



# ***Criteria for adopting alternative regimes for transmission planning***

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# *We have three regimes*

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- Onshore regime – annual locational per MW connection charges, no short term locational signals, transmission companies propose investment plans which are approved by Ofgem.
- Offshore – generators build offshore wind assets and connect them to the shore line then these are auctioned by Ofgem.
- Offshore Interconnectors – merchant links which exploit price arbitrage opportunities between countries.

# *Can 3 regimes be part of the 'ideal' regime?*

- Ideal regime (following Hogan!):
  - ISO manages existing system across entire UK
  - Efficient short term nodal prices (LMPs) in place
  - Individual ITOs responsible for availability of their lines.
  - ISO then evaluates all proposed transmission investments using social cost benefit methodology – including reliability, economic and public policy elements
  - Investments voted on by parties (where revelation of private valuation important as for New York transmission), go ahead if super-majority.
  - Investments tendered competitively for construction and maintenance (subject to max price ceiling).
  - Investments then charged to the beneficiaries.

# *Three from one?*

- Onshore regime can be seen as a response to the meshed nature of the onshore network and integration of TO and SO in a meshed network. There are many small investment and operational improvements to be evaluated in such a system and as such it makes sense for the 'ISO' to delegate these decisions to a single integrated ITSO (NGET in England and Wales) to save on transaction costs. (This is essentially what happens with Distribution).

# *Three from one?*

- Offshore we are faced with large discrete investments which are easily separated from the existing networks and where the beneficiaries (offshore wind parks) are clear. The 'ISO' can set up a competitive regime for these investments while not, compromising what is happening onshore, as long as the spur investments do not impact onshore regime.

# *Three from one?*

- Interconnectors are risky and depend on an evaluation of market prices at both ends of the interconnector. This is fundamentally different from a transmission investment driven by physical flows between identifiable generators and suppliers (i.e. annual average flows are misleading guides for interconnector investment). The 'ISO' can delegate this to parties willing to take the risk of building such assets, some of whom will be 'foreign' (in particular overseas TOs).

# *Three regimes make sense when*

- Three regimes make sense when they add up to delegated elements of a sensible market based solution (a.k.a. 'ideal' solution).
- So while sensible market based arrangements are theoretically possible in transmission, in practice transaction costs of separation and contracting and risk mitigation mean that some form of formal coordination, licensed monopoly and regulation is preferable (there are several variants of each).

# *If we have three regimes*

- Three regimes can work if they are clearly defined subsets of a sensible whole.
- This requires the basic model at the heart of the system to make sense, i.e. that all available information is being sensibly exploited (e.g. nodal pricing, investment appraisal).
- It also requires clear addressing of the seams issues that arise, e.g. can't allow subsidy arbitrage and competition between regimes as in Irish wind example.
- Also need to recognise that circumstances may mean that three regimes need to be altered to accommodate emerging realities, e.g. conflict between SO and TO roles of NGET.
- The three regimes we currently have are merely a practical response to past realities.





# *If we have three regimes*

- Need to recognise where regimes are fundamentally addressing the same problem and work on consistency and cross learning.
- For example:
  - We need better price signals for locating interconnectors.
  - More use of tendering of assets onshore given consistency of size of assets with offshore.
  - Clearer distinction between treatment of old and new assets.

# *Closing thoughts*

- Transmission optimisation is just part of the social welfare optimisation and should be subject to some of the need for decentralisation which characterises markets generally.
- Multiple regimes are a reality in the electricity wire networks (e.g. transmission versus distribution).
- At the heart of this are the costs of information processing, lack of competition, transaction costs and historic patterns of asset ownership. These explain why we have the regimes we do.
- What we need to consider is whether the current regimes/regime boundaries are appropriate.



# Questions

- Do you agree that we can imagine one theoretical regime to cover all transmission?
- Do you agree that the current three planning regimes – onshore, offshore and interconnectors - may make sense?
- How do we address seams issues between the regimes?
- Do we need to adjust the existing three regimes to accommodate emerging realities, e.g. conflict between SO and TO roles of NGET?
- What should cause regimes to change? (e.g. balance of offshore and onshore, computing power and algorithm efficiency, degree of international interconnection)