

# Green Plan Ireland

## A 100% Renewable Energy Ireland with No Extra Costs and 100,000 Additional Jobs

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This peer-reviewed scientific study outlines how Ireland could potentially transition to 100% renewable energy without increasing the price of energy and at the same time creating 100,000 additional jobs.

This new study quantifies the impact of changing from the way we produce energy today. The result is 'Green Plan Ireland', which is a roadmap outlining how Ireland can produce all of its energy needs from renewable resources, instead of relying on oil, natural gas, and coal. The full study can be freely downloaded here: [www.dconnolly.net/greenplanireland/](http://www.dconnolly.net/greenplanireland/).

According to the results, wind power will be the primary form of energy production in Ireland in the future. Today, a wind turbine in Ireland can produce electricity at a cheaper price than any other form of electricity-only production. This is due to recent improvements in wind turbine technology and the excellent wind resource that exists in Ireland. The key challenge according to the study's main author, Dr. David Connolly, is to figure out what we do when the wind stops blowing.

"In principal, the key objective in the future is to connect our demands for electricity, heat, and transport together. This creates flexibility in our energy system, which means we have different solutions to help us keep the lights on, even during high and low wind periods. We refer to it as the Smart Energy System and it is a concept which our research group has been working on for around 15 years. The good news is that some of the big changes required have already been demonstrated in other European countries, so Ireland can begin by copying what has already been done before."

So what are these solutions? The study has divided the transition to renewable energy into a number of big steps that are required to implement the Green Plan. Some of the key steps include:

- Expanding electricity production from onshore wind, offshore wind, and solar panels
- Converting the heat supply in Irish cities from gas boilers to district heating
- Converting the individual boilers in the rural areas from coal and oil to electric heat pumps
- Converting our cars from petrol and diesel to electricity
- Producing liquid and gaseous fuels from a combination of carbon dioxide and hydrogen, which are known as synthetic fuels

The cost of implementing each of these changes has been estimated separately in Green Plan Ireland. All of these actions, except the production of synthetic fuels, will reduce the cost of energy compared to today. However, the study highlights another even more significant change. Instead of importing fuels for our energy like we do today, in a renewable energy world Ireland will be producing its energy from local infrastructure. This means that more money will be spent locally, which has been estimated as 100,000



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additional jobs in Green Plan Ireland. In the initial phases, these jobs will primarily be created in the construction sector.

*Green Plan Ireland can begin today and Ireland can be 100% renewable by the year 2050. Denmark has already made it an official government target to become 100% renewable.*

Almost all of the technologies promoted in Green Plan Ireland already exist today. Many of them are already being developed or supported in Ireland such as wind turbines, electric vehicles, and energy efficiency measures in our buildings. However, David Connolly argues that more could be done.

“Some of the key technologies required in the Smart Energy System need more attention in Ireland. For example, one key technology in the future will be district heating networks in Irish cities, but there is currently very little taking place to develop this technology. Like many of the technologies in Green Plan Ireland, technology or cost is not the problem but implementing them is. To move away from fossil fuels to renewable energy requires strong long-term policies with clear targets. For example, the Danish government has already agreed that the long-term target for Denmark is to be 100% renewable. This creates certainty and direction for all of those involved in the energy sector, especially those investing. I hope that the evidence presented in Green Plan Ireland will provide the foundations for a similar agreement in Ireland”.

The main author of the study, Dr. David Connolly, is currently working as an Associate Professor in Energy Planning at Aalborg University in Copenhagen, Denmark. He graduated from Mechanical Engineering at the University of Limerick in 2007, receiving the University’s Gold Medal for the highest results of that graduating year. He then went on to complete a PhD in energy planning, also at the University of Limerick, after being awarded an Advanced Scholars Award from the University and a PhD scholarship from the Irish Research Council for Science, Engineering and Technology (IRCSET). He won the Globe Forum “Early Career Research Award” at the 2010 Globe Forum conference on sustainability and in 2011 he moved to Denmark where he now works as an Associate Professor in Energy Planning. More information is available on his website: [www.dconnolly.net](http://www.dconnolly.net).