

70by30 Implementation Plan – Onshore Wind Grid

IWEA Webinar

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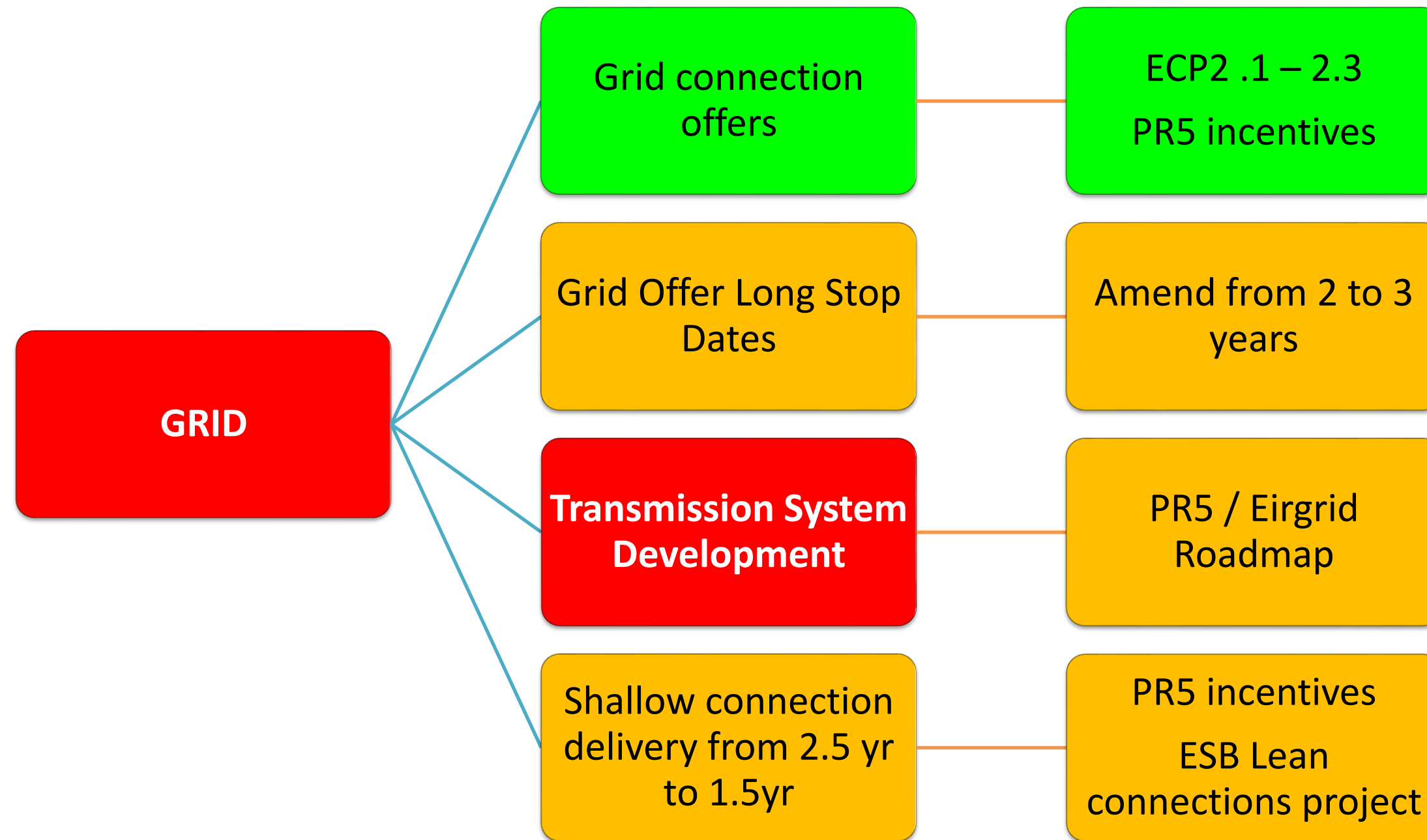
IWEA's 70by30 Implementation Plan

1. 70by30 Implementation Plan: Building Onshore Wind
2. 70by30 Implementation Plan: Building Offshore Wind
- In development
3. 70by30 Implementation Plan: Saving Power
4. 70by30 Implementation Plan: Saving Money



TRANSMISSION
SYSTEM
DEVELOPMENT

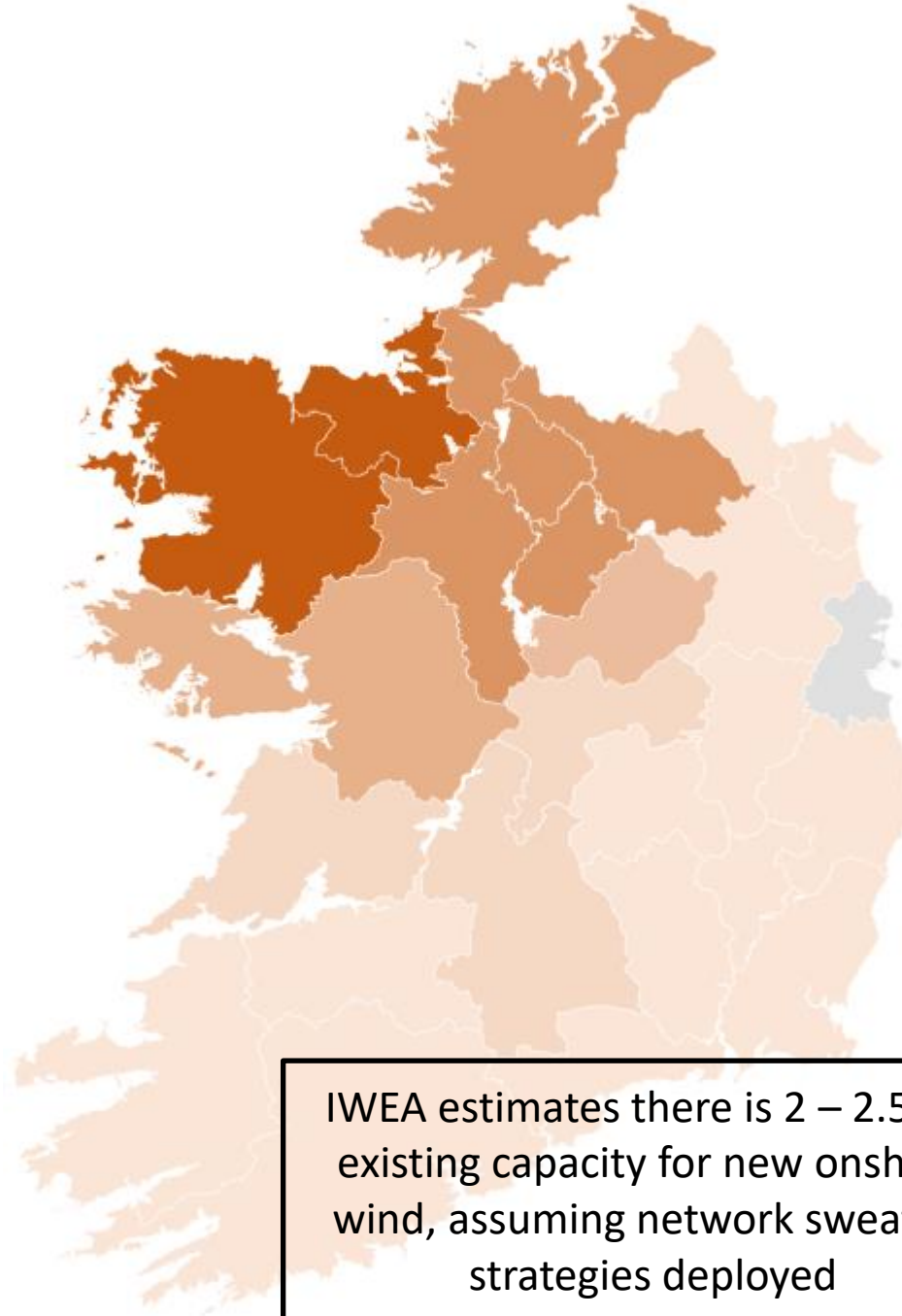
The Grid policy requirements



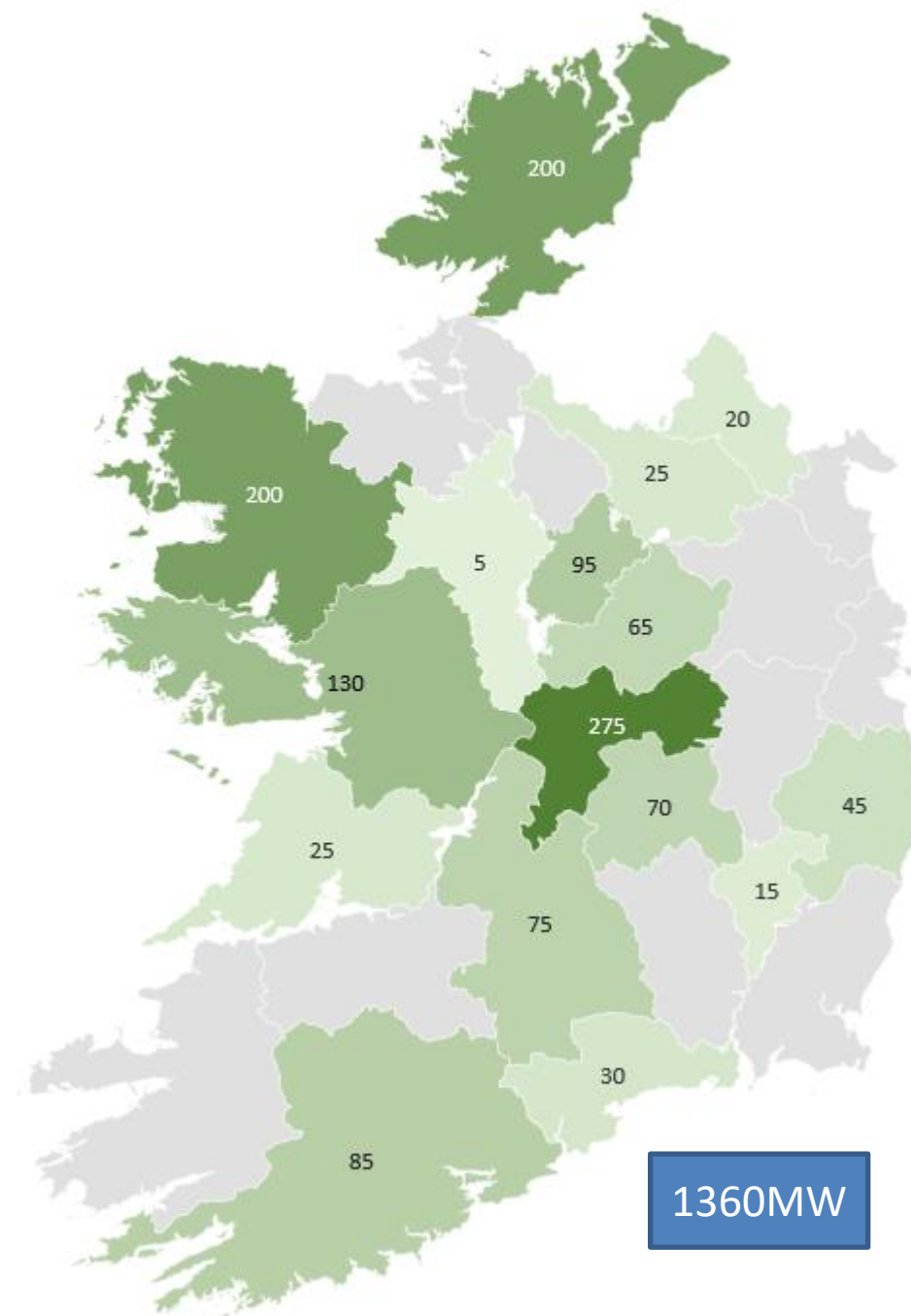
Policy Recommendation No. 5 - Parallel Transmission System Development

June 2020 Status Report

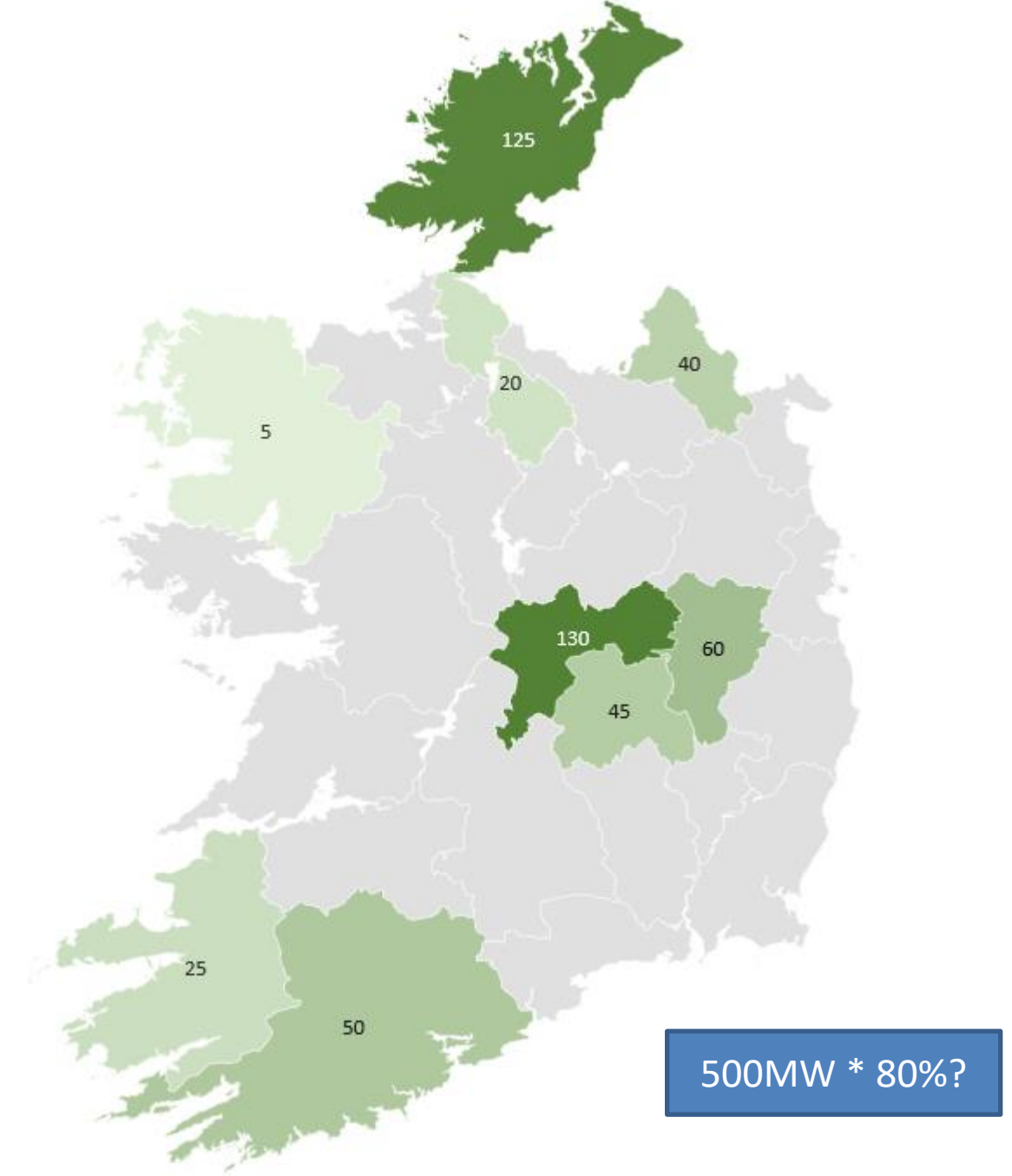
ECP-1 Constraints - **Indicative** Heat map



MW Wind consented June 2020



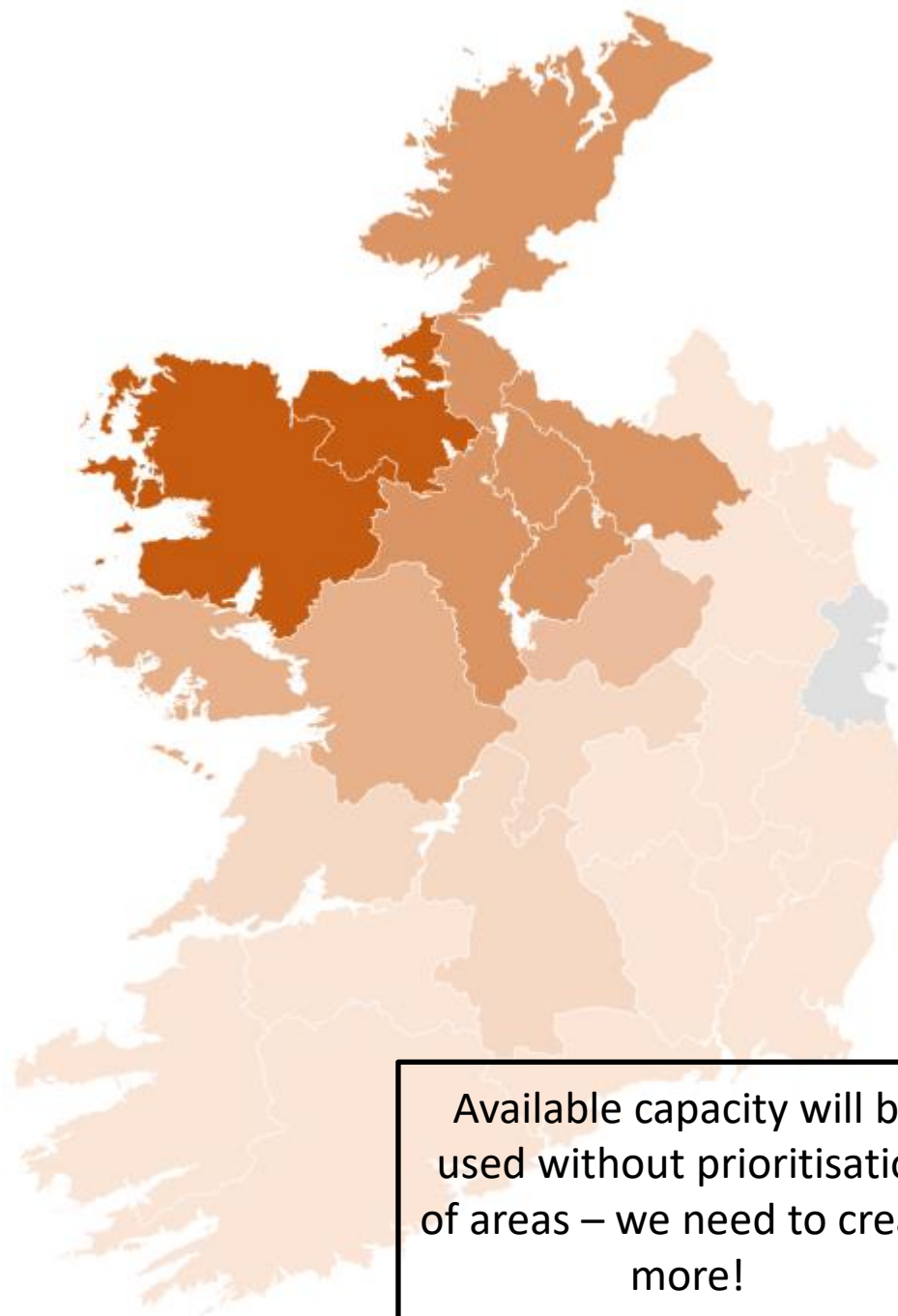
MW in planning June 2020



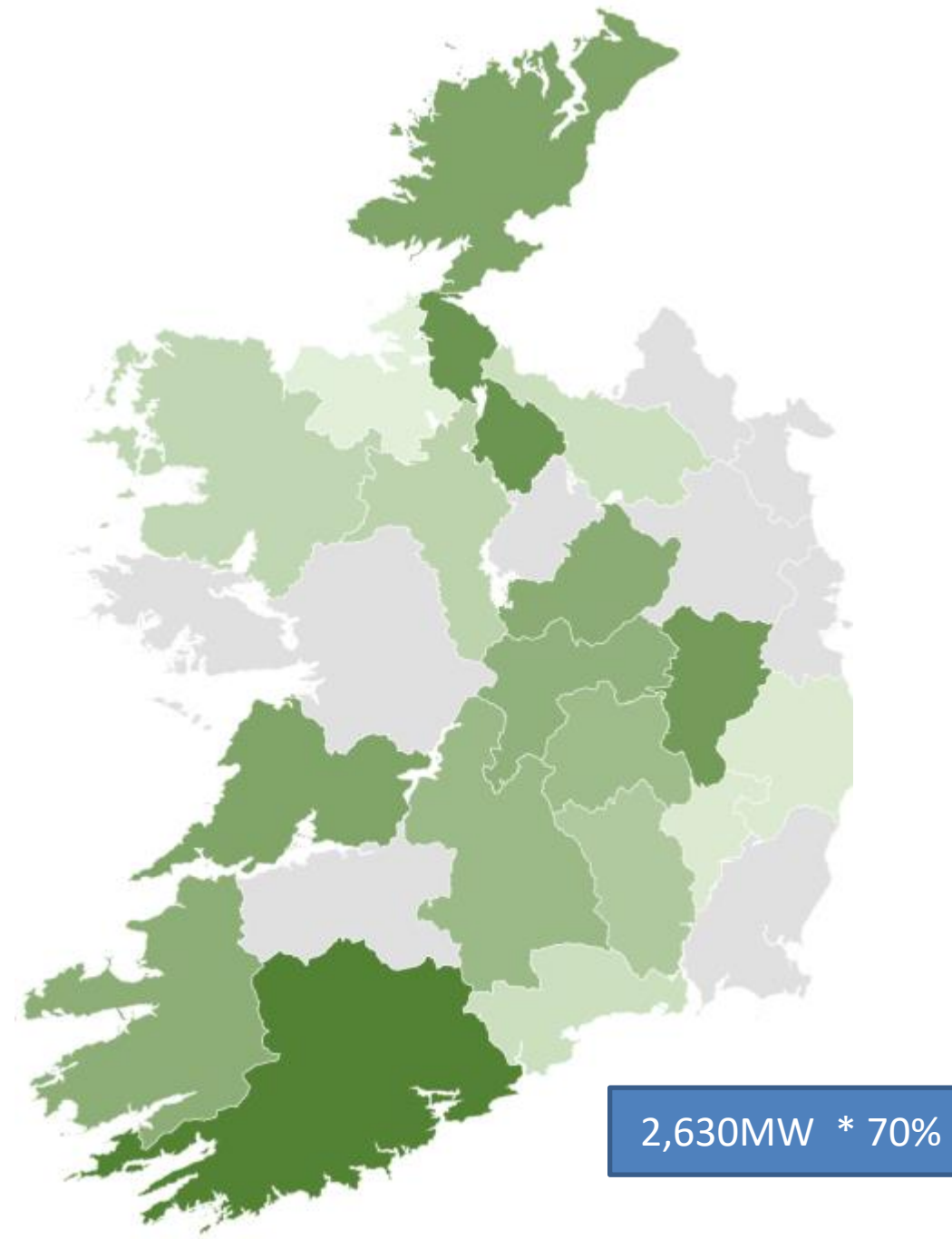
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June 2020 Status Report

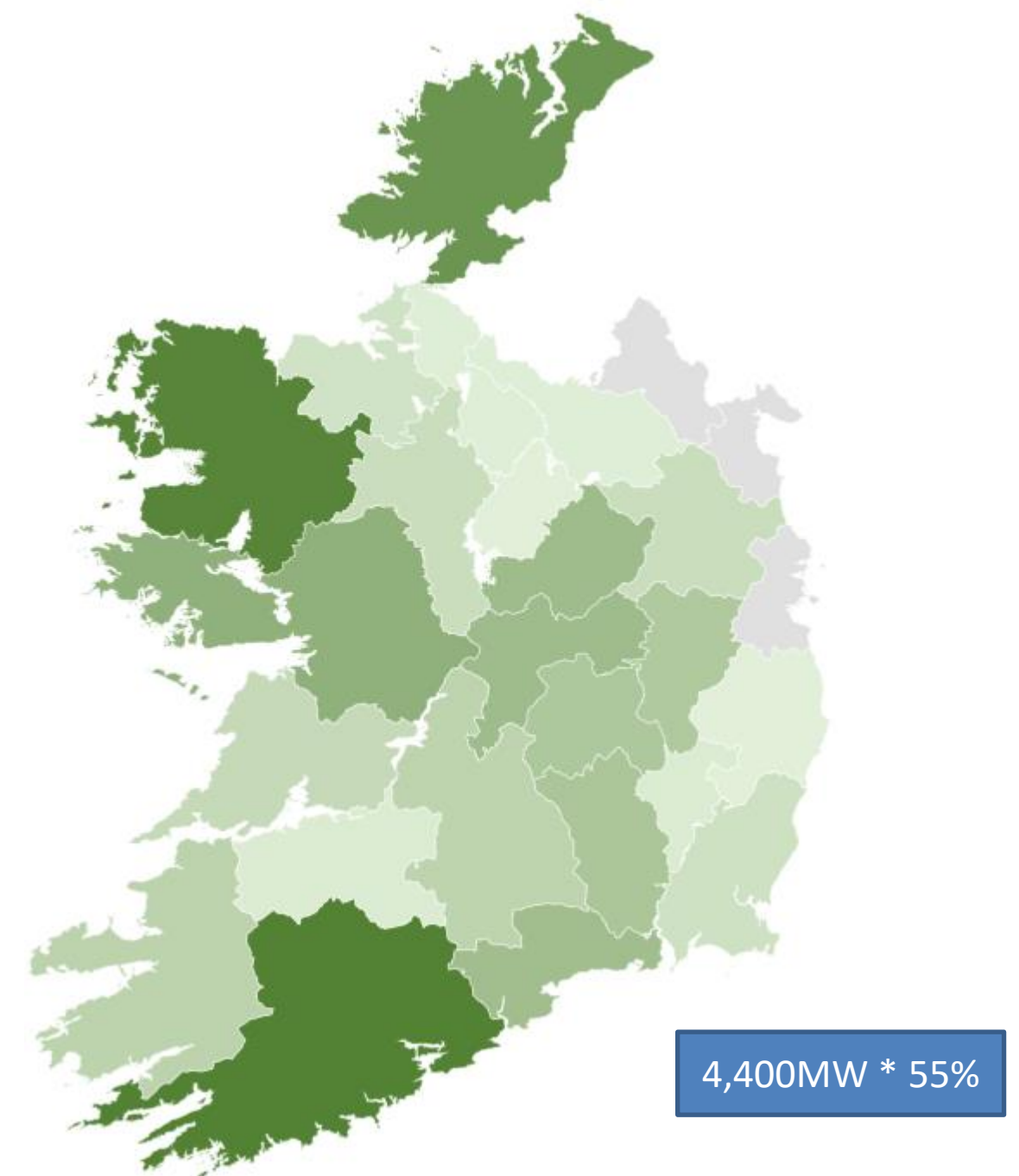
ECP-1 Constraints - Indicative Heat map



MW at advanced pre-planning stage June 2020

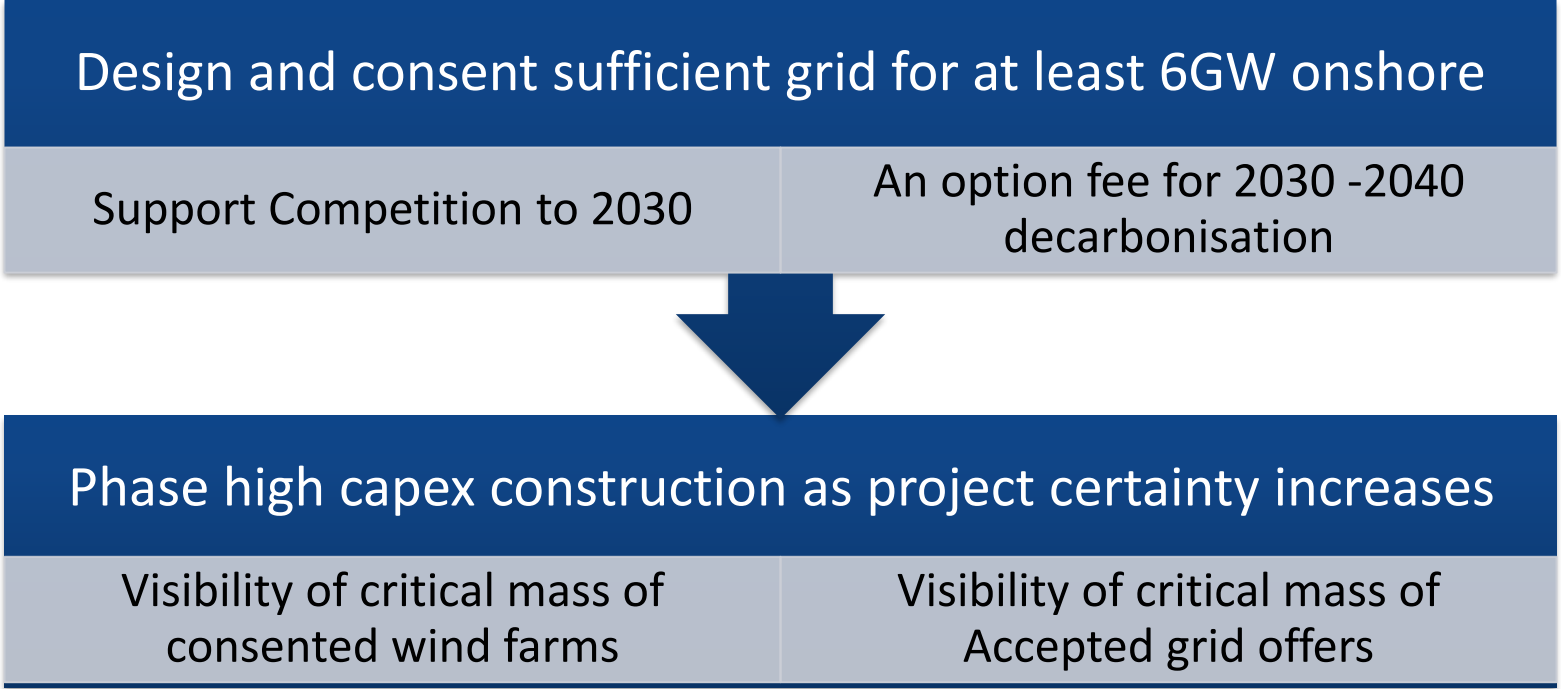
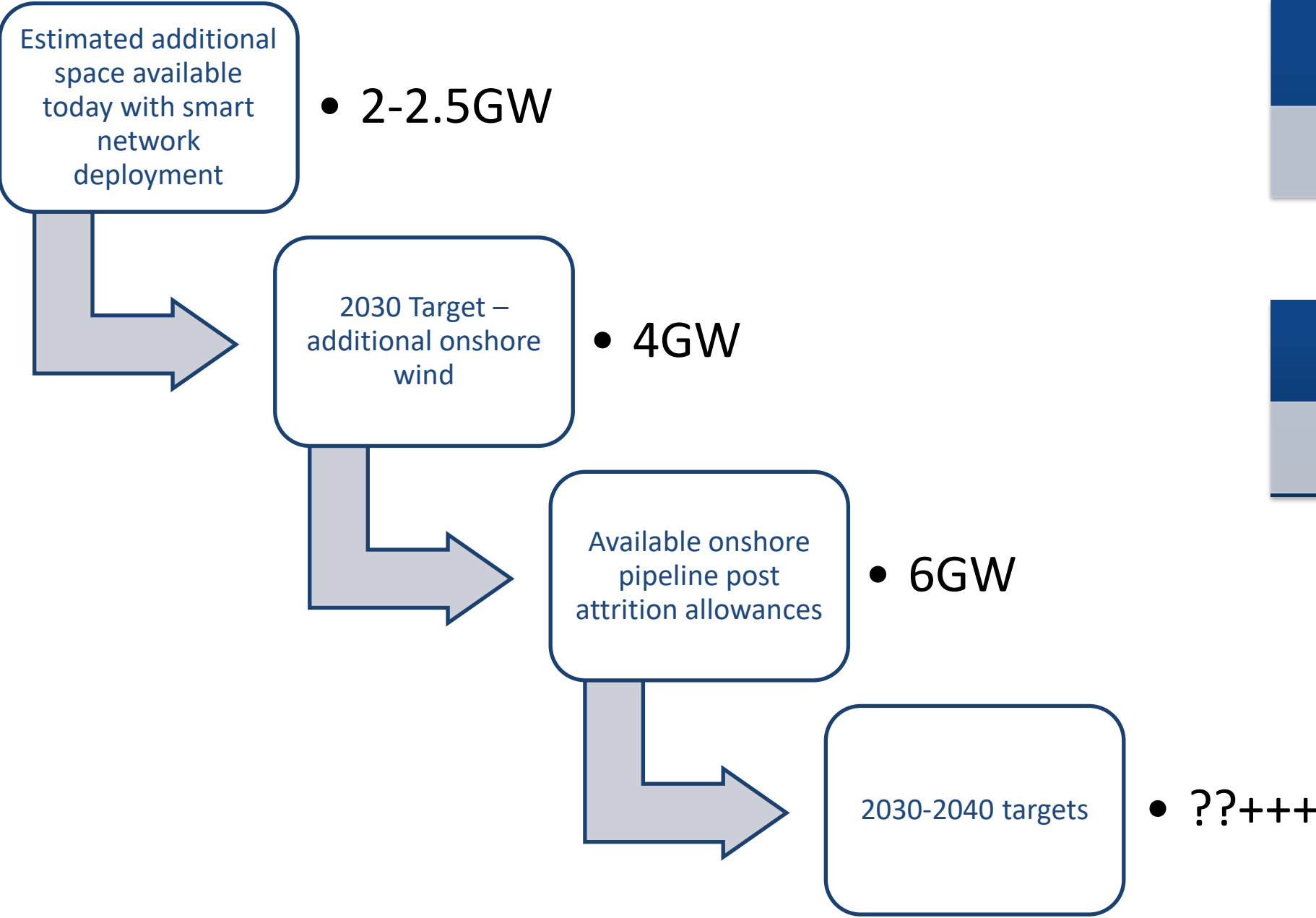


MW undergoing feasibility studies - June 2020



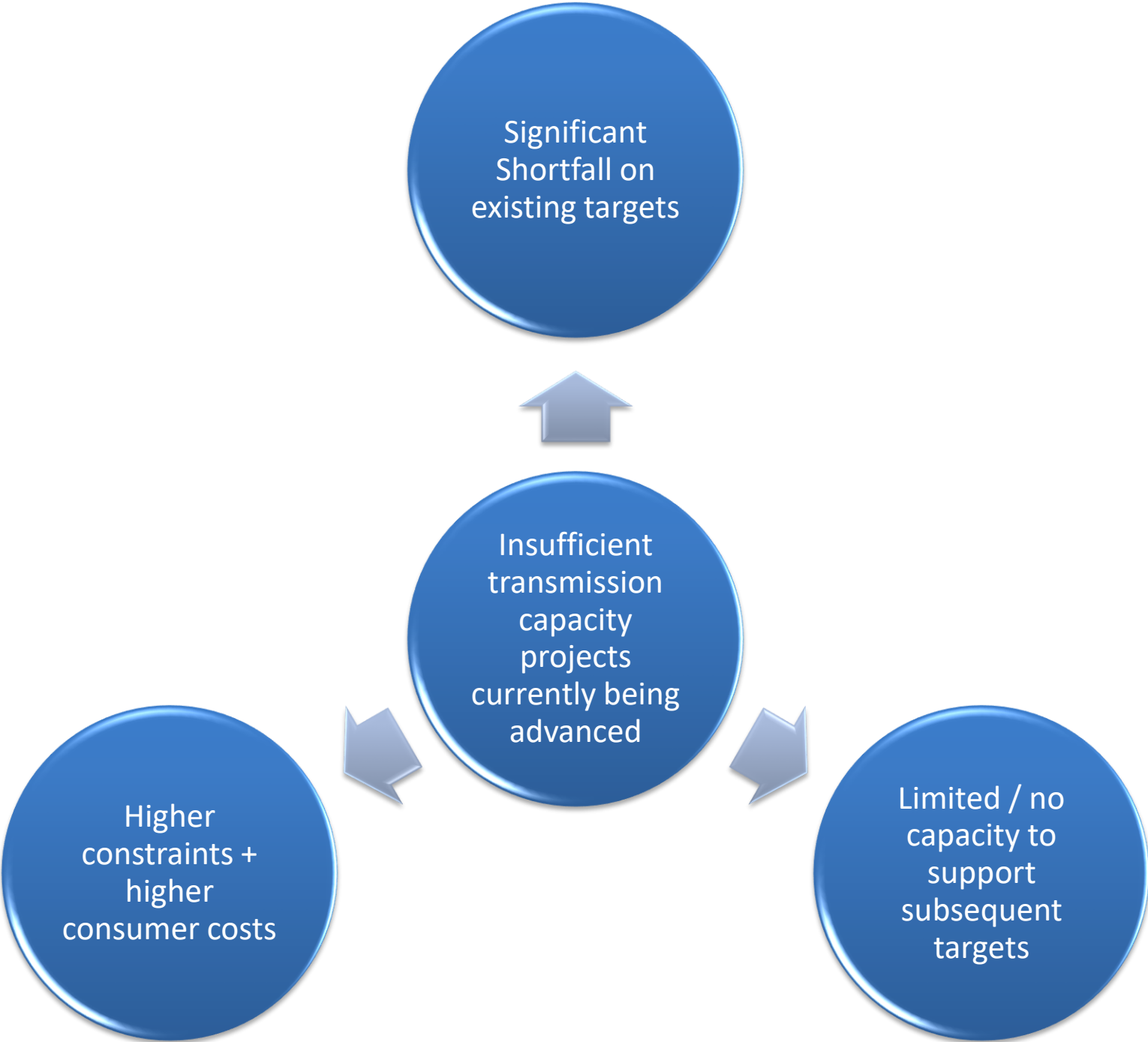
Policy Recommendation No. 5 - Parallel Transmission System Development

How much space do we need to create?



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Where are we?



Policy Recommendation No. 5 - Parallel Transmission System Development Recommendations



Grid Development strategy /
roadmap to 2030 and 2040

Funding + Governance

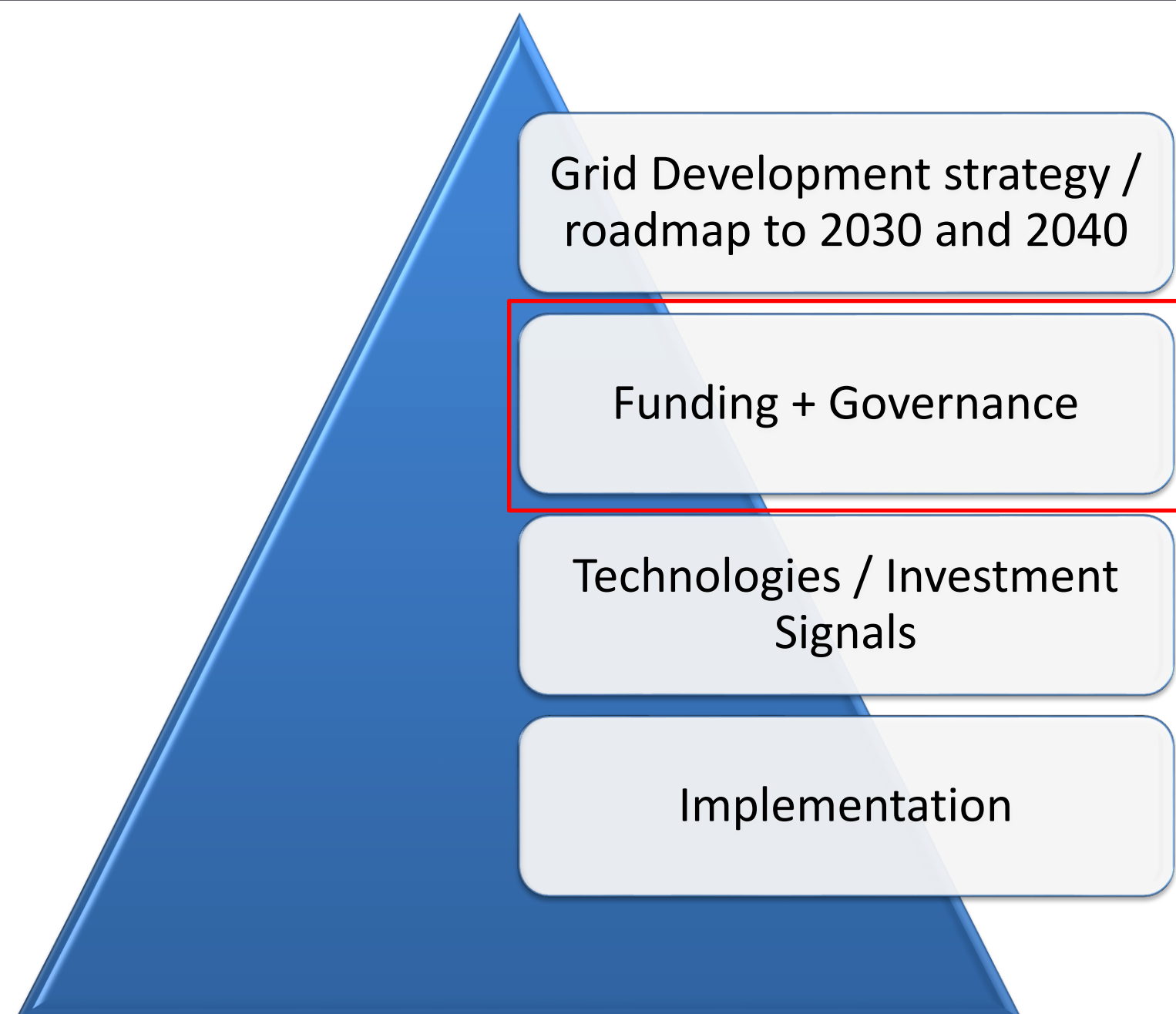
Technologies / Investment
Signals

Implementation



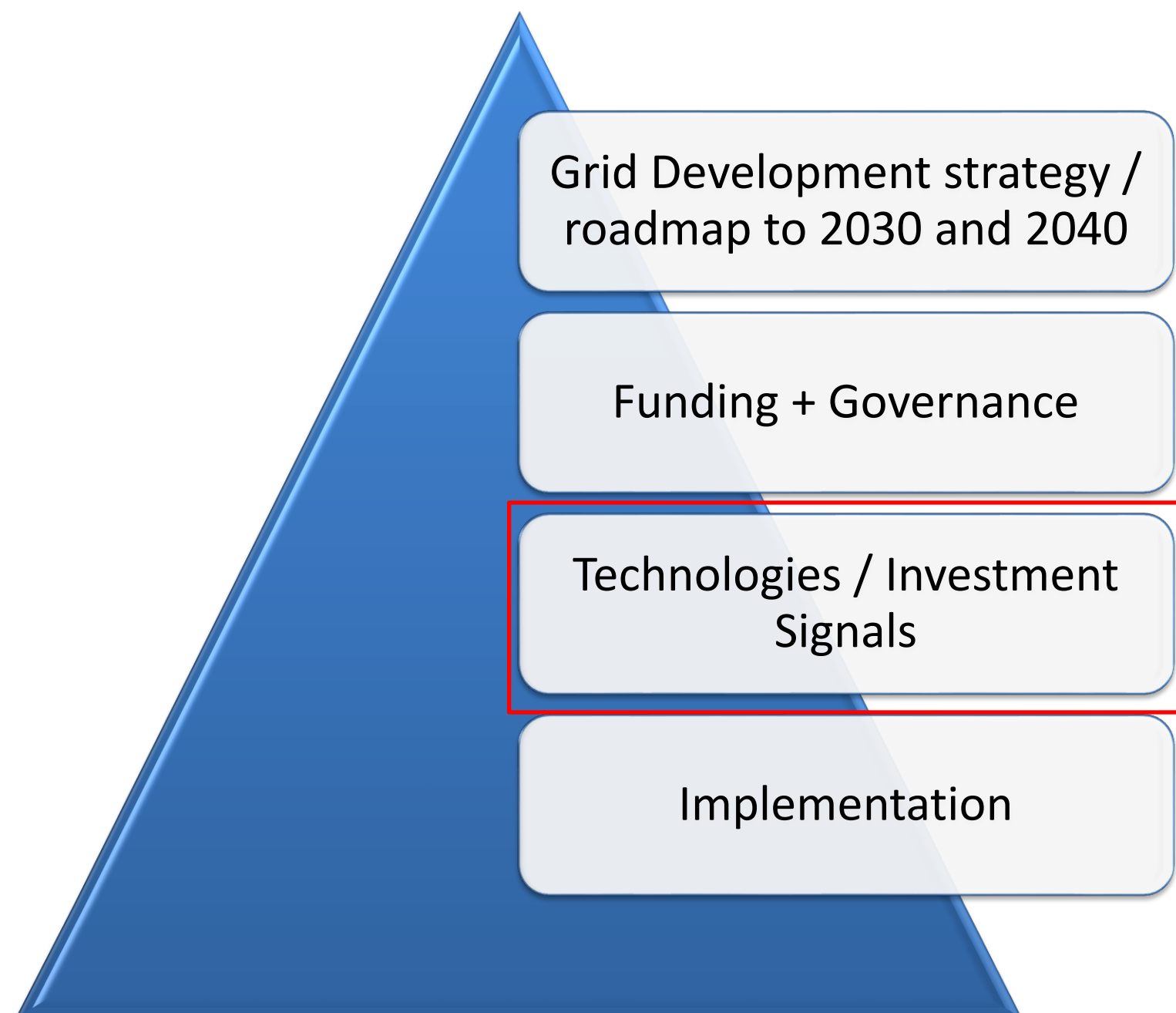
- **Grid Development Strategy Needs to:**
- **Engage:** Engage with Industry to understand the development pipelines
- **Speed:** Identify how we can create sufficient capacity to meet the needs of 2030. i.e. how can we create space quickly on the system.
- **Competition:** Consider that renewable auctions require competition. Insufficient devex on transmission capacity creation will mean some projects won't bid or will bid in with very high constraints forecasts driving up consumer costs.
- **Long Term Needs:** Noting that many of the projects required to support long term decarbonisation will take more than 10 years to develop, expand the grid strategy to consider likely longer term needs
- **Communities:** Implement best in class community engagement + community benefit funds. Ensure regions in need of economic regeneration understand the full benefits provided by increased renewables + transmission grid development
- **Risk:** Manage stranded asset risk by phasing Devex and Capex as renewable project certainty increases (noting that this is likely to be low in the longer term)

Policy Recommendation No. 5 - Parallel Transmission System Development Recommendations



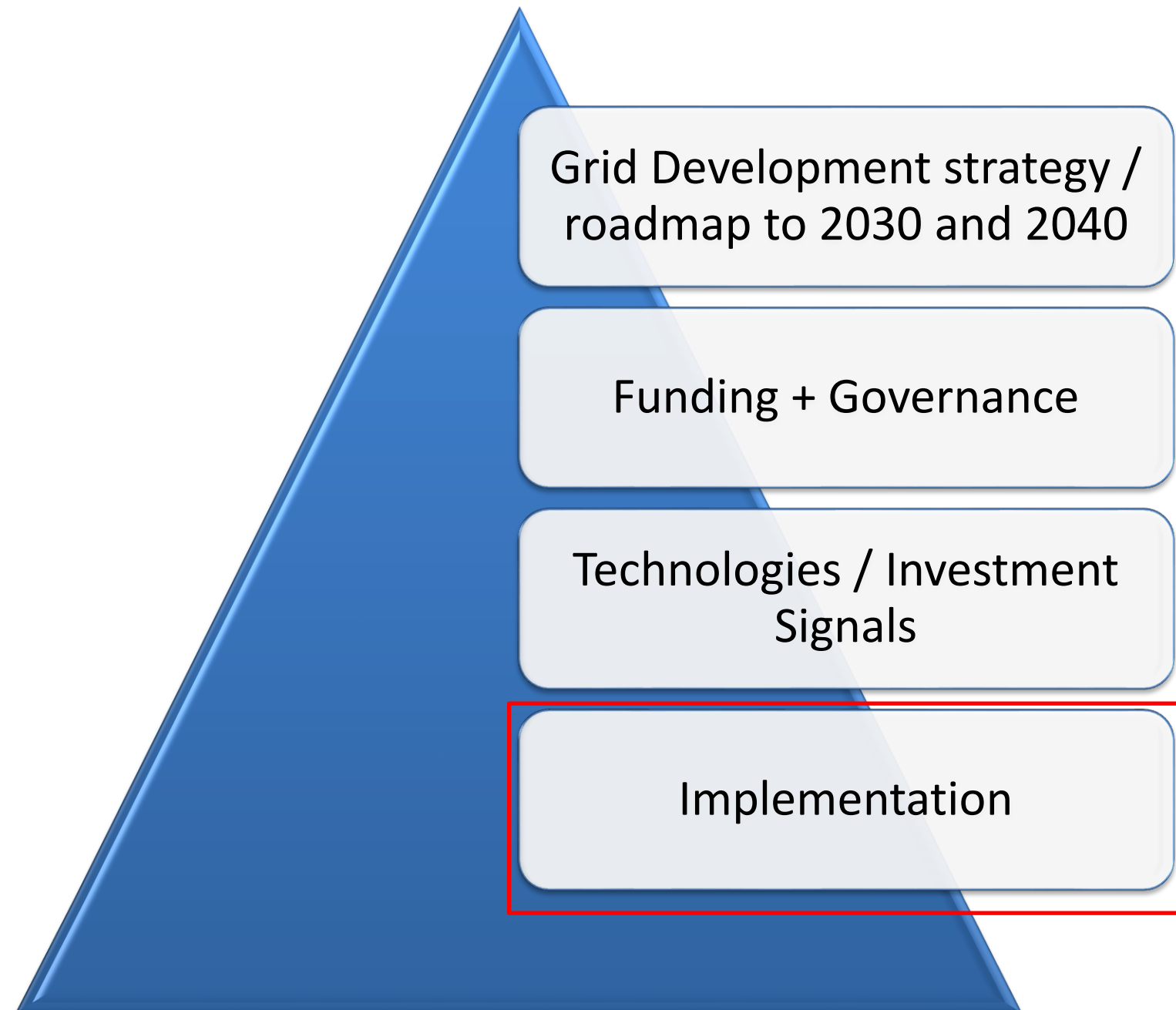
- **PR5**
- **Adequate:** Provide sufficient funds to allow ESB and Eirgrid to design, consent and construct the system to provide sufficient capacity to meet longer term needs. This needs to include community engagement and benefits
- **Flexible:** Funding structures / quantum, needs to be adaptable within price review periods as needs crystallise, there isn't time to wait for next review period, we need to be able to correct course
- **Incentives:** SO's should be incentivised – both carrot and stick, to ensure that if adequate funding is provided, an adequate system is delivered in a timely manner
- **Establish a Grid Capacity Advisory Council**
- **Replicate past success:** DS3 Advisory Council successfully brought together all key stakeholders to support the implementation of the DS3 program – including ESB, Eirgrid, NIE, SONI. CRU, NIUR, Government Departments + Industry. The establishment of a similar advisory council would support co-ordinated action to remove obstacles and provide solutions to the creation of transmission system capacity.

Policy Recommendation No. 5 - Parallel Transmission System Development Recommendations



- **Use all technically feasible tools**
- **Existing approved technologies:** We will need to deploy line uprates, up-voltage existing routes and install new lines + UC's
- **Future Innovations:** We will need to be able to permanently adopt smart network solutions on the network where technically safe and feasible to do so. Including, smart wires (adjusting impedances to balance flows), dynamic line ratings, dynamic MEC's, storage for congestion management solutions, and SPS's?.
- **Investment Signals**
- **Market Design:** The system service market needs to evolve to provide and investment signal for developer led congestion management solutions.
- **Data Provision:** Developers need quality early information on system development plans to allow them to progress investments in constrained grid areas.

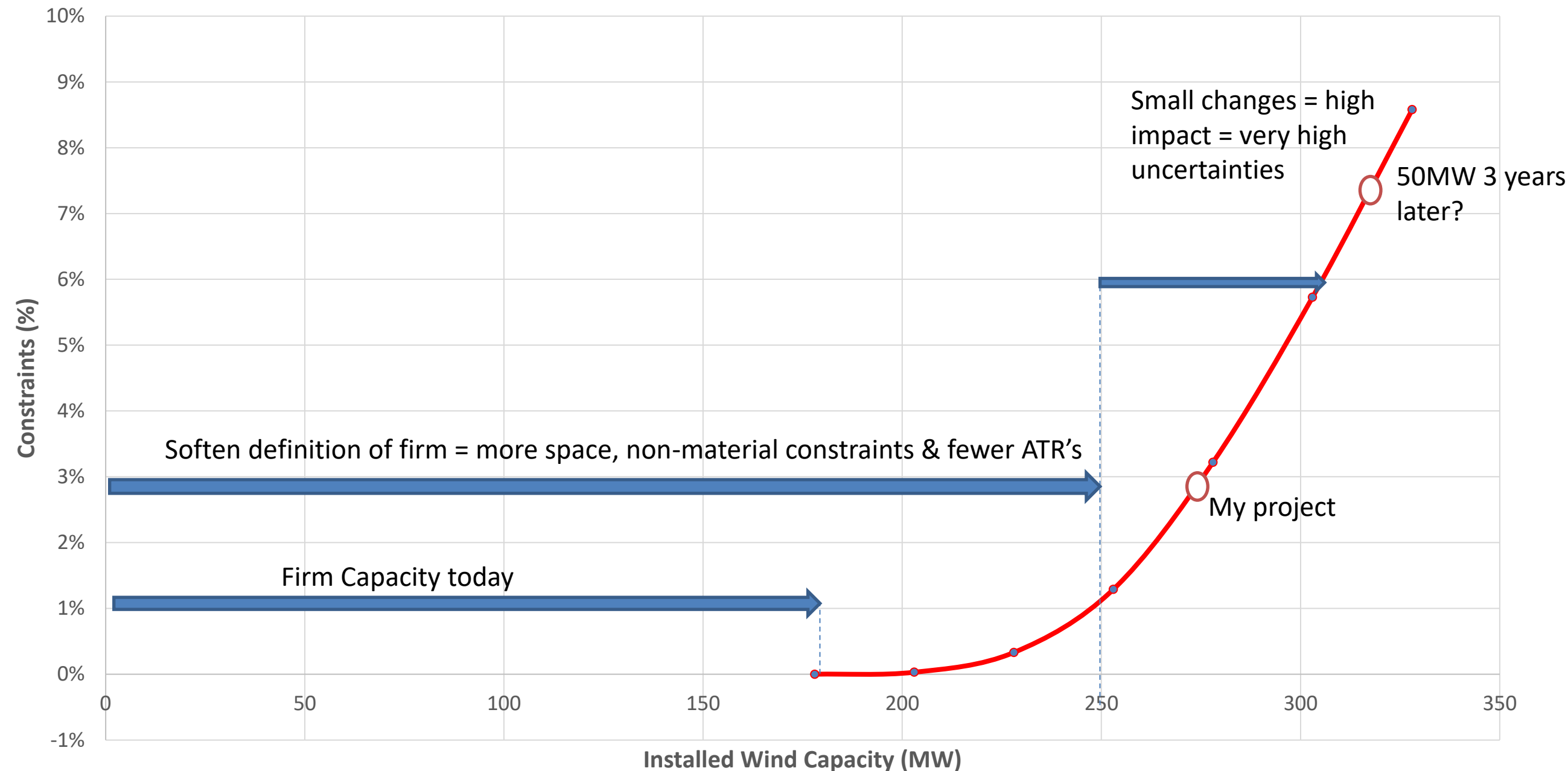
Policy Recommendation No. 5 - Parallel Transmission System Development Recommendations



- **Regional Project Delivery Management Boards**
- **Replicate past successes:** Eirgrid established a regional Project Delivery Board for the SW 220kV projects and these were delivered in a relative timely manner. No similar board was established for the NW and these projects faltered. The establishment of 6 Regional Project Delivery Management Boards for the 6 regions identified in the TES reports would drive the delivery of necessary grid capacity in each region.
- **Improvements to the 6 step framework**
- **Increased resourcing of steps 1-5:** Increased resourcing + dedicated project teams to focus on the individual project developments.
- **Improve the IA process between the Eirgrid and ESB:** Conduct a joint Eirgrid / ESB industry review of the IA process to simplify and streamline and reduce project delivery timelines

Firm access + Constraint Risks + auction pricing!

Constraint Analysis on a single 110kV Line



- Under existing RESS rules, developers need to estimate constraints in their financial model for a 25-30 year period at the time of bid preparation.
- They also have to price the risk of getting this wrong!
- The cost of this assumption is then locked into the CfD bid for the period of support. Even if the problem gets fixed, consumers are paying for the original estimates!

Near term Recommendations:

- Future consultation on firm access policy should consider a softer definition of firm – e.g. modelled constraints < 1%. This will create more “firm” space with fewer ATR’s
- Consider incorporating dynamic line ratings & other smart network strategies (smartwires to balance flows, batteries to remove n-1 constraints) as standard to further enhance the benefit of this new firm definition
- Compensate this firm capacity for both constraints and curtailment in CEP implementation.

Medium term recommendations:

- Fundamental re-examination of the risk allocation of constraint / curtailment and energy balancing.
- Efficient contracts assign risk to the party best placed to manage it, renewable generators have no ability to manage constraint / curtailment or energy balancing risks (forecast risks are something different)
- Re-allocation risk would result in lower consumer costs overall due to lower risk premium being including in auction bids.

- 1. The challenge is immense but it's one we simply have to rise to. A BaU approach or even evolutionary change will not be enough, we're looking at revolutionary change in the next 10-15 years.**
- 2. Delivery is a complex jig saw of interacting parts involving many stakeholders. Success depends on us all co-operating in an open, honest and constructive manner to find solutions quickly and efficiently.**
- 3. 2030 is not the finish line, we need to be planning now for the full decarbonisation of the power system because some of the things we need to do will take a long time to implement.**

Thank you!



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Thanks also to Coillte's Grid Manager Ciaran McNamara and all the members of the IWEA grid committee who fed into this body of work