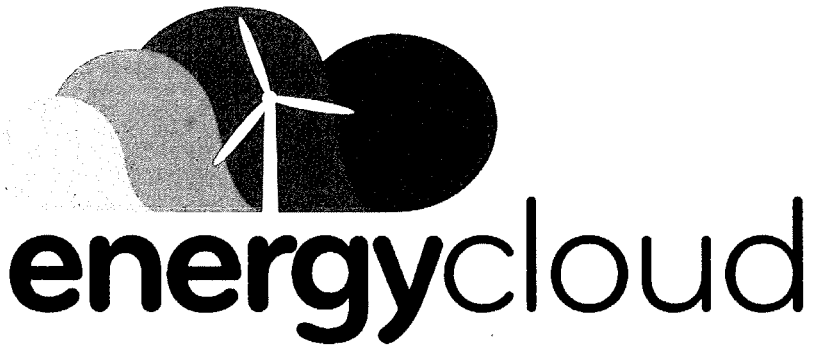

Climate Action Plan 2023 - Call for Expert Evidence

Submitted by EnergyCloud

September 2022

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Executive summary

As we enter the winter months, we start to use more and more energy in our homes. As the weather gets colder and the days get shorter, many of us spend more time indoors, turn on the heating more often and switch on the lights earlier, resulting in higher energy bills.

This year, households across Ireland will find themselves struggling even more to keep up with sharply increasing energy costs. Many individuals and families will simply have to do without hot water and heating at certain times, as well as significantly reduce their daily electricity consumption.

An ESRI report published in June this year shows that the number of households in energy poverty has risen to a record high of 29.4% and could rise to almost 70% this year if energy prices continue to escalate.

Amid this burgeoning energy poverty crisis, you might be surprised to hear that millions of euros in renewable clean energy is wasted each year. This happens because there are periods when we create more renewable energy than our grid can handle, leading to curtailment.

According to Government figures, in 2020, 1,448 GWh of zero carbon energy from wind generation alone was dispatched down. This unused had the capacity to heat domestic hot water in 400,000 homes.

At EnergyCloud, our goal is to use surplus energy generated from renewable sources to alleviate the burden of fuel poverty on thousands of households nationwide.

We are supported by **EirGrid, ESB, Wind Energy Ireland, Climote, SSE Airtricity, Kingspan and Clúid Housing** to develop solutions to divert surplus renewable energy to heat the water in social housing homes.

In this submission about the Climate Action Plan (CAP), we are asking Government to develop a practical strategy to end the curtailment of surplus renewable energy and instead to use this surplus energy to help tackle increasing fuel poverty.

Foreword from [redacted]

"As [redacted] of EnergyCloud, I am delighted to present this submission about the Climate Action Plan (CAP) to the **Department of the Environment, Climate and Communications** against a backdrop of an ever-increasing need for innovative solutions in the area of energy and energy poverty. As a not-for-profit company focused on using the wasted 1,448 GWh (with a retail value in excess of €300m approx. and increasing) of renewable energy and distributing to 'fuel poor' households.

The recent report from the ESRI, ***'Energy poverty and deprivation in Ireland',*** highlights the over 550,000 households (and increasing) in energy poverty while clearly illustrating the scale of the problem and the need for creative solutions to address the crisis.

EnergyCloud was established to use the surplus renewable energy, which would otherwise be wasted, to help tackle fuel poverty. It is also fully aligned with the Climate Action Plan to deliver 80% of Ireland's electricity from renewable sources by 2030.

Over recent months we have actively engaged with EirGrid, ESB, ESB Networks, the Department of the Environment, Climate and Communications, the Department of Housing, and with the Commission for the Regulation of Utilities (CRU).

Getting homes 'EnergyCloud ready', allows technology solutions to be deployed to homes at risk of energy poverty, thereby reducing renewable energy wastage, displacing oil/gas fired systems while delivering a social good to heat hot water in fuel-poor homes.

It is clear from our discussions with key industry figures that there is a willingness on their part to help make this happen if the Government asks that it be done. This concept represents no threat to any of the players, who are all are fully supportive.

The EnergyCloud team is keen to work with the Department of the Environment, Climate and Communications and with Government to help immediately activate a large-scale plan to utilise existing infrastructure and surplus renewable energy to help tackle energy poverty for tens of thousands of individuals and families across the island of Ireland. The energy is being produced (and discarded), yet each and every property in the state is connected and can use this energy. We now have the technology to do so and the ability to target a very specific section of Irish society: those in fuel poverty.

[redacted], EnergyCloud [redacted]

September 2022

Current Energy Landscape

Rising Fuel Poverty

Increasing energy demands coupled with the rising cost of fossil fuels is having a huge financial impact on Irish households leaving tens of thousands vulnerable to fuel poverty.

While energy prices are volatile at the best of times, the price of gas and coal in particular has increased significantly on wholesale markets in recent months as the world recovers from the pandemic and demand for energy increases. Covid has also created a supply chain bottleneck putting further upward pressure on prices everywhere.

Fortunately, Ireland is not reliant on gas imports from Russia. However, recent sanctions implemented by the EU on Russian gas have had, and will continue to have, a knock-on effect on Irish gas prices. Due to the interconnectivity of the European gas market, the physical supply to and wholesale price of natural gas in Ireland is impacted by the supply of gas from Russia to the European market.

With over 40% of our electricity being generated from burning gas, and up to 10% or more from burning coal and oil, Irish consumers are very susceptible to any change in price. Gas and electricity prices in Ireland, which are already amongst the highest in Europe, are now at a record high.

As we move into the winter months and demand for energy intensifies, prices continue to escalate further pushing more and more households towards energy poverty.

The recent report from the ESRI, ***'Energy poverty and deprivation in Ireland'***, **highlights that over 550,000 households (and increasing) are in energy poverty.** It clearly illustrates the scale of the problem and the need for creative solutions to address the crisis.

The ever-increasing energy prices hurts all consumers, but most of all, those who are already struggling and in fuel poverty.

Reliance on fossil fuels

Our national reliance on fossil fuels is leaving households in Ireland vulnerable to fuel poverty due to the escalating cost of gas, oil, and solid fuel internationally. Our continued dependence on fossil fuels is also having a devastating effect on our environment and air quality as well as contributing significantly to carbon emissions.

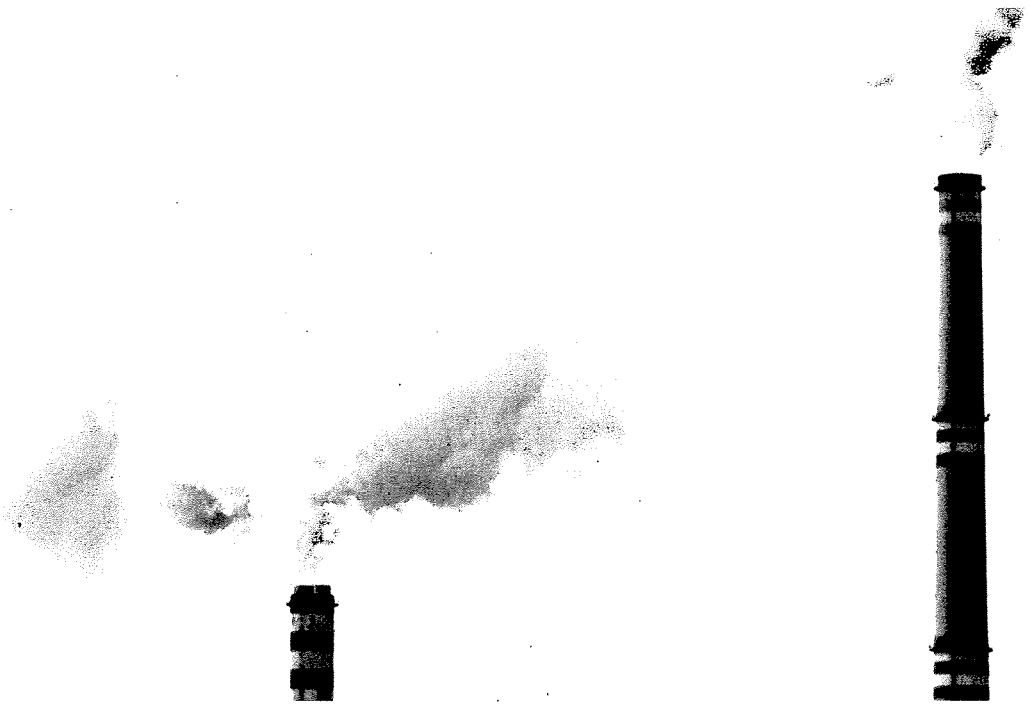
As mentioned previously, **almost 50% of our electricity supply is generated through the burning of fossil fuels.**

A sizable proportion of our population also rely on fossil fuels to heat their homes. According to the **Central Statistics Office (CSO) in 2021 over 85% of households in Ireland use fossil fuels to heat their homes - 37% use natural gas, a further 37% use heating oil and 11% use solid fuel.**

Not only does this reliance make our population more susceptible to fuel poverty due to fluctuating international fuel markets, but it is also negatively impacting public health by contributing to poor air quality.

Our dependency on burning fossil fuels for both heating and electricity generation plays a significant role in preventing us from reaching our carbon emission reduction targets.

Latest figures from the EPA show that our national carbon emissions increased by 4.7% in 2021 compared with 2020. The largest increase in emissions (17.6%) was from the energy industry sector, driven by a tripling of coal and oil used in electricity production.



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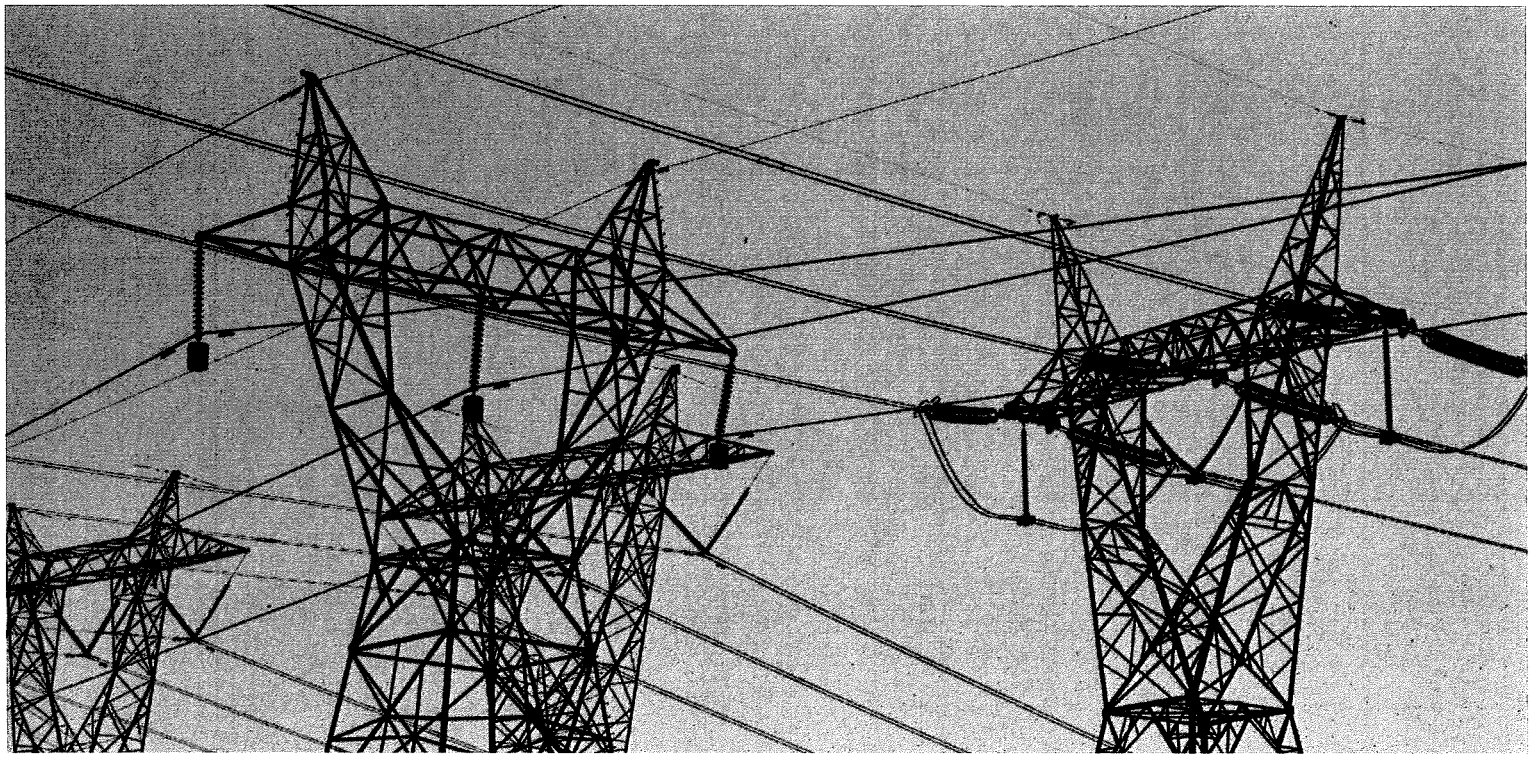
Challenges around transitioning to renewable energy

> In the long term, Ireland will only reduce our dependence on internationally traded fossil fuels by expanding our indigenous supply of renewable power. We are working towards having up to 80% of our electricity from renewables by 2030.
>
> – [redacted]

Reaching the target of 80% of Ireland's electricity being generated by renewables by 2030 – mostly from wind and solar - will require substantial investment in the grid, the costs of which will most likely be passed on in charges to customers.

However, the promise of reduced energy prices by converting to renewable energy generation, while positive, is cold comfort to those who need help in the immediate to short term. There is a common misconception that cheap renewable electricity, which is supposedly being generated at record levels (Bonkers.ie), will simply and quickly result in cheaper energy costs.



Consequently, people are left wondering why energy prices continue to increase rather than decrease if Ireland is generating more renewable energy than ever. However, simply adding renewable energy to the mix to solve pricing and climate challenges is not that straight forward, at least in the short term. Renewable energy is not free. It costs money to build the turbines, the necessary infrastructure, and to make the grid ready to accept renewable energy.

Moreover, renewable energy creates very different demands on the electricity network than fossil fuels, and the two do not go well together. This means that, not only do renewables require investment and money, but they also take time, which fuel-poor households do not have.

In the meantime, as we make the transition, what are Ireland's domestic energy consumers to do?

For now, they are being advised that the best way to reduce their energy bill is to shop around. Other potential solutions include retrofitting or installing solar panels, for which government grants are available. The latest EU-wide advice campaign focuses on how to be energy efficient in the face of the war in Ukraine. While these could contribute to finding solutions for some energy consumers, it is unlikely the case for those living in fuel poverty when they are often forced to choose between a hot meal or a bath.

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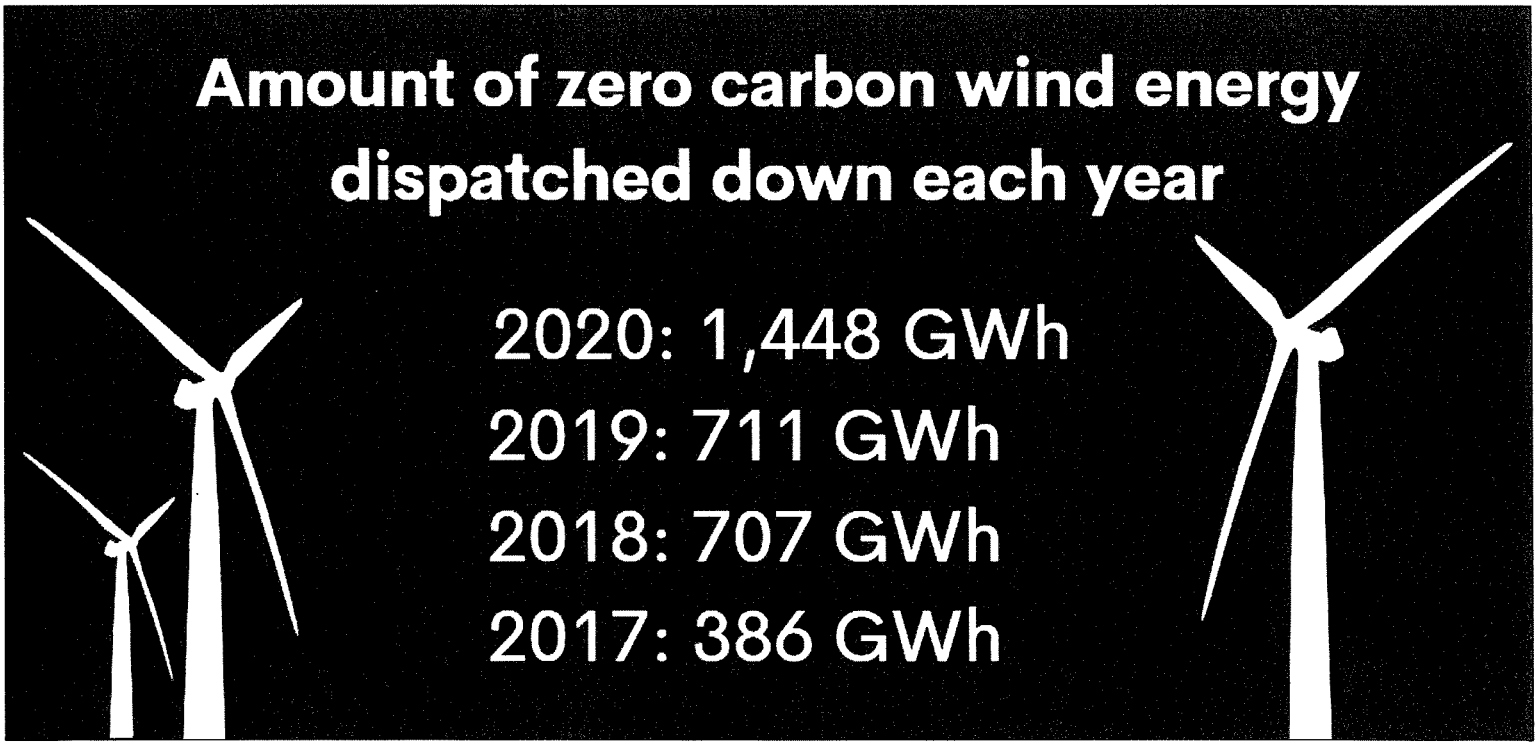
Surplus Renewable Energy

Surplus energy is often generated by solar and wind sources at low energy usage times. For example, additional wind energy may be generated if there are strong winds during periods of low energy usage, generally very late at night or in the early hours of the morning. Very often the surplus energy generated at these times is simply not transferred to the national grid and, therefore, goes to waste.

Unfortunately, despite the abundancy of clean energy available in Ireland through several sources, particularly wind energy, it has proven difficult to harness this energy in line with day-to-day demand.

In 2020, according to the Government, 1,448 GWh of zero carbon energy from wind generation alone was dispatched down which is a pity considering that this power had the capacity to heat domestic hot water in 400,000 homes.

EnergyCloud believes that there is an opportunity to use this energy in social housing to help reduce the impact of fuel poverty.



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Fuel poverty impacts thousands of families every day across the island of Ireland, yet in 2020, according to the Government, 1448 GWh of zero carbon energy from wind generation alone was dispatched down.

There is an opportunity to use this energy to help reduce fuel poverty.

climote · cluid housing · EIRGRID · ESB · Kingspan · sse Airtricity · TU DUBLIN · WIND ENERGY IRELAND

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About EnergyCloud

EnergyCloud is a not-for-profit company limited by guarantee and supported by **EirGrid, ESB, Wind Energy Ireland, Climote, SSE Airtricity, Kingspan and Clúid Housing**. Our mission is to create solutions to divert surplus renewable energy - which would otherwise be wasted - to Irish homes, with a primary focus on those in fuel poverty.

We are surrounded by vast natural resources on the island of Ireland and working together we can reduce our reliance on fossil fuels, while at the same time improving the lives of those who live in consistent fuel poverty across Ireland.

As a country with a focus on sustainable energy production, and that is committed to implementing Ireland's Climate Action Plan, we believe EnergyCloud provides the opportunity to make Ireland a leader in creating solutions for surplus energy rather than simply switching off wind turbines and solar panels.

EnergyCloud's principal aim is capture surplus energy generated by renewable energy sources and distribute it free of charge to individuals and families living in fuel poverty.

Access to free renewable energy means that households with EnergyCloud technology can simultaneously save money on electricity while reducing their use of fossil fuels.

What technology does EnergyCloud use?

The **Climote Smart Immersion Controller** is a small piece of technology that can be easily installed in your house. It allows otherwise wasted energy to be used to heat your water while you sleep. When the wind is blowing at its strongest, a signal is sent to the device diverting surplus renewable energy from wind farms to these properties heating the water in their existing hot water tank.

There are several benefits for residents who have this technology installed in their homes, the first being regular free hot water top ups. While you sleep, your water is heated with 100% renewable energy; and you know exactly how much hot water is in your tank. Easy to use timers (based on existing manual time clocks) are included and allow for full control of your wall mounted display or mobile app. By using this technology, you are helping EnergyCloud to make Ireland even greener while saving on your energy bills.

The Climote Smart Immersion Controller can be installed within a few hours and is relatively inexpensive - just €250 - when compared to other domestic energy saving devices.

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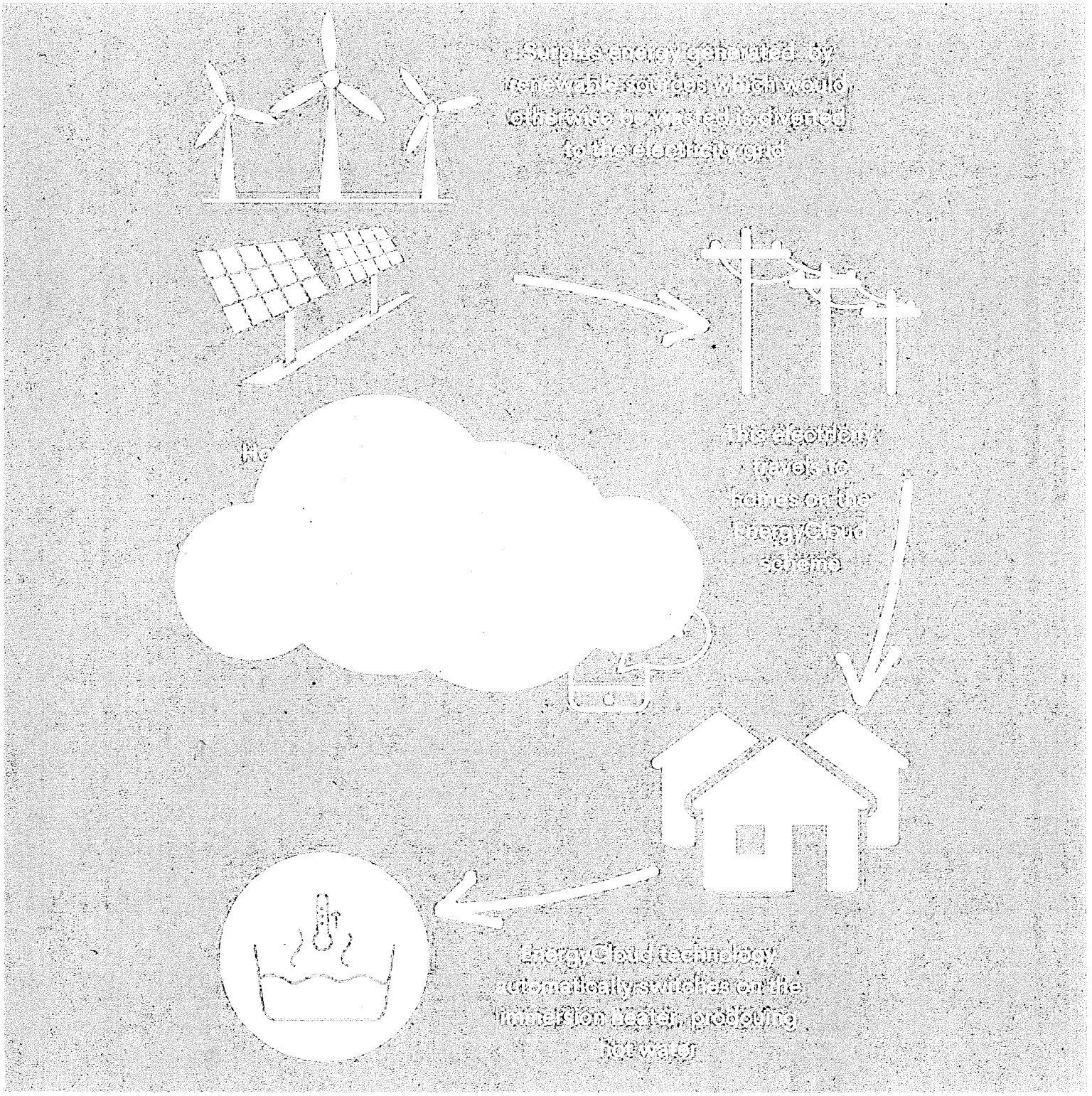
How does EnergyCloud work?



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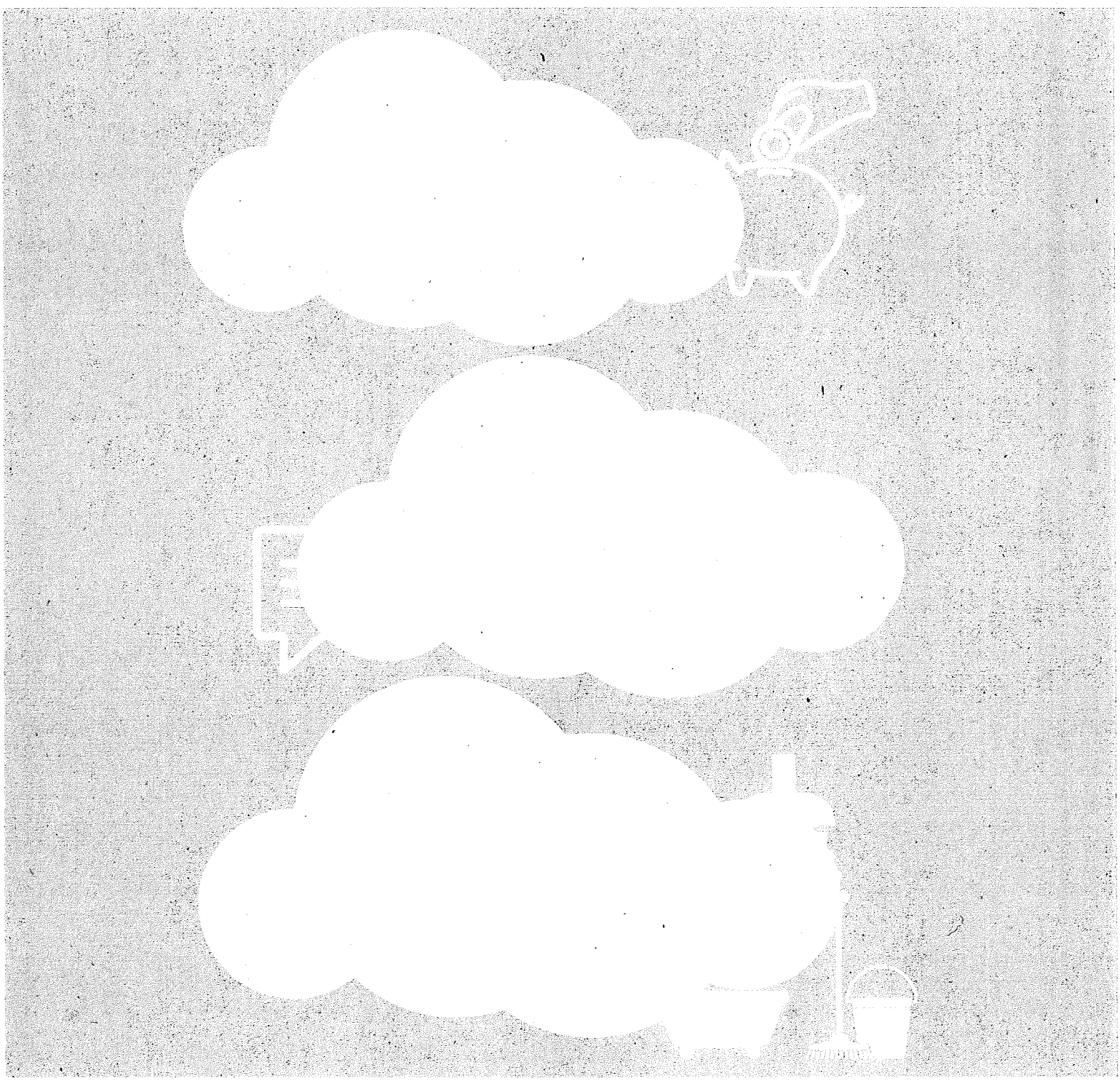
How can EnergyCloud help Irish households in fuel poverty?



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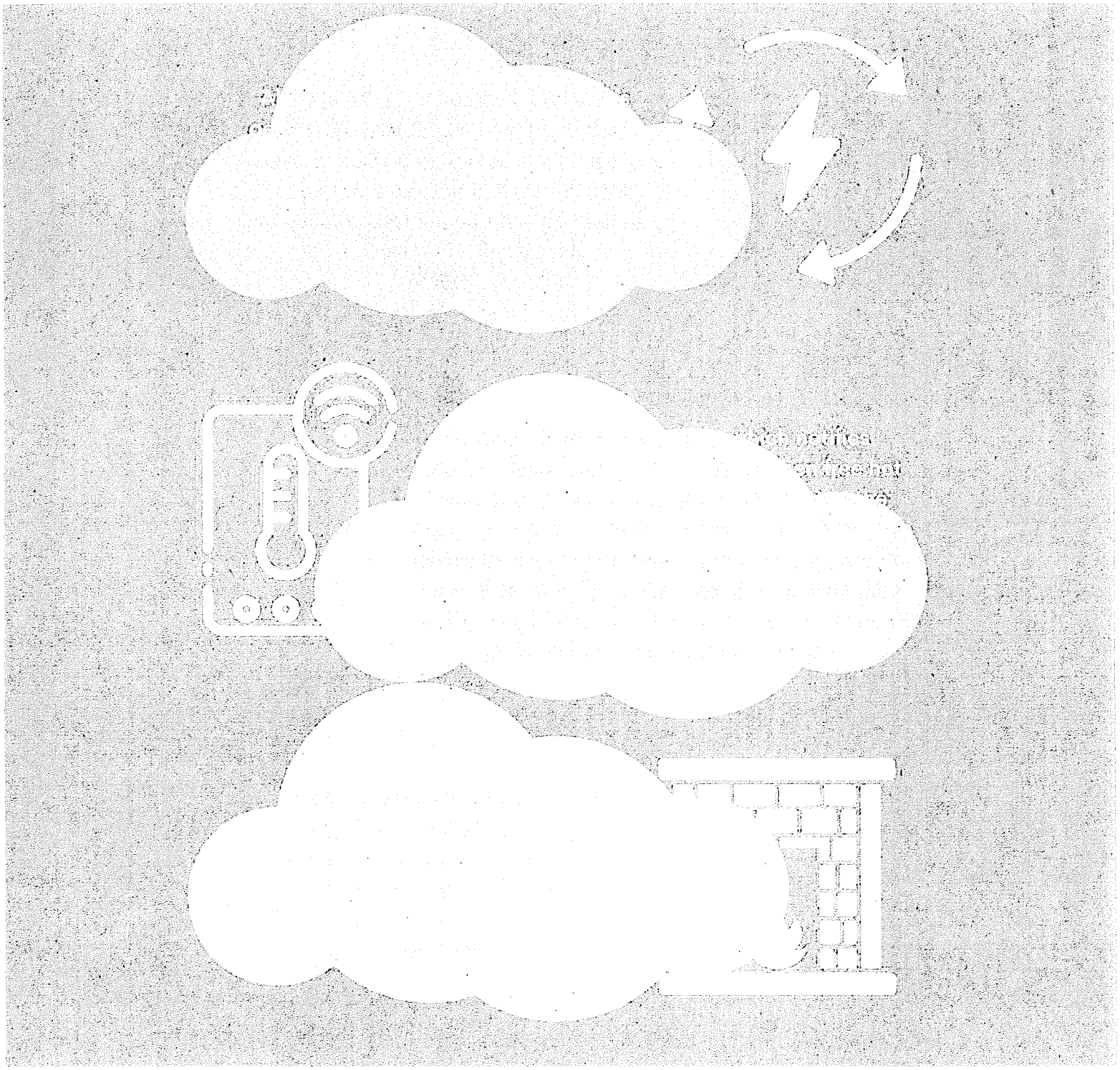
How can EnergyCloud help reduce use of fossil fuels?



Testimonials from people benefitting from EnergyCloud

Found myself speaking to my friend and remarking it was windy that day so I would hopefully get hot water. Definitely make an effort to use the hot water when I get it. I do more cleaning and jobs around the house when hot water is available.

The app is very useful for seeing the hot water.

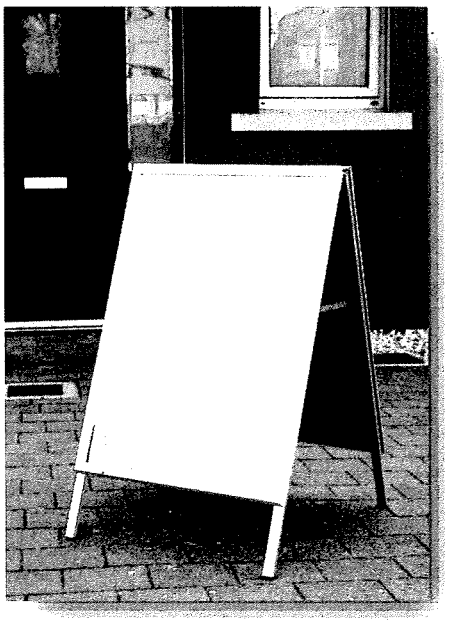
I've received a few tanks of free hot water. I'm always looking at the display on the immersion, it's very useful to know what is available. I'm using the water when it is given so actually turning it on a lot less.

I find the display to check how much hot water is there has tripped me into putting the water on if not needed.

When the free water is given, we are heating less the next day. Unit and app are grand to use. Display means I don't have to turn on the immersion if just needing a quick wash.

EnergyCloud's Work to Date

Renewable energy partnership with Clúid Housing



In 2021, EnergyCloud formed a partnership with Clúid Housing to develop a pilot programme for EnergyCloud technology, which was launched in May 2021 by [redacted]

Following the launch of this pilot project, EnergyCloud deployed technology solutions to 50 Clúid properties. The goal of this initial phase of the project is to reduce renewable energy wastage and instead divert it for social good to heat hot water in fuel poor homes.

A 'Memorandum of Understanding' (MOU) was also signed, which is designed to facilitate the ambition to expand the project to the entire Clúid Housing property portfolio of over 9,500 homes, thereby working to reduce fuel poverty for Clúid's more than 24,000 residents.

EnergyCloud Priorities

Provide help to those living in fuel poverty

The EnergyCloud project can deliver free energy to those living in fuel poverty quickly, efficiently and without the need for large infrastructural investment. By effectively using surplus renewable energy, we can help them to meet some of their short-term energy needs while saving money on their bills.

Help Ireland use less fossil fuels and reduce carbon emissions

We aim to play a part in is helping Ireland reach its goals as outlined in the Climate Action Plan 2021 to increase the share of renewable electricity by up to 80% by 2030; and to reduce emissions from electricity by 62% percent through efficient use of already available surplus renewable energy.

Reduce the amount of renewable energy that is wasted

The amount of surplus renewable energy that goes to waste is increasing year on year. In 2020, 1448 GWh of zero carbon energy from wind generation alone was dispatched down, which had the had the capacity to heat domestic hot water in 400,000 homes. EnergyCloud technology can reduce the levels of curtailment of surplus renewable wind energy, and in doing so, displace energy generated from fossil fuels.

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What people are saying

"The simplicity of the approach to this project is that it can utilise existing infrastructure in the home, such as the hot water tank, to receive surplus renewable energy at times when it is not needed on the energy grid. The use of existing infrastructure in the home reduces the capital expenditure required for this project and allows for organisations such as Clúid to quickly upgrade their properties to avail of this surplus renewable energy."

"This technology uses existing infrastructure in the home, such as a hot-water fuel tank, to receive surplus renewable energy at times when it is not needed on the energy grid. I welcome the trial and hope to see it become widespread."

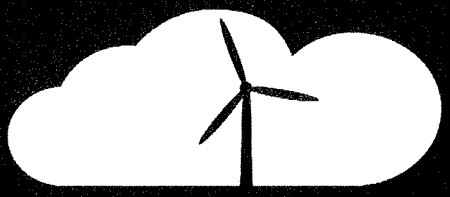
What the Government should do

Our recommendation for inclusion in the Climate Action Plan is as follows.

To tackle fuel poverty, and to meet Ireland's legally binding net-zero emissions targets under the Climate Action and Low Carbon Development (Amendment) Act 2021, the Government should **immediately activate a large-scale plan to utilise existing infrastructure and surplus renewable energy to help tackle energy poverty for tens of thousands of individuals and families across the island of Ireland.**

The energy is being produced (and discarded), yet every property in the state is connected and can use this energy. We have the technology to do while targeting a very specific section of Irish society: those in fuel poverty.

By 2025, the Government should aim to use 50% of all curtailed energy, placing a primary focus on diverting this surplus energy to homes that are experiencing, or are at high risk of, fuel poverty.



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For more information contact:
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