

THE ENERGY REVOLUTION



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Cover: Solar energy vs. Fossil Fuel: Sunset over the electricity generating station
at Poolbeg, Dublin.

Photo: www.davewalshphoto.com

This document sets out our aims in relation to energy policy in terms of growing our economy and setting us on the right road to a low-carbon economy. The task includes:

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THE ENERGY REVOLUTION

Executive Summary

The Labour Party is setting out its ambition for Ireland to capitalize on the significant opportunities that arise from what we call the ‘energy revolution’. We believe that, with political leadership, there is real potential for job creation from the cleantech industry and renewable sector. This move to an innovative, low carbon society will have the twin benefits of addressing our over-reliance on fossil fuels and our capacity to meet international climate change targets.

We propose:

- Legislation based on the recently published ‘Climate Change Law’ which had the all-party support of the Joint Oireachtas Committee on Climate Change and Energy Security.
- An Office of Climate Change and Renewable Energy under the auspices of the Department of the Taoiseach as the driver for Ireland meeting its climate change commitments.
- A minimum of 50 per cent green public procurement rising to 100%.
- A major National Insulation/Retrofit Scheme.
- The need for a “one-stop-shop” for energy service providers to facilitate homeowners to undertake comprehensive retrofits.
- Regulatory certainty for businesses and service providers in the energy efficiency sector by establishing a mandatory minimum BER of C1 for all houses at the point of sale or rent, effective five years from the date of announcement.
- A requirement for all dwellings occupied by those in receipt of rental allowance to meet a minimum BER standard within 18 months.
- To enact the Fuel Poverty and Energy Conservation Bill.
- A targeted approach to attract EU funding and FDI in niche areas with the highest potential is important.
- The creation of a Wind Energy Coordinator role.
- Geothermal legislation.
- The development of energy co-operatives.
- Teagasc to be linked in with Sustainable Energy Ireland and other energy agencies creating a One Stop Shop.
- The creation of carbon-neutral green energy business parks.
- A target of 350,000 electric vehicles on Irish roads on sale by 2020.
- A public commitment to continued funding for R&D.
- Measures to address the skills shortage in science and engineering.

Funding:

- Climate Change Dividend Fund.
- Adjustment in current oil and gas exploration licences.

Job Potential:

- 30,000 direct construction sector jobs with additional indirect and induced jobs.
- 10,700 jobs in the wind energy sector, including more than 7,000 in the construction sector.
- 3,700 new clean energy jobs in Ireland will be created by the ESB.
- 300 new clean energy jobs announced by Bord na Móna.
- 100 permanent jobs from the creation of one geothermal plant.
- 20,000 jobs in ocean energy.
- 5,000 jobs in biofuels and afforestation.
- 8,000 jobs in micro-generation.
- 5,000 jobs in biomass.

The Labour Party stands for a new Programme for National Recovery that is *“underpinned by five pillars. The first encompasses getting people back to work, keeping people in employment and providing training and education for those who have lost their jobs.”*

Eamon Gilmore T.D., Dáil Éireann, 3 November 2009.

THE ENERGY REVOLUTION

Introduction

Energy is a key to our economic recovery. As reliance on fossil fuels becomes increasingly unsustainable the transformation towards renewables is inevitable. The question is where will Ireland be positioned in that energy revolution?

Labour is committed to ensuring that the drive towards a low-carbon economy becomes a priority. Instead of lagging behind others, Ireland can take a lead.

We can put Ireland back to work and tackle the twin threats of security of supply and climate change through supporting the renewable jobs sector; energy efficiency measures; research and development; innovation and sustainable infrastructure.

The energy revolution requires a sustained focus on clean-tech jobs. It provides a framework so that our economic growth can be kick-started while at the same time reducing our reliance on imported fossil fuels.

At present we import over 90% of fossil fuels for our energy needs. We can – and must - change our ways. We have strengths that should not be underestimated.

Ireland has an abundance of wind and wave energy. Geothermal energy is still under exploited as is the scope for more afforestation. Our people have shown time and again, a willingness to adopt new ways.

The examples of the plastic bag levy, the smoking ban, the improvement in VRT have worked because of a willingness of Irish people to change. Neither our natural resources nor public flexibility is the problem.

What is at issue is our capability to realize our potential. In essence there is a lack of political will to drive this new energy revolution. That is why Labour is publishing this document.

It is a blueprint for action; to provide employment; to enhance environmental quality and health; reduce waste and energy consumption; to provide research and development opportunities and develop jobs in the clean energy sector.

1. Climate Change Commitments and Energy Security

Ireland's international commitments are to reduce our Greenhouse Gas emissions (GHG) by 20% by 2020 and are likely to be increased to 30% by 2020 and to 85% by 2050.

Most of our GHG emissions come from Transport 20.8%, Agriculture 26.8% and Energy 21.5%.¹). However, from 2013, energy sector emissions and those from other sectors included in the Emissions Trading Scheme (ETS) will be addressed at EU level. This leaves the task for Government to reduce emissions in Agriculture, Transport and Heating (in homes and businesses) by 20% by 2020.

From 2013 the sectors covered by the ETS (energy, cement, steel, paper, glass and aviation plus possible future additions) will be addressed in an EU-wide framework removed from national competency. The government's emissions reduction obligation will relate to the "non-ETS" sectors (agriculture, transport and (essentially) heating and cooling in homes and buildings). This covers about 70% of projected total national emissions in 2020 and it is this amount that needs to be reduced by 20% (and potentially up to 30%). However, agriculture represents one-third of these emissions.

Agriculture accounts for approximately 33% of this residual amount of emissions. Because of the nature of Irish agriculture and the need to produce food it will be difficult to make a significant reduction in that sector. Consequently the real target to be achieved is a reduction of 30% from the Transport and Heating sectors. However, in Transport the transition towards electric vehicles is a longer term rather than immediate proposition. Thus energy use in heating must be the main focus of attention in the immediate term.

Energy, however, offers us enormous possibility for reductions and for jobs. The government has set the target of 40% renewables in electricity by 2020. Already Eirgrid and the ESB have adopted that target which we fully support.

To realize our commitments Ireland requires a sea change in how government, government departments and the private sector operate together.

To this end Labour strongly supports:

- Legislation based on the recently published Climate Change Bill which had the all-party support of the Joint Oireachtas Committee on Climate Change and Energy Security.²
- The setting up of an Office of Climate Change and Renewable Energy under the auspices of the Department of the Taoiseach as the driver for Ireland meeting its climate change commitments.

¹ EPA 2007 figures (latest available figures)

² http://www.oireachtas.ie/viewdoc.aspx?fn=/documents/Committees30thDail/J-limate_Change/Reports_2008/20091028.doc

Energy Security:

Ireland has the highest dependency on fossil fuels in the EU (over 85%). We import over 95% of natural gas supplies from the UK. This dependence on volatile imported fossil fuels results in higher transportation charges, which has an impact on electricity prices.

The cost of energy in Ireland is a serious competitiveness issue facing the enterprise sector during this difficult period for the economy. The provision of secure, sustainable renewable energy will position Ireland as a low carbon society, improve our competitiveness and ensure our energy security.

2. Cleantech Jobs

“Ireland has significant competitive advantage in the cleantech revolution. We are of a scale that allows us to innovate quickly, and we are already seen by many global companies as a potential test bed location for new technologies such as ocean energy and electric vehicles. Also, the nature of new cleantech solutions are exactly where Ireland’s enterprise strengths lie – information technology, software, sensors and communications, knowledge-led services. We are perfectly positioned to capture this leadership position. A third natural advantage is our renewable resources – we have huge wind and wave energy resources in particular, and we should be exploiting them to our advantage.”

Professor J. Owen Lewis Oireachtas Committee on Climate Change and Energy Security,
28 October 2009.

It is internationally accepted that renewable energy projects have the potential to create new employment and replace jobs in traditional industries that are unsustainable.

For example, in Germany the number of jobs in the renewable sector is now greater than in car manufacturing. We argue that initiatives aimed at taking advantage of these opportunities must be put in place immediately.

The low carbon opportunity:

Climate change offers a real business opportunity as well as a political challenge.

According to Forfás the global environmental goods and services sector is expected to be worth \$800 billion by 2015. There are real opportunities for Ireland’s economy to capitalize on the growth of the clean technology sector.

In order to capture the benefits of a renewable energy revolution, there must be a coordinated approach to maximizing our potential in this area.

It is acknowledged that Ireland could benefit from the development of new high value-added technologies and innovative solutions to address environmental issues - particularly in the ICT and clean-technology sectors.

Ireland is in a strong position to maximize on some of the environmental goods and services (EGS) sub sectors which have high export potential. These areas include renewable energies, clean technologies and processes and energy efficiency products and services.

We need policy and regulatory certainty in the various environmental sub-sectors, continuing public commitment to investment in environmental and energy oriented R&D, and development of sector specific skills. The planning process presents a major stumbling block and is preventing rapid progress. We need to develop a planning system that provides a high level of certainty

Environmental Goods and Services Sector:

In October 2008, Forfás identified the EGS sector in Ireland as being valued at €2.8 billion which it described as a conservative estimate excluding the knock on job opportunities. It estimated that up to 6,500 people were employed in this sector. There is significant room for growth.

However, an increase in research and development investment is essential to the identification and widespread application/ uptake of new and improved technologies relevant to the EGS sector.

Sustainable public procurement – the government must lead the way by specifying of environmental criteria in public tenders. This can significantly increase the market for EGS and provide spin offs through the whole product chain.

CASE STUDY: Bord na Móna

Earlier this year Bord na Móna announced the creation of 300 sustainable, clean energy jobs over the next five years. The jobs will be created in green energy, resource recovery and environmental solutions using innovative green technologies.

Over the next five years Bord na Móna has set its aim to transform itself from relying on peat to as a natural resource to a waste recovery and sustainable horticultural products provider.

Other goals set by Bord na Móna which will aid the Energy Revolution:

- Tons of CO₂ per MW hour will be reduced by 50%
- The dilution of peat products with green waste will be raised to 50%
- Diversion of waste from landfill will be raised to 80%
- Bord na Móna will be the market leader in organic waste recovery
- Bord na Móna will be the market leader in the UK and Ireland for sustainable horticultural products
- Bord na Móna will meet its target of providing 500MW of wind energy

“Ireland has the potential to be a world leader in green enterprise and technology, generating jobs and laying the foundations of economic resilience and prosperity for the 21st century. Our businesses and many others are already moving in this direction and are keen to make the leap to a low-carbon future.”

Irish Corporate Leaders Group on Climate Change

- The Labour Party will commit to 50% rising to 100% green public procurement, which will include setting energy efficiency and carbon standards for future procurement commitments.

3. Certainty for the Private Sector

The business community in Ireland is clearly in favour of a long term policy framework in order to provide certainty while they move to invest in low carbon technologies. In Britain it is worth noting that the business sector was a strong driver in securing climate change legislation. The need for certainty is paramount for companies making long-term investments in renewables and low carbon options. In the United States the more progressive companies have also come out in favour of legislation.

- We welcome the statement from the Corporate Leaders³ in Ireland urging the Taoiseach to act on Climate Change through legislation and to transform Ireland into a low-carbon society.
- The Labour Party has supported this call by publishing the Labour Party Climate Change Bill (13 January 2009). Through our rapporteur Liz McManus T.D. and working with other political parties there is now agreement on Climate Change Law as published by the Oireachtas Committee.
- We require a long term strategic approach from government that sets stable frameworks for businesses and consumers. Putting climate change targets on a statutory footing provides that certainty.

4. National Energy Efficiency Programme

Retrofitting

Energy efficiency tackles many problems at once. It addresses the significant problem of fuel poverty, competitiveness, security of supply and our carbon emissions. It is also an area that could see much of our unemployed construction workforce put back to work.

The Department of the Environment's Construction Industry Review and Outlook (Sept., 09) estimated that direct employment in the construction industry fell to 167,000 by the end of August, implying that 107,000 jobs were lost since 2007.

³ <http://www.foe.ie/documents/corporate-leaders-group/>

In Ireland, the retrofitting of existing building stock has been identified as one of the most promising opportunities for future investment. According to the Institute of International and European Affairs (IIEA) in its recently published 'Greenprint for a National Energy Efficiency Retrofit Programme' there are 1.2 million dwellings in Ireland in need of an energy efficiency retrofit, creating at least 30,000 direct construction sector jobs with additional indirect and induced jobs.

- A major National Insulation/Retrofit Scheme to leverage investment to reduce our national carbon emissions, reduce our national bill for imported fuel, and save householders money on their heating bills, while also creating employment and business opportunities for builders, architects, engineers, energy services companies, plumbers, electricians, the renewable energy sector, and the supply of green construction materials.
- A “one-stop-shop” for energy service providers to facilitate homeowners to undertake comprehensive retrofits is required.

Pay as you Save scheme

The introduction of an Energy Efficiency Obligation for energy suppliers can reduce overall carbon demand by the residential sector. Energy suppliers would be required to reduce energy demand through the provision of ‘whole house’ energy efficiency packages, either directly through certified contractors, or by contracting out the work to Energy Services Companies.

The minimum retrofit package offered would be to bring a property to a BER (Building Energy Rating) of C1. Financing for the package would be offered through the energy supplier/Energy Services Company via the Climate Change Dividend Fund, and would be repaid by the energy consumer through a ‘pay as you save’ mechanism on their energy bill.

- Create regulatory certainty for businesses and service providers in the energy efficiency sector by establishing a mandatory minimum BER of C1 for all houses at the point of sale or rent, and permitting long-term contract arrangements between energy service/supply companies and customers, effective five years from the date of announcement.
- Require all dwellings occupied by those in receipt of rental allowance to meet a minimum BER standard within 18 months.

5. Fuel Poverty

It is estimated that around 60,000 Irish households live in persistent fuel poverty and a further 160,000 live in intermittent fuel poverty. As the recession deepens that figure will grow. The problem is exacerbated by the fact that low income housing tends to be poorly insulated and inefficient in energy terms. Ireland has one of the highest numbers of excess winter mortality in Europe, a feature that is linked directly to poor accommodation.

In May 2008 Labour published the Fuel Poverty and Energy Conservation Bill which set out a strategic approach to tackling fuel poverty. While the Government did not act on it we argue that the imminent introduction of a carbon tax on a revenue neutral basis offers the best opportunity yet to embark on a targeted scheme to eliminate fuel poverty through fuel efficiency measures. By not wasting this recession we could make a permanent difference to the lives of people who, all too often, have to make the choice between buying fuel or buying food.

- The Labour Party would enact the Fuel Poverty and Energy Conservation Bill. These targets would form part of the National Insulation/Retrofit Scheme.

6. Harnessing Wind and Wave and Geothermal

Renewables are defined as products, systems and services for the generation and collection of energy from renewable sources such as biomass/bio fuels, solar, thermal, photovoltaic, wind, hydro, wave, tidal and geothermal sources. Examples include the manufacture of equipment, design, construction, installation, management and operation of renewable energy facilities, including microgeneration.

It is internationally accepted that renewable energy projects have the potential to create large numbers of jobs. We argue that initiatives aimed at taking advantage of these opportunities must be put in place immediately.

Government needs to set out a road map for each individual sector. The capabilities and needs of each sector vary and the menu of requirements need to be addressed in a systematic and specific manner. For example the problem of foreshore legislation specifically applies to off-shore wind while afforestation requires a shift of policy at EU level.

Renewables and ICT

There are also major opportunities in the integration of ICT and energy, linked to smart metering and the delivery of smart products (fridges, washing machines, dryers etc.) and electric cars.

Ireland can become a world leader in developing communications technology and services solutions that integrate renewable energy with controllable energy demand through the use of smart metering with smart grids and networks.

The strong ICT base which exists on the island of Ireland is a key selling point in this respect although the failure to provide good quality and fast speed broadband must be addressed.

Ireland as an island has comparative natural resource advantages and potential first mover advantage in wave and tidal energy. Government investment in new technologies will be a significant selling point in targeting potential global investors in the sector.

- A targeted approach is needed to attract EU funding and FDI in niche areas with the highest potential. ⁴

Interconnection

One positive development that we welcome is the creation of an All Island Electricity Market. Labour supports the further interconnection planned between Britain and Ireland and supported by the European Union. In the future it is likely that a European electricity market will develop with greater interconnection.

This context offers Ireland a superb opportunity to become an exporter of electricity from renewables while meeting our own indigenous needs.

Wind

On-shore wind is by far the most effective means to provide renewable energy without delay. The shift is already happening and the 40% target for renewables in electricity generation by 2020 will mostly consist of wind energy.

Eirgrid estimate that 36% of the 40% will be wind energy. The Irish Wind Energy Association commissioned a study that found that the island's wind energy sector is capable of supporting 10,700 jobs, including more than 7,000 in the construction sector, attracting more than €14 billion in investment.

It is estimated that only 35% of investment will stay in the local economy because the turbine manufacture and installation will go overseas. €4.3 billion is estimated to stay in the Republic.

Eirgrid has published its strategy GRID 25 for the development of the electricity grid.

- We now need specific targets including definite timelines.
- We recommend the creation of a Wind Energy Coordinator role. This person will co-ordinate day to day implementation between the grid development and industry concerns.

Offshore Wind

There has been ongoing concern about the failure of the Government to deal with delays and red tape surrounding off shore wind projects.

The Joint Oireachtas Committee on Climate Change and Energy Security has gone so far as to publish its own legislation (the Offshore Renewable Energy Development Bill 2009)⁵ to speed up the licensing process but inter-departmental wrangling appears to have blocked progress to the point of paralysis.

⁴ There will be approximately €6 billion made available under the ETS programme that provides 300 million allowances for use in carbon capture and storage and innovative renewable technologies.

⁵ http://www.oireachtas.ie/documents/committees30thdail/j-climate_change/press_release/20081216.doc

Meanwhile the Offshore Wind Association maintains that €4 billion of investment is available to exploit offshore wind potential. In our view a first priority needs to be the development of onshore as a more cost effective means of delivering on our targets. However, there is a need to provide a legal framework for offshore wind development to ensure that real progress is made.

Geothermal Energy

While small scale geothermal energy has been developed in Ireland, experience elsewhere shows that the potential for geothermal as a renewable energy sources is considerable. The Geothermal industry claims that one geothermal plant has the potential to heat 300,000 average three-bed homes. It will invest €50 million in the local economy, create 100 permanent jobs and reduce our carbon emissions by more than 500,000 tonnes per annum.

There is reluctance on the part of industry to invest in this area due to the lack of regulatory control.

■ Legislation to ensure the growth of geothermal potential is required urgently.

The Government has made vague promises but so far, there is no evident action and the working group set up to examine geothermal energy has yet to report.

Ocean Energy

In 2008 the Government announced a €26 million package for ocean energy supports. A year later only €1 million had actually been spent. The ocean energy unit now established within Sustainable Energy Ireland is a wise step in our view, but there is evidence that our best innovators in ocean energy are being attracted elsewhere because countries like Portugal have a head start.

It is worth noting that the first renewable energy company to test a tidal turbine (in the world) is an Irish company OpenHydro. It also worth noting that it has done so, not in Irish waters, but in the Orkney Islands with a grant from the Scottish executive.

Because of our island status no-one can doubt that we have the basics needed to exploit wave and tidal energy. Although it will require many years to realize it the potential is here. If we became a European leader in ocean energy, such a move would yield significant job numbers.

7. Micro-electricity Generation, Anaerobic Digestion and Biomass

According to research carried out by the IFA and the Western Development Commission incentivising micro-electricity generation in rural areas would add a further 8,000 jobs. A greater focus on bio-fuels could create 900 to 5,000 rural jobs with government support. ⁶

⁶ Read more: <http://www.irishexaminer.com/business/green-sector-creates-50-of-jobs-93130.html#ixzz0VFkU38Mx>

“Ireland could create 20,000 jobs by exploiting first mover advantage in the burgeoning ocean energy sector”

John McCarthy, Ocean Energy Inc.

Research in other countries shows that for every job created in the fossil fuel sector we can create 39 jobs in the wood energy sector.

The IFA also estimates that 40,000 hectares of farm forestry is ready for thinning. This forestry could produce 2 million tones of biomass which if converted to quality woodchip could have a market value of €150 million and heat 3,000 hotels and leisure centres.

The Wind Turbine Manufacturers Association in Denmark found that in the wind energy sector 22 jobs were created by each megawatt of installed capacity, five jobs are created in installing the turbine, and 17 in manufacturing.

Here, the IFA estimate 6,000 locations where farmers could establish micro wind turbines to meet demands of 32,000 households, reducing emissions by over 2 million tones of CO₂ over 20 years.

- Improved and streamlined planning processes required.

Biomass

Biomass can provide rural jobs and secure fuel supplies in this country while making significant reductions in our greenhouse gas emissions. In order to reach our targets set out in the Energy White Paper and EU Directives we will have to substantially increase our use of biomass.⁷

Investment in second-generation biofuel production technologies from residues and purpose grown energy crops is necessary in order to increase the sustainability of biomass as an energy source.

The IFA has suggested that there could be up to 5,000 jobs in biomass.

- We need an integrated biomass policy. The Departments of Agriculture, Environmental and Transport need to work together to provide stability in this sector.

Energy Co-operatives

- We propose the development of energy co-operatives. Community energy co-operatives would share ownership in renewable energy schemes; use local contractors for site development; link with credit unions.

⁷ 12% renewable heat – while not directly identifying biomass, nevertheless it is likely that biomass would need to contribute more than 90% of this target if it were to be realized.

- Teagasc to be linked in with Sustainable Energy Ireland and other energy agencies creating a One Stop Shop.
- Ireland should attract inward investment by allowing companies to enter completely carbon-neutral green energy business parks, in which all their heat, process steam and electricity would be derived from local sustainable sources.

Electric Vehicles

Ireland is an ideal test bed location for the transformation to electric vehicles. Distances are short, and comparatively speaking, the population is small. Considerable infrastructural development is needed but we have large operators like the ESB already advancing the case of electric vehicles.

At an international level new vehicles are being produced which offer exciting alternatives to existing vehicles.

CASE STUDY: ESB

Already the ESB has set out targets in its strategic plan to 2020. This includes major investments in renewable energy with the aim of cutting its carbon emissions in half within 12 years.

Its €22 billion investment plans will create up to 6,000 jobs between this year and 2013. 3,700 new clean energy jobs in Ireland will be created.

Specific projects which will result in the new jobs include:

- The roll-out of Smart Metering and the implementation of ESB's Smart Networks Strategy which will lead to 1,500 jobs by 2013.
- Novus Modus (ESB's new energy technology fund) has committed to a five year programme of investment in clean energy and energy efficiency (350 jobs). The fund has just invested 2.5 million in the Cork-based company, Nualight, which is creating up to 60 additional jobs locally.
- Electric vehicles (600 jobs) including the roll-out of the infrastructure to allow electric vehicles to be recharged.
- Working with Sustainable Energy Ireland, ESB will offer free home-energy efficiency surveys to 25,000 householders and subsequent support to allow them implement necessary measures.
- In order to alleviate the current severe shortage of electrical engineers, ESB will finance 50 apprentices each year for the next four years to allow them to achieve a third level engineering degree.
- Wind energy – 300 jobs.

What we need is a government with vision.

- We propose a target of 350,000 electric vehicles on Irish roads on sale by 2020.

Hydro

We welcome Eirgrid's consideration of large scale pumped storage scheme using hydro power. At present we have just one pumped storage facility at Turlough Hill. The move to increase our capacity in this area will enhance our ability to maximise our wind potential.

Nuclear

We consider that nuclear power is not an option for Ireland at present on financial, environmental or technical grounds.

8. Research and Development

“It is vital that Ireland fosters an innovation-driven culture in the environmental technologies area and a critical step in this process is ensuring that the right people and resources are in place.”

Dr. Mary Kelly, Director, Environment Protection Agency,
foreword to Innovation for a Green Economy, Environment and Technology: A Win-Win story.

The Energy Revolution will require a dual approach. On the one hand, government must put in place incentives and the appropriate regulatory frameworks to support clean tech jobs. On the other hand, and equally important, research and development of new technologies must be supported.

If we are to address the challenges of climate change, rapid and widespread deployment of renewable energy technologies is critical. The job potential that arises from investment in clean energy sector will be supported by a thriving research and development sector.

Continued investment in research and development of new energy technologies is essential.

- Coordination of all R&D activity in the field of climate change and renewable energy should fall under the remit of the Office on Climate Change and Renewable Energy, as stated in the Oireachtas Committee report into a Climate Change Law.
- a public commitment to continued funding for R&D

9. Skills Shortage

It is essential we ensure that the new clean tech sectors have the skilled workforces they need.

It was reported recently that according to a leading recruitment company up to 60% of

clean tech industry jobs had to be sourced from overseas due to a skills shortage here. There is a shortage of electrical engineers and wind-energy analysts in particular.

In educational terms, there are worrying trends emerging from the science and maths participation and achievement. In relation to physics and chemistry for the Leaving Certificate, participation rates are low, with 20% and 17% respectively. It is argued that the low uptake of these subjects at this level has a direct impact on the numbers of students going on to third level. This in turn leads to a shortage of supply of engineers and scientists.

Ireland is unique among 21 countries in the EU in not having science as a compulsory subject at lower- secondary level (Junior Cert.)

Students are poorly informed when it comes to career opportunities, arising from studying in this area. There are concerns over the number and employment opportunities in these areas and their job security.

- Provide training places to re-skill those who are unemployed and use the opportunity to develop skills essential to 'green' industries. There is a particular role here for the retraining of unemployed construction workers and trades people in green construction skills.
- Provide development opportunities to allow those with technical qualifications, in particular those in the engineering and electrical trades, to obtain Level 8 and higher qualifications.
- Increased apprenticeships and science and engineering graduate training programmes including 'sandwich' courses for students who may wish to join the industry.
- At least one mandatory science subject at Junior Cert level.
- Mentoring of school students by Engineers currently in the industry to encourage them to study it further.

CASE STUDY: MECHANICAL ENGINEERING STUDENT

“Many students are enthusiastic about renewables but maybe don't believe that it is a reliable long-term option as a career. They also think that Ireland has little to offer in terms of innovation and funding when compared with the US or Germany. It is a long and difficult course that requires technical study and analysis, which is not very appealing to the majority of students, especially as more and more students are snubbing maths and physics at school.

“It is also unclear to most applicants what a career in renewables would actually involve a graduate doing. If it is going on-site to test and maintain equipment, then this is very different to the idea of 'leading by design and innovation' that they are initially fed. They are told a lot about the future of the industry and the challenges it faces, but how many renewables engineers have people actually met?”

Dara, 24

- Recognition - i.e. the government to recognise 'Clean Engineering' or 'Environmental Engineering' as a profession and uses the term in official communications

10. Climate Change Dividend Fund

Provision is made for such a fund in the all-party Climate Change Bill 2009. It is designed as a source of funding to enable Ireland to achieve its EU and international obligations.

A Carbon Dividend Fund will be made up of:

- a portion of revenues from Carbon Taxes
- revenues from the auctioning of EU ETS allowances
- adjustment in oil and gas tax regime

The revised EU Emissions Trading System (ETS) comes into play in 2013. Auctioning will be the principal mechanism for allocation under the revised scheme, initially for the electricity sector and eventually for all. Ownership entitlement to the allowances under this scheme is allocated pro-rata to the member states although actual auctions will take place centrally. Approximately 88% of the total revenue will come back to each member state, on a pro rata basis. Member states may use the payback as it wishes although the relevant Directive recommends up to 50% be recycled towards emissions abatement.

- We propose the Climate Change Dividend Fund be established in order to support a National Retrofit Scheme; to tackle tackling fuel poverty and to encourage Research and Development.

Carbon Tax

The budget will contain a new carbon tax. The government has already stated that any carbon tax should be revenue neutral, a position we support. In the current climate, it is likely that a carbon tax will simply be a revenue raising tax.

- We propose revenue from this tax should be ring-fenced for retrofitting and measures to combat fuel poverty.

Oil and Gas

We propose a review of the tax regime relating to oil and gas companies.

While the government did introduce a new royalties and tax regime to govern new oil and gas exploration licensing rounds, they kept the old royalty-free rules in place for the fields that were already licenced. This includes the Shell project in Co. Mayo.

However, in reply to a Dáil question the government conceded that there were no constitutional, statutory or contractual rules that prohibited the new rules from applying to the existing fields rather it was a question of reputational damage. The Labour Party does not accept the logic of this situation.

- We propose that the current royalty regime be extended to cover to the Corrib gas field.

In Conclusion

It is clear that the greatest contribution the State can make to the creation of jobs in the energy sector is to construct a streamlined and up-to-date responsive, regulatory and statutory framework. This will enable both the private and public sector to grow and develop the extraordinary opportunities that are offered to us in the air, the land and the sea around us.

When we achieve that goal we can truly play a leading part in the global energy revolution.