

Note to Joint Oireachtas Committee on Climate Action

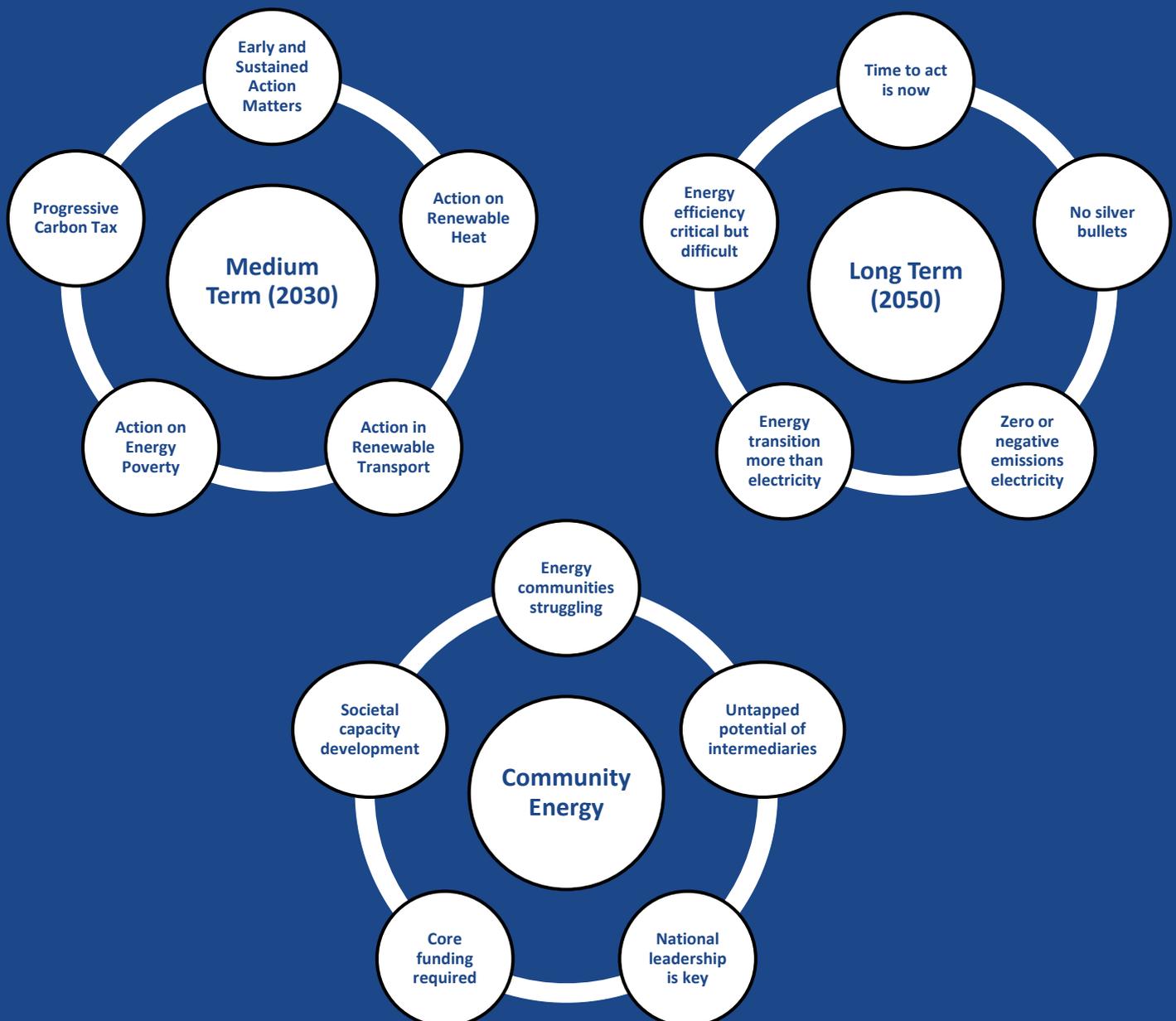
This note focuses on MaREI research findings on climate action relating to medium term, long term and community energy.

The SFI [MaREI Centre](#) is a €55M energy and marine-based research, development and innovation hub based in Ireland with 200 researchers and 50 industry partners.

MaREI's [Energy Policy and Modelling Team](#) in UCC is the only research team nationally that has developed scenarios to explore long-term possible energy futures for Ireland, in the context of the significant challenge of climate change.

MaREI produced Ireland's first [low carbon energy roadmap](#) in 2013. It focussed on the challenges of meeting an 80% and a 95% reduction in carbon dioxide (CO₂) emissions by 2050 relative to 1990 levels. This analysis provided essential evidence that informed and assisted the development of climate action legislation, which was enacted in 2015.

MaREI recently published [research](#) to inform discussions about how Ireland's can meet the obligations we agreed to under the Paris Agreement, in which almost all countries signed up for deeper levels of emissions reduction than previously considered. This analysis explores emissions reduction scenarios that go beyond the current national policy position.



Note to Joint Oireachtas Committee on Climate Action: focus on short to medium term policies (2030)

Early and Sustained Action Matters - emissions reduction in 2021 can have 10 times the impact of emissions reduction in 2030.

Ireland has a mandatory target to reduce greenhouse gas emissions (in the sectors outside of the Emissions Trading Scheme) in the period 2021-2030. Most of the focus is on the achieving a **30% reduction by the year 2030**. Compliance with the target however requires Ireland to limit emissions **over the whole period 2021-2030**. Emissions reductions achieved in the year 2021, and that are then sustained over the full period, will therefore contribute to the target 10 times more than emissions reduction achieved only in the year 2030.

Urgent action on renewable heat and transport will provide a unique double dividend.

Ireland's mandatory renewable energy target is to achieve 16% of all energy (electricity, heat and transport) from renewable sources by 2020. Most of Ireland's energy needs (80%) are associated with heating and transport while 20% are delivered in the form of electricity. Despite this, most discussions on renewable energy tend to be limited to renewable electricity (wind and solar energy). In addition, Ireland's mandatory greenhouse gas emissions reduction targets (for 2020 and for 2030) cover heating, transport and agriculture (and exclude electricity generation). Renewable heat and transport provide a double dividend by contributing to both our mandatory emissions reduction target and our mandatory renewable energy target, unlike renewable electricity, which only contributes to our renewables target.

We need policy measures focusing on 'invisible decisions' as well as on 'active decisions'

Policy measures encouraging electric vehicles and clean home heating systems are important in the energy transition. These measures seek to persuade citizens to make **active decisions** to purchase EVs and to change their home heating system. It takes time for the collective impact of these individual actions to accumulate and achieve significant emissions reduction. Other measures, such as renewable energy blending obligations on transport fuels and home heating could be described as an **invisible decision** policy measure (from the perspective of citizens). For example blending biofuels with petrol and diesel is rapidly delivering sustained emissions reduction since relatively few actors (i.e. a handful of refineries) are required to implement the measure. Looking ahead, for example, the emissions reduction from a 2% blending obligation of renewable gas from 2021 would give a similar emissions reduction contribution to converting 170k homes from oil to heat pumps by 2030.

Energy Poverty is a significant but largely hidden problem

Ireland has a significant but largely hidden energy poverty problem affecting an estimated 28% of Irish households. Home owners and tenants experiencing energy poverty tend to live in homes with poor energy performance and are more exposed to negative health impacts associated with cold and damp living conditions. Energy poverty requires a multi-faceted set of policy measures. While energy efficiency improvements alone are not sufficient to lift a household out of poverty, improving the energy performance of a home should reduce the energy bill and improve the health conditions within the household.

Increasing carbon tax is necessary but requires careful consideration.

Increasing the carbon tax on fossil fuels is necessary to encourage energy efficiency and the uptake of cleaner fuels but some of the tax revenue should be used to offset increases in energy poverty. A carbon tax increase of €20 per tonne would yield an additional €400 million per annum. If €35 million is used to fund an additional €4 per week in fuel allowances, this would offset possible increases in energy poverty. The Citizens' Assembly voted in favor of placing an environmental levy on emissions from agriculture. If this was applied to all agricultural greenhouse gas emissions produced in Ireland it would raise about €400m but the impacts on food prices, household budgets and farming communities need to be considered.



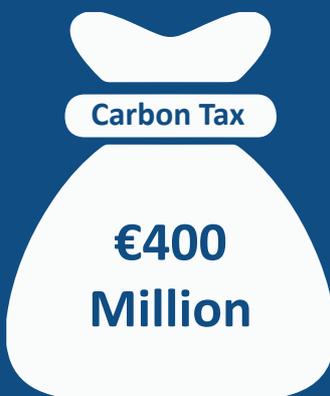
Early and sustained action matters



**Urgent action on renewable heat
and transport will provide a unique
double dividend**



**Individual actions take time to
accumulate**



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but requires careful consideration**



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Note to Joint Oireachtas Committee on Climate Action: focus on long term policies (2050)

The time to act is now.

The IPCC special report on 1.5°C shows there is approximately 12 years remaining to stabilise temperatures below 1.5°C warming on current trend. Our analysis shows that to be consistent with the Paris Agreement, Ireland's CO₂ emissions should reduce by 5-10% per year, compared to 4% growth that was witnessed in 2016, achieving net-zero CO₂ emissions by 2030-2050.

There are no silver bullets – we need everything and more!

Ireland's energy system requires a radical transition to deliver the services that we need (mobility, warm and healthy buildings, electricity for our appliance, etc.). Our energy system is currently fuelled predominantly (90%) by fossil fuels (coal, peat, oil and natural gas). In order to achieve the goal of a zero carbon energy system we need to harness the significant opportunities for energy efficiency and our untapped bioenergy (solid biomass, liquid biofuels and biogas) resources, in particular for heating and transport. We also should harness Ireland's very rich wind, both onshore and offshore, solar energy, carbon capture and storage technology and wave and tidal energy.

Using electricity for transport and heat is important but only if we have near zero or negative emissions electricity

Ireland's energy use is currently 80% in the form of fuels used for heat and transport and 20% in the form of electricity. There is great potential to transfer some parts of heat and transport from oil to electricity. In particular, this applies to car transport, and heating our homes and other buildings (that are not close to the gas network). In terms of climate action, this only makes sense however if electricity supply transitions to zero or negative carbon emissions in parallel with the electrification of heat and transport.

Low, zero and negative emissions dispatchable electricity options exist to complement increasing wind and solar

Moving to a low, zero or negative emissions electricity system is very challenging. Ireland has a relatively small power system compared with the UK or other power systems internationally. We currently have the highest share of wind energy on any power system in the world. Two of the key challenges associated with integrating wind energy are the variability of the wind (affecting electricity supply meeting demand) and wind turbine technology (which contribute little to essential system inertia). These challenges are also associated with solar energy. Large scale dispatchable electricity plants play a key role and low carbon options include natural gas with carbon capture and storage, biomass power plants and biomass with carbon capture and storage.

The energy transition is not just about electricity

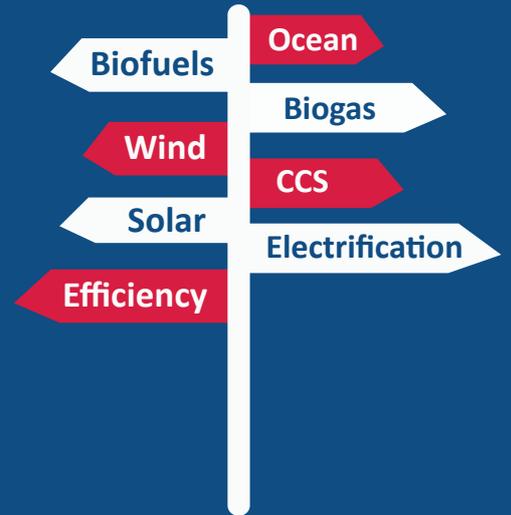
There are key parts of the energy system that are either difficult or expensive (or both) to electrify, in particular aviation and maritime transport, heavy goods transport and some manufacturing processes. Low carbon options here include biofuels, biogas or hydrogen. Carbon capture and storage technology can also have a role in industrial processes such as cement manufacturing.

The role of energy efficiency is critical but difficult to achieve

Energy efficiency is low cost but not easy to implement as it requires individuals to make active decisions to insulate homes, reduce energy consumption or buy more efficient appliances. It takes time for the collective impact of these individual actions to accumulate and achieve significant emissions reduction. However, increased energy efficiency make renewable energy and emissions reduction targets easier to meet.



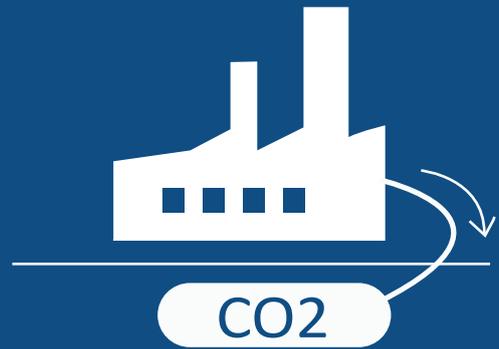
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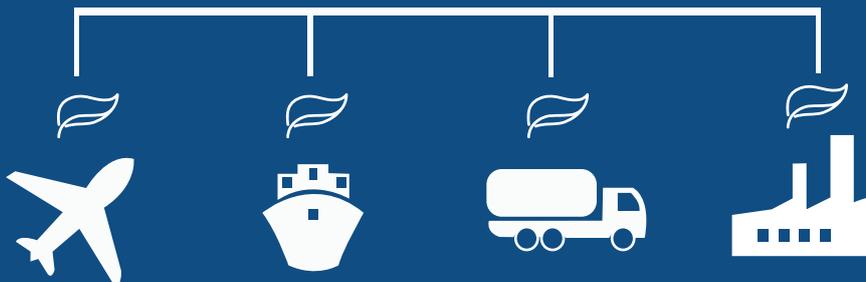
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The energy transition is not just about electricity

Note to Joint Oireachtas Committee on Climate Action: focus on community energy

Energy citizenship is an accepted ambition but energy communities are struggling.

Mentoring in community development is currently lacking and should be provided as essential complements to technical and financial mentoring

There is untapped potential within intermediary groups not directly associated with the energy transition.

In addition to top-down supports from agencies and bottom up community activities, there is significant untapped potential within intermediary groups not directly associated with the energy transition. The potential role of Tidy Towns is beginning to be realized through the focus on resource use and sustainability but these groups are feeling the pressure of the expanding remit and require more support. Practical support should be provided for intermediary organisations, if their role is to be maximized.

National leadership is key to give community energy legitimacy and to help with public engagement.

Engaging people on climate action is difficult, even for local community energy groups. Strong, continual and *visible* national leadership on climate action is critical to encourage energy citizenship.

Core funding is lacking and needs to be addressed.

Reliable, multi-annual sources of core funding for administrative costs and for staffing of community energy groups, is essential for groups to expand and to function effectively.

Infrastructural supports are emerging, but need more coherence and should respond more effectively to community needs.

Approaches to support community energy should be developed, which respond to the varied capacities of different communities. Communities should be consulted with regards to their needs in terms of infrastructural support.

A lot can be learned from evaluation of community energy experience.

Evaluating community energy projects should include an assessment of societal capacity development, alongside CO₂ savings. Approaches that are proven successful should be encouraged and replicated. Further research should be undertaken into why so many community energy groups have not survived.

SEAI is doing excellent work fostering community action and should be supported to further embrace community development methods, skills and experience.

SEAI's community energy programmes would benefit greatly from the integration of people with direct community development training and experience. Paperwork associated with community energy support schemes should be simplified and reduced, or assistance provided for completion of same, as research indicates this is challenging.

We expect a lot from volunteers.

Approaches to support community energy should be developed, which respond to the varied capacities of different communities. Innovative and creative ways of engaging and mobilising younger people in community energy should be tested, to address the current 'age gap'.

Until there is clarity about addressing the policy barriers, it is unhelpful to 'talk up' community ownership of energy. Existing policy barriers to community energy should be addressed, in tariffs, planning, finance, and access to the grid

Community energy does not guarantee community acceptability nor does it guarantee acceptance of climate action policies or initiatives, but is a vital component of Ireland's energy transition.

National leadership, extensive local engagement, and clear community benefits are required if local opposition to wind (and possibly) solar, developments, even if they are community led, does not continue to be a problem.