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Energy Storage in Northern Ireland

4 September 2025

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PVGEN IRELAND'S SOLAR EXPERTS

Regnum

rengen power

SMS Leading the smart energy revolution

TEMPORIS SUSTAINABLE RETURNS

VIOTAS

Our Vision

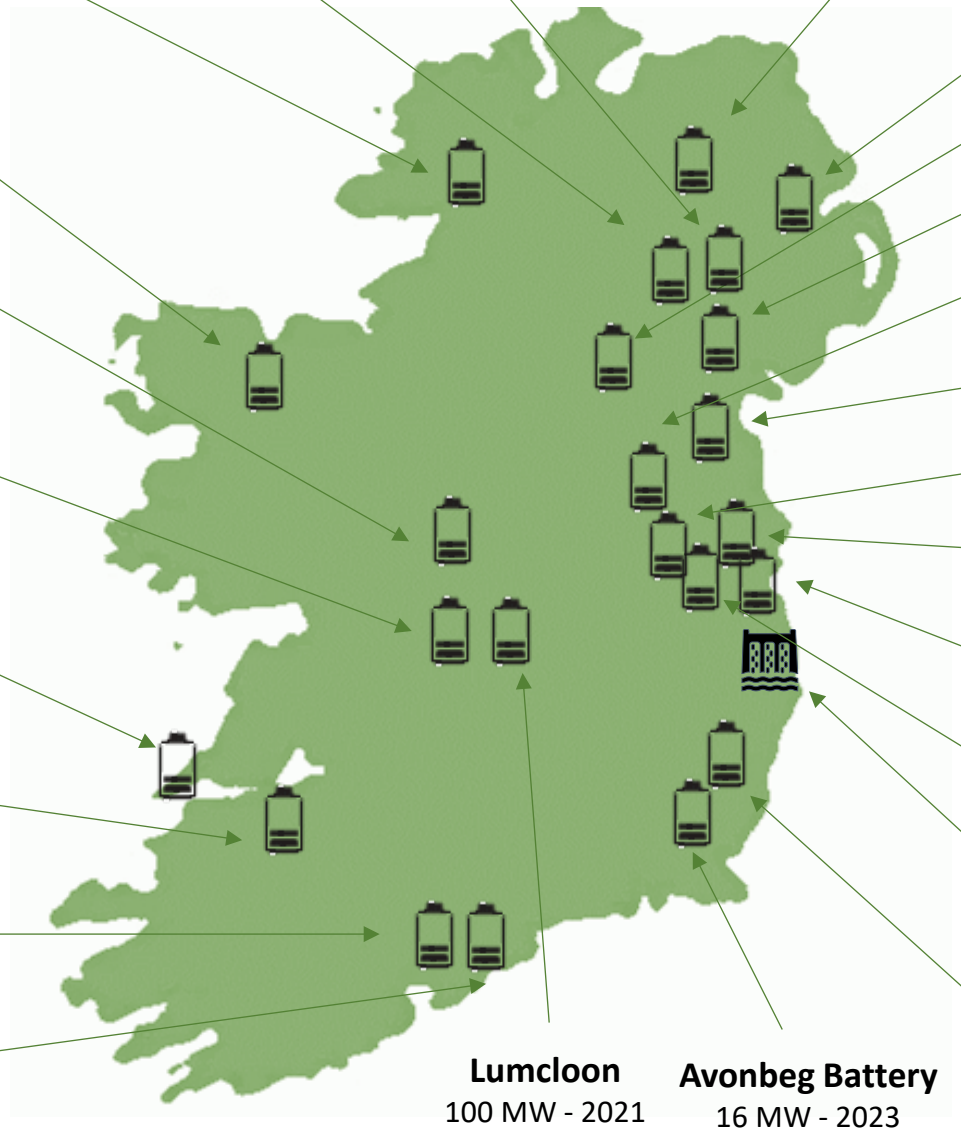
Our Vision

"Delivering the energy storage technologies to enable a secure, carbon free electricity system on the island of Ireland by 2035."

Our Mission Statement

"We engage with stakeholders on behalf of our members to ensure that policy and market design supports the efficient development of energy storage for the benefit of consumers in Ireland & Northern Ireland."

Operational Energy Storage Projects



Golagh 1
3 MW - 2022

Drumkee
50 MW - 2021

Mullavilly
50 MW - 2021

Kells
50 MW - 2022

Castlereagh
50 MW - 2022

Killala
10.8 MW - 2022

Lisdrumdoagh
60 MW -2022

Bann
12 MW - 2024

Cloncreen
25 MW – 2024

Gorman
50 MW - 2022

Stephenstown
8.5 MW - 2021

Shannonbridge A
100 MW - 2021

Kylemore
30 MW - 2022

Poolbeg Battery
75 MW - 2023

Kelwin
26.6 MW - 2021

South Wall
30 MW - 2023

Porterstown
30 MW - 2022

Kilathmoy
11 MW - 2020

Turlough Hill
292 MW - 1974

Aghada 1
19 MW - 2022

Gorey Battery
9 MW - 2022

Aghada 2
150 MW – 2024

Lumcloon
100 MW - 2021

Avonbeg Battery
16 MW - 2023

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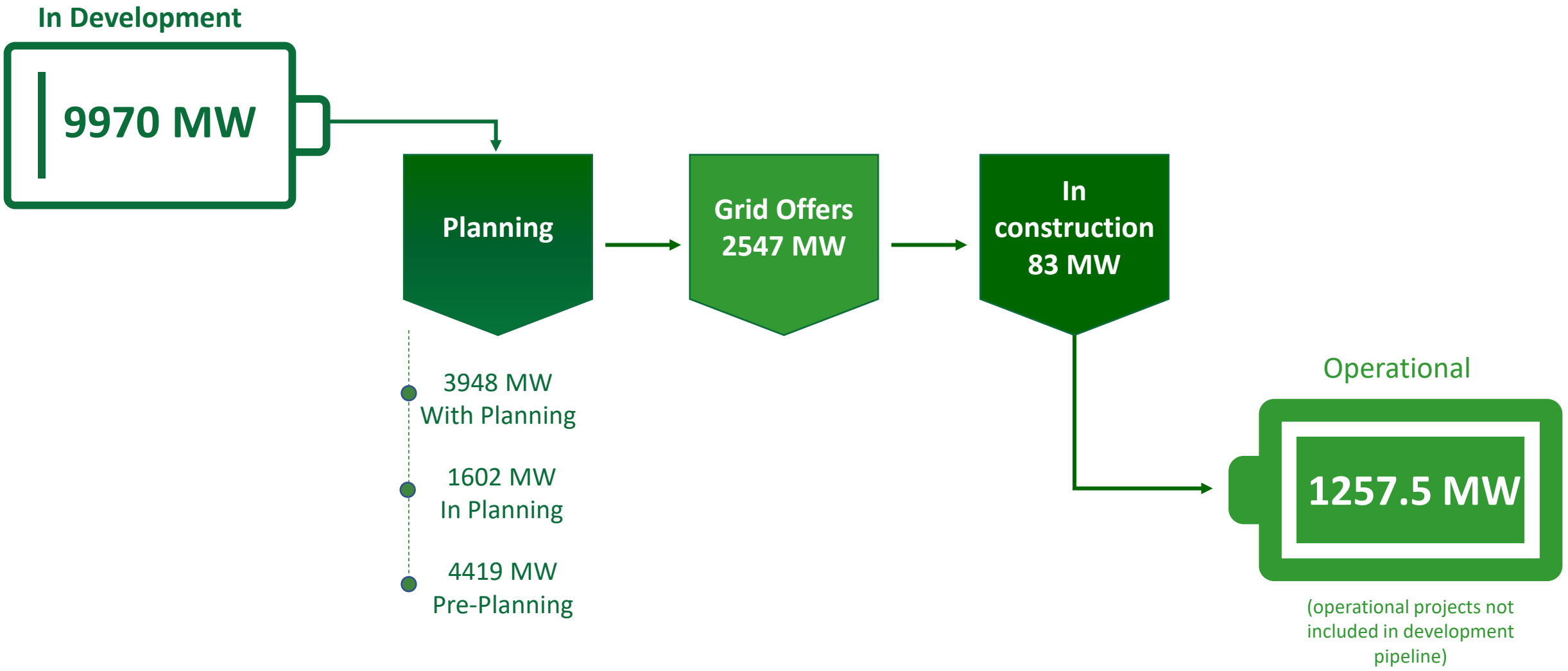
Energy Storage Operational - 1257.5 MW

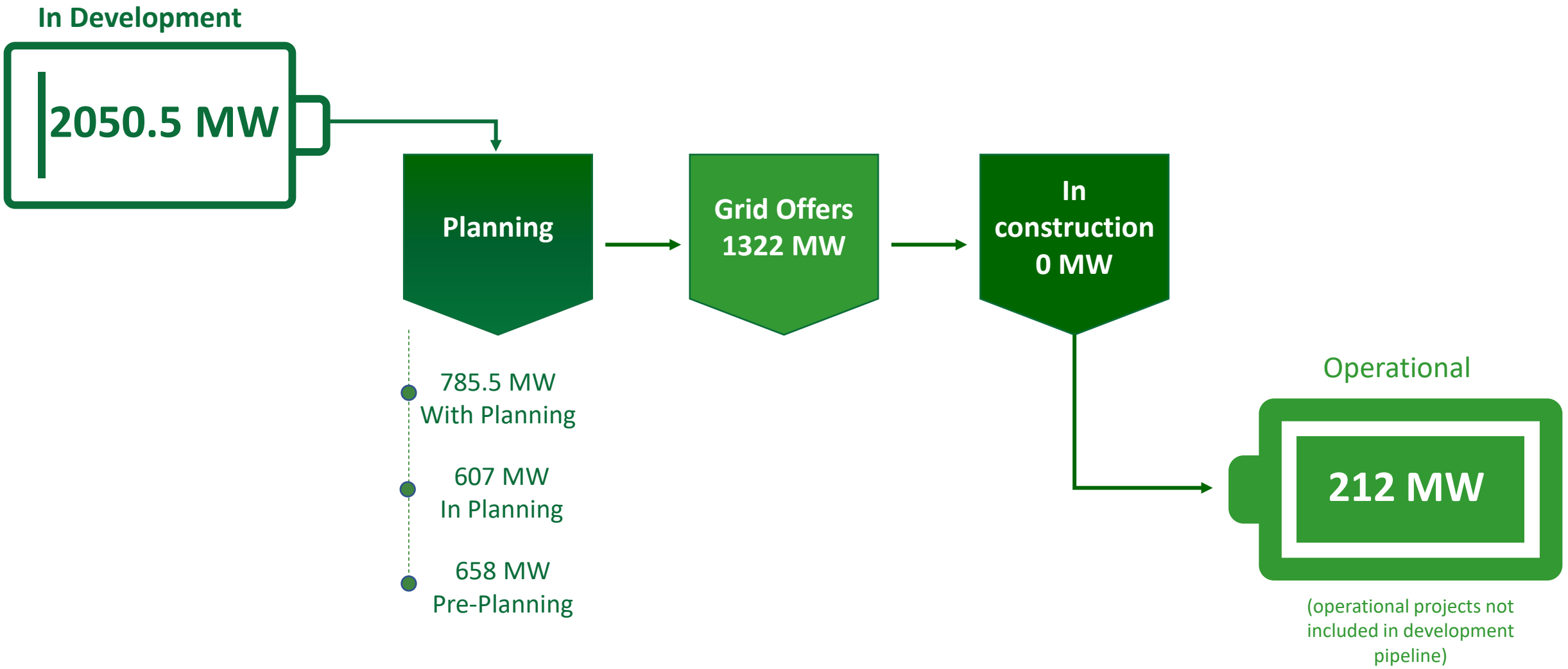
Battery Storage – 965.5 MW

Pumped Hydro – 292 MW

All-Island Energy Storage Development Pipeline



Northern Ireland Energy Storage Pipeline



What has storage ever done for us?

- The system needs ancillary services to function. Batteries can respond in milliseconds to system events (e.g. fossil fuel unit or interconnector tripping or sudden unforecast change in wind output)
- Replace the need to turn on or ramp up/down fossil fuel generators for services such as reserve and voltage
- Allows for more 'space' on the system for wind. TSO is now able to operate the system with up to 75% of demand being met by wind generation at any one time. Aim is to increase this to 95%+ by 2030.
- Baringa quantified the benefits to the system in sourcing all system services from zero-carbon sources such as battery storage.

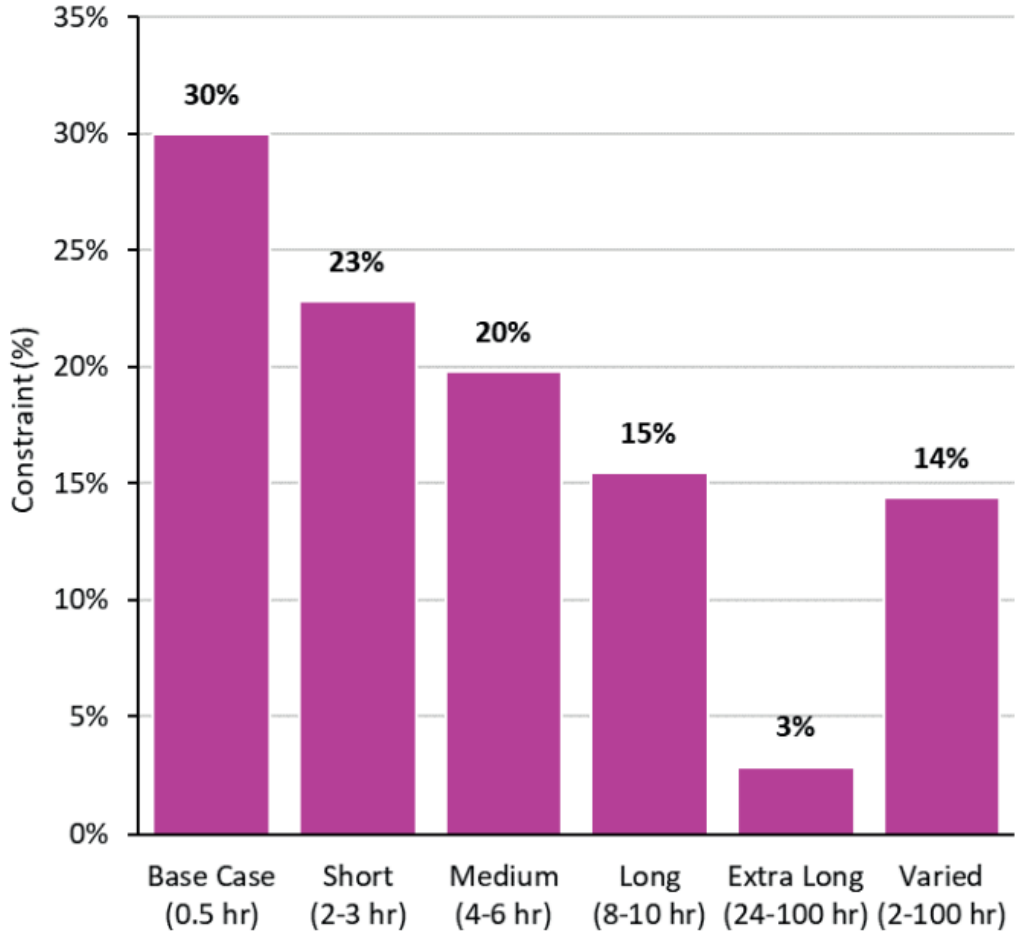
2 million tonnes of CO_2 per year avoided	At least €117m per year operational cost saving	50% reduction in renewable curtailment
Equivalent to removing one third of power sector emissions	Half of this annual saving is realised by deployment of zero-carbon reserve alone	Enough energy to meet the annual needs of over 300,000 domestic customers

Long-Duration Energy Storage is a Game Changer

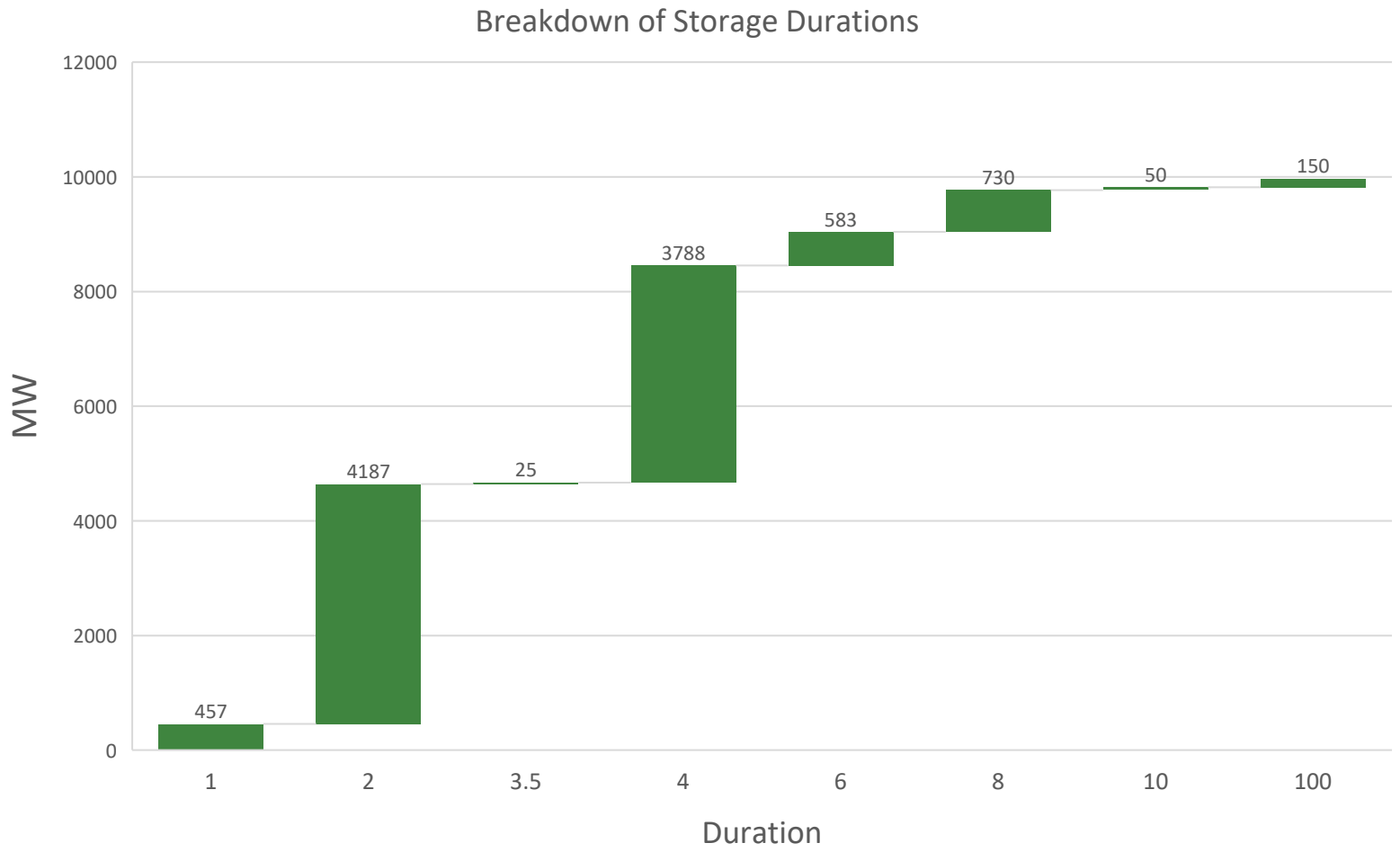
- Report by ESI and Baringa
- Highlights how energy storage is the key to a secure, sustainable, and clean energy future for Ireland and Northern Ireland.
- Modelled a 2030 scenario with an additional 2 GW of different durations of energy storage from 2 hours up to 100 hours (400 MW of this additional storage in NI). Results show that energy storage can:
  - Reduce electricity market carbon emissions by 50% by using long-duration storage technologies
  - Substantially reduce the curtailment of renewable generation
  - Deliver a net saving to end consumers in RoI of up to €85m per year and €15m per year in NI through avoided fuel, carbon and grid reinforcement costs
  - Contribute to low carbon security of supply by supporting renewable capacity and displacing fossil fuels.

Game Changer Report

- Modelled a highly congested region in Ireland - County Donegal
- Considered the benefit of strategic deployment of storage in the county
- Energy storage is shown to substantially reduce the dispatch down of renewable generation
- This means less grid reinforcements are needed and more expensive fossil fuels can be displaced



Storage Durations



50 GWh of storage output

Enough energy to power every home in Ireland twice over for a day

* 3691 MW of lithium-ion batteries where duration info was TBD are assumed to have an even split of 2 hour and 4 hour durations based on average battery durations from the pipeline results.

Storage Technologies

Aghada 2 Lithium-Ion BESS

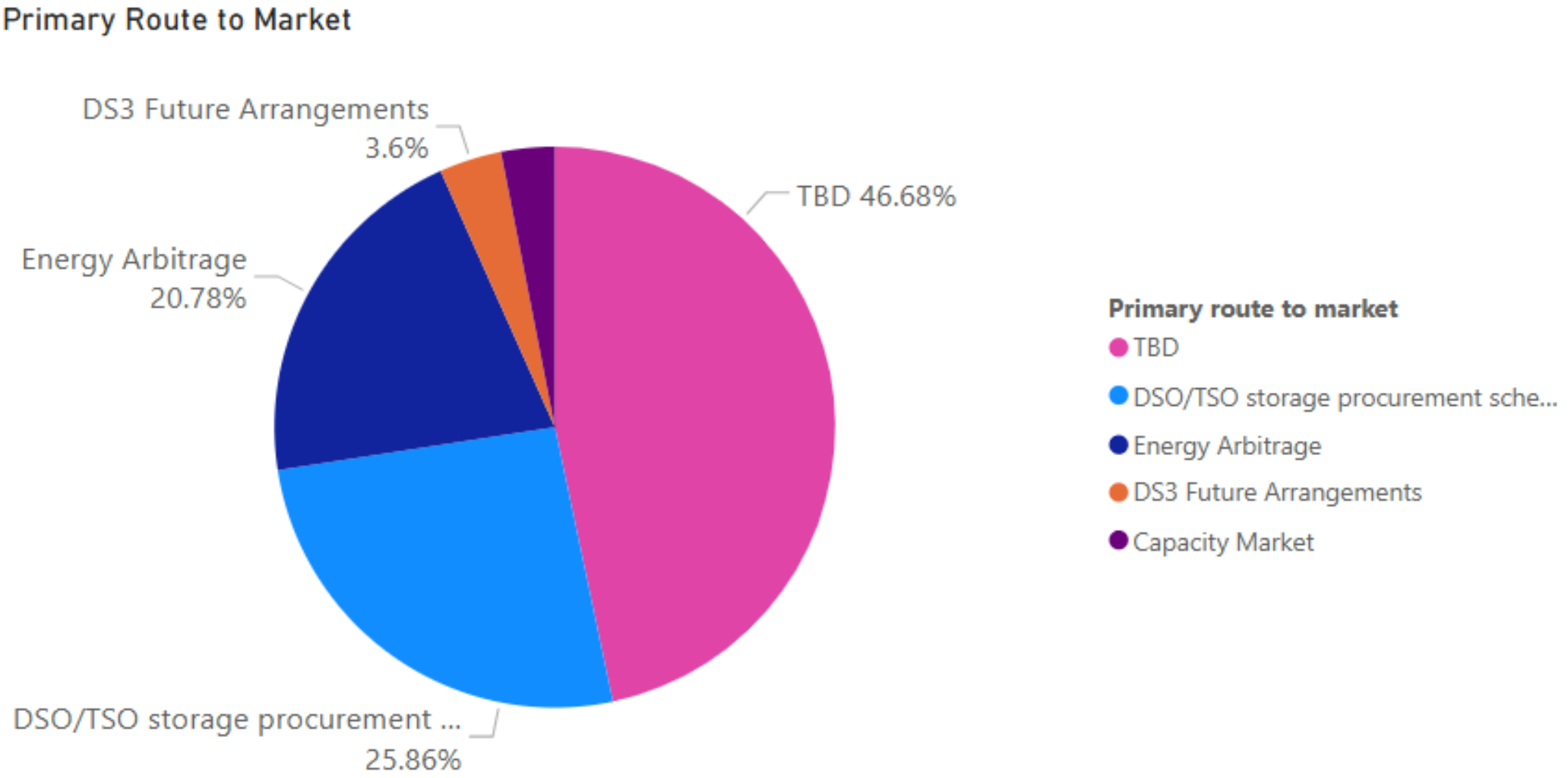
Turlough Hill Pumped Hydro

Iron Air Battery - Donegal

Poolbeg Lithium-Ion BESS

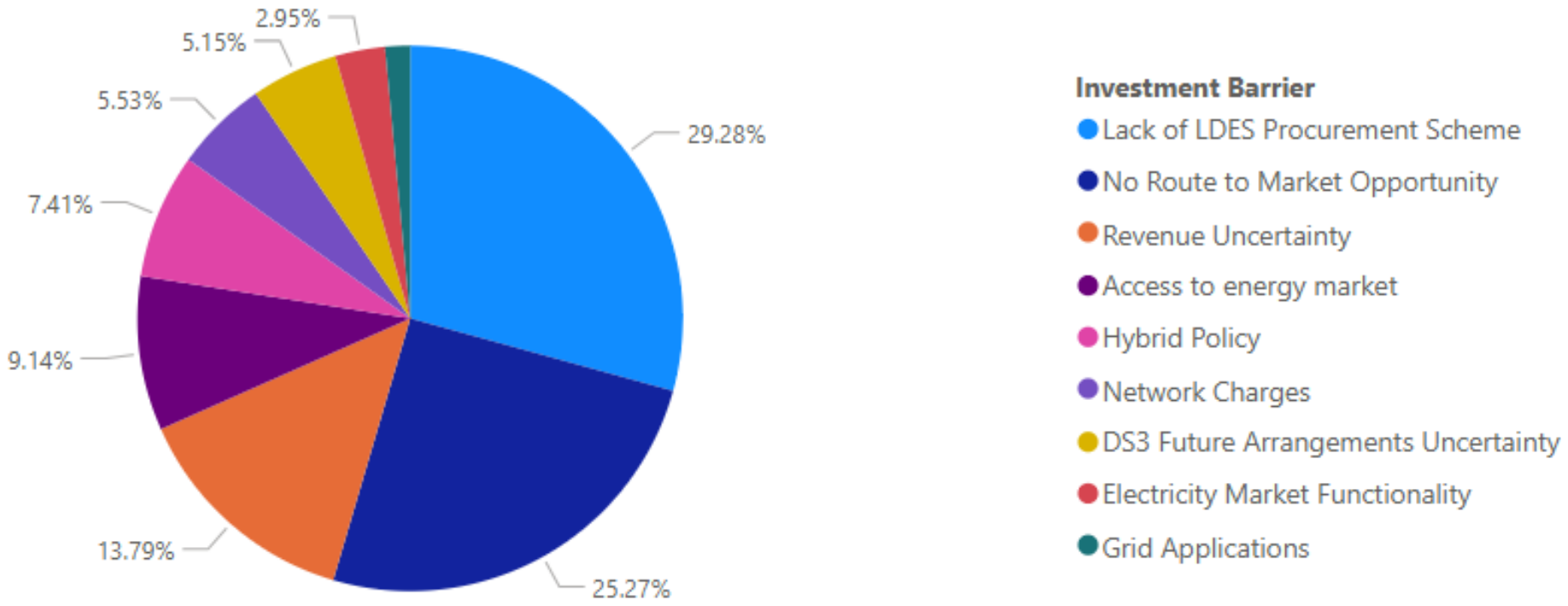
CO2 Battery - Offaly

The Route to Market is uncertain for nearly half of projects



Investment Barriers

What is the main investment barrier?



Key Takeaways

- The industry is ready to deliver.
- The technologies exist today or are developing rapidly.
- However uncertainty on the route to market is the main constraint at present.
- Industry has shown in the past it can deliver, as it did under the DS3 system services framework.
- We need policy to move faster. It is a timing issue but industry will not wait around forever.
- If we want a secure, independent, clean and affordable energy system then energy storage is the key.

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Thank you!

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www.energystorageireland.com