Sectoral Analysis of Future H2 Demand and End-Use in Ireland

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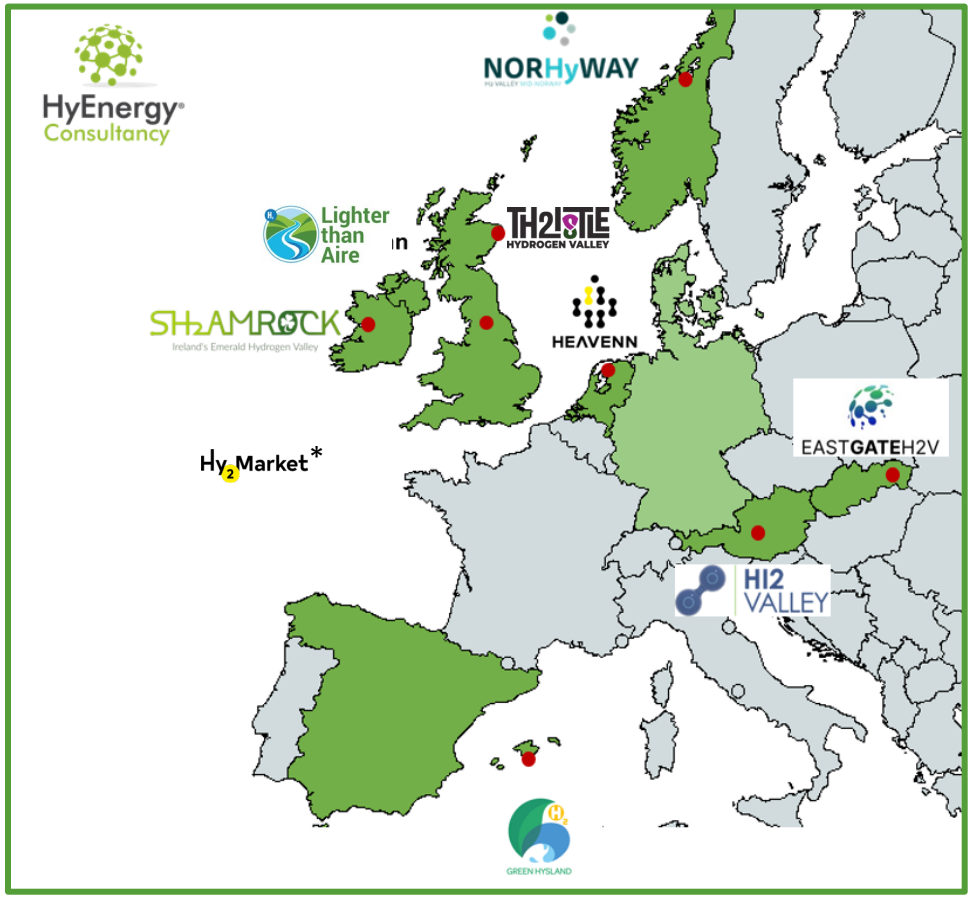
An Roinn Fiontar, Trádála agus Fostaíochta
Department of Enterprise, Trade and Employment

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HyEnergy:
Real World Hydrogen Understanding



- Specialist hydrogen consuTH2ISTLEncy providing value for stakeholders for more than 10 years globally
- Diverse customer base, including national governments, industry, technology OEMs, regional public sector and research institutions.
- Proven expertise in publicly funded projects including designing, writing, and participating within hydrogen valleys, I3, INTERREG, CEF and HORIZON projects.



HyEnergy's Hydrogen Valley Locations

*multiple geographies

Future H2 Demand and End-Use Study

Objectives:

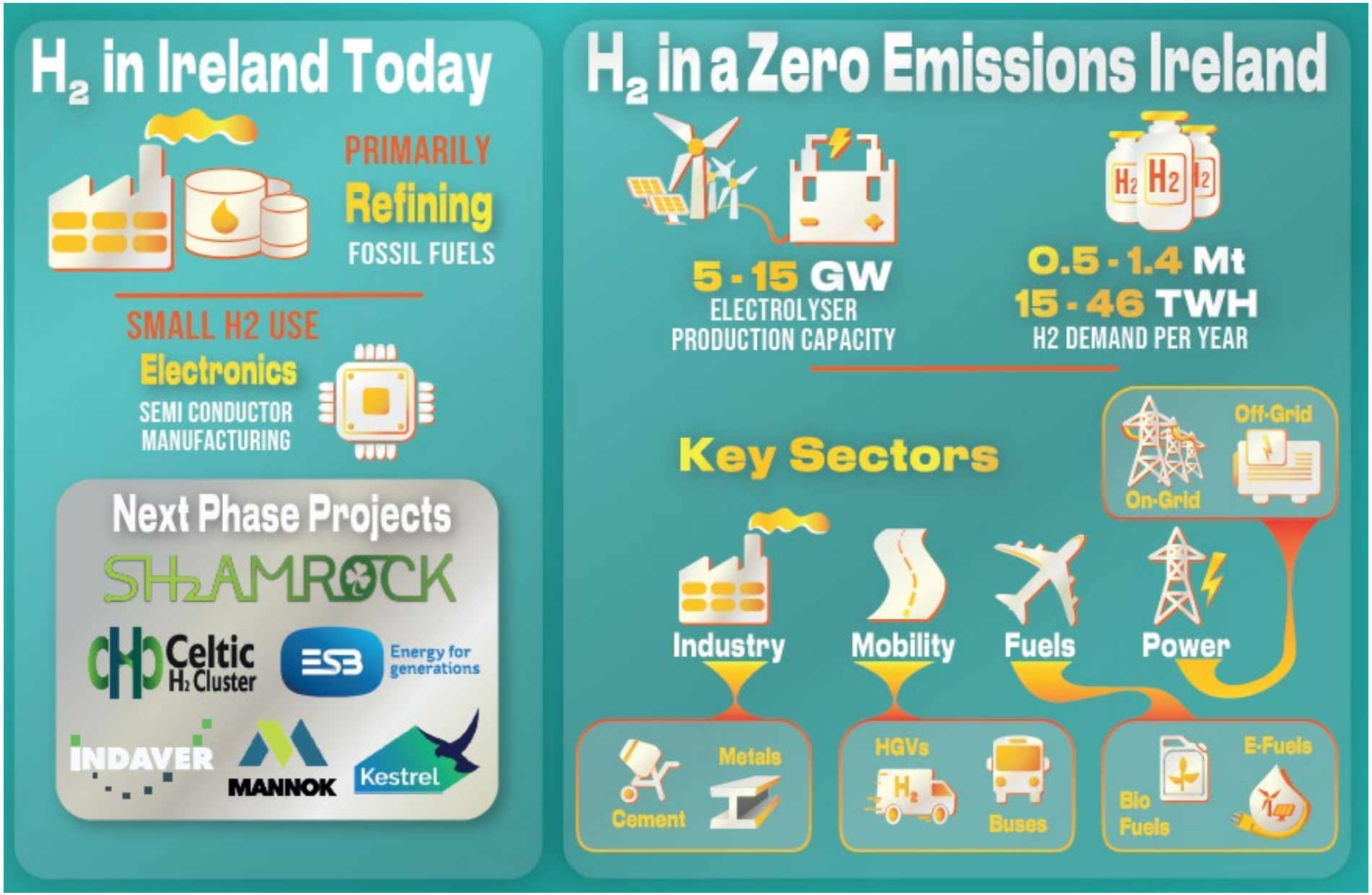
- Which sectors of the Irish economy will require hydrogen to achieve decarbonisation
- When will they require the hydrogen

Scope:

- Assess the role of hydrogen in achieving Ireland's climate targets
- Set out a number of potential pathways from today to mid-century
- Estimate potential demand for hydrogen

Method:

- Market engagement, literature review, desktop analysis
- Compilation and comparison of available data
  - published data
  - specific stakeholder modelling data
  - some stakeholders shared unpublished data



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Hydrogen Demand Pathways

- Uncertainty surrounds hydrogen in Ireland and the energy transition generally
- Based on:
  - the wide array of compiled data
  - opinions shared by relevant experts
  - internal HyEnergy expertise and analysis
- HyEnergy developed 3 potential pragmatic pathways for future hydrogen demand growth which:
  - provide alternative senarios for how the hydrogen industry **COULD** develop
  - compare how different actions, policy and macroeconomic factors could effect hydrogen demand
  - highlight key areas for action

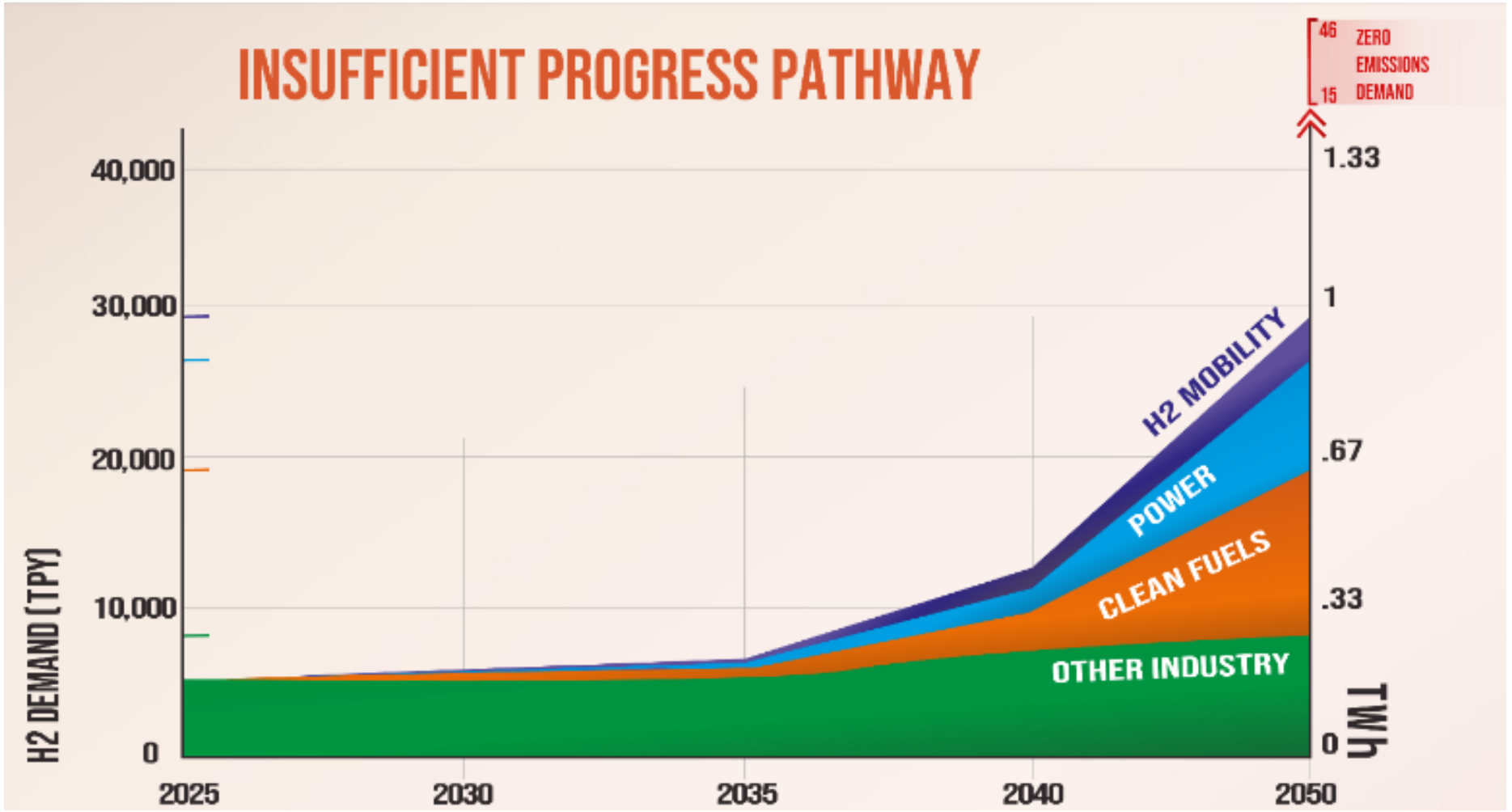
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Business as usual with a slowing of momentum on climate action and the energy transition. Some policies and investment are delayed or rolled-back, with knock-on effects for the delivery of offshore wind.

Emissions Reduction
30 - 40%

Net Zero

0.5 - 2 TWh H_2

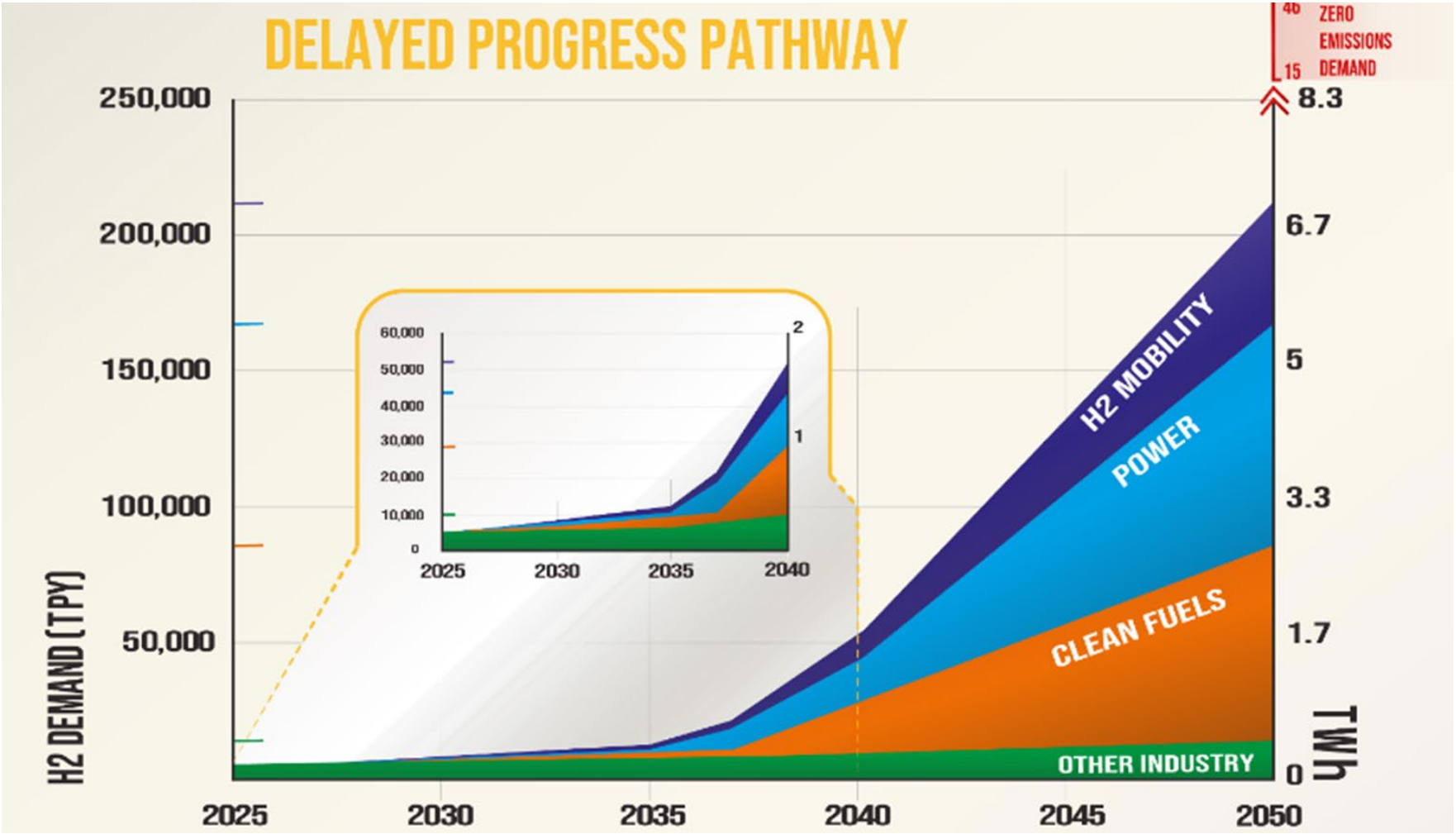


Clear vision from government and industry, but progress is slow due to a disjointed approach. Offshore wind is delayed, pushing back hydrogen deployment and resulting in missed economic opportunities.

Emissions Reduction
50 - 70%

Net Zero

3 - 10 TWh H_2



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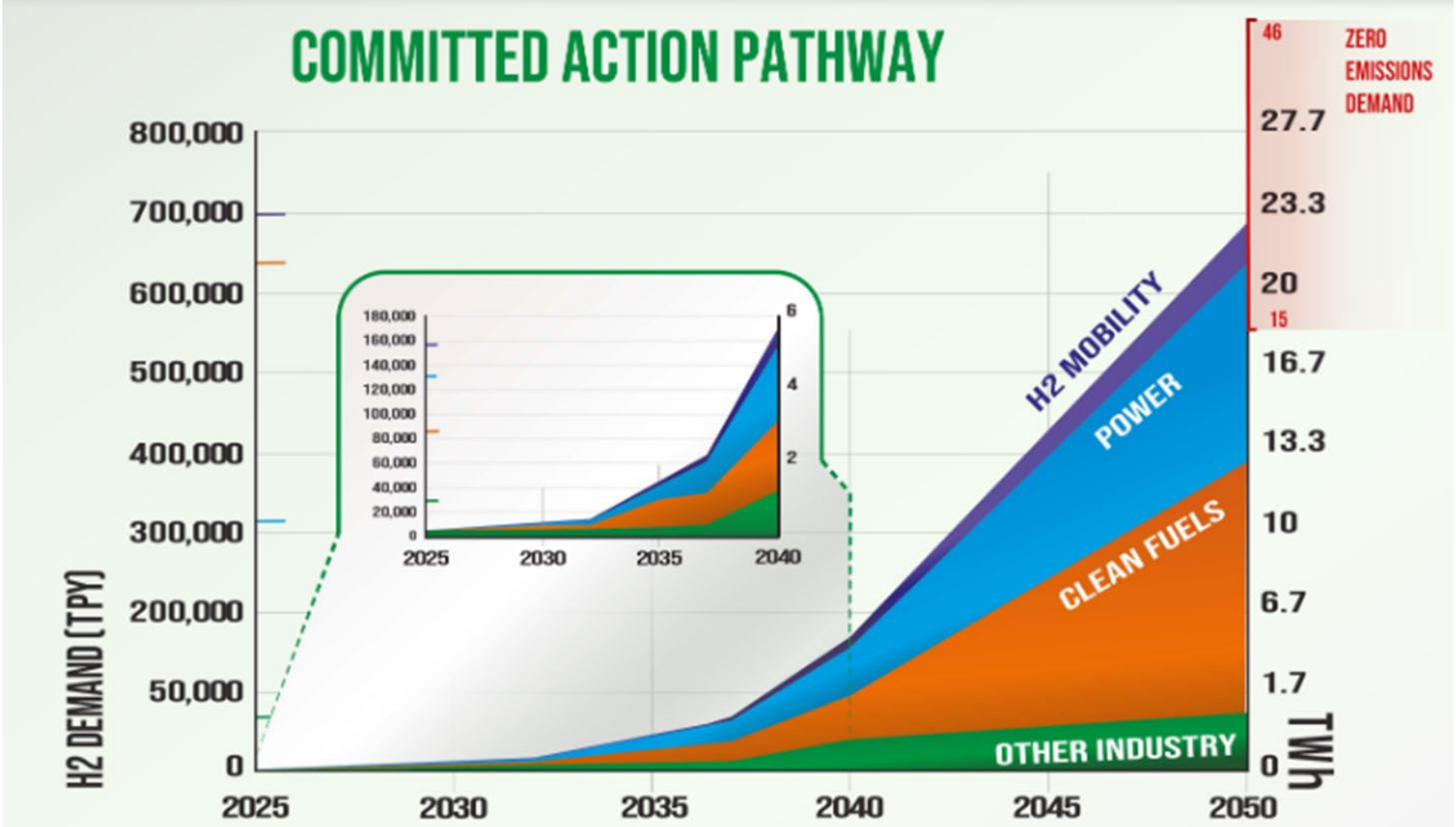
Step-change in action and ambition on climate starting today leading to significant emissions reductions in the 2030s. Hydrogen industry is primed and ready to scale in late 2030s. Offshore wind delivers economic growth and energy security through hydrogen and clean fuels production.

Emissions Reduction

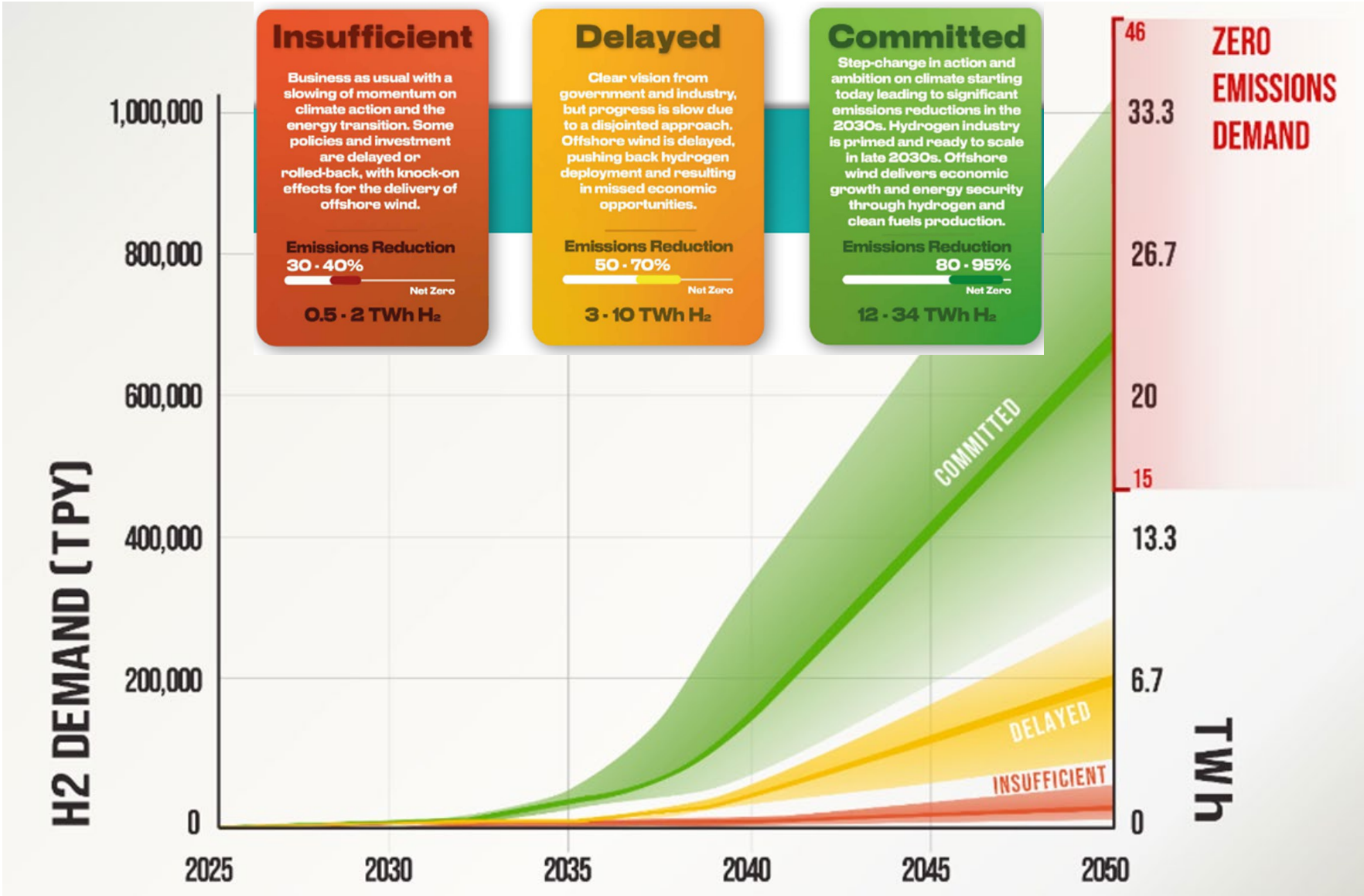
80 - 95%

Net Zero

12 - 34 TWh H_2



Pathway Summary



Policy Levers

Delivery of renewables

Availability and cost of renewable electricity is key

Blend of both capital support and/or OPEX support needed

Coordinated full value chain development support: Hubs/clusters, Infrastructure, Skills, Regulatory

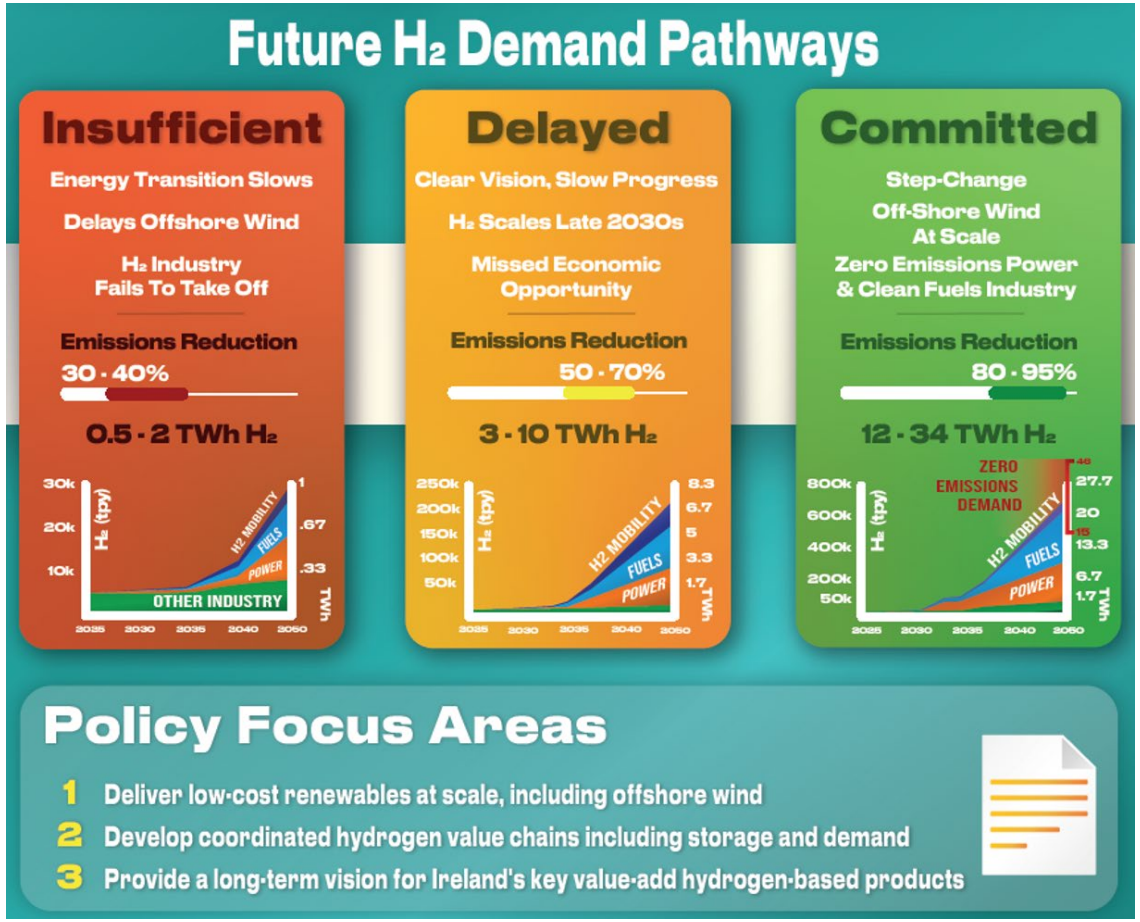
Support hydrogen public awareness projects and sectors where Ireland can use hydrogen to add economic value

HyEnergy DETE Report Link

An Roinn Fiontar, Trádála agus Fostaíochta
Department of Enterprise, Trade and Employment

Key Takeaways

- Hydrogen part of wider energy system
  - holistic, systems wide vision required
- Large-scale renewables build out & progressive industrial decarbonisation policies required
- Risk that hydrogen demand in Ireland fails to grow resulting in missed economic opportunities and failure to achieve required emissions reductions
- Groundwork is required now and in the next 5 years to ensure industry is primed and ready to take-off in the 2030s
- Hydrogen should be prioritised for sectors where most needed
  - clean fuels (to meet EU mandates), power, heavy mobility, industry



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Thank you for your attention

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