



**WESTERN
DEVELOPMENT
COMMISSION**

Making the Transition to a Low Carbon Society in the Western Region

Key Issues for Rural Dwellers

Summary Report



August 2020

Introduction

The need for climate action is clear and the changes we need to make to address climate challenges will affect all aspects of the way we live our lives. They will have diverse and wide-ranging impacts across Ireland, yet there has been very little focus on climate change and emissions issues for people living in rural areas. Discussions of rural emissions often focus on the emissions from agriculture, in this study the focus is on people living in rural areas, the 'rural dwellers', rather than agriculture. There are opportunities and challenges ahead and we need to understand the scale and scope of the actions required to reduce rural dwellers emissions and increase the use of renewable energy in rural areas.

As the Western Region is largely rural, the work of the Western Development Commission (WDC) has a particular focus on the needs of and opportunities for more rural and peripheral areas. Energy and climate action will bring important opportunities to our largely rural region, but at the same time it will bring challenges that need to be addressed for the region to make the transition.

This study of what is needed for a transition to a low carbon economy in the rural Western Region is one of eleven pieces of research under Action 160 to "Assess the economic and employment implications of the transition to a low-carbon economy" which fall under the Citizen Engagement, Community Leadership and Just Transition in the Climate Action Plan.

Taking action to address rural dwellers' emissions brings with it the potential for significant benefits in terms of warmer homes, cleaner air, and more sustainable use of our abundant natural resources. But it will be a major challenge and will require significant changes in the way we live, work and do business.

The Programme for Government commitment to an average 7% per annum reduction in overall greenhouse gas emissions from 2021 to 2030 is to be underpinned by the core philosophy of a Just Transition ensuring that no sector of society or community is left behind in the movement to a low-carbon future. This is important for rural regions.

Rural dwellers have different energy needs and often have reduced or more costly choices than their urban equivalents. Rural individuals are thought to have a larger carbon footprint than their urban counterparts and need greater access to cleaner energy choices. At the same time the sources of clean energy for all citizens are largely rural based.

This report examines the three aspects of energy use, and therefore, emissions by rural dwellers which can have significant climate implications:

- Transport
- Rural Homes: Energy efficiency and Heating
- Electricity

This is the summary report containing key points and recommendations. A full report, an infographic and a background report with significantly more data are also available.

The Western Development Commission (WDC) is a statutory body that was set up to promote both social and economic development in the Western Region (Donegal, Leitrim, Sligo, Mayo, Roscommon, Galway and Clare). It operates under the aegis of the Department of Rural and Community Development.



Key Points

Opportunities and Recommendations

Car Travel and Electric Vehicles

People living in rural areas tend to be at a greater distance from services than their urban counterparts and so the journeys they make tend to be longer and more car based.

Encouraging employment where people live will reduce the need for travel. Home working and hub working should form part of this.

The Avoid-Shift-Improve (ASI) framework should be used to plan reductions in emissions from transport, otherwise the focus tends to be on the improving how we travel (e.g. electric cars rather than diesel or petrol cars) at the expense of avoiding and shifting travel options to facilitate systemic change. In general, avoidance of use will have the biggest beneficial impacts.

1. The AEC Enterprise Hubs Project will create an interconnected community network from the 101 hubs in the AEC region. The Project is coordinated by the WDC. Using hubs can reduce the distance people need to travel for work.
2. While there is a clear need to accelerate place-making and compact development set out in Ireland 2040 we also need to address the existing transport issues for people living in rural areas.

3. Reducing the need for rural travel, for example through increased remote working and supermarket and other delivery options will help reduce reliance on cars.

4. To reduce the carbon intensity of rural travel we need to have a clear focus on finding solutions in rural areas, piloting infrastructural investments in rural areas and small towns and trying novel approaches to encouraging sustainable travel.

5. Collecting real time data on travel patterns in rural towns and villages is vital to inform policy and solutions. There is scope to work with Future Mobility Campus Ireland in Shannon where the WDC is a project partner, to develop a rural mobility testbed similar to the urban site in Shannon.

6. Encouraging households with more than one car to choose an EV as their second vehicle should be a priority. Given the distances many rural people travel, some may feel reluctant to make the switch to an EV as a primary household vehicle, but if the second vehicle is used for shorter journeys EVs could be more attractive.

The transition to electric vehicles is likely to take some time, given the life expectancy of the current car fleet (to 2030 and beyond) so petrol and diesel cars will continue to be important modes of transport in the next decade.

7. To reduce emissions in the shorter term the Biofuels Obligation Scheme should be enhanced and a move to the higher E10 and B12 standards should be implemented as soon as feasible. This would make a significant difference even before 2030.

Services such as EV charging points and CNG fuelling points must be widely available in rural areas where population is dispersed. Without these services being available, and reliable, rural dwellers could be reluctant to adopt the new technologies. Similarly, it could deter visitors who might be concerned about the availability of charging/fuelling points.

8. The need for, location of, and best options for developing a comprehensive charging network throughout rural Ireland should be addressed in the EV strategy outlined in the Programme for Government. That strategy is to ensure that charging infrastructure stays ahead of demand and provide planning guidance to local authorities, so it is important it addresses issues for all parts of Ireland.

9. There is potential for hubs and Broadband Connection Points to provide charging points for workers using them, and workspaces for people charging their vehicles. The possibility of piloting this in the AEC hubs network will be examined.

Key Points	Opportunities and Recommendations
Active Travel	
<p>While EVs are one low-carbon transport solution, public transport, walking and cycling also have a role to play in rural areas.</p>	<p>10. The options for promoting these in ways tailored to the needs of rural dwellers should form a key part of the Sustainable Rural Mobility Plan committed to in the Programme for Government with clear guidance on implementation and service levels.</p> <p>11. There is a need to manage parking in towns so that those who must drive to town can leave their car parked in one spot for the duration of the visit.</p> <p>12. Any planning for new retail or other services should require good, quick access for pedestrians and cyclists.</p> <p>13. Local authorities should examine the access roads within a 10km radius of towns to ensure they are as safe as possible for cyclists.</p>
<p>Normalising walking and cycling as viable travel options in rural areas is essential. They shouldn't be considered unusual, risky or the preserve of a small minority.</p>	<p>14. Greenway developments are important and promote a positive low-carbon cycling culture, but they often have a focus as a tourist attraction and may not connect directly to town centres. They should connect to town and village centres and be designed to function as a viable low-carbon transport network for commuters and other users.</p>
<p>The Programme for Government commits to allocating 10% of the total transport capital budget for cycling projects and an allocation of 10% of the total capital budget for pedestrian infrastructure</p>	<p>15. This commitment to cycling and pedestrian projects will be set at 20% of the 2020 capital budget (€360 million) per year for the lifetime of the Government and is very welcome. It is essential that this budget also benefits rural areas and is used to fund rural and small town walking and cycling travel initiatives including the focus on cycling within a 10km radius of towns (see above).</p>
Car Sharing	
<p>Car sharing may be a useful substitute for owning a second or third vehicle. Lift sharing is another option reducing the overall number of journeys being made.</p>	<p>16. Developing practical pilot models for these and examining what works in rural Ireland will be an important step in increasing the use of this option.</p> <p>17. Following the Clare Lift Sharing pilot, the opportunities for expanding the use of the lift sharing app that has been developed, should be considered. Initially it may be important to pilot its use in various types of rural areas to determine the places where it is most likely to be a real transport alternative.</p> <p>18. The potential for a rural car sharing scheme in some villages, using EVs, should be explored as a pilot.</p>

Key Points	Opportunities and Recommendations
Public Transport	
<p>To improve public transport and improve uptake the level and timing of rail services is important.</p>	<p>19. In order to allow the use of mainline rail for commuting to work it is important that services arrive into Sligo, Westport and Ballina at times which allow it to be used for commuting to work.</p> <p>20. Fares need to be competitive for shorter journeys on the mainline rail to encourage travel between regional cities and towns by rail.</p> <p>21. Rural commuters using the main line service should be able to avail of the Tax saver incentive to use public transport to and from work. In the Western Region it is currently only available on services between Athenry and Galway</p>
<p>There is a shortage of data on public transport provided by commercial bus operators. These account for a significant proportion of scheduled bus services between cities and towns in the Western Region but there is little data on passenger numbers or frequency.</p>	<p>22. Data on private bus services and passenger numbers should be collected in a similar way to that for Irish Rail and Bus Eireann.</p> <p>23. Integration, where possible, of the timetables of the different bus operators would be helpful to users, who may be connecting across different services.</p> <p>24. Where a bus service exists bus stops or covered bus shelters, signage and information should be available.</p> <p>25. An Information app on availability/ and real time arrival should be developed to ensure that real time data is available on rural transport. This is a greater need in rural areas where public transport is less frequent.</p>
<p>There is considerable potential for increased use of the Local Link rural transport service, particularly among those who do not have access to a car and may currently need to be driven.</p>	<p>26. Promoting the existing services in their catchment areas and developing suitable timetables in consultation with potential users would help increase service use, along with the availability of real time data and user apps.</p> <p>27. Along with the development of the local link service, the Programme for Government commits to developing a subsidised Local Area Hackney Scheme. The scheme is to be informed by the National Transport Authority Local Area Hackney Service Pilot Programme which is underway in 15 designated areas of rural Ireland, which are too small or remote to support a full-time taxi or hackney service. This is likely to be important in supplementing public transport or providing transport services where none exist.</p>



Key Points	Opportunities and Recommendations
Energy Efficiency and Retrofit	
<p>Low levels of energy efficiency and a reliance on home heating fuels with the greatest emissions (oil, coal and peat) mean there is a particular need to specifically address energy efficiency and home heating issues in the Western Region and other rural regions.</p> <p>93% of all the homes in the Western Region homes were built before 2011, so more than almost 290,000 homes are likely to require some form of energy efficiency upgrades and fuel switching to complete a move to a low carbon economy. The oldest homes will often face the most significant challenges.</p>	<ol style="list-style-type: none"> 1. Many rural people lack the financial resources to switch to low carbon or carbon free alternatives. Issues for rural dwellers, including those who own their homes, need to be addressed as part of the Just Transition. 2. Given the size of the task and the reliance on the most emitting fuels for home heating the Western Region should be included along with the Midlands in the remit of the Just Transition Commissioner.
<p>Recent falls in oils prices mean that savings from retrofit may be less and payback periods longer than predicted, particularly for homes heated with oil. This may have created a need for greater incentives to switch Upgraded homes may not achieve the savings estimated as people become used to higher rooms temperatures.</p>	<ol style="list-style-type: none"> 3. The Programme for Government commits to using resources from the National Recovery Fund to immediately finance local authority retrofit programmes and to offer grants to owners of private properties. This will initially be focused on the Midlands but given the reliance on oil as well as coal and peat in the Western Region it should be included in the first stage along with the Midlands.
<p>With only 5% of Western Region homes achieving a BER rating of B2 or greater, almost 267,000 homes in the Region need to be retrofitted.</p> <p>The heating systems in buildings heated using the most carbon intensive fuels (oil, coal and peat) need to be changed. More than 80% of homes in the Western Region use oil, coal or peat for central heating compared to 44% in the rest of the state.</p>	<p>Energy efficiency is important and the ambition in the Climate Action Plan and Programme for Government to upgrade at least 500,000 homes to a BER rating of at least B2 is very welcome.</p> <ol style="list-style-type: none"> 4. Given the reliance on oil as well as coal and peat, homes in the Western Region need to be prioritised for retrofit and a programme developed to address the particular issues for rural homes identified in this report.
<p>While deep retrofit is ideal but it is also important to promote those energy efficiency measures which improve the insulation and warmth of the home and move from BER of F or G, even if they do not include all measures and remain at C or D rather than fully upgrading to A or B standards.</p>	<ol style="list-style-type: none"> 5. A complete home retrofit and the installation of a heat pump is ideal, but it is important that shallow retrofits are also supported to improve energy efficiency in a step by step manner, particularly given the cost and disruption involved in a deep retrofit. 6. In the shorter term it would be useful to consider introducing a biofuels obligation scheme for heating fuels, requiring the addition of biofuels to kerosene for use in home heating.

Key Points	Opportunities and Recommendations
Home Heating Systems	
<p>Heat pumps are most likely to be most suitable for homes heated using oil. Almost 60% of homes in the Western Region use oil for central heating compared to 36% in the rest of the state.</p> <p>The SEAI found that a similar percentage of homes in the Western Region (11.7%) as in the rest of the State (12.8%) are ready for heat pump installation. Using a less stringent measure 23.2% of Western Region homes are heat pump ready.</p>	<p>The focus of the Climate Action Plan and the Programme for Government is on heat pump installation with a plan to install 600,000 heat pumps by 2030.</p> <p>7. Given the reliance on oil for heating, homes in the Western Region need to be prioritised in the switch to low carbon heating.</p>
<p>Where homes are hard to retrofit (because of their age, building fabric or cost reasons) wood fuel is an important heating option. As it produces high temperature heat it is particularly suited to those older homes where deep retrofit is not a viable option.</p> <p>Rural homes tend to have more space for storage and easier access to wood fuels and other renewable energy.</p> <p>The renewable heat market has the potential to create considerable levels of employment across the Western Region and to provide long-term stable markets for low value wood fuels which can compete with fossil fuels and stabilise energy prices for end users.</p>	<p>8. Wood fuel should be used correctly in appropriately designed boilers and stoves. The wood used should have a low moisture content. A statutory upper limit of 20% should be placed on the moisture content of firewood offered for sale. This will both improve the energy efficiency of the fuel and will also significantly reduce the level of particulate emissions.</p> <p>9. Wood fuel should be from forest by-products, creating a value for thinnings and for brash or parts of the trees which do not have other commercial value. The wood fuel should be sourced from a quality assured supplier.</p>
District Heating	
<p>There is potential for developing district heating systems which use renewable fuels in towns in the Western Region. Population density and scale of heat demand are important for viable district heating projects which require capital intensive investment in the network.</p> <p>Under the Programme for Government there is a commitment to publishing a feasibility study on establishing a district heating authority and setting new targets for district heating as part of a new strategy.</p>	<p>10. Rural towns should be considered in the government feasibility study and a pilot scheme for district heating and funding options developed to make it an attractive option in smaller towns with a sufficient heat load.</p> <p>11. The WDC has previously considered the potential for district heat in a number of towns in the Region and these could make suitable pilot projects.</p>

Electricity use, and Electrification and Generation



Key Points

Opportunities and Recommendations

Making the Transition - Electricity

The 2030 target of 70% electricity generation from renewable sources will be a very significant driver of change and is necessary to facilitate Ireland's move to a low carbon society.

Rural dwellers have a role to play in this by making a contribution to electricity supply, through microgeneration and involvement in community renewable electricity generation projects.

Managing the just transition fairly and on a balanced regional basis will be a challenge but it is important that the issues for rural dwellers are addressed by the Just Transition model.

There is significant future potential for electrification of heat and transport in rural areas, but many rural dwellers lack the financial resources to switch to or invest in low carbon or carbon free alternatives.

1. A variety of finance models are needed to support different home and household types in making the investment in the low carbon transition. Different households have different financial capacity and needs, loans may work for some, easy-payback mechanisms (e.g. through utility bills) might be better for others.
2. There should be alignment between the mechanisms in the National Retrofitting Plan in the Programme for Government which focuses on the built environment and with investment in electric vehicle charging and household electricity management systems

Electricity Use

The energy efficiency of our household appliances has been improving which in turn should contribute to reducing energy consumption in our homes. If, however, the number of appliances we use continues to increase, overall household consumption from appliances could grow.

The phased rollout of 250,000 new smart meters has begun. It is expected that from 2021 electricity supply companies will begin to offer new smart products and services. Households will be able to shift some consumption to times of the day when electricity is cheaper or has lower carbon intensity.

A significant move to Electric Vehicles (EVs) will increase domestic demand. Most EV charging is likely to take place at home, probably overnight or when electricity is cheaper.

Rural homes with off street parking are particularly well suited to this. The lack of other transport options is likely to mean, in the longer term, a higher number of EVs per rural household than urban, as is the case with cars at present.

As well as being used to power the car, EV batteries can serve as energy stores, charging when electricity is cheap or low carbon and being used to supply the household at times when electricity is expensive or renewable energy is less available.

People have different capacities to engage with detailed management of their electricity consumption.

3. Some of the consumption management will, in future, be integrated into the appliances being used. Nonetheless is important that pricing and electricity management structures do not significantly disadvantage those consumers using older equipment, with less money to invest in more expensive electricity appliances, or who are less able to engage with and respond to the information provided by smart meters.
4. It is important to have some link between supports for microgeneration investment, and EV charging mechanisms.
5. There should be 'Demonstration homes' in each county where people can see how low carbon systems operate and have the opportunity to learn from that householder's experience.

Key Points	Opportunities and Recommendations
Electricity Use contd.	
<p>The longer distances to be travelled in rural areas will mean higher electricity consumption by rural vehicles and greater need for charging at destinations such as workplaces or for working while a vehicle is charging during a journey.</p>	<p>The WDC is working with more than 100 hubs along the Atlantic Economic Corridor. There are opportunities for enterprise hubs to provide vehicle charging services, which could also be offered at some Broadband Connection Points, and public Wi-Fi access points.</p> <p>6. We will work to pilot charging services for people working in the Hubs, and pilot the provision of real time information and access to hot desking services for people needing to charge their vehicle during a journey so that they can work or reconnect while they wait.</p>
Microgeneration	
<p>There are significant opportunities for individual rural dwellers to become involved in microgeneration which can be used immediately or stored.</p>	<p>The Climate Action Plan and the Programme for Government commit to the launch of a pricing support regime for micro-generation which will mean householders will be able to sell excess power back to the grid by June 2021.</p> <p>7. It is important this deadline is met and the mechanisms to be put in place should be clearly signposted so that householders and suppliers are investment ready.</p>
Community Energy	
<p>The Renewable Electricity Support Scheme (RESS) will allow rural and other communities in rural to participate in the development of renewable electricity generation in their areas and to benefit from the investments in their locality.</p> <p>To do this they should become involved in the SEAI's Sustainable Energy Community (SEC) network which provides step by step support. Each community develops an energy use masterplan covering all aspects of energy use and resources.</p> <p>The Interreg Northern Periphery and Arctic Programme Local Energy Communities (LECo) project, in which the WDC was a partner, provides transnational learnings on models and funding mechanisms for community energy projects.</p>	<p>There is scope for communities to develop electricity generation projects which will create revenue for that community. These community energy projects are acting as social enterprises which can invest the revenue in other initiatives, energy related or otherwise, to the benefit of their community.</p> <p>8. The WDC Western Investment Fund will continue to support communities in the transition to a low carbon future by providing loans to communities, and bridging loans to allow them to continue to work while awaiting grant payments.</p> <p>9. When communities can take ownership of projects and generate their own revenue they can invest it in areas that are important to them. Energy Co-ops such as Claremorris and Western District and Comharchumann Fuinnimh Oileáin Árann Teoranta could act as demonstration communities for others in the Western Region.</p> <p>10. The WDC will work with work with energy agencies and the SEAI SEC mentors, as well as with DCCAIE and the CRU, to ensure that to ensure needs of rural dwellers and their communities are reflected in policy.</p>

Key Points

Opportunities and Recommendations

Electricity Infrastructure

With the move to 70% renewable electricity, the location of much generation will be in rural areas with most wind or potential for solar generation.

This means that many rural dwellers in the Western Region are, and more will be, living in proximity to wind and solar farms and the infrastructure needed to transmit and distribute electricity from them. This has, on occasion, given rise to concerns for rural dwellers and delays in electricity infrastructure development.

The Western Region already has significant connected renewable generation; more than half (55%) of the generation in the Region is renewable

The Western Region is currently producing enough renewable generation to meet 120% of its own demand. In all Western Region counties currently connected renewable generation is well above the average county demand.

The Region is a net provider of renewable electricity to the rest of Ireland making a significant contribution to the 2020 RES-E targets, and to the target of 70% renewable electricity generation by 2030.

While the need to resolve the climate crisis provides an urgent rationale for the shift to renewable energy, it is important that the benefits of the investment and infrastructure are shared with the rural areas where the infrastructure is located.

- 11. There must be a true participative approach to consulting, planning and building the required network.
- 12. Rural areas need to benefit economically from this investment too, not just in terms of community benefit funds but also as a means of increasing employment in rural communities.

There is capacity in the current transmission system for more renewable generation in areas of the Western Region including large parts of Co. Roscommon, Co. Clare and Co. Galway.

- 13. There is concern about the slow pace and scale of development of new transmission circuits elsewhere in the Region. The areas of particular concern for future generation connection in the medium term are Co. Donegal and North Mayo. There needs to be a clear plan for future investment in these areas.
- 14. The WDC will establish an energy infrastructure stakeholder group which will include electricity generation developers and users and state agencies as well as those impacted by infrastructure to consider how best to support electricity infrastructure investment in the region where it is necessary.

Conclusion

The climate challenge is complex. It affects all aspects of our lives, and many changes are needed in the ways we live and work, some small and incremental and others very big. As we have shown in this report there are few simple solutions and, most importantly, there is no single solution in any area. It is important that we consider all ways of addressing the climate challenge and all ways of reducing our energy use and emissions. Different options will work effectively in different situations and bring different enterprise and employment opportunities.

We have examined the challenges for our Western Region homes in terms of efficiency and heating. They are significant but newer homes are more efficient and our older homes can be made so. There are low carbon choices for the way we heat our homes. The challenges in transport are also significant, but using the opportunities for remote work, for more active travel and for increased public transport in rural areas, alongside a move to more EVs, will make a difference. We will use more electricity, and there will be a need for more electricity generation and infrastructure, but there are opportunities for people and communities to participate in this and benefit from the change.

There is no significant body of work, internationally or nationally, on climate change and emissions issues for rural dwellers in developed countries yet there are important differences in energy use patterns and emissions. While it is often acknowledged that rural dwellers have higher individual emissions the ways of addressing these have not previously been explored in Ireland, partly because emissions reductions may be more difficult to achieve in rural areas and partly because the emphasis is usually on larger populations and reducing the emissions of people living in more densely populated areas.

The focus of much government policy is on electrification, which our communities can participate in and which will bring local and individual benefits, but there are also significant bioenergy opportunities in our Region in terms of biomass heating fuel as well as the potential for biogas for heat and transport. These, along with the energy efficiency retrofit programmes and the generation of more renewable electricity, can provide opportunities for more employment in the rural Western Region.

Rural dwellers will be significantly affected by the low carbon transition. It will impact on every aspect of our lives, some of the changes are expensive and the significant increases in carbon taxes will cost rural dwellers more than others. A variety of finance models are needed to support different home and household types in making the investment in the low carbon transition. Different households have different financial capacity and needs, loans may work for some, easy-payback mechanisms (e.g. through utility bills) might be better for others and grants must also be available. The government is committed to a just transition. This must mean the higher costs and greater complexities of the transition for rural dwellers are addressed.

Pursuing a low carbon vision for the Region will not only contribute to achieving Ireland's climate change commitments but can also deliver wider benefits. These include improved energy security, economic opportunities from renewable and indigenous fuels and significant benefits in the areas of health, lifestyle, travel costs, local environment and air quality.

Rural dwellers need to make the most of these benefits too. The focus of this report has been on the rural Western Region but our findings are applicable to much of rural Ireland and actions can be replicated elsewhere and implementation of changes can be integrated.



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