

Understanding Grid Connections

Energy in Agriculture 2018
21st August 2018

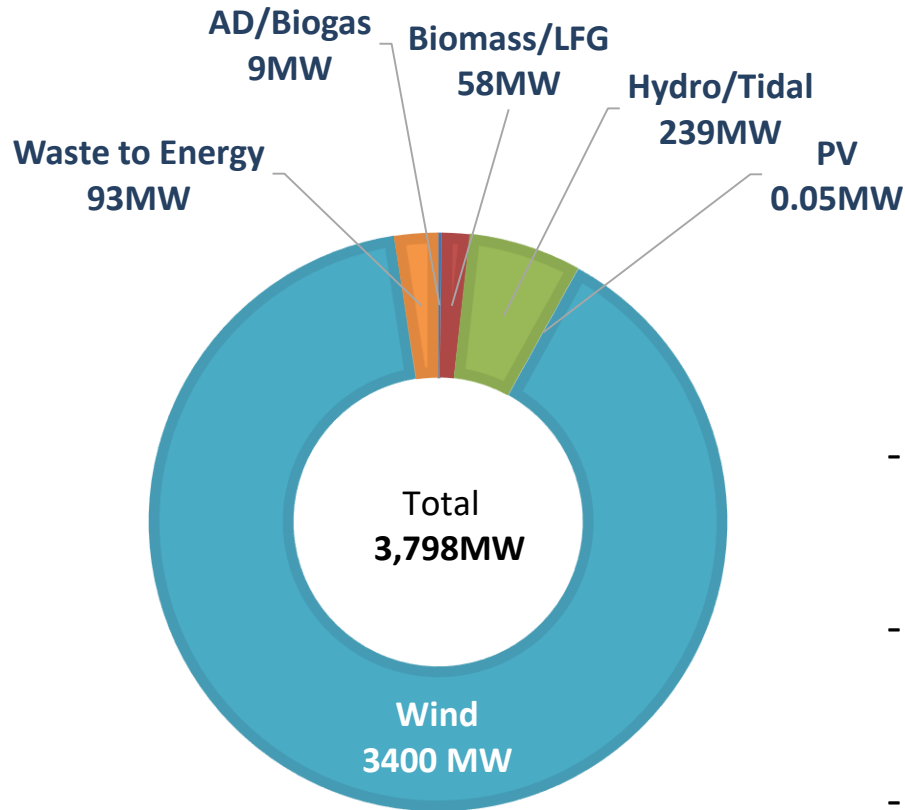


Mullan Grid Consulting

- Electrical engineering consultancy specialising in grid connections for renewable generator installations
- Ongoing projects in Ireland & Northern Ireland
- Technical Advisor for approx 1500 MW of wind generation projects and multiple Solar, biomass, marine and hydro projects
- Experience of Gate 1, 2 & 3 and Non-GPA
- Represented on IWEA Council, IWEA, ISEA & NIRIG Grid Committees & Gate 3 liaison group



Renewable connection status



**ROI Connected
Renewable Generation Technology Mix**

- 12,000 GWhr of renewables energy required to meet 2020 targets
- RESS paper proposes another 11,000GWhr required by 2020
- That only gets us to 55% renewables

Updated June 2018

Connecting to ESB Networks Grid

- How many kW of generation are you connecting?
- Do you want to export from the site?



Connection Offer Process - Micro Generation

Inform and Fit Process

- Micro-generation is classed as the connection of a generator with an MEC of less than 6kW (Single phase) or 11kW (three phase)
- There is currently no charge to apply or connect a micro-generator to the ESB network provided it is compliant.
- Complete Micro-Generation Application form - NC6
- If export metering is required – cost of approx €350 for new meter.
- Proceed with installation of the Micro-Generator by a registered electrical contractor



Connection Offer Process - Parallel Generation

Zero Export Process

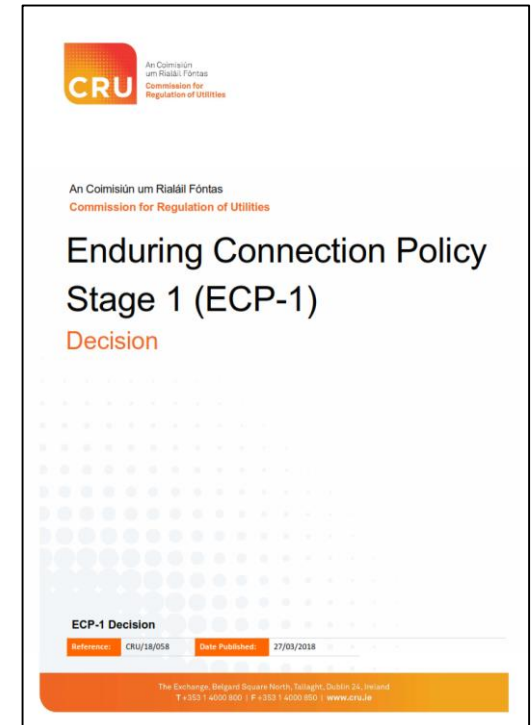
- Generators with no export capacity are generally referred to as Paralleled Generators
- Apply to ESB Networks using the NC5 application
- There is currently no charge to apply to connect a zero export generator
- A quote and connection agreement should be issued by ESB Networks within 30 days.
- The installation must comply with ESB Network protection requirements



ECP Connection Offer Process

<500kW Export Capacity

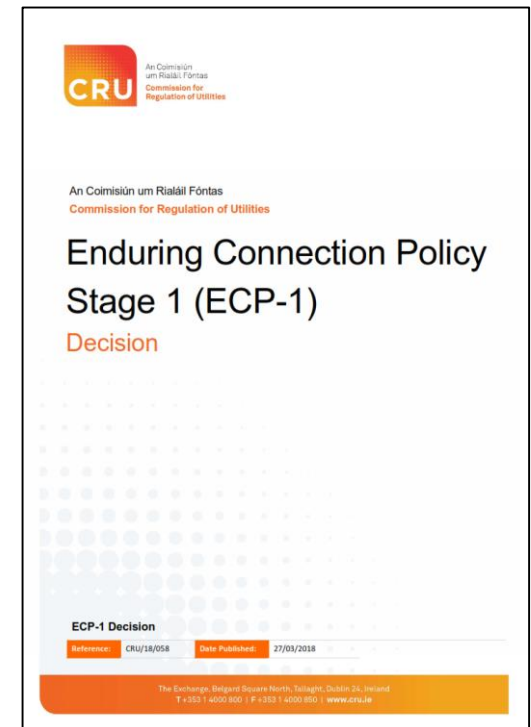
- Small projects 11-500kW and autoproduction can be processed individually
- Capped at 30 offers in a calendar year
- Planning permission is a requirement to apply
- Application fees apply
- Auto-production clearly defined as demand sites with generation where MEC is less than 2 times the MIC



ECP Connection Offer Process

>500kW Export Capacity

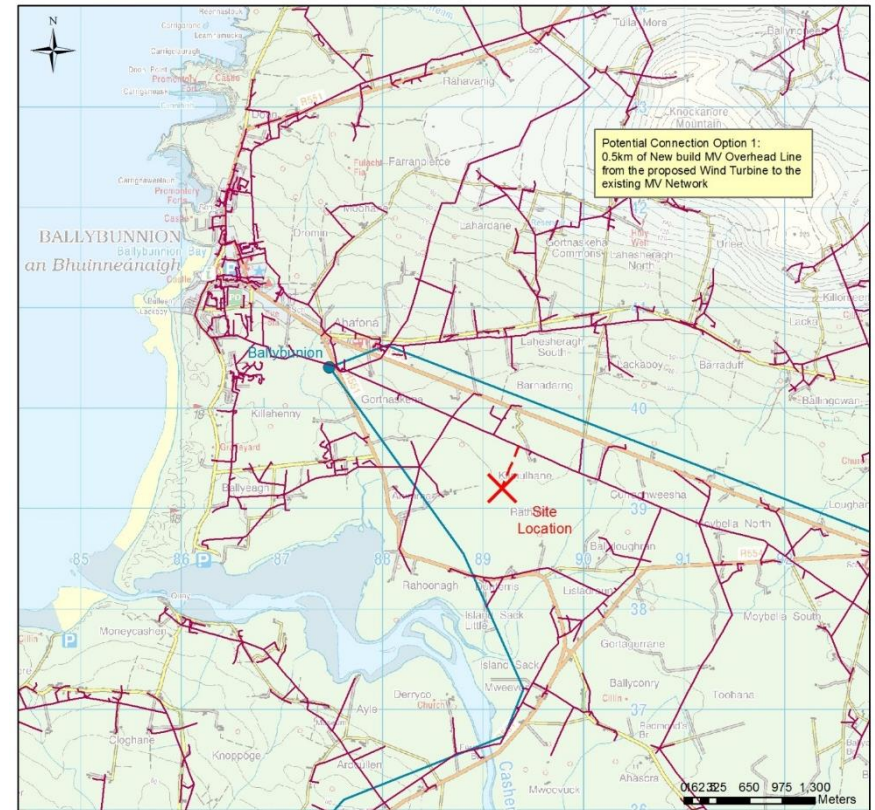
- Processed in a batch with other applications
- Expectation to have a batch every two years
- Need planning permission to apply for batch processing
- Application fees apply



Will my connection be feasible?

Depends on ...

- MEC capacity required
- Proximity to grid
- Available capacity considering existing generation
- Cost of any grid upgrades



Summary

- Simple process for micro generation and if not exporting
- Planning permission required to apply for export capacity
- Grid connection viability depends on many factors including proximity to grid and local available grid capacity
- Recommend grid feasibility study at an early stage



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