

# Welcome to Corporate PPA Seminar

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DR. DAVID CONNOLLY, CEO IWEA

28<sup>TH</sup> JUNE 2018

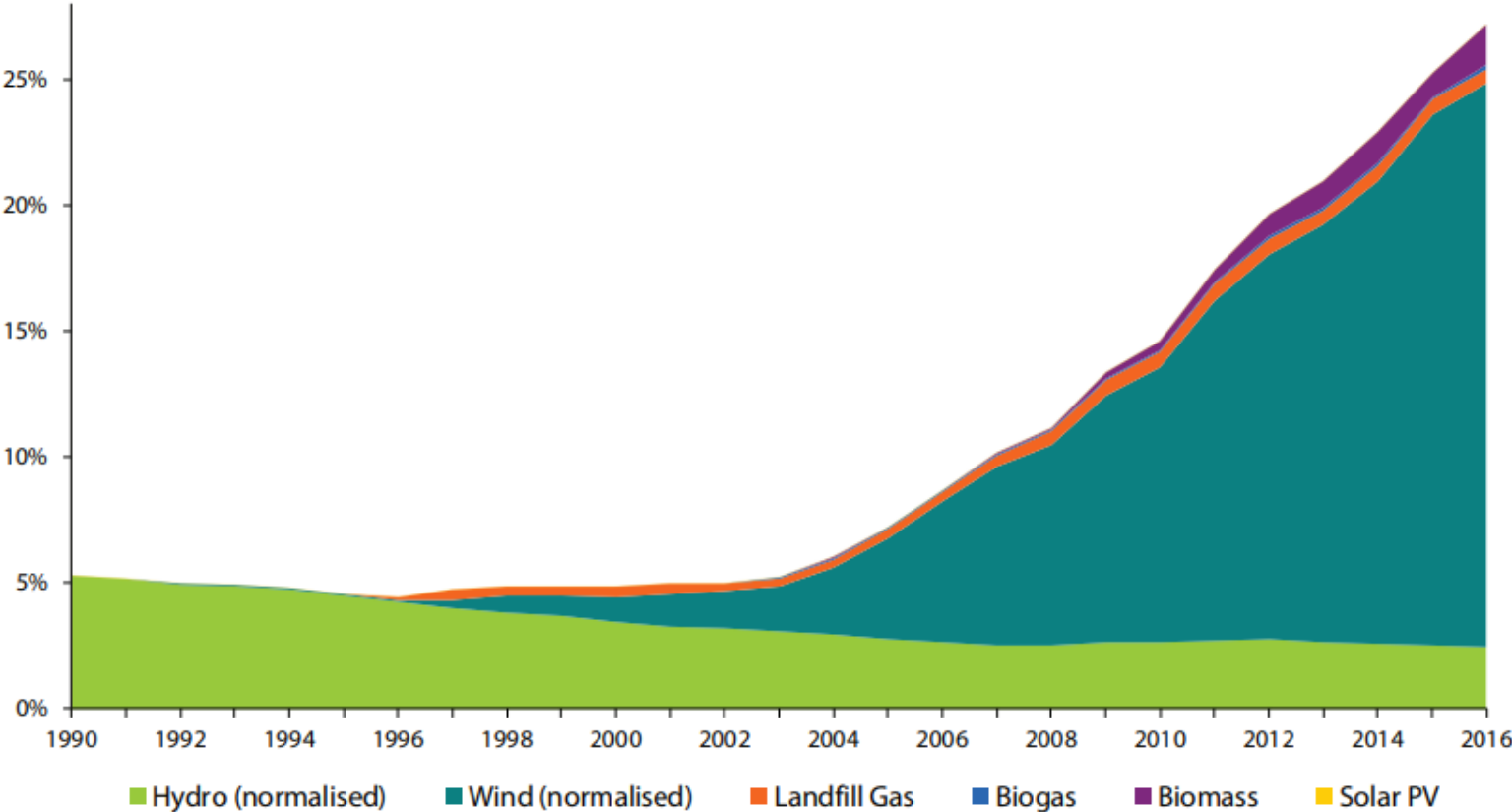
~30% Renewable  
Electricity in Ireland to  
Date (primarily via REFIT)

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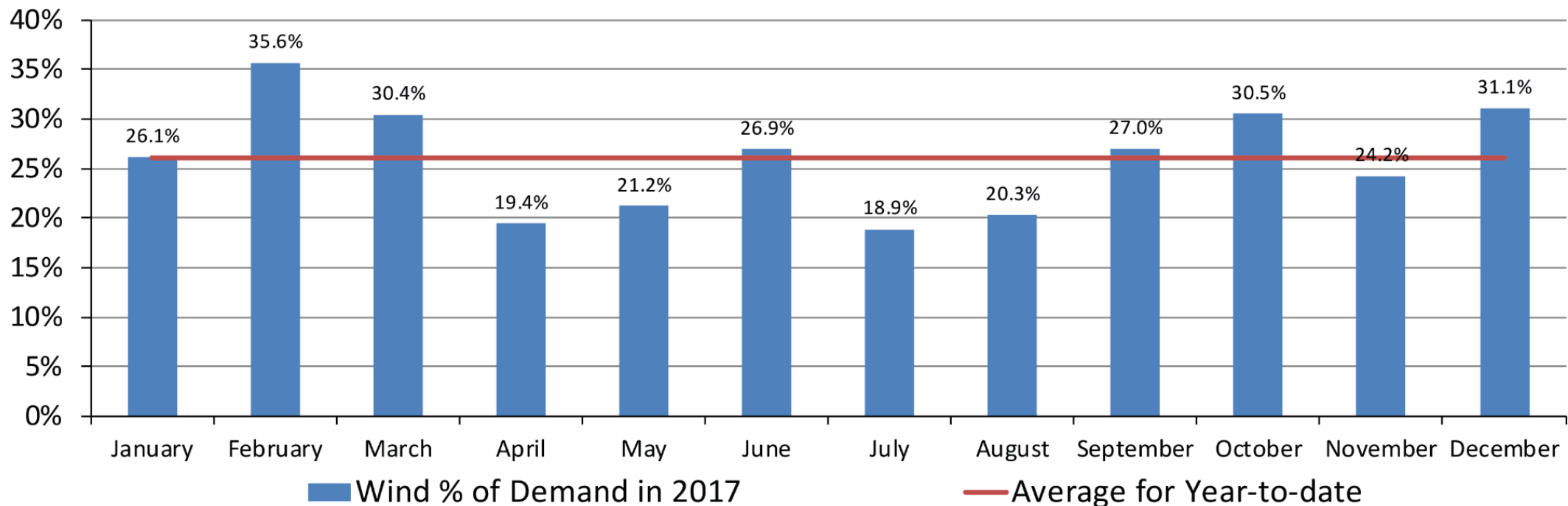
# Renewable Electricity in Ireland 1990-2016 (SEAI)



Figure 25: Renewable Energy Contribution to Gross Electricity Consumption (RES-E normalised)



# Wind Power in 2017: 26% of Electricity in Ireland



Impact of 26% Wind:

Estimated reduction in CO2 emissions: ~3 Mt

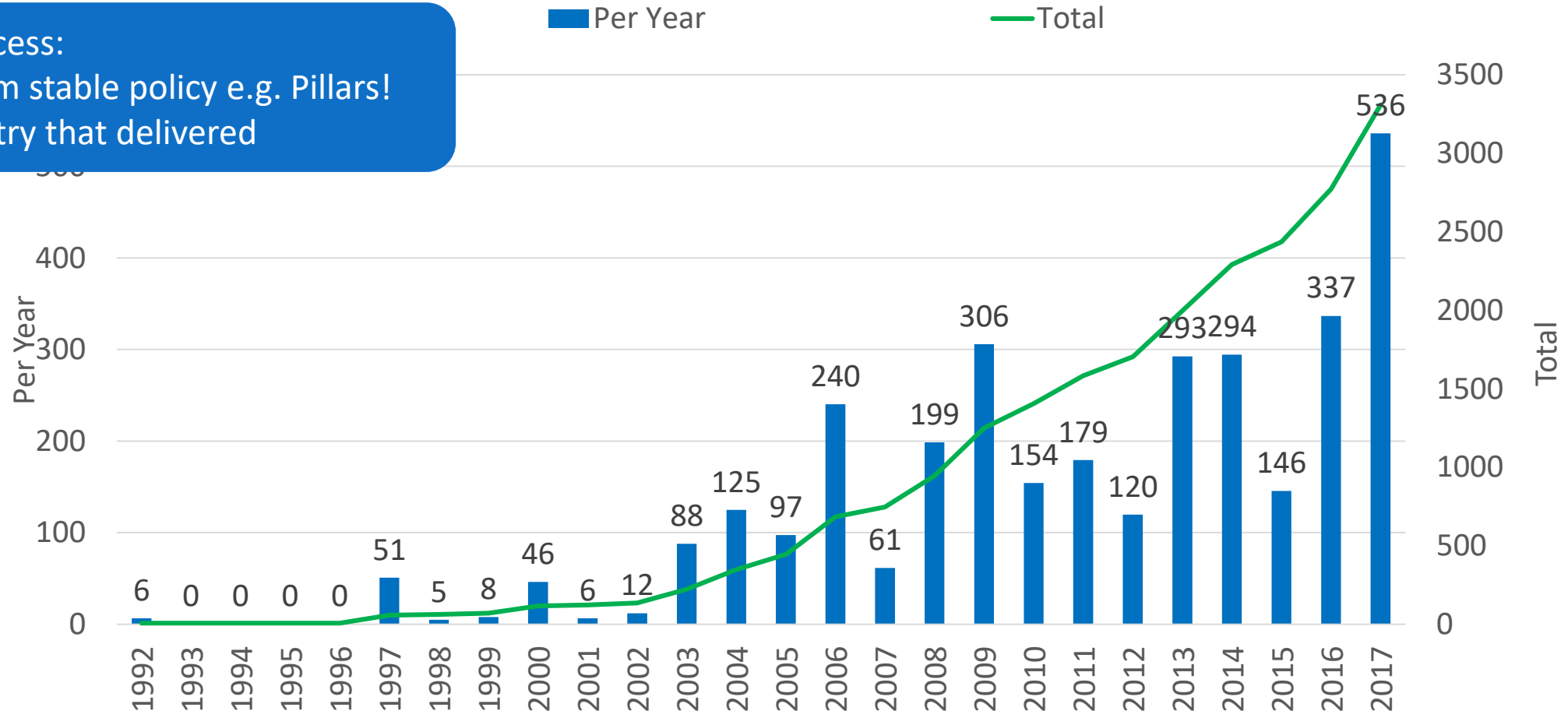
Estimated reduction in imported fossil fuels: ~€185 Million

Graph: Martin Howley, SEAI

# Wind Industry Can Now Deliver >500 MW/year:



Installed Wind Power in ROI (MW)



## Key To Success:

1. Long-term stable policy e.g. Pillars!
2. An industry that delivered

# WIND IS **BENEFITING** IRELAND



**INVESTING IN  
INFRASTRUCTURE:**

**APPROXIMATELY €6-7  
BILLION SO FAR**

**CREATING  
JOBS:**



**~4500 ACROSS  
IWEA MEMBERSHIP**

**SUPPORTING LOCAL AUTHORITIES:  
RATES OF >€20 MILLION/YEAR**

**SUPPORTING WIND COMMUNITIES:  
IWEA MIN RECOMMENDATION OF**



**~€60K/TURBINE TODAY**

**REDUCING ENERGY IMPORTS: BY  
~€250 MILLION IN 2017**



**ATTRACTING  
FDI**



**SUCH AS  
MICROSOFT DATA  
CENTRE 2017**

**REDUCING CARBON EMISSIONS:  
BY ~3 MILLION TONS IN 2017**

**PSO OFFSET BY REDUCTION IN  
ELECTRICITY GENERATION COSTS\***

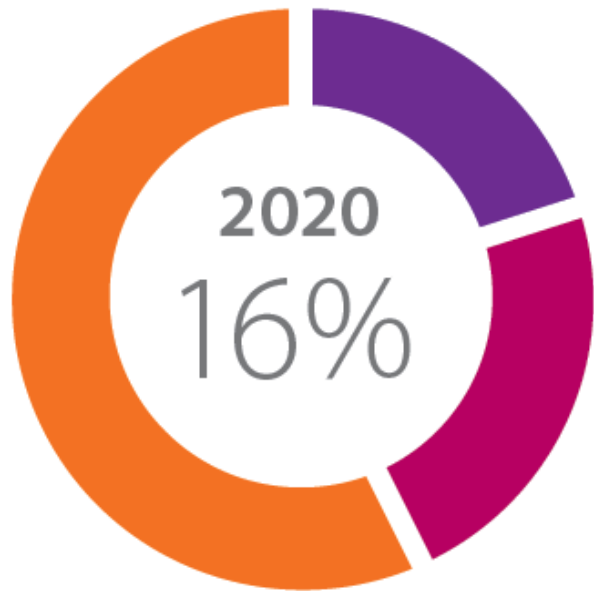
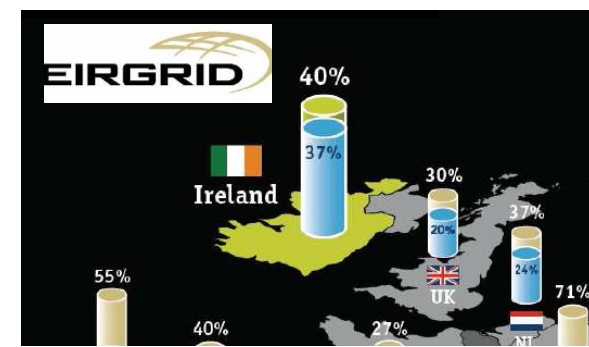


\*Based on Independent Research by SEAI and ESRI

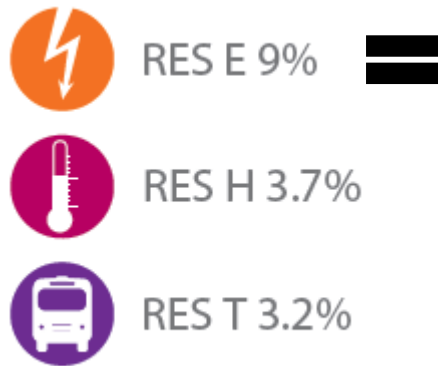
# Outlook to 2020: Shortfall in target becoming likely

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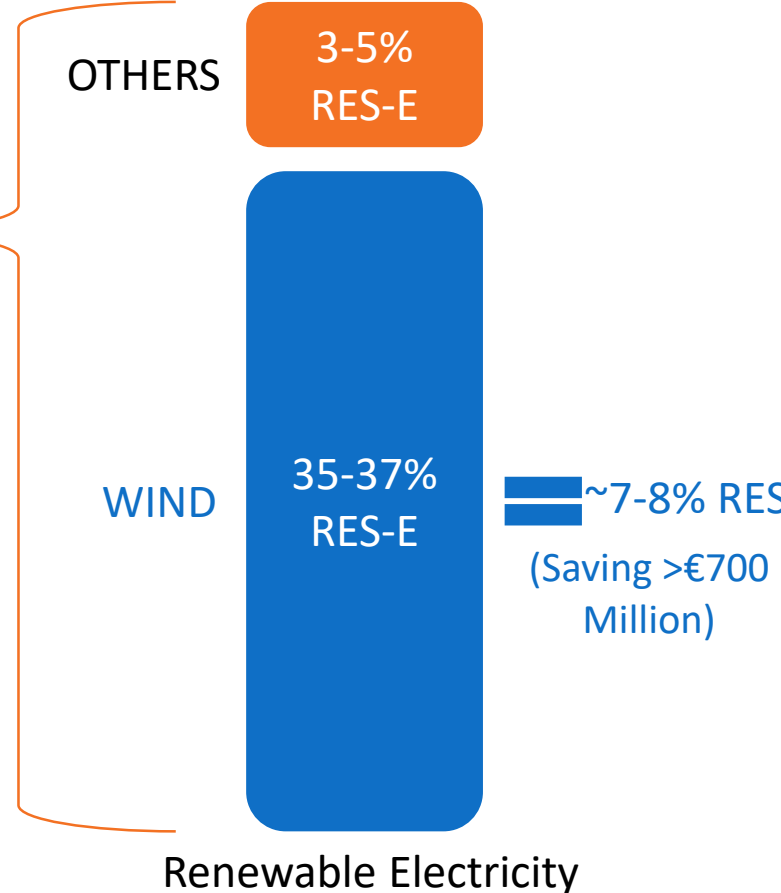
# Wind Energy Expect to Supply almost Half of Ireland's 2020 Renewable Energy Target



Ireland's Renewable Energy Target



**40% Renewable Electricity**





# Total Demand in 2020: 32 TWh

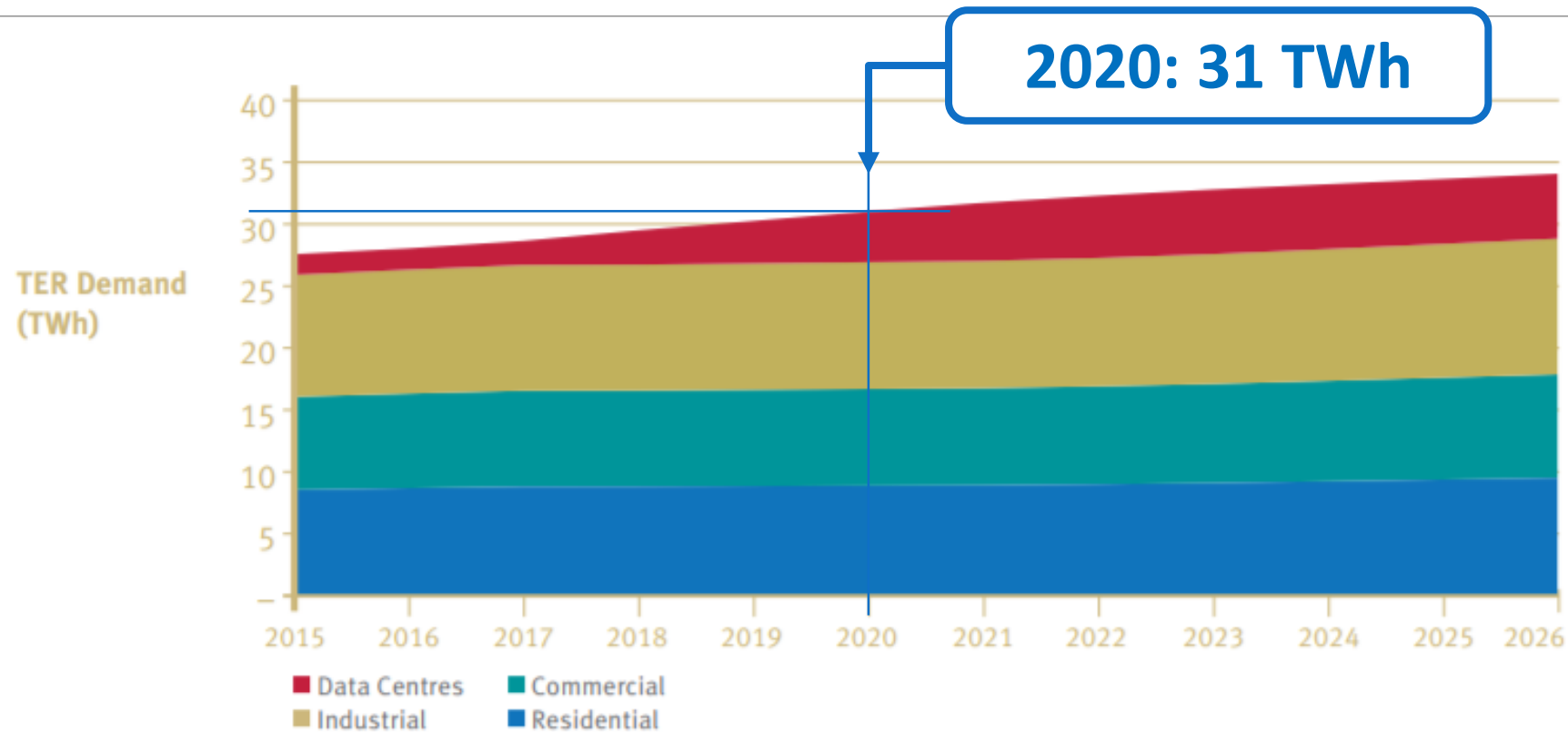
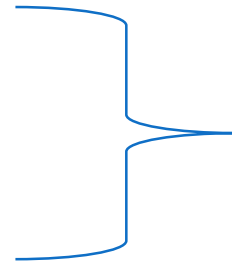


Figure 2-3 For the Median Demand scenario, this illustrates the approximate split into different sectors. We estimate that 15% of demand will come from data centres by 2026.

# What Do We Need to Do?

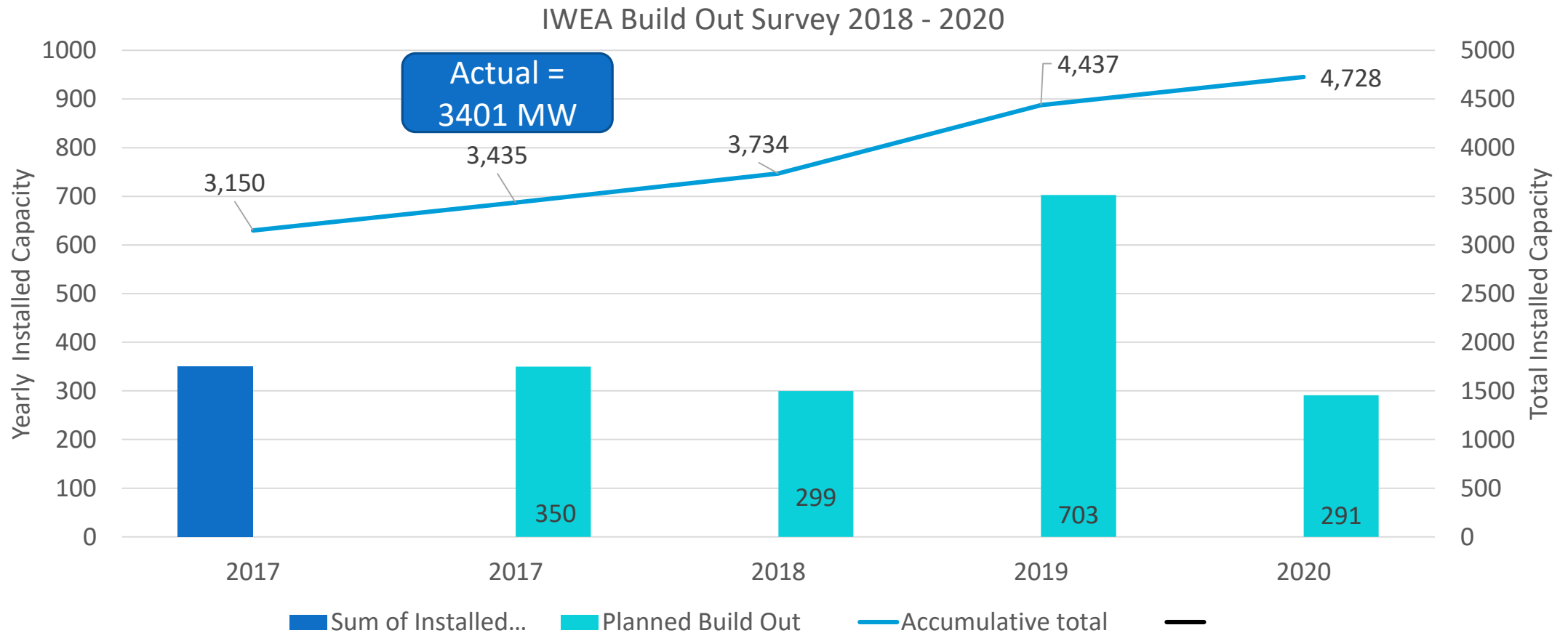
- Wind Required in 2020:
  - Demand = 31 TWh
  - Wind Penetration = 37%
  - Capacity Factor = 30%
  - Wind Required = 4365 MW



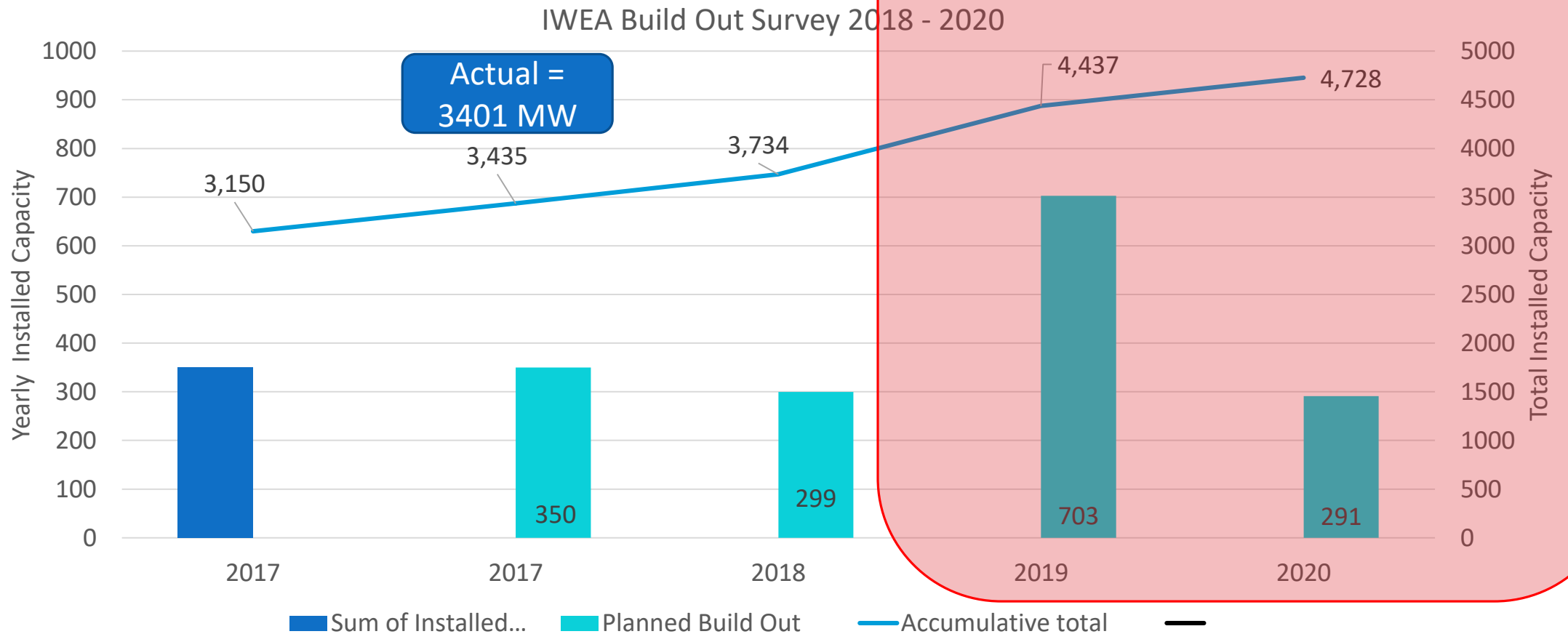
Total Sensitive  
to Changes in  
Each of These

- **IWEA's Assumption Here = 4300 MW by 2020**
  - Note: RES Directive uses the average over two years so 4300 must be average of 2019 & 2020
  - Currently at ~3300 MW (Jan 2018)

# Build Out Survey (Taken Q4 2017)



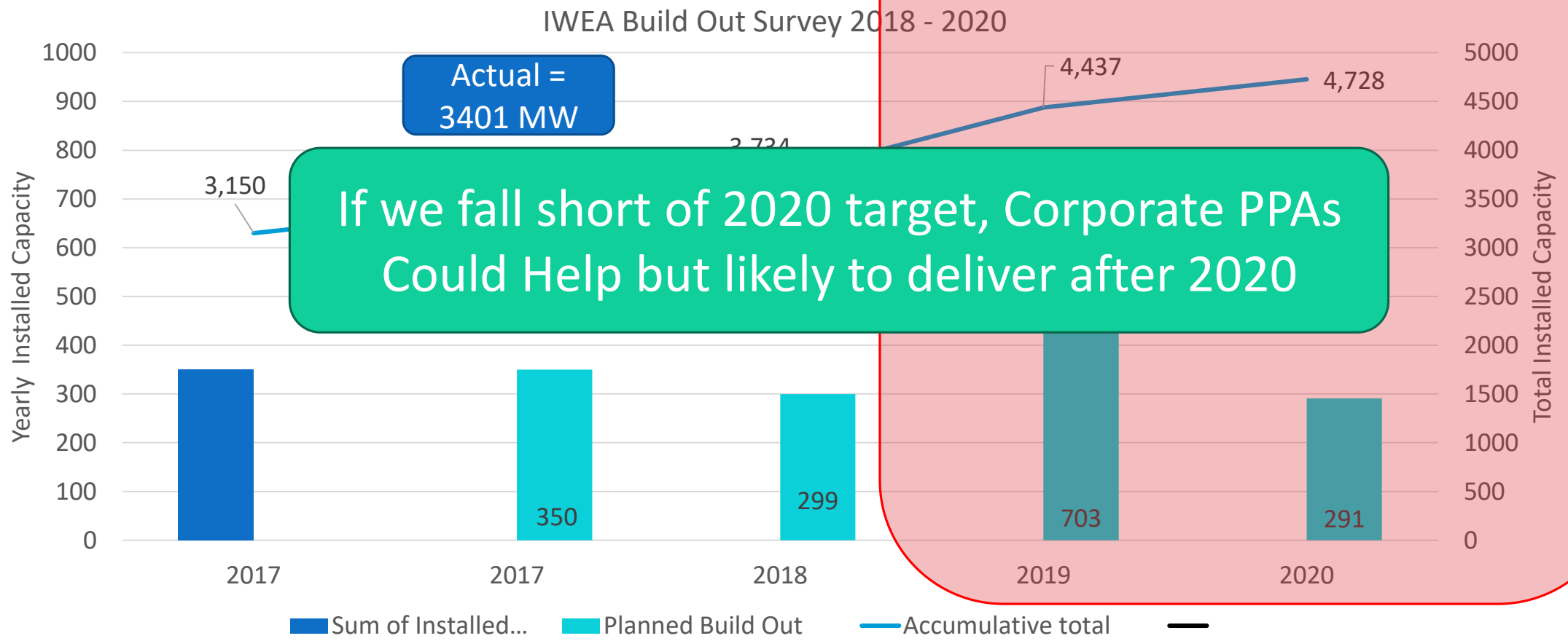
# Build Out Survey (Taken Q4 2017)



**Enough Projects to Exceed 2020 RES-E Target, But Concern about Delivery Due to:**

1. Severe Deadline
2. Uncertainties

# Build Out Survey (Taken Q4 2017)



# Outlook Beyond 2020 (i.e. to 2030)

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# EU strikes deal on 32% renewable energy target after all-night session

By Dave Keating and Frédéric Simon | EURACTIV.com

📅 Jun 14, 2018 (updated: 📅 Jun 18, 2018)



Households, SMEs, schools, hospitals, or farmers who put solar panels on their roofs were exempted from certain grid obligations under today's agreement. [100% Campaign / Flickr]

# High 2030 Renewable Target

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## IWEA ENERGY VISION 2030

IWEA's National Energy and Climate  
Plan for Ireland in 2030, March 2018

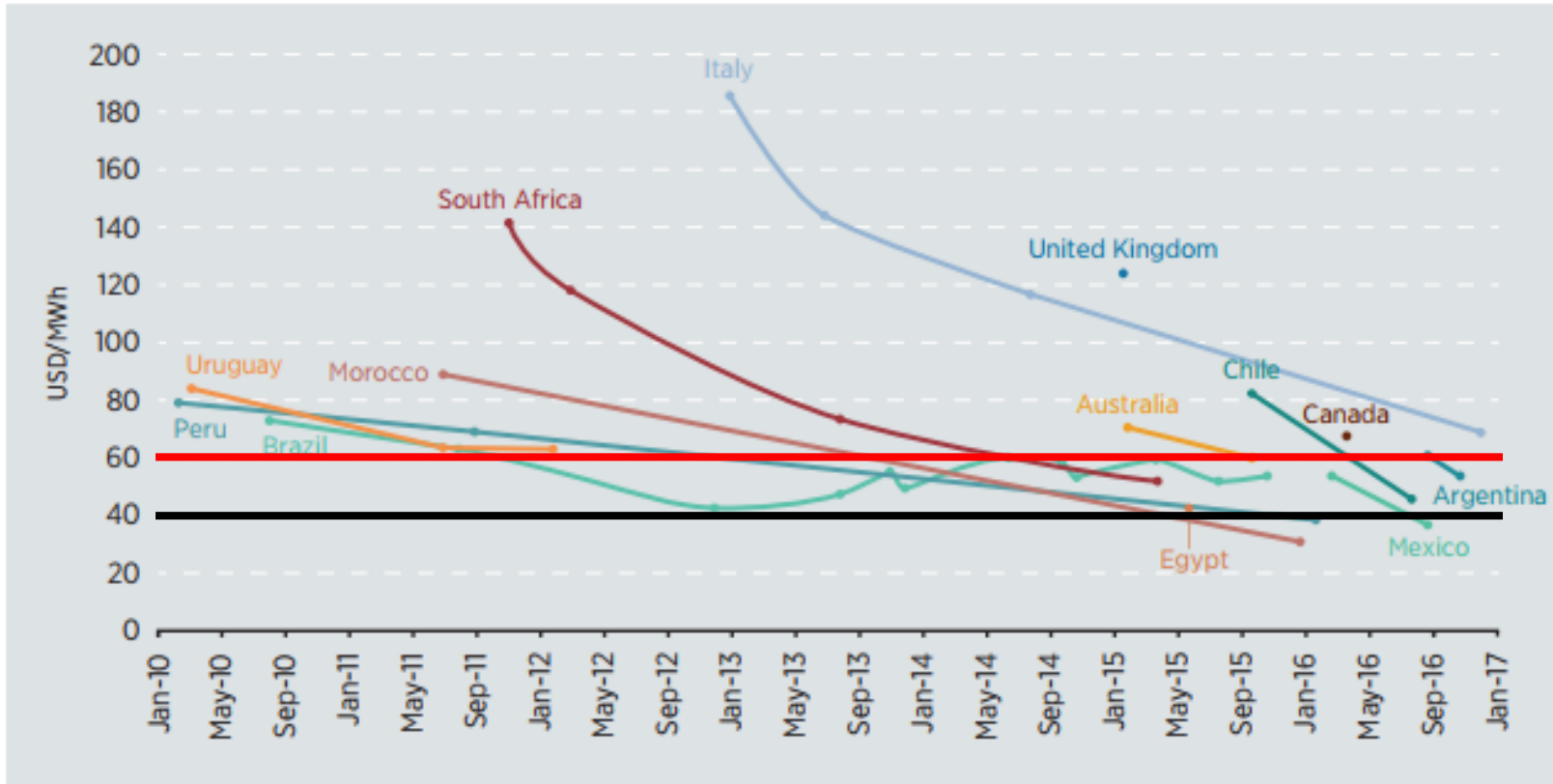
**IWEA**  
Irish Wind Energy Association

# IWEA Energy Vision 2030

- Detailed modelling by Baringa, showing that **70% RES-E is possible** in Ireland by 2030
  - All measures gets us to ~23-25% RES
- **Cost neutral** for the consumer if renewable electricity has an LCOE of ~€60/MWh
  - **The wind industry will achieve this**
- Requires an **'energy system' approach**
  - Interconnection, heat pumps, electric cars, etc.



**Figure 2.9** Evolution of average auction prices for onshore wind energy, January 2010-January 2017



Note: Prices are averages. On the rare occasion when multiple auctions occurred within the same month, the average price of those auctions is shown. In case of ambiguity regarding the auction's date, the date when the winning bids were selected and announced was taken as the main reference.

Source: Based on BNEF (2016a, b), ANEEL (2016), Bailey (2016), Bierzwinsky and Felix (2016), Coordinador Eléctrico Nacional (2016), Eberhard and Käberger (2016), Enel (2016), Elizondo-Azuela, Barroso et al. (2014), GSE (2016), MINEM (2016a, b), Osinergmin (2016), Santiago and Sinclair (2017a, b), Tsanova, 2016a.

# IRENA Onshore Wind Auctions 2010-2017



All Island Numbers	2020 Assumptions	Fossil Fuel 2030	Renewable Energy 2030
% RES-E	41%	37%	70%
Total Electricity Demand (TWh)	40.4	45.9	48.3
Wind Power (MW)	4800	4800	10,000
Solar Power (MW)	320	320	2900
Interconnection (MW)	580	580	2030
SNSP Limit	75%	75%	90%
Min Gen (MW)	1000	1000	700
Electric Vehicles (nr)	0	0	630,000 (ROI 426,000*)
Heat Pumps (nr)	0	0	396,000 (ROI 279,000*)
Small Scale Battery Storage (MW)	0	0	500
Large Scale Battery Storage (MW)	0	0	1200



# Input Assumptions

## All Island

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Corporate PPAs  
Could Help to  
Deliver This Capacity

Assumptions

All Island

# Pillars of Wind Industry: 2030 (Impacts New & Existing Wind Farms)



## Wind Industry 2030

Target:  
?% RES-E

Financing:  
RESS

Grid:  
ECP-1

Planning:  
WEGs  
2018

# Pillars of Wind Industry: 2030

## All With Major Concerns



## Wind Industry 2030

Target: ?%  
RES-E  
None

Financing:  
RESS  
Tech  
Specific?

Grid:  
ECP-1  
600 MW  
Limit

Planning:  
WEGs 2018  
Over-  
restrictive?

# Some Barriers Experienced to Date for Corporate PPAs

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# Corporate PPAs: Some Barriers

- Cost of RES-E in Ireland vs. Other EU Member States
  - Example: France vs. Germany
    - French Onshore Auctions = €65/MWh
    - German Onshore €38-52/MWh
    - Why: French vs. German Policy/Regulatory Environment (Target, Finance, Grid, Planning)
  - Irish example: if WEGs are over restrictive, then Ireland will cost more than other EU Member States with less restrictive development e.g. tip heights >200 m
- Generators need 10+ years vs. Consumer budgets are 1-2 years.
  - Potential Solutions:
    - Norwegian state is guaranteeing Corporate PPAs
    - Make Corporate PPAs part of RESS auctions

# Conclusions

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- ~30% Renewable Electricity in Ireland to Date (primarily via REFIT)
- If we fall short of 2020 target, Corporate PPAs Could Help but likely to deliver after 2020
- Beyond 2020 there is a big opportunity to develop more renewable electricity in Ireland, which could be supported Corporate PPAs
- Some Barriers Experienced to Date for Corporate PPAs include:
  - RES-E Price in Ireland vs. Other MSs
  - Long-term for generators vs. short-term for Corporates



# Agenda

## 11:00-13:00

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1. Dr. David Connolly, (CEO, IWEA) - Welcome/Introduction
2. Irish policymaker perspective: Eamonn Confrey/Philip Newsome (DCCAE) – 15 min
3. EU perspective: Marie Donnelly (Former Director in DG Energy of the European Commission) - 15 min
4. Wind Industry: Ciaran O’Brien (Head of Business Development, Brookfield Renewable) – 15 min
5. Solar Industry: Angela Treanor (PPA Manager, Elgin Energy) - 15 min
6. Data Centres: David McAuley (Host In Ireland, Bitpower) - 15 min
7. Q&A – 30 Min

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