ❖ Unlike the past, these have Whole-System impacts that span ownership boundaries
- ❖ However, GB has neither the *mechanisms* nor the *accountabilities* to implement these

- The 35 functions enable new requirements such as data sharing, smart EV charging, community energy, and network flexibility.
- For details see the GB *Future Power System Architecture programme*
- Open data systems for energy, incorporating robust cyber security, will be key enablers for change but they don't exist today
- **The core problem:** the ownership & governance segmentation created at privatisation by “unbundling” no longer aligns with critical system functionality.





Iceberg on the starboard bow?

- ❖ GB's *change processes* were designed in 1990 at privatisation and were suited to an era of incremental development
- ❖ They can only move at glacial pace
- ❖ They are *totally unsuited* to new Whole-System issues and new grid edge parties

- GB electricity sector change processes centre around 8 'Code Panels' & some 30 administrative organisations
- The Panels have tightly constrained remits, no forward-looking roles, and no knowledge retention capabilities
- They are dominated by the incumbents and are impenetrable to entrepreneurs and new parties at the grid edge
- Tinkering with Panel interfaces or membership is not the answer. **The root problem is that no party has Whole-System oversight for ensuring *coordinated* outcomes across boundaries**



One example of the hazards

- Consider, just 2% of cars in GB are electric in the early 2020s, and have 7kW smart-chargers that responds to market prices
- The market moves from a high to a low price period
- Nationwide, EV chargers will turn on simultaneously, creating a **step in demand of some 4GW**
- This is about four-times the GB System Operator's current safe limit – a serious threat to security.

Potential solutions:

- 1) Do nothing, take a chance that it won't happen and risk a widespread black out, or
- 2) The System Operator buys significantly more fast response, an expensive service, and increases this as the EV fleet expands, or
- 3) Develop technology/market solutions such as randomised delays, price banding, or frequency-sensitive charger controls. These need not be costly *options but they require **coordination** and on-going monitoring **across multiple parties**: EV and charging point manufacturers, T & D network companies, the national system operator, and App developers.*
- 4) Noting the many parties, the key question is: **So, whose job is this?** (Answer, for GB: **It's no one's...**)





Dead Slow... OK for some?

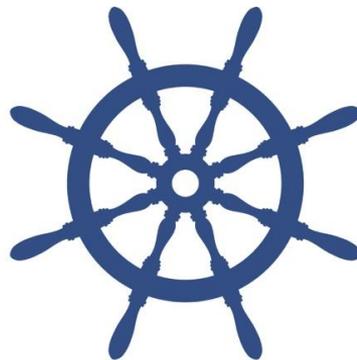
- ❖ GB risks failing to deliver its energy policy, bankrupting grid edge entrepreneurs, adding costs, and frustrating customers
- ❖ Network companies may hesitate to accelerate change for reasons of self-interest and their Licence constraints
- ❖ *Policy makers* – time for your engagement?

- In GB, Ofgem's RIIO2 reset could lock us into outdated frameworks into the late 2020s
- There is an urgent need for cross-boundary coordination and agile change processes & governance
- FPSA's work offers pointers for governance change, drawing lessons from other sectors
- **Policy makers** can also be at risk to inertia of thinking and government departments may struggle to 'cross internal boundaries' as sectors link up
- **Every day takes us further down the wrong path**, making it harder and more costly to establish the open systems and new markets that will benefit customers & wider society

Signals to the Engine Room



- ❖ **“Whole-System”** impacts are a demanding feature of new energy functionality
- ❖ **Ask:** who is *accountable* for critical new functions that cross boundaries?
- ❖ **It’s not sufficient** to rely on “Task Groups” and “Co-operation” at boundaries



To Take Away

GB experience highlights some important considerations for effective delivery of the energy transition

- ❖ **Hazard:** *change processes* need to be agile, span silos and include grid edge parties
- ❖ **Eyes Open:** *Dead Slow* may suit the self-interests of some parties
- ❖ **The reality check:** Are you seeing authentic progress or is it simply window-dressing?



Submerged barriers to progress may be closer than you think!



Thank you for your attention



