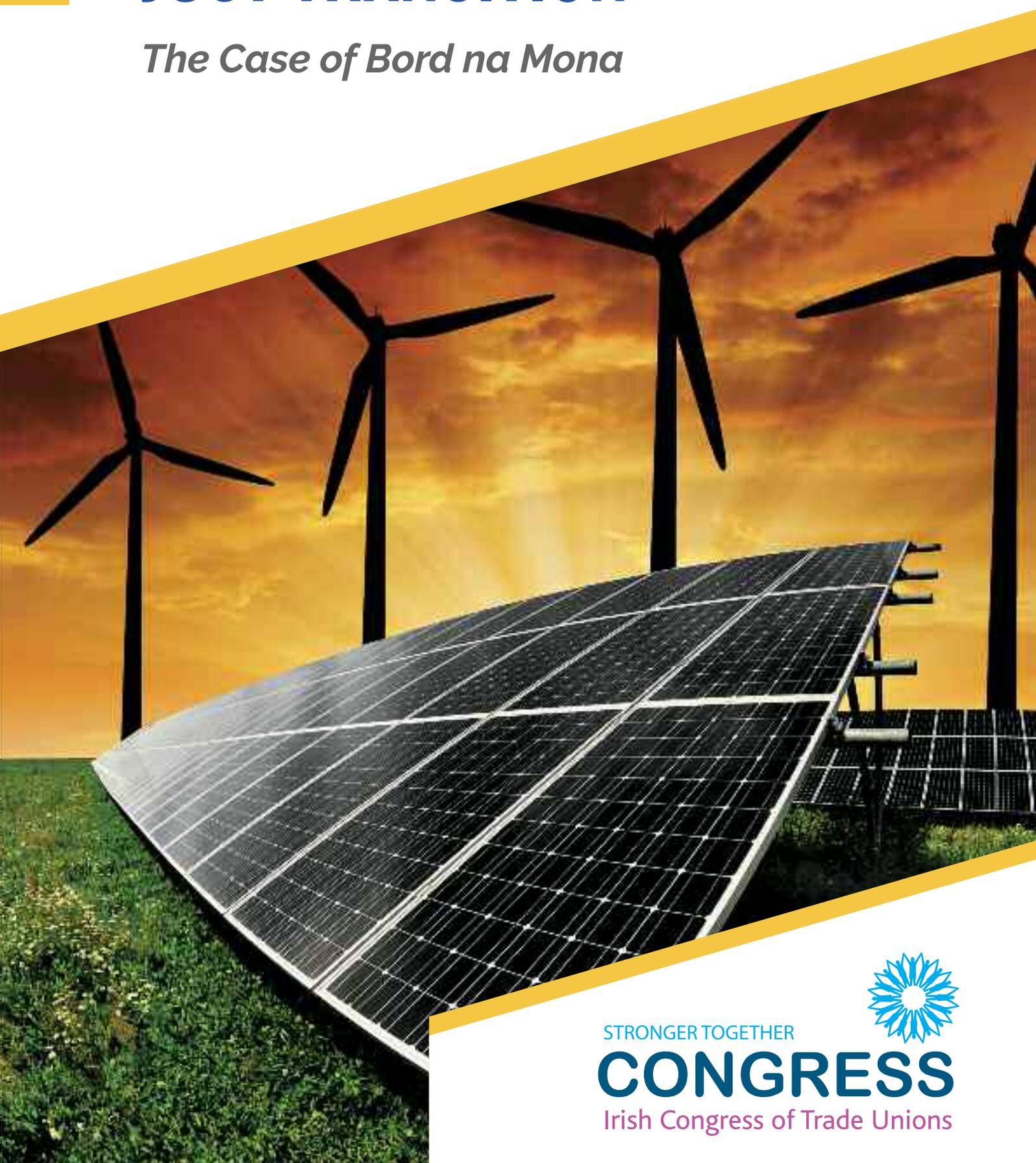


BUILDING A JUST TRANSITION

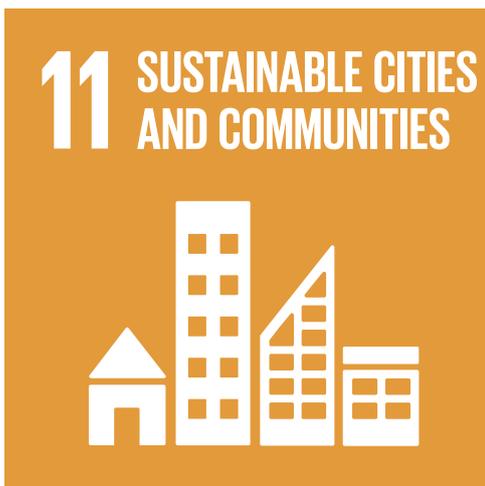
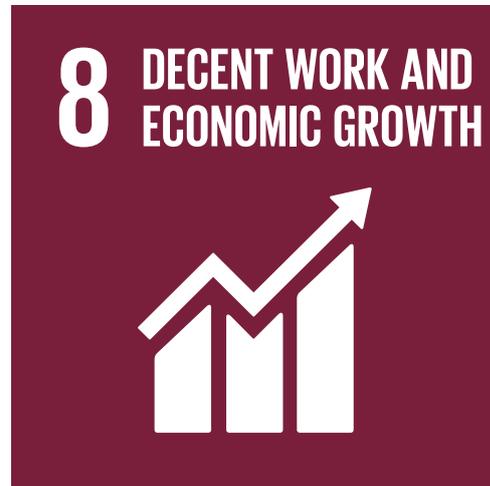
The Case of Bord na Mona



STRONGER TOGETHER

CONGRESS

Irish Congress of Trade Unions



Sustainable Development Goals

The 2030 Agenda for Sustainable Development was adopted by 193 countries at the United Nations, in September 2015. The 2030 Agenda contains a set of shared objectives, known as the Sustainable Development Goals (SDGs), to which all countries have committed. The 17 SDGs cover issues highly relevant to the work of trade unions, including the promotion of decent work, the fight against poverty, inequality and climate change. They also recognise the need for greater gender equality, free quality education, decent public services and stronger institutions.

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This report was produced by the Irish Congress of Trade Unions' Energy & Natural Resources Sectoral Group with the assistance of Ciarán Nugent and Paul Goldrick Kelly of the Nevin Economic Research Institute (February 2019).

Building a Just Transition

The Case of Bord na Mona

Executive Summary

Taking action on climate change is no longer an optional policy extra for the Irish government. Having signed up to and endorsed the 2015 **Paris Agreement**, such action now takes the form of a binding, international obligation.

Critically, the agreement also provides clear direction on how states should seek to manage and effect the transition to a low carbon economy.

Under the terms of that deal signatory governments are explicitly required to ensure that policy response to climate change is governed by the principles of a **Just Transition**.

The **International Labour Organisation** (ILO) has drawn up clear guidelines on how best to shape and implement a national Just Transition strategy.

Recent developments in Bord na Mona provide a major opportunity to deliver on this commitment and ensure no workers or communities are left behind in the move away from peat production and into more sustainable forms of energy generation.

It is also an opportunity to develop a clear, coherent Just Transition template that can be applied in other sectors and regions, as part of the wider transition process.

This will require a 'whole of government' approach, with key energy production semi states such as the ESB also playing a central role.

Given the urgency of the situation, it is vital that this work begins immediately with the establishment of a **Just Transition Forum** for the Midlands, to be tasked with developing the appropriate measures – within a specific timeframe – to ensure that neither the workforce nor the local communities are disadvantaged, as a result of commitments entered into by government, under the Paris Agreement.

The Bord na Mona workers may be among the first, but they will not be the last group of workers required to make sacrifices for the greater good and for future generations, along with the communities of the Midlands region.

Therefore it would seem only fair and reasonable that every conceivable effort is made to ensure they do not suffer hardship as a result.

In truth, the Bord na Mona case will be watched closely by workers and communities in other areas – such as Moneypoint – and will serve as a litmus test for how Ireland manages the transition.

If the government fails to honour its commitment and obligation to deliver a Just Transition, this will raise doubts about the process, engender opposition and make the longer-term transition far more difficult to achieve.

Key Recommendations

1. Immediately establish a **Just Transition Forum** for the Midlands to identify key measures and supports that will be required by Bord na Mona staff and communities. The Forum would operate in accordance with established ILO guidelines on this matter and would feed into the National Just Transition Commission, as proposed by the Green Party and supported by Congress.
2. Bord na Mona should move to increase its involvement in **renewable power generation** – wind and solar – in order to help create new and replacement employment opportunities for existing staff and the surrounding regions, with retraining provided as required. The SEAI estimates some **4400 net jobs** could be created in the wind energy sector alone.

The existing PSO levy for peat production could be diverted to help support solar power development and **help create almost 11,000 jobs nationally** in the sector, many of which could be located in the Midlands and taken up by existing Bord na Mona staff, with retraining provided.

3. The company should take the lead in a **major retrofitting programme** across the Midlands and surrounding regions, to boost energy efficiency and assist in meeting national emissions targets. A national residential retrofit programme could create up to **18,750 new jobs** with many located in the Midlands region with retraining to be provided for existing Bord na Mona staff.
4. Investment in **public transport** and broadband will also increase energy efficiency, help meet emission targets and enhance employment opportunities in the Midlands region. The Athlone Institute of Technology could be developed as a national **Centre of Excellence** for green technology research and innovation.



“For decades workers in communities all around the Midlands have earned a living and served the people of Ireland by harvesting peat to heat our homes and power our industries... (but) we now know that peat is the worst of fossil fuels that we burn for energy.

“However, the need for an urgent end to peat extraction must not undermine the rights of the communities whose lives are dependent on the bogs. There needs to be a long-term strategy in place that ensures the rights and dignity of the people whose lives are impacted by the transition.”

Mary Robinson, addressing climate change conference,
Dublin, November 2018



Introduction

In July 2012, several hundred Spanish coal miners arrived in Madrid, having completed a march of some 500 kilometres from mining communities in the northern provinces of Asturias, Aragon and Castilla y Leon.

Their epic trek became known as *La Marcha Negra* (the Black March) and was organised in protest at plans by the then government to slash subsidies considered vital to the survival of the coal industry, the miners' continued employment and the very existence of their communities.

The miners and their unions had previously agreed a plan to gradually reduce those subsidies over a longer timeframe, allowing the workers and communities the space to prepare for the inevitable transition. But the government reneged on the deal and announced their intention to effectively close down the industry with immediate effect.

Their protest highlighted a challenge and threat faced by countless thousands of workers and their communities across the developed world, including Ireland. And their demand was one which trade unions have long championed as the only sustainable response to climate change – the need for a Just Transition to a low carbon economy.

In October 2018, after many years of campaigning (and a change of government) Spanish unions and the authorities announced a new deal that will see up to €250 million invested in the affected communities of Asturias, Aragon and Castilla y Leon, and in developing supports for the mining workers.

The deal has been hailed by the European Trade Union Confederation (ETUC) as a model of Just Transition. As the ETUC noted: "We don't need to choose between a job and protecting the environment. It is possible to have both."

The Just Transition Imperative

The Intergovernmental Panel on Climate Change (IPCC) recently released a special report which offers the most comprehensive and authoritative assessment of the impacts of global warming of 1.5°C above pre-industrial levels and the action needed to stay below this threshold. It states that "limiting global warming to 1.5°C would require rapid, far-reaching and unprecedented changes in all aspects of society."

The report also proves beyond doubt that staying below 1.5°C will significantly reduce the damage of climate change, not just for the poorest and most vulnerable countries, but for Ireland and other developed countries as well.

As a recent *Irish Times* editorial pointed out: "*The science is clear; the economic impact will be many times worse than a hard Brexit. Irish emissions are going in the wrong direction, out of step with most of Europe. What's more, the cost of inaction now will be considerably greater in coming years – estimates of a bill of up to €3 billion in compliance costs arising from not meeting national commitments for the period up to 2030.*"

International expert analysis has deemed Ireland the worst country in the European Union on climate action. The Climate Change Performance Index (published in December 2018) places Ireland 48th out of 56 countries worldwide, up one place from last year. In 2016, Ireland's greenhouse gas emissions amounted to 61.5 million tonnes of carbon dioxide equivalent, a reduction on the peak average annual emissions of 68.9 million tonnes in 2000–2004, but still 3.6% higher than in 2015.

Instead of achieving the required reduction of 1 million tonnes per annum in carbon dioxide emissions, Ireland is currently *increasing* emissions at a rate of 2.1 million tonnes annually.

Under the Effort Sharing Decision, Ireland's target is to deliver a 20% reduction in greenhouse gas emissions by 2020 (relative to 2005 levels). All projections indicate that a reduction of less than 1% will be achieved, by 2020.

Cumulative emissions will see Ireland exceed its EU Effort Sharing Decision target (338 million tonnes) by approximately 16 million tonnes of carbon dioxide equivalent.

This could prove quite costly.

At current market price of circa €20 per tonne for CO₂ allowances, it would require €320m to secure allowances to comply with 2020 targets and €1,840m to comply with 2030 targets. This would be in addition to fines imposed by the EU and increases in the cost of allowances.

Recent developments in Bord na Mona – including the planned redundancy of some 430 staff – have starkly

illustrated the challenge posed by dealing with climate change and the implications for workers and communities across Ireland.

While these challenges are acknowledged in the National Mitigation Plan, which has a commitment to prepare a report on the employment and economic implications of the transition – the plan has yet to be completed.

Indeed, in reply to an October 2018 Dail question from Green Party TD, Catherine Martin the Minister for Communications, Climate Action & the Environment, Richard Bruton, TD, confirmed that “the exact terms of reference for this work are still to be finalised” which would appear to betray a worrying lack of urgency on the part of government.

This is no longer a remote and distant issue, but an immediate reality that requires urgent, concerted and coherent action.

Bord na Mona's decision to close its peat operations over the next decade will affect many workers with livelihoods tied to the industry and their communities in the Midlands, which have been sustained over generations by the industry.

Although Bord na Móna made the announcement earlier than expected the shift away from peat was inevitable, from an environmental perspective and with respect to the potentially punitive fines that may result from Ireland's failure to meet emissions reduction targets under international agreements.

Unfortunately, what was also revealed in the wake of the announcement was the absence of a plan for a Just Transition with respect to the Bord na Mona workforce, and the glaring absence of such an overall national strategy that would help ensure that workers and local communities across the country are not simply abandoned to their fate.

The concept of a Just Transition has its origins in the international labour movement and is pithily summarised by the International Trade Union Confederation (ITUC) campaign slogan – *No Jobs on a Dead Planet*.

Just Transition is rooted in social dialogue and the participation of those affected, at every stage of the process. Given the scale of the challenge, it is described by the ITUC's Just Transition Centre as “an economy-wide process that produces the plans, policies and investments that lead to a future where all jobs are green and decent...”

This is precisely why Congress sought a meeting with the Oireachtas Climate Action Committee that is tasked with considering the recommendations of the Citizens Assembly on this issue.

The Committee's work is taking place in the context of the development of the **Integrated Energy & Climate Action Plan**, for consideration by the European Commission, a process into which its final report will feed. A Congress delegation appeared before the Committee on December 4, 2018 and focussed on Recommendation 7 from the Citizen's Assembly report, namely:

“The State should end all subsidies for peat extraction and instead spend that money on peat bog restoration and making proper provision for the protection of the rights of the workers impacted with the majority 61% recommending that the State should end all subsidies on a phased basis over 5 years.”

Congress made the case for a Just Transition in the midlands and the adoption of this approach nationally, in line with best international practice.

Just Transition & the Paris Agreement

The Paris Agreement of December 2015 committed signatory countries to introduce measures that will keep global warming below two degrees Celsius, with a target to reduce the level below 1.5 degrees.

The agreement was historic in that it was adopted by 195 countries – including Ireland - and represented the first ever global, legally-binding climate deal. The agreement was also significant in that it accords the Just Transition concept a key, central role in how states shape their response to climate change and the transition to a low carbon economy.

In fact, the Paris Agreement requires that parties that have adopted the deal to take action on dealing with greenhouse gas emissions, taking into account “the imperatives of a Just Transition of the workforce and the creation of decent work and quality jobs.”

Therefore, **Just Transition is not an optional policy extra for the Irish government, but a legally-binding obligation resulting from Ireland's adoption of the Paris Agreement.**

This commitment was explicitly reaffirmed by way of the Katowice *Ministerial Declaration on Just Transition and Decent Work*, on foot of the COP 24 gathering in Katowice, Poland, in November 2018.

Just Transition Guidelines from the ILO

The International Labour Organisation (ILO) – on whose governing body the Irish government currently sits – has devised clear and comprehensive guidelines to underpin the Just Transition process, in member states.

The guiding principles state that “social dialogue has to be an integral part of” official policy formulation in respect of the “transition to environmentally sustainable economies and societies.”

In addition, policies must ‘respect’ and ‘promote’ fundamental rights at work and take into account the “strong gender dimension” of the transition challenge.

Critically, the ILO guidelines demand that a national Just Transition policy framework should “promote the creation of more decent jobs” while also “anticipating impacts on employment, adequate and sustainable social protection for job losses and displacement, skills development and social dialogue, including the effective exercise of the right to organise and bargain collectively.”

The European Trade Union Confederation has also published guidelines on the role for trade unions in building a Just Transition, with numerous examples from across the European Union.

The Scottish Example

The Irish government does not have to look too far afield when seeking examples of how best to respond to climate change in a fair and equitable manner, in accordance with the Paris Agreement.

In 2018, a Climate Change bill was introduced into the Scottish Parliament – in direct response to the Paris Agreement – to give effect to the Just Transition imperative of that deal.

It sees the establishment of a four person expert Just Transition Commission which is tasked with advising government on how to apply Just Transition ‘principles’ in Scotland. These are summarised as:

- *Plan, invest and implement a transition to environmentally and socially sustainable jobs, sectors and economies;*
- *Create opportunities to develop resource efficient and sustainable economic approaches, which help address inequality and poverty;*
- *Design and deliver low carbon investment and infrastructure and make all possible efforts to create decent, fair and high value work, in a way that does not negatively affect the current workforce and overall economy.*

The Commission is to report back within a two year time frame and in formulating its recommendations, is required to “engage meaningfully” with workers, communities, NGOs, business and industry leaders and other relevant bodies.”

Closer to home, the **Green Party** has produced a Just Transition bill that, if given effect, would see the creation of a National Just Transition Commission that would “bring together workers, communities, employers, ecological experts and government.....to drive the plans, policies and investments needed for a fair and just transformation to a low carbon economy.”

Congress supports the Green Party proposal for the establishment of a Commission, that would proactively manage and implement a Just Transition model in Ireland, starting with Bord na Mona.

A Matter of Choice

In October 2018, Australia's Construction, Forestry, Maritime, Mining & Energy Union (CFMMEU) unions published a ground breaking study on the stark choices presented by the planned closure of the country's coal-fired power generating stations.

The Ruhr or Appalachia? contrasts the fate of two regions that are often associated with traditional, carbon-based industry and power generation. In the case of the Ruhr, the study showed that advance planning, consultation and dialogue between the authorities, unions and employers over many years, saw the region successfully manage the transition to a lower carbon economy.

In fact the Ruhr is now home to two of the world's largest manufacturers of wind turbine machinery - previously, both companies produced coal mining equipment.

By contrast, the social and economic devastation that has overtaken Appalachia in recent years, while not solely attributable to the closure of mines, was exacerbated and worsened by the failure to plan or manage a Just Transition, in any form.

Appalachia now exhibits one of the highest rates of opioid addiction in the United States, with one US study noting the link between high levels of opioid prescriptions (from 2006-2016) and "substantially lower prime-age labour force participation rates."

Appalachia's communities were left to whims of the market and the outcome is proof that the 'market' is entirely incapable of delivering anything other than an Unjust Transition.

Opportunity or Threat?

As the Australian study clearly demonstrates, the outcome of any transition is never a forgone conclusion, but is the result of deliberate policy choices and political decisions.

Therefore a properly-managed transition to a low carbon economy is one which would also deliver major opportunities for job creation and economic growth.

The ILO has stated that the 'greening of economies' present many opportunities and "has the potential to be "a new engine of growth and a "net generator of decent, green jobs that can contribute significantly to poverty eradication and social inclusion."

Studies cited by the ILO find that the creation of a low carbon economy could create between 15 and 60 million jobs globally, in the coming years.

Equally, an EU Commission study (2014) found that some 800,000 jobs could be created in the power and energy efficiency sectors, between 2026 and 2030, on the basis of a 40% emissions cut and a move to a 30% renewable energy share.

A 2017 report from Impact (now Forsa) and the IIEA, pointed out that it is difficult to estimate precisely the level of new employment opportunities that would arise domestically in a transition scenario as "no comprehensive study has been undertaken of net (job) creation from low-carbon transition in Ireland..."

The report said some estimates suggested possible national job creation ranges of between 10,000 to 40,000 in the wind energy sector and between 10,000 and 30,000 in retrofitting. Clearly, these are dependent on a number of significant variables, including investment levels and timeframe.

Clearly, any jobs created would have to offset employment lost in the most vulnerable sectors, including: Coal and Peat Power Generation; Peat Harvesting; Oil Importation & Distribution; Oil and Gas Exploration and Beef Farming and Processing.

As is evident in the case of Bord na Mona, many of those jobs will be lost in areas where alternative employment opportunities are scarce and there is relatively little investment. A May 2017 briefing published by Siptu, on the implications of Just Transition for workers and trade unions, pointed out that " trade unions have a vital role to play in improving the quality of jobs, in protecting jobs in existing workplaces and industries by demanding sustainable industrial transformation, organising workers in new decent jobs..."

Principles of a Just Transition in Bord na Mona

The situation in Bord na Mona is neither normal nor routine. The programme of planned redundancies and other proposed changes has not arisen from everyday commercial operations or pressures.

In reality, workers – and the Midlands communities - are now being required to sacrifice jobs and livelihoods in the cause of the greater common good and to help protect the local and global environment for future generations.

Thus, they are being asked to shoulder quite a remarkable burden, on behalf of wider society. While climate change may present as a growing threat on the horizon for many, for the workers and communities, it is both very immediate and potentially very damaging, in terms of livelihoods, living standards and life prospects.

This essential truth must be at the core of whatever Just Transition response we fashion and must inform the terms of the settlement put in place for Bord na Mona workers. It should not be utilised as an opportunity to drive down standards or secure a lowering of costs 'on the cheap'.

The company – with the support of government – must show both imagination and flexibility in its response.

This is not only an issue of fairness and equity, but also of sustainability. The Bord na Mona workers may be in the front line of action on climate change, but they most certainly will not be the last cohort of workers affected by this process.

If workers in other sectors witness their Bord na Mona colleagues losing out or being left worse off by the transition process, then opposition will inevitably grow and the process itself will become immeasurably more difficult.

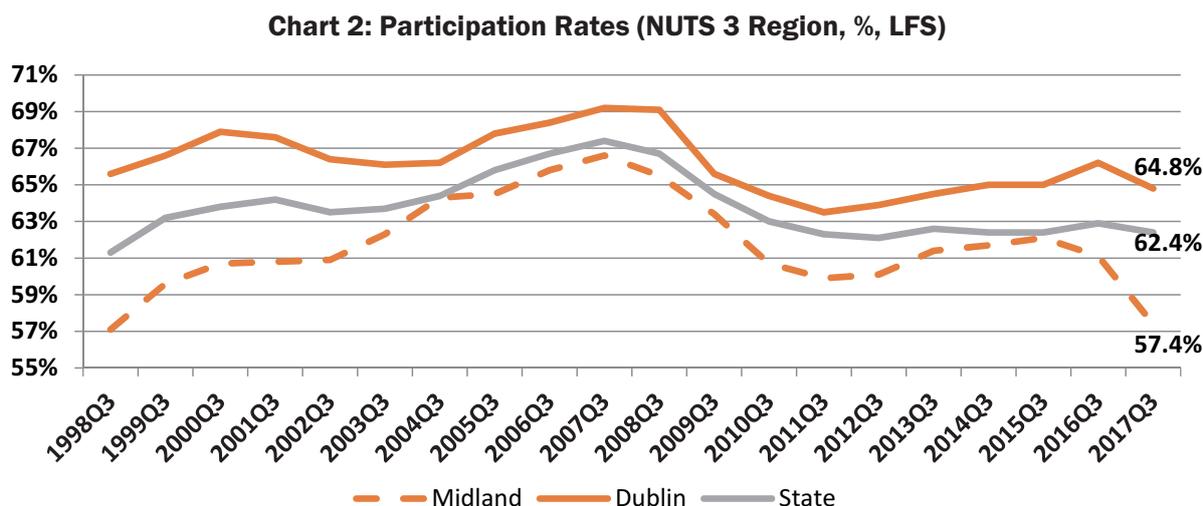
Thus, a Just Transition process for the Midlands must ensure that workers are not disadvantaged as a result and that those who wish to avail of new employment opportunities are prioritised and fully-supported in doing so.

In short, workers and communities in the region must see a tangible dividend from this process, if it is to succeed in the longer-term, across the wider economy.

The Economy of the Midlands

The story of the economy of the Midlands is one of historic underperformance, relative to most of the rest of the country. Latest unemployment figures (2018 Q2) show almost a four point gap between Dublin (6.0%) and the Midlands (9.7%)¹

Chart 2 (*below*) shows comparative Labour Force Participation rates, in the Midlands, Dublin and the State over the past two decades. This indicator refers to the share of the working age population in work or looking for work.



Source: Labour Market Trends in the Republic of Ireland (McDonnell & Nugent, 2018), LFS

Table QLF 15 (CSO 2018)

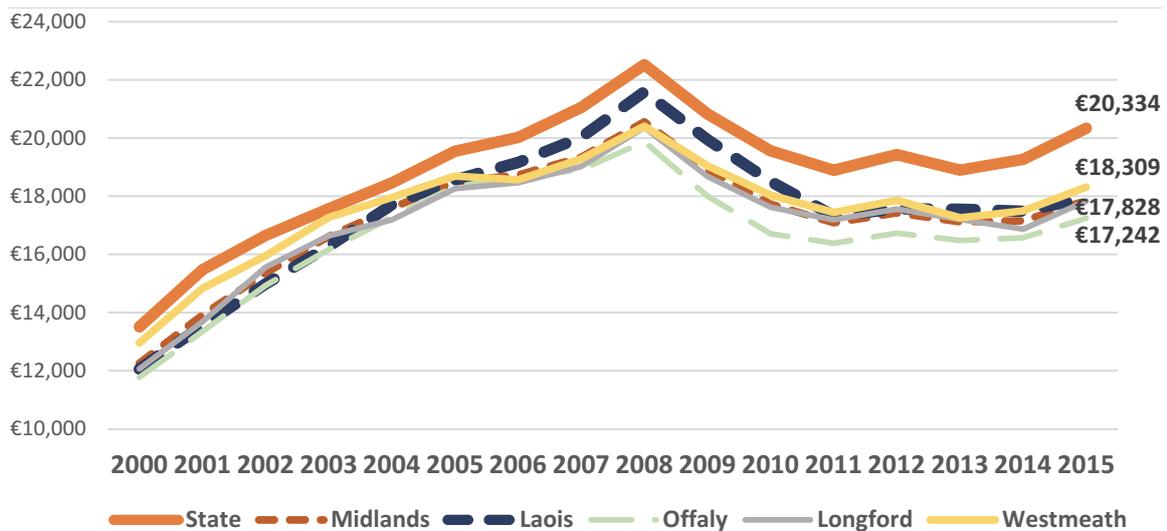
Note that there are 8 NUT3 regions in the Republic of Ireland. These are defined in association with Eurostat, the statistical agency of the European Union.

¹ Note: Figures are for Longford, Westmeath, Laois & Offaly (NUTS3 Region).

The figures suggest that the regional disparities in economic performance are even starker than headline unemployment rates suggest and that conditions in the region have deteriorated over recent years. In the immediate aftermath of the financial crisis, the collapse in the participation rate in the Midlands was worse than almost every other region, driven by the loss of about 10,000 jobs in Construction. Having improved slightly after the return to growth, the rate has since fallen more recently with latest figures showing participation to be lower now than even in 2012 and just above the 1998 rate.

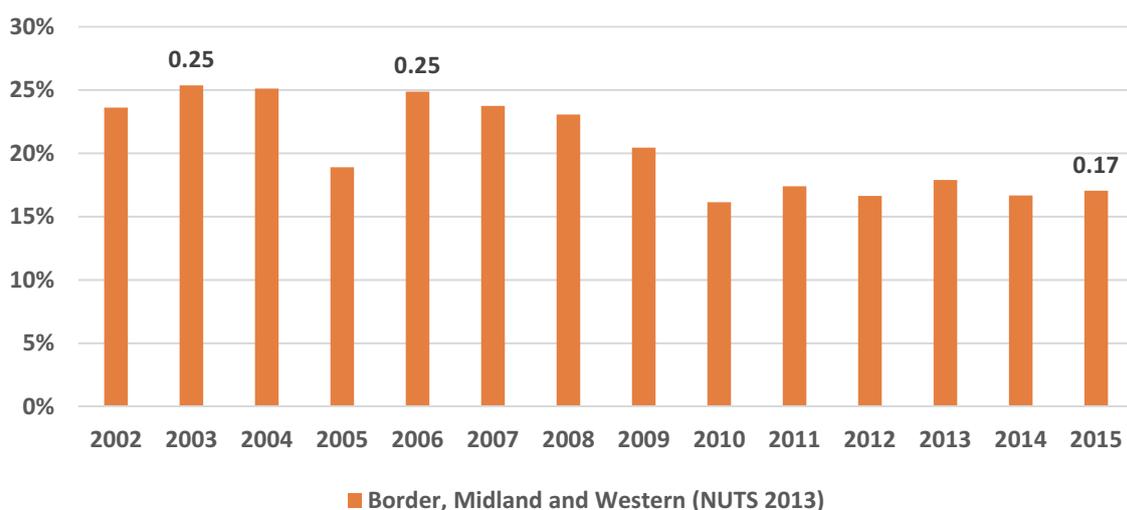
Chart 3 (below) shows that disposable income per person is much lower throughout the Midlands (€17,846 in 2015) than in the State as a whole (€20,334). The average disposable income for Offaly (€17,242) is as much as 15% lower than the national average.

Chart 3: Total Nominal Disposable Income per person (NUTS 3 Region, %, LFS)



Source: CIA01: Estimates of Household Income by County and Region, Year and Statistic (CSO, 2018)

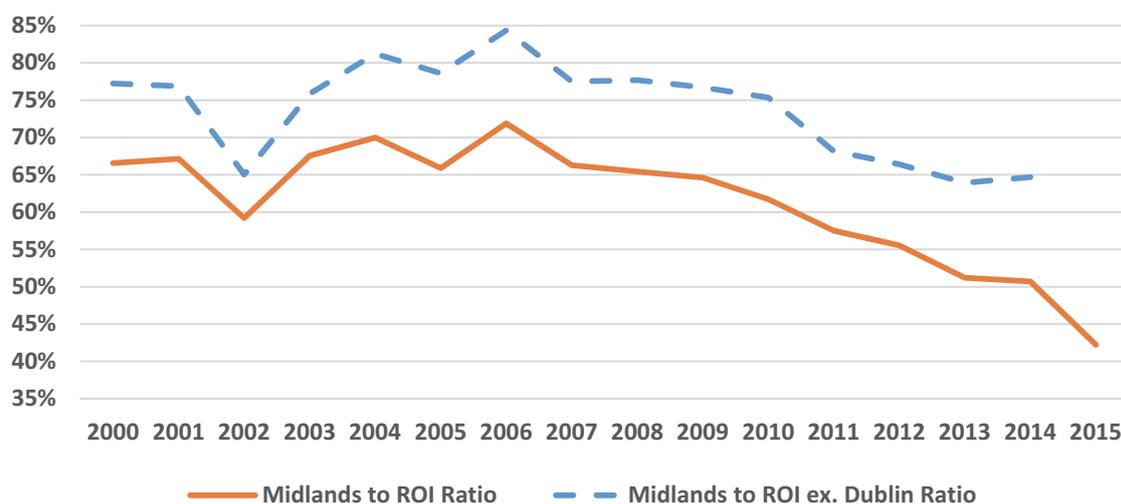
Chart 4: Gross Fixed Capital Formation (NUTS 2 Region, National Share)



Source: Gross fixed capital formation by NUTS 2 regions (Eurostat, 2018)
There are 3 NUTS2 regions in the Republic of Ireland.

Although the exact volume of gross fixed capital formation (investment) for the Midlands region alone is not available, Bord na Móna states in its annual report that it has the lowest levels of Foreign Direct Investment of any region in the country.² Between 2016 and 2017, growth in IDA supported employment in the Midlands was also the lowest of any region. Overall, the national share of investment in the Border, Midlands & Western regions has fallen significantly since the onset of the financial crisis from one-quarter of all investment in 2006, to 17% in 2015 (see Chart 4).

Chart 5: Ratio of Gross Value Added per person in work in Midlands to Republic of Ireland average (basic prices*)



Source: RAA01: Gross Value Added (GVA) by Region, Year and Statistic (CSO,2018)

Note: basic prices include product subsidies but exclude product taxes paid.

The Midlands region is also significantly less productive than the country as a whole. In measures of Gross Value Added per person in work, the region never exceeds three quarters of national productivity and falls to less than half the national figure in 2015 (see Chart 5 above).

While some of this discrepancy may reflect the impact of multinational tax-planning activities in the national statistics (located disproportionately in the urban areas in the East and South West of the country) there appears to be strong evidence that the region does not capture value added to the extent that other regions do.

Bord na Móna, the Midlands & Just Transition

Bord na Móna was established as a semi-state company in 1946 – successor to the Turf Development Board - with a mandate to assist the growth and development of the Midlands region and to help create energy security for what would soon become the Republic of Ireland (ROI).³

Staff were paid a total of €89 million in wages in 2018, generating tens of millions in tax revenue to government through personal and consumption taxes. The firm also paid €9.8 million in social security contributions, a key aspect of the social wage. The company also contributed €57.6 million in taxes and dividends to government in the financial year 2017.

At peak employment in 2015, some 1,200 people were employed in Peat Production alone.⁴ According to an Indecon analysis, this generated €85.8 million in turnover with a Gross Value Added of €27.9 million. Bord na Móna also supports economic activity in the Midlands indirectly: through activity generated in the supply of goods and services and from the additional demand created by the wages of Bord na Móna workers.⁵

² Bord na Móna Annual Report, 2018.

³ Brown Gold – A History of Bord na Móna and the Irish Peat Industry (Clark, 2010).

⁴ Peat, Bord na Móna website (Bord na Móna, 2018).

⁵ Issues in estimating the employment generated by energy sector activities. (Bacon and Kojima, 2011).

Estimates of these indirect effects include some €65.4 million in turnover, €35.4 million in Gross Value Added and an additional 1,384 full-time equivalent jobs in 2016.⁶ This represents a substantial contribution to aggregate activity and employment in one of the most economically deprived regions in the country. By 2027/8, these jobs will all be phased-out.

The Transition from Peat Production

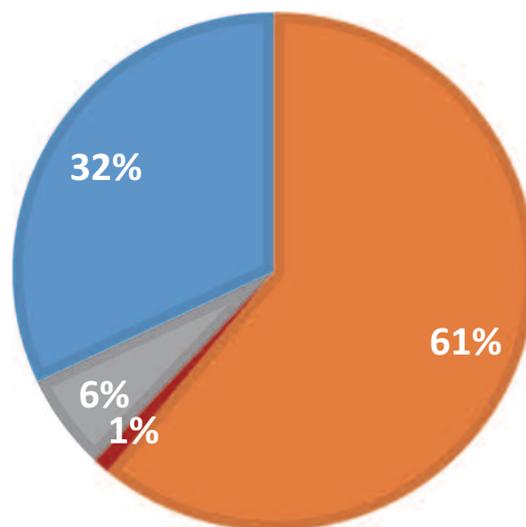
In 2016, the Republic of Ireland had the third highest levels of greenhouse gas emissions per capita in the European Union, at 13.5 tonnes of CO₂ equivalent. This was over 55% higher than the EU28 average.⁷ Energy related emissions accounted for 61 per cent of total national emissions in the same year. The majority of this comes from transport and residential usage. Peat accounted for 8.8% of Ireland's energy related carbon emissions in 2016.⁸

Three quarters of peat emissions arise from electricity production, while most of the remainder derives from household heating. Electricity consumers have subsidised peat energy production through the Public Service Obligation (PSO) levy since 2001, which came to €115 million in 2016.⁹ Without the subsidy, energy from peat production is not viable.

Should Ireland fail to meet its emission targets, the government will face potential annual fines of up to €500 million, starting in 2020.¹⁰

Chart 1: Greenhouse gas emissions by source 2016

■ Energy Related ■ Waste ■ Industrial Processes ■ Agriculture



Source: Energy-related CO₂ Emissions in Ireland 2005-2016 2018 Report (SEAI, 2018)

Public Investment Should Drive the Just Transition

As examples from overseas demonstrate, the transition to a low carbon economy cannot be left to the whims of the market, but must be driven by a 'whole of government' approach, underpinned by a coherent strategic vision.

Bord Na Mona provides an opportunity to devise and hone a Just Transition template that can be applied across the wider economy, as required.

⁶ An Economic Review of the Irish Geoscience Sector undertaken by Indecon International Economic Consultants. (Geological Survey Ireland, 2017).

⁷ Greenhouse gas emissions per capita (Eurostat, 2018).

⁸ Energy-Related Co2 Emissions In Ireland 2005-2016 2018 Report (SEAI, 2018).

⁹ Environmental Subsidies and Similar Transfers 2016 (CSO, 2018).

¹⁰ Off target Ranking of EU countries' ambition and progress in fighting climate change (Climate Action Network 2018).

In terms of job and employment opportunities, the company should seek – through dialogue - to redirect as many employees as possible into **the green and renewable energy sectors**, in which it has the capacity to accelerate growth.

In addition, Bord na Móna could play a key role in accelerating the programme of **retrofitting of building stock**, in the Midlands region and nationally.

By supporting direct entry to that market Bord na Móna could prove invaluable in driving the process for meeting emissions targets and, ultimately, delivering major savings on energy consumption and cost.

To drive additional employment creation and meet critical emission target, **regional public transport should be significantly bolstered** through Bus Éireann, along with **enhanced broadband access** via the ESB.

Such initiatives will require government support and resources, with exchequer funds being made available in conjunction with funds from programmes such as the European Globalisation Adjustment Fund, to meet these ends.^[11]

Staff Numbers

The Bord na Mona 2018 Annual report states that the company employs approximately 2,000 staff, of which some 1,200 were engaged in peat production. The bulk of that number would be employed as general operatives, with some 180-200 employed at the craft grade.

The remaining staff are employed across a range of areas, including: finance, IT, clerical and administration, sales, power generation, resource and recovery and the developing renewable energy sector.

Investment & Job Creation

Investment in new, green industries will produce jobs through a number of channels. Alongside the employment impacts brought about by direct hiring in a new activity, investment also generates jobs indirectly by way of added demand. This can occur through goods and services provider activity, or through the added spending power of the newly employed.

While a transition will entail job losses in carbon intensive sectors, as in Bord na Mona - available research suggests that a Just Transition to a low-carbon economy is likely to result in net employment growth.^[12]

Critically, this will be a function of political decision-making and the level and direction of investment. Given rapid technological progress and a global economic and political landscape in constant flux, estimating the precise employment returns on any investment is difficult. However, there is an available body of credible research which attempts to do so.

Under this framework, the expected return on a **€1 billion investment in solar** is approximately **18,853 new jobs**, with **25,187 new jobs** created for the same investment in **wind energy** and **26,872 new jobs** resulting from a **retrofit programme**.^[13]

In addition, research in the US estimates that €1 billion in annual spending on **public transport** supports an average of **22,000 jobs** (direct and indirect).^[14]

Investment in broadband infrastructure would also have a positive impact on employment through supporting mobile IT workers and local businesses. The presence of new industries in the region (and elsewhere) should provide the basis for further employment in a virtuous circle, as activity increases. This should result in a sustainable improvement in living standards in the Midlands and throughout the country.

¹¹ Dáil Debates, Thursday 25 October 2016.

¹² ETUC: A Guide to Just Transition https://www.etuc.org/sites/default/files/publication/file/2018-09/Final%20FUPA%20Guide_EN.pdf

¹³ National Roads Authority (2013) The Employment Benefits of Investment Projects.

¹⁴ American Public Transportation Association (2014) The Economic Impact of Public Transportation Investment: 2014 Update.

Research suggests that €1 billion spent on **broadband infrastructure** would return approximately **28,608 jobs**, mostly through these indirect channels.^[15]

Employment Effects per €1 billion invested

Note: *indicates jobs generated from outlay of 1 billion US dollars

Sector	Jobs Generated	Sources
Solar	18,853	Heintz et al. (2009a,b)
Wind	25,187	Heintz et al. (2009a,b)
Retrofits	26,872	Houser, Mohan, Heilmayr (2009) Heintz et al. (2009a,b)
Broadband	28,608	Atkinson et al (2009) Liebenau et al (2009) DeVol & Wong (2010)
Public Transport	21,800*	Weisbrot et al. (2014)

Renewable Energy Generation

The importation of energy equals money flowing out of Ireland. Energy is an input cost in everything we produce and consume. Steady supply and self-reliance is conducive to economic growth. The fact that hefty fines may be imposed on Ireland in the near future, as a consequence of our failure to meet agreed emission targets, simply strengthens the economic case for large-scale investment.

Given our natural resources of wind, sun and tidal energy and ongoing technological developments in these areas, it should be the goal of every Irish government to become an energy exporter in the not-too-distant-future.

Bord Na Mona has already developed capacity and experience in windfarms and is at the initial stages in solar. With the appropriate supports, it could accelerate the rollout of energy production through these green technologies.^[16]

1. Wind Energy Production

The SEAI has estimated that onshore wind could generate **up to 4,400 net jobs to 2020** through direct employment, with more created through the supply chain.^[17]

Given recent progress in onshore wind energy technology there is plenty of room for growth – especially in the Midlands where Bord na Móna holds large land banks in sparsely populated areas. To meet emissions targets the State needs to take an active role in facilitating the acceleration of growth in this area.

This could be achieved through increasing resources available to Bord na Móna, or through guaranteeing a **higher price for wind energy**. This is generally achieved via a subsidy, which ensures a minimum price for electricity - such as the Renewable Energy Feed in Tariff (REFIT) or the new Renewable Energy Support Scheme (RESS).^[18]

Existing staff **could retrain and be redeployed**, especially those in supportive administrative roles, in order to expand capacity in this sector.

While there has been strong negative community reaction to onshore wind facilities, the State could pursue models that tie the economic benefits of energy production to localities.^[19]

¹⁵ National Roads Authority (2013) The Employment Benefits of Investment Projects.

¹⁶ See Bord na Mona <https://www.bordnamona.ie/company/our-businesses/powergen/solar-energy/>.

¹⁷ A Macroeconomic Analysis of Onshore Wind Deployment to 2020 (SEAI,2015).

¹⁸ Feed in Tariffs Ireland ENERPOWER website.

¹⁹ A just transition to a low-carbon economy (IMPACT, 2017).

In Denmark, many areas operate community owned generation projects, which provide employment, green energy and revenues that they subsequently distribute among their local membership.^[20]

These projects have proven sustainable and have helped Denmark achieve some of the highest rates of renewable energy production and energy security in the world.^{[21][22]}

Existing semi-state and private companies - in conjunction with local communities – could experiment with models of ownership/ equity stakes to achieve better community support.

Access to finance and a supportive legislative environment are two of the main barriers to growth in these forms of enterprise.^[23] An accommodating environment in this sector could also help support growth in community-owned solar energy production.

2. Solar Energy Production

Ireland has a 'late-mover' advantage in solar energy as the technology has progressed exponentially over the past decade and costs have fallen dramatically. The production of energy from utility-scale solar plants has seen an 86% decrease in costs since 2009, with **one megawatt-hour of electricity now produced at around \$50 for solar power**. The equivalent cost for electricity production using coal is around \$102.^[24]

In April 2017, Bord na Mona and the ESB announced details of a joint venture in solar power generation and provision, which aims to provide renewable energy to power the equivalent of 150,000 homes (579 megawatts).

The joint venture will operate at four 'solar farms' in Roscommon, Offaly and Kildare. The planned solar farms are to be located on peatlands that have been fully harvested. Each company has invested an initial sum of €5 million in the venture. This initiative should now be scaled up as part of a wider Just Transition strategy, for the Midlands and surrounding regions.

To further develop capacity in this area, Bord na Móna could deploy Solar PV (photovoltaics) at scale quickly, relative to other technologies.^[25]

Other countries have installed significant ground mounted projects in the space of several months. For instance, China doubled its solar capacity in 2016^[26] and Kamuthi Power station in India was constructed over 10sqkm in 8 months and provides energy for 750,000 people.^[27]

In addition, the State could promote the uptake of Solar PV by firms and households to reduce energy bills. Domestic production using Solar PV is becoming more price competitive, but government could stimulate take-up with additional support.

Installation on the roofs of commercial and residential buildings could reduce the aggregate energy demand of homes and businesses on the national system. However, commercial/domestic and ground mount installations will require direct policy support to ensure widespread deployment.

A **levy to ensure a guaranteed feed in price** for excess energy produced by households or firms is one possible option. This could be introduced through upcoming or existing schemes such as the new RESS tariff.

This would ensure that renewable energy provision could compete with relatively cheap, existing energy sources. In many cases, this support is time bound since the costs of energy for these firms tend to decline over time, until support is no longer needed.

²⁰ Communal Ownership drives Denmark's wind revolution Green Economy coalition website, 20th September 2017.

^{21/22} Denmark: energy and climate pioneer – Status of the green transition (Danish Ministry of Energy, Utilities and Climate, 2018).
Global Energy Architecture Performance Index Report 2017 (World Economic Forum, 2017).

²³ Alternative Models of Ownership (Labour Party, 2017).

²⁴ Levelized Cost of energy 2017 Lazard website, 2nd November 2017.

²⁵ Photovoltaics refers to the conversion of light into electricity.

²⁶ China's solar power capacity more than doubles in 2016 Reuters website, 4th February 2017.

²⁷ The world's biggest solar power plants power technology website, 15th August 2018.

A recent report from KPMG estimated the potential cost of these tariffs under various levels of policy support. Under a **modest support scenario**, it found the cost would reach a maximum of €60 million annually, amounting to a levy of approximately 1% on domestic retail prices.

In their **high support scenario**, the aggregate levy would never exceed €100 million. Thus, the **diversion of the current PSO levy** from peat would more than cover the projected required support levels (see Table 1 below). In fact, the diversion of the existing levy could provide the initial boost the industry needs to begin widespread installation and deployment.

Table 1: PSO Levy for Peat 2016 relative to High Support Scenario Solar PV

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
PSO Levy: Peat													
115	115	115	115	115	115	115	115	115	115	115	115	115	115
KPMG High Level Support Scenario: Solar PV													
9	29	49	65	78	86	91	92	90	90	88	87	76	70

Sources: *Environmental Subsidies and Similar Transfers 2016 (CSO,2018)* and *KPMG estimates for High support scenario in Table 2 from A Brighter Future: The Potential Benefits of Solar PV in Ireland (KPMG,2015)*

The KPMG report estimates that between 2017 and 2030 solar energy production in the East and South of the country could return **between €1 and €3 billion in gross value added** to the Irish economy, depending on the level of support provided.

It found that support which approximates to the current level of the PSO levy for peat could **generate as many as 10,900 jobs nationwide** in this sector.^[28]

The Midlands has clear advantages in this respect – given the levels of solar energy it receives and the availability of cheap land relative to urban areas. This could present a considerable opportunity for Bord na Móna Powergen to invest in high value activities with considerable employment potential.

Given relatively modest tariff supports, the government would receive €0.8 billion in tax revenues.^[29] Ireland would also benefit from security of supply in a scenario where we imported 69% of energy needs in 2016.^{[30][31]}

Increased Solar PV capacity would also complement existing renewable generation since the majority of output tends to happen in periods of low wind energy production.^[32] Ireland could also develop complimentary capacity in other economic sectors through the supply chain into Solar PV energy generation, which incorporates a number of high value added sectors including Research & Development, Design, Maintenance and Software Support.^[33]

3. Green Retrofit for Building Stock

It is cheaper to save energy than to buy it. Existing retrofit programmes help reduce costs to households and support a significant number of jobs.

According to the SEAI, Home Energy Savings Schemes offer significant net benefits to society. Every euro spent on the scheme offers five euro in returns through reduced energy costs. Participating households can expect to save an

²⁸ A Brighter Future: The Potential Benefits of Solar PV in Ireland (KPMG,2015).

²⁹ Ibid.

³⁰ Energy in Ireland 1990-2016: 2017 Report (SEAI, 2017).

³¹ This figure represented a significant drop from average levels of 85-90 per cent from 2006 to 2015, though this is largely a result of increased indigenous gas production in Ireland. While cleaner than traditional fossil fuels in emission terms, natural gas use should be curbed in light of the challenge of climate change.

³² A Brighter Future: The Potential Benefits of Solar PV in Ireland (KPMG,2015).

³³ Ireland's Solar Value Chain Opportunity (SEAI, 2017).

average of €450 annually and reduce their emissions by approximately 1.5 tonnes of CO₂ equivalent. The Small and Medium Enterprise Programme also offers significant net benefits according to the SEAI, along with average business savings of 10 per cent in the first year.^[34]

The Better Homes Scheme (which succeeded the Home Energy Savings Scheme) has provided grant aid to over 200,000 homes.^[35]

Despite these benefits, existing supports have been limited and a significant number of homes are highly energy inefficient. Improving energy efficiency of the built environment is a stated central objective of Ireland's approach to meeting climate change targets and the most cost-effective way of meeting those targets^[36].

Over **one million older homes could require deep retrofits**, and the SEAI estimates that this could add €35 billion to the Irish economy up to 2050.^[37]

As much as 98 per cent of the national stock may have an energy rating below A level and over half the housing stock has a rating of D1 or lower.

As many as **100,000 households in Longford, Westmeath, Laois and Offaly alone** could benefit from a move to A rating. A three-bed semi-detached house could save as much as €1,530 a year moving from a D2 to an A3 rating, reducing emissions by over 75%.^[38]

This represents a significant opportunity to improve health and well-being for the occupants of households, particularly the significant numbers suffering from energy poverty in Ireland, who made up as much as 28 per cent of households in 2015^[39].

This is particularly salient for those who have used used peat as a cheap fuel source.

Bord na Móna is suitably positioned to enter this market – contingent on the level of support from government and feasibility appraisals. Options include a major investment push for Bord na Móna to develop capacity in the retrofitting of buildings as part of a state-led programme.

This would begin with the deep retrofitting of the entire public building stock, inclusive of the roll out of roof solar panelling.

Rather than forcing redundancies, Bord na Móna could offer staff a career progression path based on retraining in the various skillsets required for retrofitting buildings, as part of an overall state-led programme to improve energy efficiency in the building stock.

The company could also play a lead role in a canvassing programme to identify retrofitting needs in Midlands communities and providing information on costs, grants and subsidies to encourage take-up.

In Belgium, for instance, key trade unions and employers collaborate in the development of training courses for construction workers for 'green buildings' and retrofitting.^[40]

Current commitments within the National Development Plan include €4 billion in exchequer funds - between 2018 and 2030 - to achieve a "step change in energy performance in the residential sector."^[41]

Increasing investment to subsidise retrofitting produces a net return not just to households but also to the Exchequer^[42].

³⁴ Economic Analysis of Residential and Small-Business Energy Efficiency Improvements (SEAI,2011).

³⁵ Better Energy Home Statistics, SEAI website.

³⁶ Draft National Mitigation Plan March 2017 (Department of Communications, climate action & development, 2017).

³⁷ Up to a million Irish homes need a Deep Retrofit to boost energy efficiency SEAI website, 21st June 2017.

³⁸ Figures reference the ESB report available: Ireland's low carbon future – Dimensions of a solution (ESB,2017).

³⁹ Bottom-up analysis of fuel poverty in Ireland (Department of Communications, climate action & development, 2015).

⁴⁰ Just Transition: A Business Guide (Just Transition Centre 2018).

⁴¹ Project Ireland 2040 National Development Plan 2018-2027 (Government of Ireland, 2017).

⁴² From Grants to Finance: How to Unlock Home Retrofit Investment (Curtin, 2014).

Greater funding for higher subsidies will accelerate take up and incentivise 'deeper' retrofits (which augment energy ratings to a greater degree) over relatively 'shallow' ones where significant upfront costs act as a barrier^[43] ^[44].

This would entail a continuation of the grant system with higher grants to lower income households alongside subsidised finance for other groups and funding for local authorities to roll out retrofitting in public housing stock (only €35 million is available for 2018^[45]).

A major retrofit programme **could generate between 12,500 and 18,750 jobs in residential retrofits**, many of which could be created in the Midlands.^[46]

Other Measures

Better Transport for Regional Development & Emissions Reduction

Given current rates of car ownership and projected population growth, the ESRI estimates that there will be 3 million private vehicles on our roads by 2050, one million more than today.^[47]

Transport is the single biggest sectoral contributor to energy related CO₂ emissions. Without serious investment in public transport, meeting targets will be extremely difficult.

While current plans envisage that electric vehicles will replace this fleet, the emissions reductions associated with electric car use will depend on the carbon intensity of the generated electricity as well as the total amount of electricity used. These additional vehicles will also place pressure on existing infrastructure and increase commute times for citizens, with negative implications for quality of life.

Investment in public transport would create employment and reduce fossil fuel consumption.

Irish government policy priorities are driving growth in personalised transport with less than half (€8.6 billion) of the €19.7 billion budget of 'linking our cities and regions' scheme earmarked in Project 2040 for public transport.^[48]

The government directs the rest towards roads infrastructure. The department of Transport, Tourism and Sport spent €3.6 billion in 2008 compared to a budget of just €2 billion in 2018.^[49]

As a percentage of both revenue and GDP, this is a significant decrease and a clear statement about policy priorities. National strategy to meet targets has not given enough attention to reducing transport related emissions.^[50]

Policymakers should recognise the positive externalities of public transport for long-term economic and social stability. The need to avoid fines due to missed targets makes the economic case even more robust.

While the government has identified Athlone as a target regional town for development in the National Planning Framework, the National Development Plan does not mention public transport development for Athlone or the Midlands.

Almost 1 in 5 workers in the Midlands work outside of their own town, elsewhere in the Midlands. In Tullamore and Longford, it is closer to 1 in 4. Less than 10% of workers in the entire region use public transport.^[51]

A more ambitious national public investment programme, with added focus on developing public transport in second tier cities towns (such as Athlone) should be a priority and be reflected in official funding. Athlone's connectivity with surrounding areas should reflect its stated position as a regional urban hub.

An expanded reliable and frequent Midlands bus service would create employment, reduce dependence on imported energy and support the drive to meet emissions reduction targets, thereby avoiding fines. It would also

⁴³ A just transition to a low-carbon economy: Implications for IMPACT and its members (IMPACT, 2017).

⁴⁴ From Grants to Finance: How to Unlock Home Retrofit Investment (Curtin, 2014).

⁴⁵ Local Authority Housing Maintenance Dáil Éireann Debate, Tuesday – 16th January 2018.

⁴⁶ This is based on an estimate that 50 to 75 per cent of retrofit costs are made up of labour costs with an average wage of €40,000 per job. EHECS data indicate average construction wages are close to this value in 2018.

⁴⁷ Demographic and Economic Forecasting Report: National Transport Model, Volume 3 (ESRI, 2014).

⁴⁸ Project Ireland 2040 – Linking People and Places (Department of Transport, Tourism and Sport, 2018).

⁴⁹ Transport Trends – An Overview of Ireland's Transport Sector (Department of Transport, Tourism and Sport, 2015).

⁵⁰ What is stopping us increasing our renewable energy ambition? Energy Ireland website.

⁵¹ Submission to Consultation on Investing in our Transport Future: A Strategic Framework for Investment in Land Transport (Border, Midland & Western Regional Assembly, 2014).

support regional spatial objectives and by extension, the wider economy, improving the quality of life for residents and reinvigorating communities.^[52] As already mentioned, the labour force participation rate in the Midlands is the lowest of any region in Ireland, as is disposable household income. At the same time, most households have no viable option but to own a car.

An augmented **regional Bus Éireann service, with Athlone at its centre** and expanded and improved links to surrounding towns such as Roscommon, Longford, Lanesborough, Mullingar, Tullamore, Edenderry, Portlaoise, Birr and Ballinasloe would provide the option for many to reduce currently prohibitive transport costs (most of the value-added of which leaves the country) and have more money to spend locally.

This may require a **new Athlone bus depot** and/or significant capital investment to upgrade the current one. In addition, government has announced a deadline for discontinuing purchases of diesel vehicles for public transport in line with EU commitments with a **Green Public Transport Fund** to manage the switch to less carbon intensive energy alternatives. Its location makes Athlone the perfect location for a new bus depot which could provide logistical support in the additional undertaking of switching the Bus Éireann fleet to hybrid/electric buses.

Broadband

In the long-term, development policy should prioritise Ireland's reputation for digital leadership in Europe. Lack of broadband coverage is an impediment to competitiveness and economic growth. Ubiquitous national broadband coverage is central to a knowledge-intensive economy and key to taking advantage of the digital transformation.^[53]

Ireland ranks 37th in the world for fixed broadband download speeds (between Thailand and Poland) and 53rd in average mobile download speeds (between Portugal and Armenia).^[54] The percentage of households in the Midlands with fixed broadband is the lowest of any region in the country (Table 3). The Midlands rank third last in mobile broadband.^[55]

Telecommunications infrastructure is a strategic national asset. The current state of the broadband market can only be described as market failure and the current Public-Private-Partnership approach likely to result in a monopoly, which the state does not own. **The National Broadband Plan (NBP) as it is cannot be justified on economic grounds.** Issues around transparency remain also. A financial appraisal of the process is not publicly available.^[56]

The ESB has the capacity to begin investing in and rolling out broadband using infrastructure already in place.^[57]

This would be off balance sheet and even save €500 million earmarked to subsidise the National Broadband Plan. The ESB also paid dividends to the State of €1.5 billion between 2008 and 2017. Government should divert these dividends into investment in national broadband infrastructure.^[58]

The Midlands has the lowest levels of FDI of any region in Ireland.^[59] In addition, 45% of SME's in the region do not have access to high-speed broadband.^[60] Improved high-speed broadband access will not only improve the Midlands viability as a region for Foreign Direct Investment it will also assist local businesses in efficiency gains, adapting modern technologies, market research, advertising etc. It will also provide the minimum required infrastructure for start-up firms.

Improved broadband in the Midlands would also likely impact positively on unemployment and low labour market participation rates, allowing individuals to work remotely. For displaced workers, better access will mean more options in terms of upskilling and retraining, much of which is moving on line. This would have the added benefit of making the region a more attractive place to live, reinvigorating communities and ease pressure on social and physical infrastructure in Dublin.

⁵² Building a Better Future: It's Everyone's Business – Ibec submission to the public consultation on the National Planning Framework (IBEC, 2017).

⁵³ 2019 Pre-Budget Submission: A Competitive Open Economy, Innovating for Prosperity (American Chamber of Commerce, 2018).

⁵⁴ How does Ireland rank globally for broadband and mobile speed? Not great Silicone Republic website, 10th August 2017.

⁵⁵ Information Society Statistics – Households 2018 (CSO, 2018).

⁵⁶ Now inevitable that public money will be wasted on rural broadband, Irish Times Website, 29th November 2018.

⁵⁷ ESB should build broadband network in co-operation with other State utilities, TASC website, 19th October 2018.

⁵⁸ Ibid.

⁵⁹ Bord na Móna Annual Report (Bord na Móna, 2018).

⁶⁰ Building a Better Future: It's Everyone's Business – Ibec submission to the public consultation on the National Planning Framework (IBEC, 2017).

The 'climate-smart countryside' pilot is testing whether homes and farms can become net exporters of electricity. The roll out of smart-meters, smart-homes and smart-grids is dependent upon developed mobile broadband coverage and is part of the National Planning Framework.

Table 2: Households with internet access classified by type of internet access and characteristics of the household, 2018 (% of households)

	Fixed broadband ¹	Mobile broadband ²	Narrowband connection ³	Type of connection unknown	Unweighted sample
Border	69	55	1	0	600
Midlands	67	49	1	0	283
West	71	46	3	1	479
Dublin	90	55	1	0	1,191
Mid-East	86	61	1	0	329
Mid-West	78	63	0	0	438
South-East	82	40	1	1	440
South-West	82	50	0	0	650

¹ Examples include e.g. DSL, ADSL, VDSL, cable, optical fibre, satellite, public Wi-Fi connections.

² Connection via mobile phone network with minimum 3G. e.g. UMTS, using (SIM) or USB key, mobile phone or smartphone as modem.

Athlone 'Green Centre of Excellence'

The National Development Plan highlights the need for non-Dublin centric regional plans to develop the country as a whole. It identifies Athlone as the target regional urban centre for the development of the Midlands in Project 2040.^[61]

Athlone is home to some cutting-edge companies and the Institute of Technology (AIT). Investment in a new STEM (Science, Technology, Engineering and Maths) building in AIT is part of the National Planning Framework, with a stated goal to support the life sciences cluster in the Midlands and drive economic development in the region.^[62]

AIT would be the most convenient location for **Bord Na Móna workers to utilise retraining funds to upskill**. AIT and other educational centres in Ireland **could be key nodes in a national innovation system with a key strategic goal to advance green technologies**. The development of solar power in Ireland, for example, could provide an opportunity for Irish firms to integrate into new supply chains and generate new, high skilled and highly empowered employment. Government should increase its financial support to R&D and Education to fully avail of these opportunities.^[63]

Innovation & New Opportunities

An *entrepreneurial state* could shape and create new markets in the green economy.^[64]

For example, offshore wind remains underutilised as an energy resource, offering the potential to supply a significant proportion of Ireland's renewable energy needs. Ireland possesses some of the world's best offshore wind resources,

⁶¹ Project Ireland 2040 National Planning Framework (Government of Ireland, 2017).

⁶² Project Ireland 2040 National Development Plan 2018-2027 (Government of Ireland, 2017).

⁶³ Innovative Competence, How does Ireland do and does it matter? (McDonnell, 2017).

⁶⁴ The Entrepreneurial State (Mazzucato, 2013).

and the technology has the potential to meet up to two thirds of the 4.5 GW of additional renewable capacity target in Project 2040.

This could be supported by the updated renewables tariff to ensure that energy production in the sector is maximised.^[65] This would echo the strategy pursued by Denmark in relation to wind power generation, where the country was able to specialise in wind turbine technology and become a net energy exporter.^[66]

The government could also consider a public banking system to augment regional capacities and drive new firm formation in seldom-served areas of the country. Public institutions along the lines of Germany's *Sparkassen* could provide credit to new small and medium sized enterprises to enter new sectors arising from the shift to a greener economy.^[67]

A Just Transition will provide opportunities to develop new, inclusive enterprise forms in which workers and/or members participate in management. Community owned cooperatives have been demonstrably successful in providing affordable green energy and secure supply in Denmark. However, much of the literature on the topic stresses the need for a supportive legislative environment and access to finance for these forms of enterprise to flourish. Examples are few in an Irish context, though the experience of the Templederry Community Windfarm in Tipperary could provide a template for further expansion.

The success of the project was contingent on an independent sustainable energy group, Tipperary Energy Agency, founded by local authorities and Limerick I.T. The agency has helped drive several other green initiatives.^[68]

Worker owned cooperatives are significant actors in economies elsewhere in Europe and evidence suggests that these forms of enterprise have higher productivity and more equitable wage distributions than traditional firms.^[69]

However, specific legislation, which recognises and is supportive of these forms of enterprise, especially when it comes to accessing capital, is key to helping these enterprises grow. Retrofitting is just one example of a market in which worker cooperatives could compete.

⁶⁵ A Great Leap Forward? Offshore Wind in Ireland (Cornwall Insight Ireland, ORE Catapult and Pinsent Masons, 2018).

⁶⁶ A Comparative Assessment of Wind Turbine Innovation and Diffusion Policies. Historical Case Studies of Energy Technology Innovation (Neij & Anderson, 2012).

⁶⁷ The challenges facing rural communities and how these can be met through the various social schemes and otherwise – Irish Rural Link Opening Statement to the Oireachtas Committee on Arts Heritage Regional Rural and Gaeltacht Affairs (Irish Rural Link, 2016).

⁶⁸ Ireland's Transition to a Low Carbon Energy Future (Dept of Communications, Energy & Natural Resources 2014).

⁶⁹ What do we really know about worker co-operatives? (Pérotin, 2016).

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