Energy crisis – what's to be done?

MacGill Summer School

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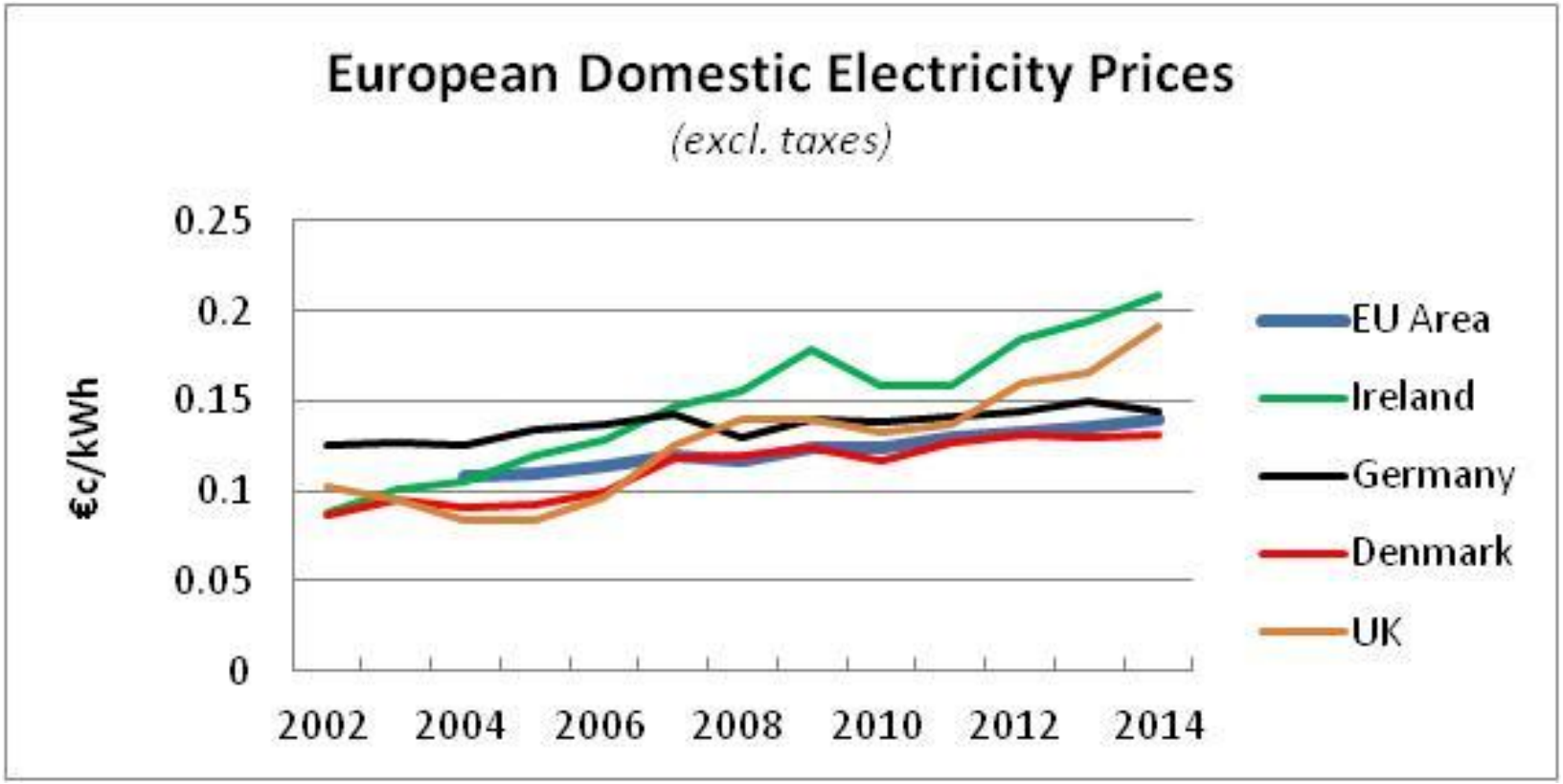
Not a crisis – rather a dilemma

- There are enough power stations to keep the lights on – so no crisis?
- Ireland wants 40% of electricity to be renewable by 2020.
- Ireland has amongst the most expensive electricity prices in Europe.

⇒ **Decarbonisation must be at lowest cost.**

- **Building yet more wind is not the right approach**.

Electricity prices well above EU average



Source: Eurostat, June 2015

Essential to use the cheapest renewable technology.

But is it more wind?

Why wind power at all?

- Ireland requires 40% of electricity from renewable sources (hydro, sustainable biomass, wind, wave, tidal and solar) to meet its EU target.
- In 2007 Ireland decided on an ‘all wind’ strategy.
- By end 2014 Ireland was just over half way to achieving 2020 target.
- This required around 200 new wind farms.

What does doubling wind require?

- **Doubling the number of wind farms -** another 200 operational wind farms **- 2,000 more wind turbines.**

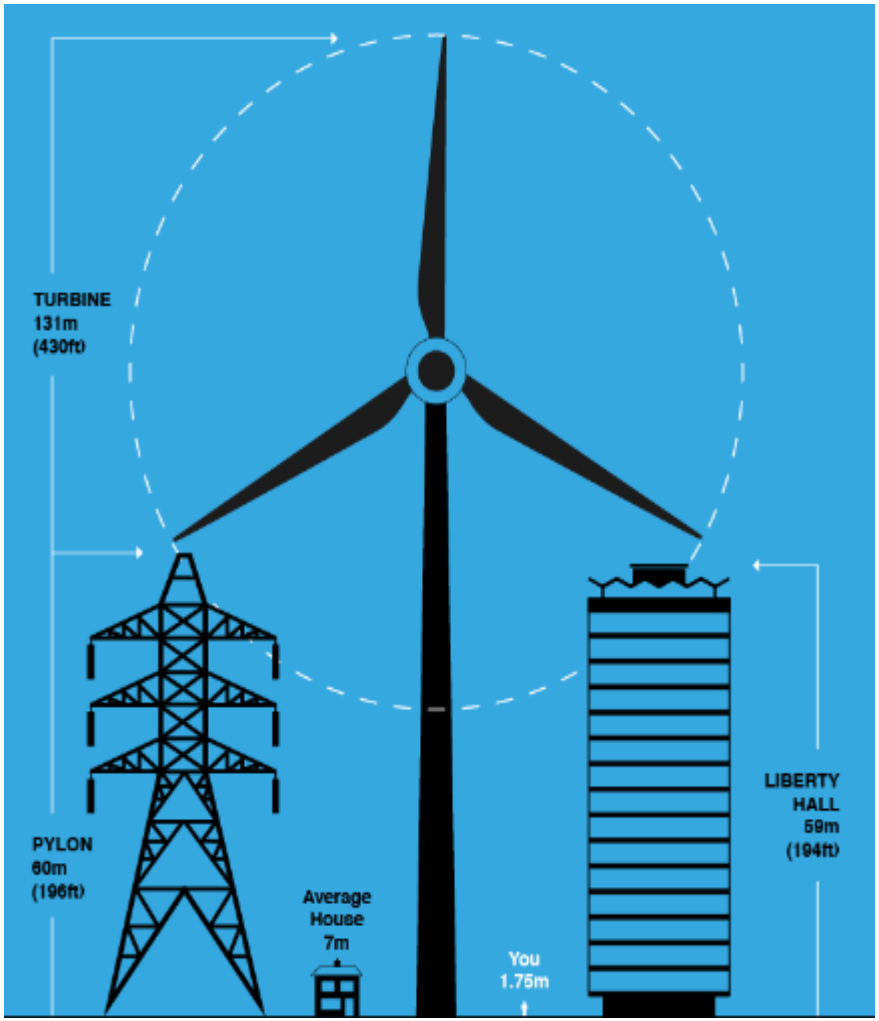
AND

- **Another 700 km** of high voltage transmission lines.

AND

- **Hundreds** of new 200 ft high electricity pylons to carry the wind power along high voltage cables.

Wind turbines and pylons are industrial scale



Doubling wind power is difficult and expensive

- Supply and demand have to be balanced on a minute by minute basis.

- Wind power is **variable and non-despatchable.** It cannot be ramped up and down to meet demand (unlike sustainable biomass).

- Accommodating 40% variable power will also require:

  - Up to **€3.9 billion** (EirGrid's Grid25) to reinforce the transmission system.

  - Extra generation back up from gas fired stations for when the wind is not blowing.

- **More wind power is neither "zero" carbon, nor "free".**

Repowering Moneypoint is better

- Coal fired Moneypoint is Ireland's largest single source of greenhouse gas emissions.

- Drax conversion created a new option.

  - 2x size of Moneypoint converted to time and cost.
  - Biomass imported from US – yet 85% reduction in GHG emissions.
  - Long term, fixed price, contracts.
  - Scope to develop Irish supply chain.

- Converting existing Moneypoint and/or peat stations to sustainable biomass would meet Ireland's EU 2020 environmental target.

- **The cost of carbon abatement by converting Moneypoint is LOWER than from building more wind.**

Cheaper than “more wind”

- **Biomass “easier” than more wind power because it:**
  - Re-engineers **existing** power stations – at a cost of ~€380m.
  - Requires no change to the existing power transmission system.
  - Avoids up to €3.9 billion costs for Grid25.
  - No threat to transmission system stability.
  - No additional back up required.
- **Carbon reduction costs halved:**
  - €60/t CO_2 for biomass at Moneypoint.
  - €135/t CO_2 for more wind.
- **No risk to rural industries.**

No energy crisis – but wrong direction?

- Ireland today has double the amount of power generation supply compared to demand.
- But more **renewable** power generation needs to be built to meet the EU 2020 target.
- Moneypoint could be converted over two years without any threat to electricity supplies.
- No crisis – just time to re-think.