

# Irish Wind Energy Research Network

2<sup>nd</sup> Meeting, Charlemont Hilton Hotel, Dublin.  
22<sup>nd</sup> March, 2018

John McCann, SEAI



- Wind Energy in Ireland
  - Irish Wind Energy RD&D 2017
  - Funding for Wind Energy RD&D
  - IEA Wind News
  - Irish Wind Energy Research Network
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# Key Statistics and Key Targets

Peak Electricity Demand to Date:	5,090 MW
Installed Wind Capacity @ Dec 2017:	3,473 MW
Maximum Wind Output to Date:	2,826 MW
Wind's Contribution to Electricity in 2017:	24.8%*
Renewable Contribution to Electricity in 2017:	29.6%*
Wind TWh 2017:	7.44TWh

## *2020 Targets*

EU RES Directive Target – Total Energy	16%
RES-E	40%

\* Actual gross contribution (non-normalised)

Sources: EirGrid & SEAI



# Ardnacrusha Hydropower Station

- Commissioned 1929 and 1934
- Capacity **86MW**, Output **332GWh/A**

- **Wind 2017**  
**= 22 x**

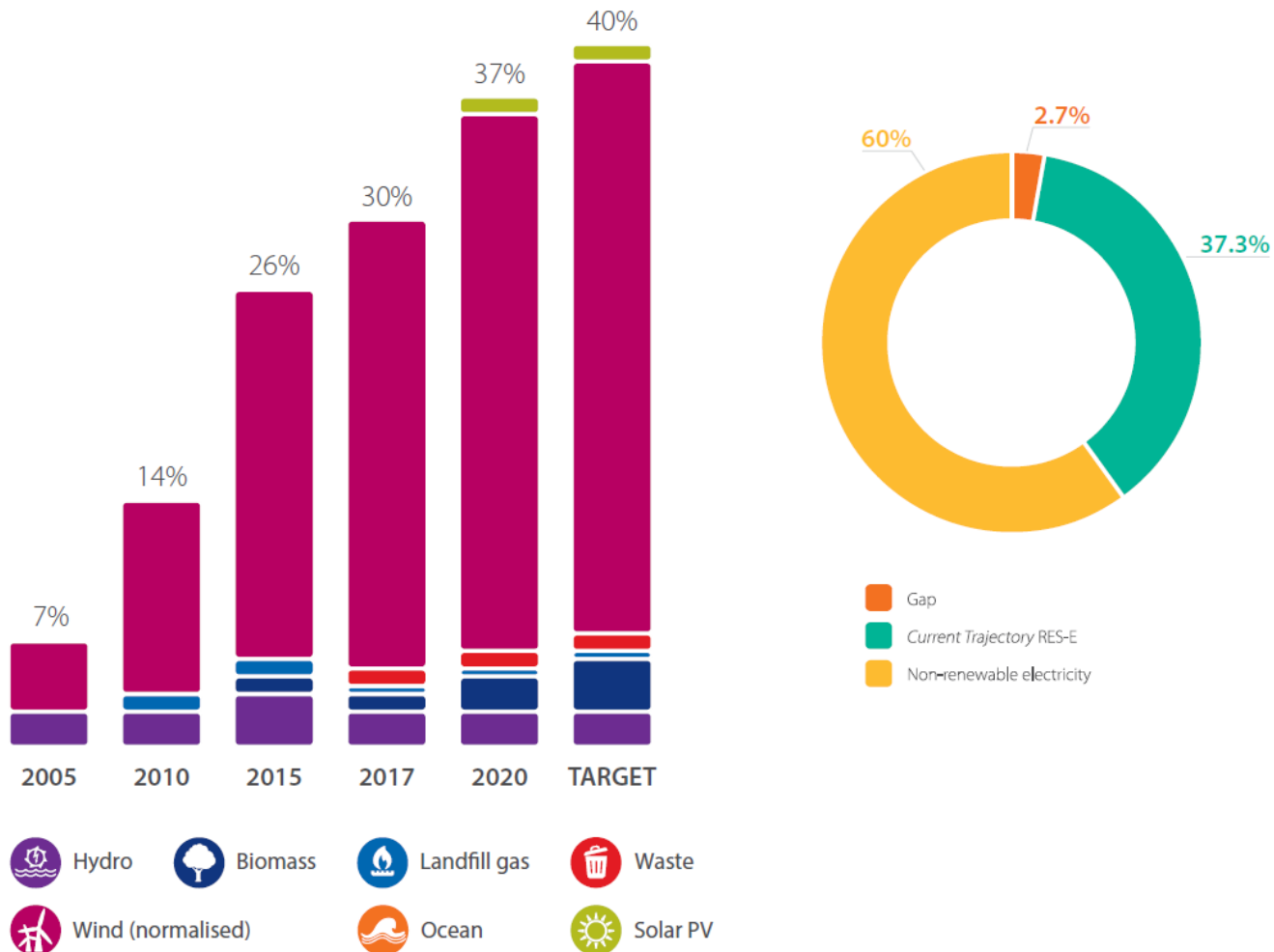


## Unprecedented growth in 2017

- Record 673MW built 2017
- ~3.5GW total installed,
- 7.44TWh/A,
- ~25% of electricity,
- Wind 85% of RES-E,
- Wind ~50% of all Renewable Energy
- 3<sup>rd</sup> or 2<sup>nd</sup> worldwide?

# SEAI Ireland's Energy Projections 2017 Renewable Electricity Target

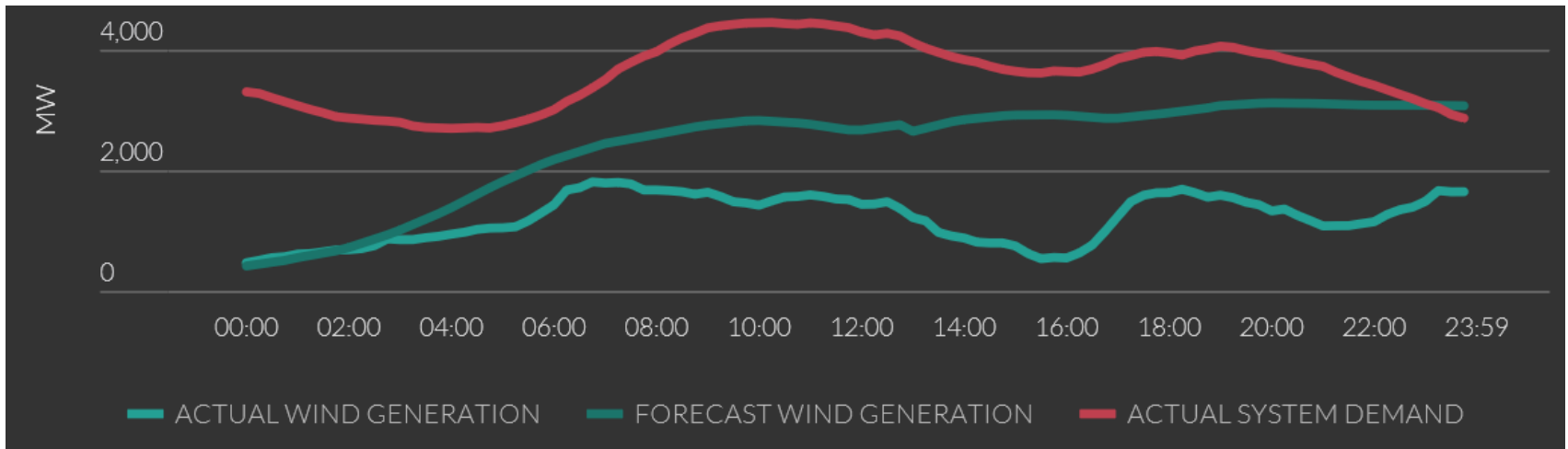
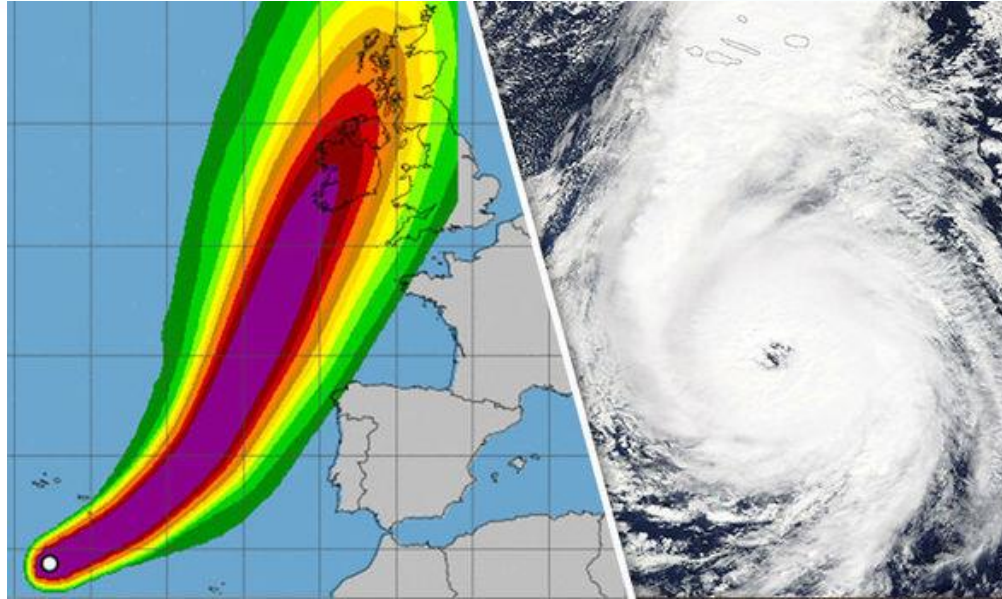
Figure 9: Renewable electricity (RES-E) progress and target



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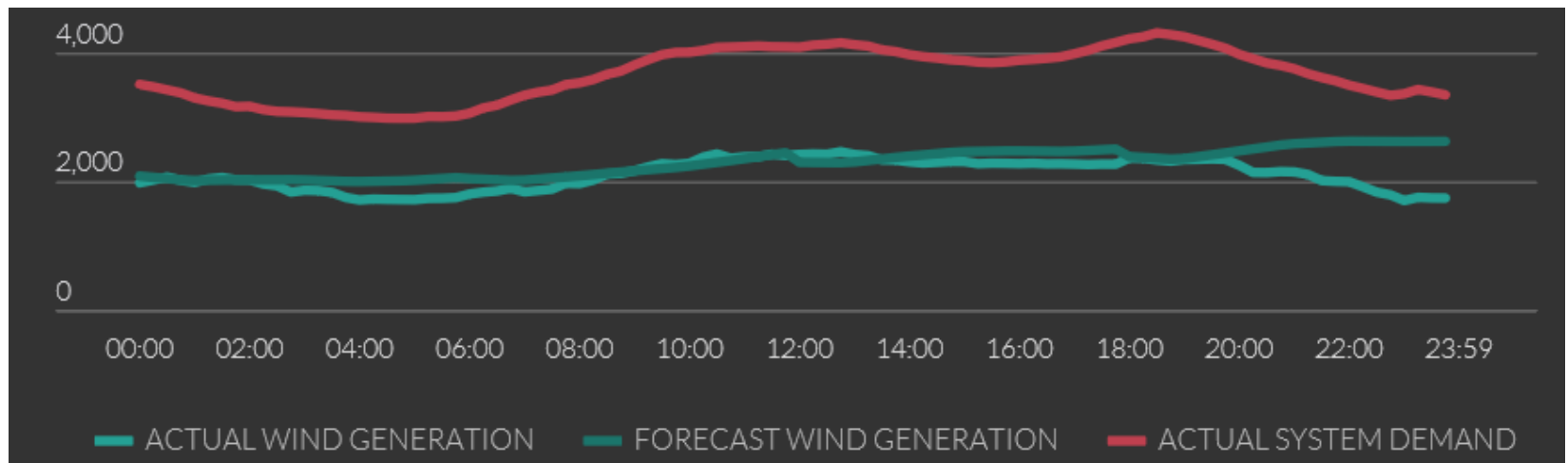
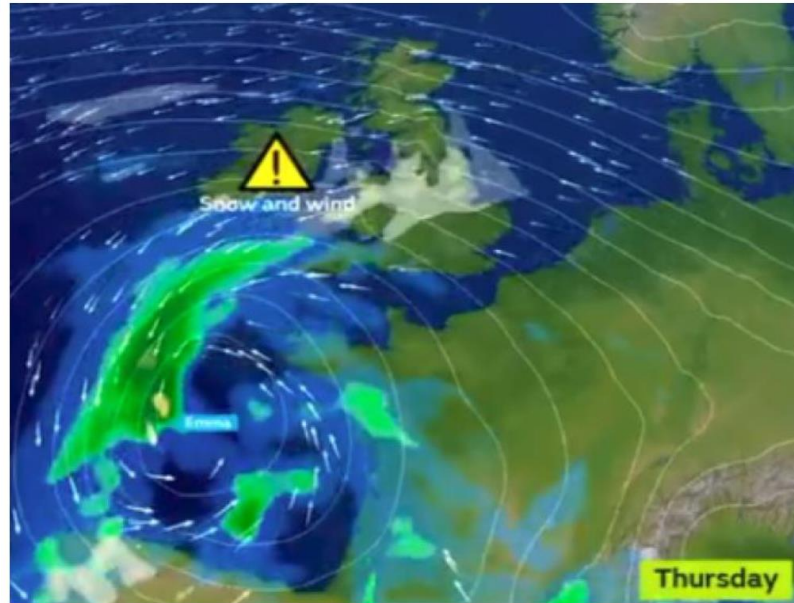


# Storm Ophelia





# Storm Emma



SEAI, in 2017 R,D&D scheme funded projects :

- Legislative Mechanisms for Local Community Ownership and Investment in Renewable Energy Infrastructure: **Tipperary Energy Agency**
- Analysis of local obstacle impacts on the energy performance of large scale wind autoproducers in peri-urban locations, based on multi-annual SCADA data: **DKIT**
- Wind Autoproduction Micro-siting Guidelines: **DKIT**
- An economic analysis of wind farm externalities and public preferences for renewable energy Ireland: **NUIG**

Eirgrid DS3 programme results in 2017

- Smart Valve project – controlling transmission line loading
- DS3 System Services Proven Technologies List with wind power plant eligible for 7 categories of service.

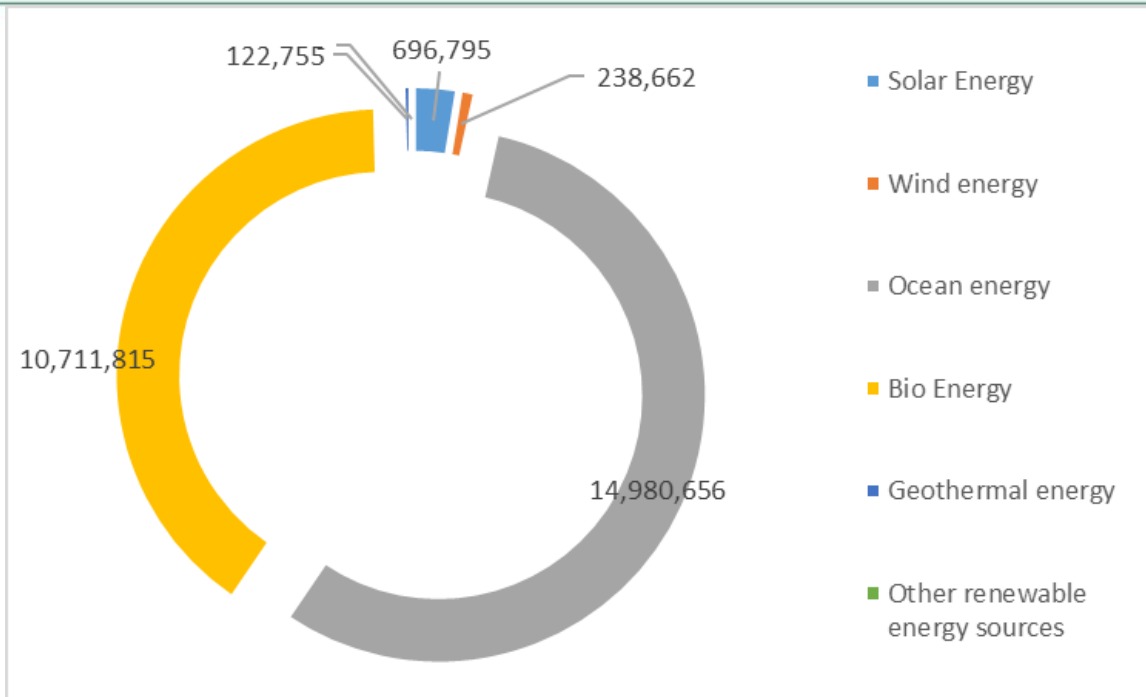
**Table 44: Technologies that can be considered as Proven Technologies**

<b>Technology Class / Sub Class<sup>6</sup></b>	<b>Services Applicable<sup>7</sup></b>
<b>Wind - Wind Farm Control</b>	FFR, POR, SOR, TOR1
<b>Wind – Emulated Inertia</b>	FFR, POR
<b>Demand Side Management (DSM)</b>	FFR, POR, SOR, TOR1
<b>Synchronous Compensator and Flywheel Hybrid</b>	FFR, POR, SOR, TOR1
<b>Centrally Dispatched Generating Unit (CDGU)</b>	FFR
<b>HVDC Interconnectors</b>	FFR

Classification as a “Proven” technology will allow a Service Provider to submit a tender into the next Central Procurement Process for provision of System Services.

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# Ireland's Renewable Energy Research Funding IEA Technology Classification 2015



Renewable Energy Source	Funding total €
Solar Energy	696,795
Wind Energy	238,662
Ocean Energy	14,980,656
Bio-Energy	10,711,815
Geothermal Energy	122,755

- **The Sustainable Energy Authority of Ireland** energy policy research and R,D&D funding programmes;
- **Science Foundation Ireland/Irish Research Council** fund academic basic research on science and technology. Research Prioritisation Steering Group priorities - 14 areas of opportunity;
- **Enterprise Ireland** funds research commercialisation in indigenous SME's. Wind energy projects funded include small wind turbine development and data systems for wind farm O&M;
- **Eirgrid** executes and funds research on wind energy integration & funds Smart Grid Innovation Hub @ National Digital Research Centre;
- **ESB Networks** has sponsored research on distribution network development for high renewable electricity penetrations.
- **The Commission for Regulation** of utilities has an energy research remit within its regulatory functions

Increased budget, multi-annual project funding, specific project definitions, co-funding with other bodies

Project specifications relevant to wind energy

- **Topic 1:** Examining a range of financial structures to support citizen and community participation in renewable energy projects
- **Topic 7:** I-SEM and variable renewable electricity generators: Development of a forecasting tool for renewable electricity plant operators to manage their financial exposure to imbalances
- **Topic 8:** Wind Farm Efficiency Improvements: Feasibility Studies and Demonstrations
- **Topic 13:** Development of a wave-ocean-atmosphere coupled weather forecasting model for application in the offshore wind and ocean energy sectors
- **Topic 14:** Research programme supporting Ireland's participation in, IEA Wind Task 39, Quiet Wind Turbine Technology
- Deadline for Applications March 29<sup>th</sup>!



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- Task 40 Downwind Turbine Technology – new
- Topical Expert Meeting (TEM) 89: A Grand Vision for Wind Energy Nov 2018
- End of Term Report 2013-2018 and Strategic Plan 2018-23 being drafted
- Ireland Hosting Digitalisation & Wind Energy T.E.M. Oct 2018
- Call for Suggestions for Future Topical Expert Meetings

New Website [ieawind.connectedcommunity.org](http://ieawind.connectedcommunity.org)

<b>Ireland IEA Task Participation</b>	
<b>Base Technology Information Exchange</b>	Task 11
<b>Power Systems with Large Amounts of Wind Power</b>	Task 25
<b>Cost of Wind Energy</b>	Task 26
<b>Small Wind Turbines on High Turbulence Sites</b>	Task 27
<b>Social Acceptance of Wind Energy Projects</b>	Task 28
<b>Environmental Assessment and Monitoring for Wind Energy Systems (WREN)</b>	Task 34
<b>Wind Forecasting</b>	Task 36
<b>Quiet Wind Turbine Technology (New Task 2017)</b>	Task 39

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“Straw man” vision and mission:

**Vision:** The Irish Wind Energy Research Network will contribute to the development of a robust wind energy research sector, stimulating collaborations between industry and academic researchers. Wind Energy R&D in Ireland will reach levels appropriate to a mature industry sector in a country leading the world wind power deployment.

**Mission:** To highlight excellence in wind energy research, at all levels, and to further promote excellence through providing opportunities for collaboration among researchers. To provide authoritative input on wind energy to Government energy research strategies. To contribute to an environment that promotes the development of wind energy research in Ireland to a level commensurate with the economic importance of the wind energy sector in Ireland.

Brian Keville

Damian Flynn

Emmet Egan

Eugene McKeown

Fergal O'Driscoll

James Dineen

Michael Conlon

Paul Blount

Ross McNally

John McCann

McCarthy Keville O'Sullivan

UCD

ABO Wind

RPS Consulting Engineers

BIM/BUCANIER Project

Brookfield Renewable

DIT

ABO Wind

Irish Wind Energy Association

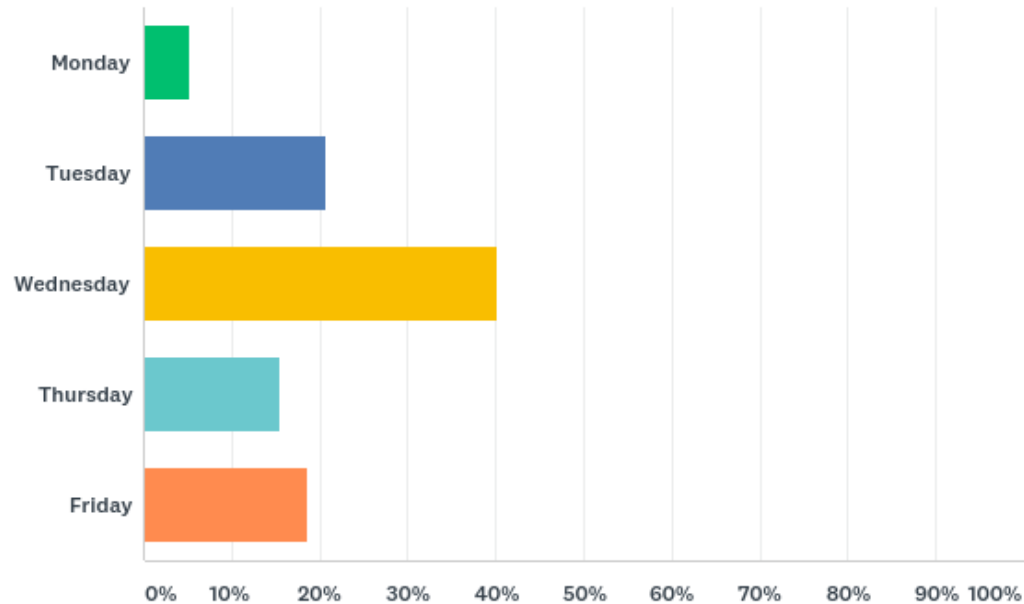
SEAI/IEA Wind

# Survey Results

## Weekday for Meetings

Q7 What is your preferred weekday for future Irish Wind Energy Research Network meetings?

Answered: 97 Skipped: 15



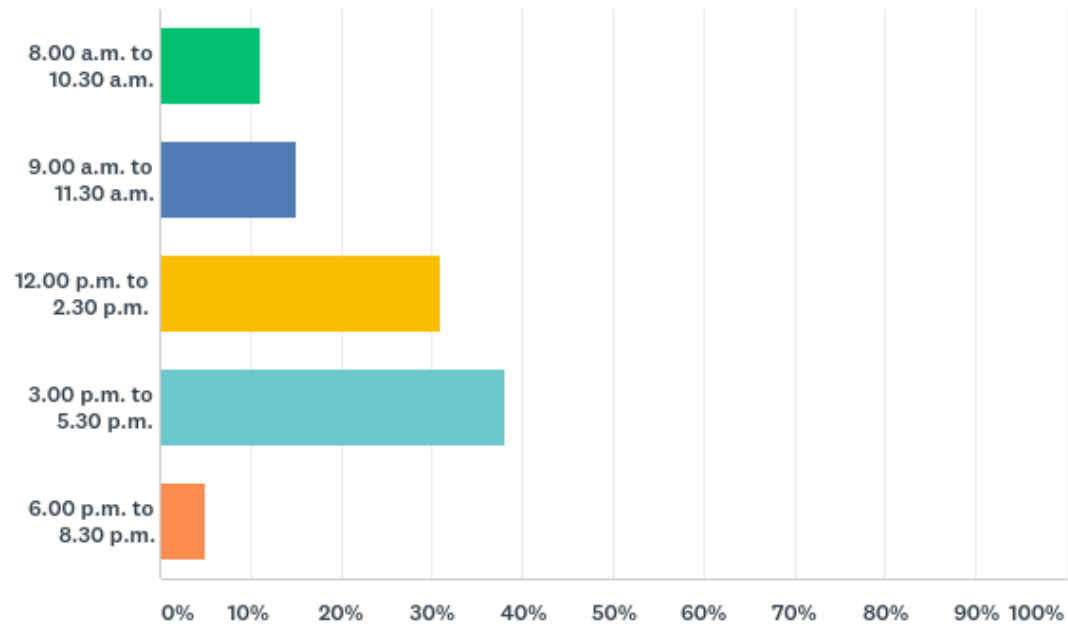


# Survey Results

## Timing of Meetings

Q8 What is your preferred weekday for future Irish Wind Energy Research Network meetings?

Answered: 100 Skipped: 12



Thank you

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