Resources for Climate Action

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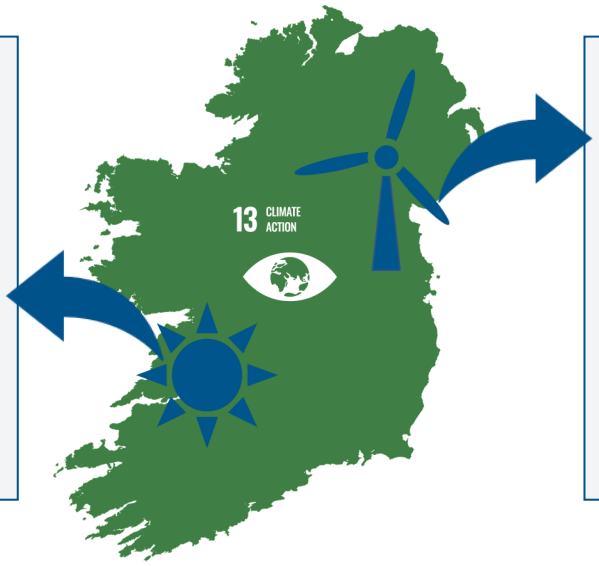
By 2030, Ireland aims for renewable sources to account for 70% of all electricity produced (Climate Action Plan 2019). Expanding our renewable and energy storage infrastructure is critical to achieving this plan, as well as reaching several of the UN Sustainable Development Goals (SDG's) and reducing our emissions.

Wind and Solar Energy in Ireland

Ireland has no solar farms yet, but many houses now have solar panels.

Solar panels can produce up to 50% of annual household electricity needs.



The Republic of Ireland has over 250 wind farms (mostly onshore).

In 2017, 25% of our electricity was produced by wind, surpassed only by natural gas.

Wind, solar and energy storage technologies all require large amounts of raw materials, most of which are currently imported.

Resources needed for Low-Carbon Technologies

Solar panels

Solar panels can have different cell designs, each with varying complexity and resource requirements. Solar panels in Ireland generally use the following materials:

Silicon,	Glass,	Tin,
Boron,	Polymer,	*Lead,
Phosphorous,	Copper,	Iron,
Cadmium/	Aluminium,	Nickel,
Tellurium,	Silver,	*Zinc

Wind turbines

Wind turbines are getting bigger and more resource intensive, most of which are not produced in Ireland:

Aluminium,	Lithium,	Rare-Earth
Steel (Iron	*Zinc,	Elements
and Carbon),	*Lead,	(REE's),
Plastic,	Copper,	Chromium,
Concrete,	Molybdenum,	Nickel,
Sodium,	Manganese,	Boron

*Zinc/Lead are the only metals listed mined in Ireland

Wind and solar energy production fluctuates in Ireland. For 100% renewable energy, efficient and cheap energy storage is critical to balance these fluctuations.

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"The storage of electricity through the use of batteries, pumped storage or compressed air storage (amongst others) will be of vital importance both in terms of security of supply and in the switchover to renewable energy sources."
Report of the Joint Committee on Climate Action 2019.

Energy Storage Solutions

Compressed Air Energy Storage (CAES)

Uses underground caverns to compress air, which can later be used to make electricity in combination with natural gas.

Geologically, Ireland has potential to utilise this technology (e.g. salt deposits of Islandmagee, Northern Ireland).

Zinc-Air Flow Batteries

Cheaper, more efficient, and less resource intensive alterative to commonly used lead-acid, nickel-cadmium and lithium-ion batteries.

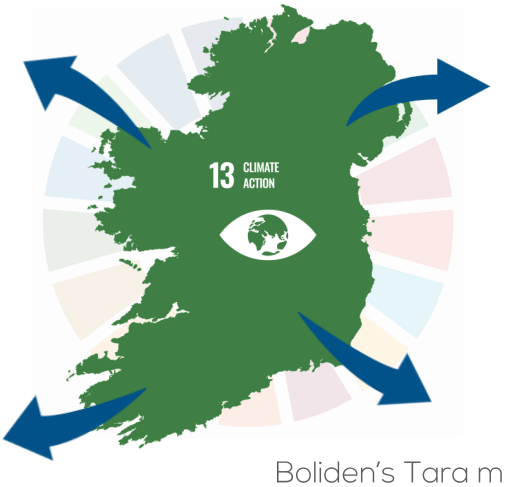
- 100% Recyclable and no REE metals.

- Reduces our reliance on fossil fuels by storing clean energy.

Ireland's SDG Contribution and Zinc Resources

Ireland is currently **one of Europe's top zinc suppliers.**

Zinc has an important roll to play in renewable energy technologies. **Clean energy storage is crucial to reducing Irish emissions** from electricity production, helping to achieve SDG 13 - Climate Action.



Zinc production in Ireland is efficient. There are less impurities associated with Irish zinc. This means that you get more from what you mine, and less processing is needed, reducing emissions.

Boliden's Tara mine is Ireland's only zinc mine but **produced 131, 742 tonnes of zinc concentrate** in 2018.

The use of zinc in renewable technologies will help us reduce our reliance on imports of REE's and other resources, as well as helping us to sustainably transition to a greener Ireland.

Sources:
1 Sustainable Energy Authority of Ireland (seai)
2 Visual Capitalist
3 Irish Wind Energy Association (IWEA)
4 Alternative Energy
5 Climate Action Plan 2019
6 Boliden

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