Evening Echo

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Time for bottle return scheme

Norway is now recycling up to 97% of its plastic bottles with a national bottle deposit scheme.

Anyone who wanders along our country lanes or city streets will see, all too easily, the amount of waste plastic bottles and packaging that is building up in the environment here.

It is offensive to the eye and damaging to tourism and business.

That is not even to take into account the serious damage being inflicted on animals and fish who ingest the plastic.

Scientific evidence is becoming overwhelming that plastic is starting to enter our food chain. The results of that will be disastrous.

So on grounds of pollution, animal welfare and human health, we need to reduce our use of plastic packaging, and a strong case is building up that we should have a deposit return scheme (DRS) for plastic bottles.

A similar argument can also be made for glass and metal drinks containers.

The UK is developing a scheme. There are growing calls in the US for such schemes there, and Norway has now clearly given us a lead.

Over this past lovely summer, volunteers could be seen all over the country, cleaning up our neighbourhoods. Imagine the boost it would be to activists, such as Tidy Towns and Clean Coasts, to see a a plastic bottle return scheme in action.

It is interesting to note how the Norwegians do it.

The American website Huffington Post recently detailed how shops, fuel stations or one of the several thousand reverse vending machines in public places like schools and supermarkets, take in the bottles, and in return give cash or store credit.

The cash is only cents per bottle, but it is a real incentive.

The plastic bottles are recycled into everything from textiles to packaging, including new plastic bottles.

Back in April, a deposit scheme for plastic bottles was among the measures proposed by the Citizens' Assembly to reduce plastic packaging.

In this country, we have shown that we are capable of introducing big, radical measures in the public interest, including the plastic bags levy and the smoking ban.

It is time for our next big move and the deposit return scheme could be it.

Europe could thrive on green energy

New research shows Europe could generate at least two-thirds of its electricity using renewables by 2030, writes Seán Collins, PhD student in MaREI, the centre for Marine and Renewable Energy in UCC

WOULD you pack just one set of clothes for a two-week holiday? Would you study just one poet out of a possible eight for your leaving cert English exam?

Of course not, because the future is uncertain and it's important to plan appropriately to ensure the best possible outcome.

So why would you plan an electricity system based on a single year's weather data?

Temperature rises as a result of greenhouse gas emissions are causing hotter summers, severe unpredictable weather events, water shortages, reduced agricultural output and sea level rise.

In an Irish context, we have greeted storm Ophelia, the Beast from the East and our hottest summer for decades. Global warming does not necessarily mean such events wouldn't have happened before, but it does increase the likelihood of such extreme weather events occurring. A recent analysis has shown that this year's sweltering summer in Europe would have been about half as likely if it weren't for human-induced global warming.

The average global temperature is now roughly 1C hotter than it was before very first furnaces were lit at the beginning of the industrial revolution. The ambitious Paris agreement facilitated by the United Nations Framework Convention on Climate Change (UNFCCC) was agreed in late 2015 to limit human-induced climate change to 2°C above the pre-industrial average.

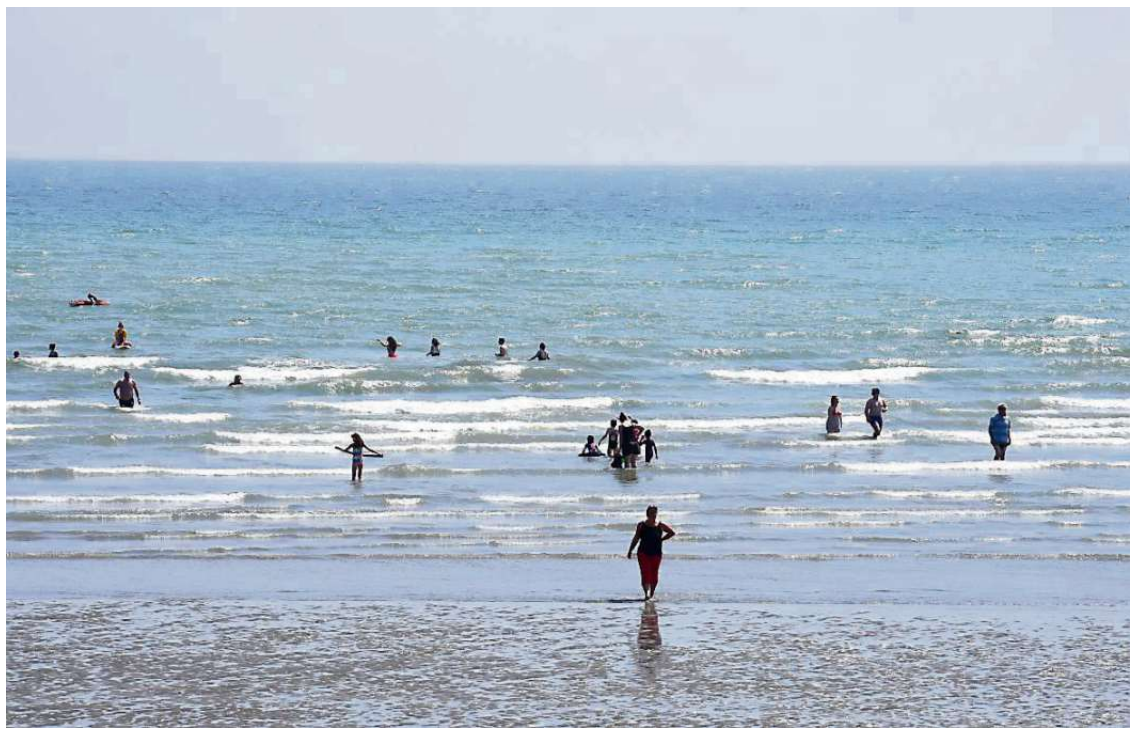
Given that energy represents two-thirds of global greenhouse gas emissions, meeting this 2°C target will require a transition to renewable and low carbon energy. In the energy policy and modelling group in MaREI, the Centre for Marine and Renewable Energy Ireland in University College Cork, we use a variety of models to project technology pathways for Ireland, Europe and the world to give us a better understanding of the wide-ranging challenges of meeting this target and of the energy policy that can be implemented to do so.

If we are to decarbonise electricity and increase our reliance on renewable power, we need to ensure our electricity system is reliably planned in relation to the long-term variability of the resources underpinning it.

This is challenging given that there will undoubtedly be calm and cloudy years when we produce little electricity from or wind or solar, for example, and will need to rely on other sources of power to pick up the slack. Many long-term energy planning studies that inform energy policy do so based on a single year's weather data which, can mean that the system planned isn't as reliable as intended.

We recently published a UCC-led paper in leading science journal Joule in collaboration with colleagues from Imperial College London and ETH Zurich that showed the impact of long-term weather patterns on the operation of the 30-country European electricity system and how this can evolve as we increase our reliance on renewable energy. Using three decades of weather data to model variability in wind and solar energy, we capture its effect on markets by modelling how Europe would fare under five different renewable energy scenarios with varying sustainability ambitions out to the year 2030.

The breadth and depth of the data pool used made all the difference when it came to understanding trends in CO 2 emissions, system costs, and general system operation—all of which are essential to the effective development of energy policy. We have shown that these factors can become up to five times more variable year-to-year as weather-dependent resources gain a greater foothold in the market.



Ireland recorded it's hottest summer in decades. Pictured here are beach goers in Fountainstown.

When planning future power systems with higher levels of wind and solar generation, we show that one year of weather data analysis is simply not sufficient. We find that single-year studies could yield results that deviate by as much as 9% from the long-term average at a European level and even more wildly at a country level. When there are legally binding targets on carbon emissions and the share of renewable energy, or promises to avoid sharp price hikes, this makes all the difference.

We also found that Europe could withstand this variability quite well thanks to its close electrical integration—our models show that Europe could use renewables for more than two-thirds of its electricity by 2030, with more than one-third coming from wind and solar.

A big problem with energy modelling is the "black box" nature of a lot of studies where the models and data underpinning them are not made openly accessible. This makes it challenging to validate and verify such studies which can understandably then limit the extent to which people trust them.

Our models and data for this work and wherever possible are made openly accessible and could be used to depict a variety of possible future scenarios to help policymakers better understand the reliability and impact of renewable energy, including the impacts of a shift to 100% renewable electricity systems. We hope that future work will demonstrate greater awareness of these long- term weather patterns in order to accurately depict a more renewable-energy-reliant world.

For your two week holiday, you'd pack a selection of outfits to bring with you so you'd be prepared for whatever may happen. You also wouldn't just study one poet if you have any ambition of passing leaving cert English. It's only right you wouldn't plan an electricity system based on a single year's weather data, you'd use long-term data to make sure that system planned is reliable and fit for purpose.