

# The Green Energy Map of Ireland

## Emissions and Transport

Brigid Cotter was an Irish chemist and barrister who researched the effect of atmospheric pollution in Dublin in 1945. Green transport is reducing Ireland's emissions, resulting in cleaner air to breathe for everyone, especially in urban centres. In Wicklow, a solar carport at the County Council building now (2022) provides almost 40% of their energy needs.



## Maynooth Battery and Induction Coil

The Irish scientist Nicholas Callan invented the first induction coil (transformer) in 1836 which converts low-voltage direct current into high-voltage alternating current. This is very important in battery electric cars to recharge the battery and run the motor. He also invented the inexpensive Iron-Zinc Maynooth Battery, which went into production in London.



## Portable Defibrillator (AED)

Frank Pantridge was a physician and professor from Co. Down. In 1965 he installed the first portable defibrillator in a Belfast ambulance using 70kg of Lead-acid car batteries. Later he designed a version that weighted only 3kg using a small capacitor originally manufactured for NASA!



## Drumm Battery Train

The Drumm battery train was developed in the 1930s by Irish chemist James Drumm, running between Dublin and Bray for almost 20 years. The Nickel-Zinc batteries were recharged at each train station using renewable electricity from the Ardnacrusha Hydro Power Station while passengers got on and off the train.



## Renewable Electricity

The Ardnacrusha Hydro Power station was built in 1929, forming the first national electricity system in the world. Turlough Hill is Ireland's only pumped storage power station, acting almost like a giant battery. Water is released from the top lake to the bottom lake, creating electricity on demand. Excess energy from wind turbines can be used to pump water back up to the top lake. Ireland's Atlantic coast holds huge potential for wave energy which is currently being investigated (2022).

## Battery Plant

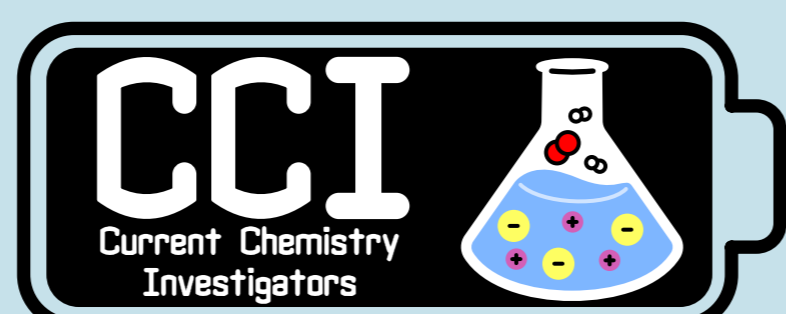
The first major battery plant using Lithium-ion technology was opened in Cork in 2022. It can store excess renewable energy from wind turbines and other renewables which can then be used later i.e. when the wind is not blowing. More of these battery plants will be built around Ireland in the future to make better use of our renewable energy generation.

## Hydrogen Power

In 2021, Dublin bus introduced some of the world's first double decker hydrogen fuel-cell buses. The buses were built in Co. Antrim and the only emissions from them is water. The fuel-cell inside the bus combines hydrogen with oxygen from the atmosphere to create electricity, which then powers a motor attached to the wheels.



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