DOWNLOAD PDF ASPECTS OF IRISH ENERGY POLICY

Chapter 1 : Wind power in the Republic of Ireland - Wikipedia

Today the ESRI launches a major report on Aspects of Irish Energy Policy. Building on the wide range of research undertaken by the Institute's Energy Policy Research Centre in recent years the report considers how Irish energy policy can best deliver a competitive and secure energy supply consistent with Ireland's environmental obligations.

Aspects of Irish Energy Policy Embargo: Wednesday 7 September, at Members of the Press are invited to attend a Press Briefing, to be held on Tuesday, 6 September at To ensure that increasingly expensive energy resources are allocated in an optimal manner it is essential that business and households should pay the full economic cost of energy: The counterpart to this prescription is the requirement that a secure energy supply should be delivered with maximum efficiency: The demand for energy, and for electricity in particular, will continue to rise quite strongly well into the next decade. Major investment in new electricity generation capacity and transmission is needed, particularly in light of increasing wind penetration. At the same time, Ireland is likely to increase its dependence on gas to supply its energy needs over the next decade and the government should consider strengthening the crucial gas transmission network. Fuel diversity and financial instruments both have roles to play in protecting Ireland against the risk of oil or gas price shocks. An all-island electricity market is likely to confer significant benefits on consumers, reducing the long-term cost of providing a reliable electricity supply below what it might otherwise be. The structure proposed for the all-island electricity market by the two regulators is likely to provide the best opportunity for securing a competitive supply of electricity for consumers on the island of Ireland over the next decade. To ensure adequate incentives to invest and to promote competition: The operation of the new All-Island market structure should prompt a significant closure of old inefficient plant and replacement by new plant, built by different operators. It should be allowed to replace some, but not all of this by new plant. Where possible, the ESB distribution and supply should move to buying in services on a competitive basis. Global warming is the single most pressing environmental issue facing energy policymakers. The EU emissions trading scheme, if suitably reformed should provide an appropriate instrument for implementing the Kyoto Protocol. However, as currently implemented by the EU it has some serious defects. Unless Ireland introduces a carbon tax for sectors not covered by emissions trading it will either miss its emissions reduction target or else the cost of meeting it will be excessive. Energy efficiency has an important role to play in reducing costs, increasing competitiveness and protecting the environment: Policies to promote energy efficiency have been directed mostly at the industrial sector, commercial and institutional sectors and at promoting renewable energy. Energy conservation in transport and by households is relatively neglected. The sensitive application of economic instruments would reinforce the benefits of regulations and would encourage the take-up of energy efficiency advice.

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Chapter 2 : Irish TIMES | University College Cork

Irish energy policy which culminated in the White Paper Irish Energy Policy and also the publication of a separate but identically titled report by the National Economic and Social Council in.

Paul Deane PhD Student: Alessandro Chiodi Project Partner: Maurizio Gargiulo Project Reference: The Irish TIMES research project has developed, calibrate, test and run a partial equilibrium energy system optimisation model for Ireland. Irish TIMES provides a range of energy system configurations for Ireland that will deliver projected energy demand requirements optimised to least cost and subject to a range of policy constraints for the period out to It provides a means of testing energy policy choices and scenarios, and predicting implications for the Irish economy prices, output, employment etc. It is being used to both examine baseline projections, and to assess the implications of emerging technologies and mobilising alternative policy choices such as carbon mitigation strategies. The widest current applications of TIMES are related to the analysis of policies designed to reduce greenhouse gas emissions from energy and materials consumption. Since the framework depicts individual technologies, it is particularly useful for evaluating policies that promote the use of technologies of greater efficiency in energy or materials, or the development and use of new technologies. This research provides the capability to answer questions on the energy sector and predict scenarios that wer not previously feasible in Ireland. A key challenge for Ireland is the overcoming the insufficient level of detail and robustness in national energy projections and energy-related emissions projections in order to effectively respond to the increasing complexity of policy decisions current pressing examples include separating policies and measures for emissions trading and non-emissions sectors, different scenarios for different assumptions regarding mitigation within agriculture, etc. The project is co-ordinated by Dr. The research builds on his work in energy trends analysis, energy forecasting, energy policy research and bottom up techno-economic modelling of energy demand and supply. Mathematical equations describe the relationships and interaction between the many technologies, drivers and commodities in Irish TIMES. The richness of the Irish TIMES model is that it optimises across all sectors of the energy system for the full horizon and thus captures the interaction between sectors. The model simultaneously solves for the least cost solution subject to emission constraints, resource potentials, technology costs, technology activity and capability to meet individual energy service demands. In this way Irish TIMES allows technologies to compete both horizontally across different energy sectors and vertically through the time horizon of the model. The TIMES software combines two different, but complementary, systematic approaches to modelling energy: TIMES is a technology rich, bottom-up model generator, which uses linear-programming to produce a least-cost energy system, optimized according to a number of user constraints, over medium to long-term time horizons. The PET model from which the Ireland sub-model was taken was calibrated with Eurostat as a base year. Model structure TIMES models encompass all the steps from primary resources through the chain of processes that transform, transport, distribute and convert energy into the supply of energy services demanded by energy consumers Loulou et al. On the energy supply-side, it comprises fuel mining, primary and secondary production, and exogenous import and export. Through various energy carriers, energy is delivered to the demand-side, which is structured sectorally into residential, commercial, agricultural, transport and industrial sectors. Technologies Technologies also called processes are representations of physical devices that transform commodities into other commodities. Processes may be primary sources of commodities e. Commodities Commodities including fuels are energy carriers, energy services, materials, monetary flows, and emissions; a commodity is either produced or consumed by some technology. Commodity flows Commodity flows are the links between processes and commodities for example electricity generation from wind. A flow is of the same nature as a commodity but is attached to a particular process, and represents one input or one output of that process. These three entities are used to build an energy system that characterizes the country or region in question. All TIMES models have a reference energy system, which is a basic model of the energy system before it is substantially changed either for a particular region or for a particular scenario. The blocks are the technologies, the writing outside the blocks e. Many of these are characterizations of technology or

commodity entities. There are also a number of endogenous inputs that are calculated by Irish TIMES and which are used in the final calculations for the model outputs. These inputs are described below. Each of these technologies has detailed technical parameters that can be changed and set by the user; some of these parameters include technology efficiency e. The data sources for most of these technologies are the IEA databases that were used to build the reference energy system. Each of these technologies also has associated costs e. In most instances, these costs are input in the form of curves, i. Resource potential and prices The resource potential applies mostly to commodities and supply curves, i. The resource potential also applies to technologies, particular renewable energy technologies and their resource. For example, there is a limit to the amount of onshore wind power that can be constructed in Ireland. Projections for future fuel prices for key fuel commodities e. The total resource capacity limit for domestic bioenergy has been set at 1, ktoe for the year and at 3, ktoe by , based on the estimates from Clancy M. The use of geothermal energy in Ireland is limited only to small installations in the residential and services sector mostly for space and water heating purposes. Because solar and geothermal energy contribute marginally to scenarios outputs, no maximum potentials have been provided in the model. The cost assumptions for domestic bioenergy commodities are based on McEniry et al. Other model reviews focused on conventional generation technologies of heating technologies are based on the values from Parsons Brinckerhoff Electricity prices are calculated endogenously in the model. These parameters are used to generate energy service demand parameters, which are the key quantities that the Irish TIMES model must produce an energy system to satisfy. In total, there are 60 different types of energy services for the transport, residential, agricultural, commercial, industry and non-energy sectors. For each modelling period out to , energy service demand parameters are input and the Irish TIMES model must serve these parameters at least cost. A reference energy scenario is generated first by running the model in the absence of any policy constraints. This results from the reference scenario are not normally totally aligned to national energy forecasts generated by simulating future energy demand and supply , mainly because TIMES optimizes the energy systems providing a least cost solution. A second scenario is then established by imposing a single of many policy constraint on the model e. Functionality Once all the inputs, constraints and scenarios have been put in place, the model will attempt to solve and determine the energy system that meets the energy service demands over the entire time horizon at least cost. It does this by simultaneously making equipment investment decisions and operating, primary energy supply, and energy trade decisions, by region. Irish TIMES assumes perfect foresight, which is to say that all investment decisions are made in each period with full knowledge of future events. It optimizes horizontally across all sectors and vertically across all time periods for which the limit is imposed. The results will be the optimal mix of technologies and fuels at each period, together with the associated emissions to meet the demand. The model configures the production and consumption of commodities i. Mathematically, this means that model maximizes the producer and consumer surplus. A market is said to have reached an equilibrium at prices p and quantities q when no consumer wishes to purchase less than q and no producer wishes to produce more than q at price p. When all markets are in equilibrium the total economic surplus is maximized i. This is represented graphically in Figure 2. If an energy system is possible, it can then be examined, at what cost? The model outputs are energy flows, energy commodity prices, GHG emissions, capacities of technologies, energy costs and marginal emissions abatement costs. It is able to generate robust energy policy scenarios over long time horizons and it is able to offer strategic insight into long-term policy formation. This is especially important for the energy sector, which has such large capital investments with long project lifetimes. The challenge of de-carbonizing the energy system is an enormous and expensive one so the insight that TIMES gives is unique. It produces energy pathways over multiple time slices for a long-term time horizon and the solution in the model is in terms of technology choice; it also provides indicative results for the carbon price required to achieve certain reductions which can in turn be useful to inform policy design. In some instances these are simply limitations born of the structure of the model; they are inevitable based on the way the model is built. In other instances, they could be considered weaknesses and in these cases, work is on going to make improvements: This is a limitation of the model. The results of the scenarios are tied to the assumption and results of the macro-economic model, which by themselves are inherently uncertain. While scenario analysis,

by its nature, tries to counteract this uncertainty by producing a range of results, this uncertainty is nevertheless present. However, work is ongoing in UCC to develop this feedback response. For the electricity sector, there are 12 time slices seasonal, day, night and peak ; these are inadequate to capture daily supply and demand curves. It would become computationally unwieldy if the model had to make decade long decision as well as hourly decisions. A working solution to this shortcoming is model soft-linking to more specialized power systems models, which has been pioneered by UCC Deane et al. This is a limitation of most energy and indeed macro-economic models, in that consumer behaviour is generally limited to simple price response and non-price related behaviour in generally very poorly treated. The economic viability of biomass crops versus conventional agricultural systems and its potential impact on farm incomes in Ireland. January 29th-February 1st, Sevilla, Spain Bioenergy Supply Curves for Ireland â€” Energy Vol 42, Pages Dineen D. Impact of economic recession on the costs of climate mitigation. Principles, characteristics, focus, and limitations. Energy and Environment 2, â€” Harvesting wood for energy Cost-effective woodfuel supply chains in Irish forestry. UK and Global bioenergy resource. World Energy Outlook 1â€” The effect of feedstock cost on biofuel cost as exemplified by biomethane production from grass silage. Biofuels, Bioproducts and Biorefining. Electricity Generation Cost Model - Update. Prepared for Department of Energy and Climate Change; All Ireland Roundwood Production Forecast Can we meet targets for biofuels and renewable energy in transport given the constraints imposed by policy in agriculture and energy? Journal of Cleaner Production. These documents and spreadsheets are updated periodally.

Chapter 3 : Formats and Editions of Aspects of Irish energy policy [blog.quintoapp.com]

"Energy Elasticity Estimates and the Stability of the Relationship with GDP," Book Chapters,in: FitzGerald, John (ed.), Issues in Irish Energy Policy Economic and Social Research Institute (ESRI). Ian W. H. Parry,

Could Brexit have an effect on UK gas prices? Could there be increased interest in LNG imports? Increasing interconnectivity with continental Europe will necessarily require cooperation with the EU internal energy market in any Brexit scenario. Because the Government has been at the forefront of efforts to liberalise and develop cross-border energy markets, we envisage that this cross-border policy direction is likely to endure. Whilst the Government has stated in its position paper on Northern Ireland and Ireland that it is seeking the continuation of the SEM, the framework for doing so would need a special arrangement to be found. Indeed, in the draft of 19 March of the EU Withdrawal Treaty 2 the draft Withdrawal Treaty , the EU and the UK have agreed in principle that certain EU laws governing wholesale electricity markets shall continue to apply in respect of Northern Ireland following Brexit although notably the relevant annex is yet to be published. In relation to Great Britain, the Government has recognised the benefits of coordinated energy trading arrangements in helping to ensure lower prices and improved security of supply 3 and is therefore, seeking to retain as free as possible access to the IEM and to remain an influential player on energy in the EU 4. However, a number of UK Government negotiating positions appear incompatible with full membership of the IEM for example, leaving the internal market, ending the authority of the Court of Justice of the European Union and repatriating regulation to the UK. Continued participation in the IEM following Brexit would require an appropriate partnership with the EU and would be likely to involve the UK adopting - and complying with - the relevant European legislation. Any failure to cooperate might result in divergence of the British and EU energy regulatory regimes. The Commission notice to stakeholders on the withdrawal of the UK and the IEM 5 outlined some of the immediate implications if the UK withdraws from the EU without such a new agreement. For example the UK is expected to cease to participate in the allocation platform for forward interconnection capacity, the European balancing platforms and in market coupling. In addition, transmission system use fees are expected to be payable on all electricity imports and exports from the UK and participants based in the UK who wish to continue trading EU wholesale energy products will need to register with the Member State where they are active to ensure compliance with the regulation on wholesale energy market integrity and transparency REMIT. What would be the impact on interconnectors? If the UK leaves the IEM, it is generally agreed that trade over interconnectors will continue but may become less efficient. For example, in relation to proposed electricity interconnectors between Great Britain and continental Europe, the cap and floor decision and mechanics may need to be re-visited to address any change to how revenues are generated in the absence of market coupling and associated pass through of congestion revenues. The CEF is an EU funding instrument with the purpose of promoting growth through targeted infrastructure investment. Among other things, it enhances energy security and facilitates cross-border interaction between public administrations, businesses and citizens. Would the UK continue to participate in the liberalisation of the European energy market? The Government also appears committed to market-based interventions in energy markets. We therefore consider that businesses should plan to continue to comply with these requirements. Would EU State aid rules apply to energy infrastructure and support schemes? However, the Government has indicated that it will transpose existing EU State aid law into domestic law following Brexit and that the Competition and Markets Authority will assume responsibility from the European Commission for State aid oversight and enforcement in the UK. There may be some scope for the UK to diverge from the EU rules over time, although this freedom might be constrained by the terms of a future UK-EU free trade agreement. Therefore, in the immediate aftermath of Brexit, we do not expect to see any significant change to the substance of State aid rules relating to energy infrastructure and support schemes. The WTO regime disciplines the use of subsidies and regulates the actions which WTO members can take to counter the effects of subsidies. This regime, however, is not as onerous as existing EU State aid rules and we consider there to be at least a theoretical risk that enforcement action under WTO law would be taken in respect of subsidised

energy which is exported from the UK. How will Brexit impact the nuclear power sector? When the UK commenced the Article 50 withdrawal process on 29 March by formally serving notice of its intention to leave the EU, it also initiated in parallel its withdrawal from the European Atomic Energy Community Euratom and the associated treaty the Euratom Treaty. Changes to immigration policy may also adversely impact the availability of skilled labour, particularly engineers and professionals within the nuclear industry. The Nuclear Safeguards Bill, introduced to Parliament in October , will set the framework for achieving this objective, by amending the Energy Act For more information, see our blog The plan for nuclear safeguarding post Brexatom. In the future, the UK will need to negotiate the terms of nuclear cooperation with other Euratom members, and non-Euratom members such as the USA and Japan that the UK currently works with under frameworks established through Euratom. But there will, nevertheless, be important issues to settle. If the UK did not participate in the EU ETS, transitional and linking arrangements would be required, which would be particularly important for companies holding a surplus of allowances. Following Brexit, unless the UK remains part of the EEA, the UK would be released from its renewable energy targets under the EU Renewable Energy Directive and from EU State aid restrictions- potentially giving the Government more freedom both in the design and phasing out of renewable energy support regimes. The availability of funding from EU institutions may impact the deployment of innovative or capital intensive projects for more information see below. However, given that the UK would still be bound by national and international decarbonisation obligations see further above , it is anticipated that renewable and low carbon energy development would continue to form part of Government climate change policy. What implications might there be for environmental standards applicable to fossil fuelled power projects? Within the energy sector, the IED imposes strict emission limit values that have to be achieved through permit conditions which may require investment in pollution abatement equipment or where it is determined this is not cost effective, the plants will close down. This is having an impact on coal-fired power plants and many older gas plants which are expected to close by as they have selected a limited life derogation and can operate without abatement equipment until the end of Despite Brexit, it is nevertheless likely that unabated coal-fired plants will close, particularly as the Government has confirmed its policy to close all unabated coal-fired power stations by Similarly, the Medium Combustion Plants Directive MCP sets limits on emissions such as sulphur dioxide, nitrogen oxide and dust in relation to a smaller plant with a thermal input up to 50 MWth. In the long term the UK and devolved administrations will need to agree how to provide common frameworks to agree common standards following Brexit. Will Brexit affect UK projects which have received, or expect to receive, funding or guarantees from EU institutions? There are a number of EU initiatives to promote investment in energy infrastructure which represent an important source of funding for UK projects. For example, the European Fund for Strategic Investment supports cross-border projects such as interconnectors and pipelines and such funding may continue to be available to third states. In order to provide greater funding certainty, the UK Treasury has committed to underwriting all funding obtained via a direct bid to the European Commission and has expressly confirmed Horizon projects will continue to be supported, as well as structural and investment fund projects such as the European Regional Development Fund and the Cohesion Fund , subject to certain conditions. How would Brexit affect the ability of multi-nationals to operate in the North Sea? Without freedom of movement of persons, it may be more difficult to manage a flexible workforce, which can currently be moved from project to project within Europe depending on need. It is unclear the extent to which Brexit would have an impact on employment laws which are derived from EU Directives. In the short term, very little is likely to change and although, in the medium to long term, UK and EU labour laws may well diverge to some extent, there is likely to be political and commercial pressure to retain, for example, anti-discrimination legislation and the key aspects of rules on the transfer of employees. One area which is likely to be reformed however, is the rules on holidays and working time which have had a particular impact on the off-shore sector. What impact might Brexit have on the way the UK sources gas? In practice, the UK already has mitigation against security of supply risks built into the system. The existing import infrastructure allows multiple sources of supply via its three gas interconnectors and three liquefied natural gas LNG import terminals. As the infrastructure is already in place, we would expect operations and gas flows to continue as

normal, irrespective of any Brexit. Of greater significance will be issues such as expiry of long term supply contracts and restrictions, under the current regulations, on selling capacity on a long term basis. The tariff network code, which is being phased in from the 6 April , restricts the price at which interconnectors can sell their capacity. Brexit may give rise to complex issues such as whether or not the interconnectors continue to be bound by such restrictions. Also of importance is the potential for the UK to lose the benefits of being part of key energy security mechanisms and institutions, such as the Early Warning Mechanism and the Gas Advisory Council, unless it can negotiate to retain its role and benefits in these. For Brexit to have an effect on UK prices, it would need to lead to consequences such as export tariffs imposed on EU gas flowing to the UK. LNG import capacity is not fully utilised at present, but this is more of a supply and demand issue and unlikely to be connected to Brexit. LNG accounted for only 15 per cent of UK gas supply in compared to 23 per cent in , but there is room for this to increase given current spare capacity. Whether or not the UK will be an attractive destination for spare LNG volumes is more likely to be driven by the price of gas in the UK market than any other factor.

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Chapter 4 : Irish Solar Energy Association

The ESRI works towards a national vision of 'Informed policy for a better Ireland'. This means producing high-quality analysis to provide robust evidence for policymaking, with the goals of research excellence and policy impact.

See under Decision Making: The amount of energy consumed per capita is also increasing, and this trend is projected to continue. The growth has been driven principally by marked increases in energy use in the transport and commercial sectors. In addition, there has been significant progress in achieving widespread public acceptance of the need for a holistic approach to transportation planning with an emphasis on the more sustainable modes - public transport, cycling and walking. Despite this progress, there has been some slippage in the implementation of the full Strategy, and this, coupled with increased demand for travel in the Strategy area, has led to the preparation of a Short Term Action Plan to address immediate needs. The Plan is designed to accelerate the implementation of those elements of the DTI Strategy that can be completed in the period up to the year It focuses on public transport enhancement, traffic management, parking policy and the provision and promotion of cycling facilities, and also includes a comprehensive public information campaign to promote sustainable transport choices. One of the objectives in the National Development Plan and the Community Support Framework is a strong management of tourism policy, with special attention being paid to measures which will encourage a greater seasonal spread of activities. Since , Dublin has had a permanent ban on marketing, sale and distribution of bituminous coal; this was extended to Cork in and to a further five cities and towns in The purpose is to improve air quality in these urban areas. In connection with these bans, a special weekly allowance paid by the Department of Social, Community and Family Affairs to lower income groups has helped overcome the increased cost of more environmentally-friendly fuels in comparison to bituminous coal. The aim of the former is to promote new technologies for improving energy efficiency and to enhance the use of alternative energy sources. The objective of the latter is to promote efficient energy use on the demand side, focusing on key areas including boilers, buildings, car inspection systems, and energy audits. In general, any methods adopted by industry are on a voluntary basis. As noted above, however, the mandatory requirements of Integrated Pollution Control licensing for larger industries and activities include the introduction of environmental management systems which may incorporate changes in methods and processes. The Environmental Protection Agency has reported that, since the introduction of IPC licensing in May , and the issuing of the first IPC licence in , there has been a noticeable swing away, in many IPC licensed companies, from investment in end-of-pipe technologies in favour of source reduction of pollutants. This change of emphasis is taking the form of changing from hazardours to less hazardous materials, rationalisation and reduction of solvent use, reduction in water use and more efficient use of energy. The initiative was to be implemented in two phases, under the direction of the Environmental Protection Agency, aided by an independent consultancy team. Following this, the companies would participate in a publicity campaign to disseminate the findings to a wider industry audience. Following an open call for proposals which was advertised in the press in January , fourteen companies were selected for participation in the demonstration programme. Contracts were signed in June, and the programme was formally launched in October Projects in the programme included waste reduction, conversion of waste, recycling, effluent and emissions reduction, and the implementation of environmental management systems. The participant companies were from a range of sectors including dairy, pharmaceuticals, metal finishing, tannery, printing, textiles and the hospitality sector. The fourteen companies completed their projects by September and are now engaged in the publicity phase. Case study reports have been published and synthesis and final reports are currently being prepared. As noted above, the Environmental Protection Agency has identified a noticeable trend in IPC licensed companies toward more sustainable production, for example through more efficient use of energy and water. Capacity-building, Education, Training and Awareness-raising Programmes for industry: This partnership brings together the expertise of these groups to raise awareness of environmental issues. The training programme covers the legal, technical, community and financial aspects of sustainable development in an industrial context. It aims to help to develop in Irish industry a pro-active approach to environmental

management, and also to improve interaction between business and non-governmental organisations in the field of the environment. The main objective of the programme is to use training to improve the environmental performance of Irish industry. While operating on a fairly small scale to date, the programme is supported by a number of local authorities around the country, and has also received some funding from the Department of the Environment and Local Government. It is seen as both a means of raising awareness on sustainable development issues, and a practical contribution towards achieving Local Agenda 21 objectives. The two objectives of the campaign were: The primary target audience was household consumers. The campaign informed them of how much energy they use, where it comes from, and the longer-term implications of current consumption trends. It aimed to make them aware of the extent to which energy use is within their control and how they can get greatest value from that energy. For consumers, this is a three-stranded process. Firstly, influencing consumer purchase behaviour in favour of the most energy efficient option e. Next, informing consumer product usage, such that all products new and old are used in the most efficient way possible e. Finally, to stimulate consumer investment in energy efficiency products and services which can save substantial energy e. Among the activities run during Energy Awareness Week were: These last two focused on highlighting the transport options available to consumers and their relative energy implications. Information The enforcement of most environmental law e. The Environmental Protection Agency, established in , has responsibility for environmental monitoring in Ireland, and also for: General environmental information is disseminated through the Environment Bulletin, which is issued quarterly by the Department of the Environment and Local Government. The Bulletin comprises short articles and contact points, as well as a calendar of events and details of recent publications; from time to time, its contents may include issues relevant to sustainable production and consumption. Information on these and other issues is also available through a number of relevant websites, notably: Work on indicators of sustainable development is still at an early stage, and while specific indicators of consumption and production patterns have not been developed, a number of relevant projects are currently ongoing. The objectives of the Steering Group are to: The EPA are currently working on national environmental indicators with the emphasis on eutrophication, waste and the urban environment, and will produce a national report by the end of ; this report will be circulated initially for discussion, with a view to finalisation and publication by April The Agency also has regard to the work of the European Environment Agency, and other relevant agencies of the European Union in this area. In addition, the CSO is involved in a European Union project to develop satellite, "green" accounts within the framework of national accounts. Research and Technologies Clean and environmentally sound technologies are promoted and applied in production through the following: Clean Technology Centre A major promoter of clean and environmentally sound technologies in Ireland is the Clean Technology Centre, which is located at the Cork Institute of Technology. The Centre was established almost seven years ago as an example of co-operation between industry, academic and government, to provide expertise, service and employment at the leading edge of improvements in environmental performance. The span of its work encompasses industry, government both local and national , and international collaboration. Nine European projects and three national projects, together with industrial projects for several dozen companies, have been the mainstay of the Centre to date. The Clean Technology Centre CTC believes that the most important environmental issues today involve the development of sustainable production and consumption programmes. This requires total commitment and involvement by local and regional authorities and government. These issues are best tacked at the local level. CTC is thus involved in several European initiatives to examine using local programmes as tools for sustainability and striving to expand the boundaries of current human understanding. On the local level, perhaps the most important development is the co-operation between CTC and local authorities. The Cork region is pursuing an active programme towards sustainability, which includes waste reduction as the primary focus. Projects range from generation of electricity from landfill gases to abstraction of heat from rock and soil for provision of heating. A recently announced project for recycling and re-using construction and demolition waste will further emphasise the co-operation between the local authority and CTC. Similarly, another local authority has initiated clean technology training for industries which it licenses, and has actively been involved in an international clean technology project with CTC; the results of

this project have been disseminated internationally. The awards scheme includes a category under the heading of Cleaner Technologies for companies which have developed new technologies or techniques in their production processes, resulting in significantly less environmental impact Financing Activities may be financed from the national budget, or through private sector funds, or a combination of both. The objective of the latter is to promote efficient energy use on the demand side, focusing on key areas including boilers, buildings and car inspection systems, and energy audits. Ireland has been cooperating with Northern Ireland in a series of conferences addressing energy efficiency in buildings, industry, etc. Ireland has a natural gas linkage with the United Kingdom, the European Continent, and beyond.

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Chapter 5 : Aspects of Irish Energy Policy

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Yet, this research question looks at prioritizing a particular environmentally beneficial goal i. Economic barriers revolve around high capital entry costs and established often monopolistic competition. Enzenberg, Wietschel, and Rentz , p. The remedy is to be found in altering costs between the groups. Support can take a traditional legislative manner such as tax incentives. These economic incentives are rationalised by the polluter pays principle which states that the body producing pollution should be responsible for its cost UN, The EWEA employ this to claim that extra health and pollution costs created by traditional forms of energy relative to renewables create an externality which should be taken into account when considering support EWEA, Conversely, economic support mechanisms have been criticised as inappropriate in open market situations Espey, Technical barriers are the next area identified as an obstruction to wind energy. Connection to the grid is essential for wind energy as it is the only way the power produced can reach the market. The final major area of concern to wind energy success is awareness and acceptance of wind power by the public. Although there are various reasons why public acceptance is important, the main barrier it presents is the complexity of local physical land use planning Gipe, ; Wolsink, ; Wolsink, He claims that the attitude often comes from opposition to a top-down process, with lack of pre-consultation, rather than an overwhelming opposition to wind farms themselves: Gipe also sees collaboration as the key to overcoming public reluctance and achieving the necessary planning objectives for wind farms. By looking at the literature three common areas are identified as expected obstacles: Within these categories, certain issues gain more importance: These can be taken as three variables to be examined for integration in the case studies. Although the areas are still somewhat broad, an analysis of each country will present the more precise challenges that each country faces within the categories; depending on the different instruments used. However, the specific problems are not as important as the broader tactic. The attempt to solve issues using a particular approach i. EPI, is the focus; not the relative advantages or success of specific techniques. A strategy for the future. This was an introductory document, but with regard to identifying barriers and introducing integration, there are two key policy papers that followed: The green paper recognised that there were economic, technical, and public acceptance barriers to the development of wind industry Department of Public Enterprise, Its focus was on economic incentives which it justified because of two market failures in the Irish energy industry; monopoly and negative externalities Department of Public Enterprise, Its major contribution to the technical and planning issues was the setting up of the Renewable Energy Strategy Group. The report explicitly stated that integration was vital to any successful policy Renewable Energy Strategy Group, In particular they saw the integration of planning and grid connection as essential. Since then, Ireland has produced several different policy papers which have had important and influential effects on wind policy. The three barriers, and the need for integration, are dominant and recurring themes throughout Irish and British Government, ; Department of Communication, Marine and Natural Resources, ; Department of the Environment, Heritage and Local Government, ; Irish Gov. There are two main actors in the economic aspects of Irish wind policy: The Government has influence on economic aspects of policy through legislation, incentive schemes, and provision of resources. The Alternative Energy Requirement AER scheme was the primary government incentive scheme for renewable energy sources. There have been six versions of AER in total with starting dates between and Department of Communication, Energy and Natural Resources, Based around the competitive driver of energy policy, it failed to deliver energy targets until the 4th and 5th schemes. Although the schemes did offer incentives to renewable energy by providing certainty to successful developers, they did not prioritise wind specifically, but based selection solely on cost Department of Communication, Energy and Natural Resources, The Electricity Regulation Act, , is the most significant piece of legislation for the energy industry in Ireland as it allows deregulation of the energy market. There are two competing elements to the act in relation to EPI: CER was

set up by the Act as regulator for the electricity and gas market in Ireland. The main impact on economic barriers to wind policy comes from its responsibility for the Transmission and Settlement Code. This creates the rules for the market system in which wind energy operates CER, b. CER was formed with a specific role for renewable energy. However, the timeline for creating a regulatory system, and the competitive mandate of the CER conflicted with the needs of renewables Renewable Energy Strategy Group, Yet, this policy statement had no mention of renewables and revolved solely around competition in the industry Minister for Public Enterprise, The market system set up under the original rules of the Transmission and Settlement Code created two economic incentives for renewable energy. However, technical problems sorrounding grid connection prevented wind from taking full advantage of these incentives. Also, the competitive nature of the market was a disincentive to wind investors. The national grid is the electricity infrastructure that allows energy to flow from power generators throughout the country. The grid is managed by the state owned independent operator Eirgrid which was established as a result of the Act and was issued a license to operate in However, it only took over control of the grid in Eirgrid, A joint Oireachtas committee stated that the ESB was indeed reluctant to accommodate wind industry; and that there was deliberate administrative inertia in shifting responsibility for the grid to Eirgrid Ryan, Communication with wind industry was sought and it has prioritised the needs of renewables in the resulting strategy. Wind energy is envisaged as the main contributor in the renewable category Eirgrid, The response from Eirgrid has been welcomed by wind industry Walsh, The transfer of grid management combined with Government pressure has led the ESB to become more facilitating towards wind industry in recent years and has seen a prioritisation of its own renewable energy programme Coveney, ; Walsh, Planning in Ireland has been the least significant barrier of the three identified Renewable Energy Strategy Group, There are two issues involved in land use planning with regard to wind policy: Land use planning in Ireland is dependent on three separate bodies: The Department of Environment, Heritage and Local Government has the leading role to play because it creates national policy. Although this responsibility excludes specific decision making, it significantly influences the decisions of others. The Department produced two Wind Industry Development Guidelines for planning authorities ; These guidelines are not legally binding but have two important functions: Initial planning applications must be made to the Local Authority who will make a decision based on their local development plan. If rejected, the applicant can appeal to ABP. Although both of these bodies have a role to play in granting or refusing planning permission, their power and independence is diminished because of national legislation produced in and The Planning and Development Act, Section 28 requires that both local authorities and ABP have regard to national policy in relation to their functions. The Planning and Development Strategic Infrastructure Act allows for large scale wind farm developments to skip the local authority application stage and apply directly to ABP. Because ABP makes decisions based on national policy it further facilitated wind development applications. The priority of national policy in the planning process and the clear direction provided by the Department has made planning a relatively small issue in regards to wind farm development. Grid infrastructural development is another key aspect to wind energy. With recent construction beginning on grid infrastructure, planning has become a problem for Eirgrid Coveney, This will, in turn, affect wind industry in future if not effectively considered. When analysing EPI in relation to Danish energy policy, there are two key policy documents: Energy and Energy Although some Government supports preceded , Danish energy policy first prioritised environmental facets in Energy Bertelsen, This introduced the principle of sustainability and reduction of CO2 as primary goals of energy policy in Denmark Agnolucci, The following energy policy paper Energy 21, produced in , is important to EPI analysis because of the specificity it included, and the impact it had in shaping the wind industry. It continued in the general themes of Energy but introduced more ambitious and specific targets for renewables. In addition to supporting sustainable energy, it focused particularly on energy efficiency Ministry for Environment and Energy, Although, this does not directly affect integration and prioritisation of wind policy, it shows a commitment to the broader definition of EPI. Economic incentives have had the greatest impact, and the greatest variation, of the three factors being analysed. There are two actors involved in creating the economic environment under which wind industry operates in Denmark: The Government is the dominant actor. Through legislation, and policy, they create the regulatory framework and direction for the

market participants. There have been two key policy outputs produced by Government that influenced wind development: It was the results of a 10 year voluntary agreement between the Danish utility agencies DEF and representatives of wind industry which was agreed in under threat of legislative intervention Agnolucci, As uncertainty rose towards the end of the 10 year agreement, disagreements began to re-emerge Tranaes, The Law for Wind Turbines , re-established economic certainty with the introduction of two key features: The feed-in tariff provided a guaranteed price for wind energy producers while tax incentives encouraged both research and investment Krohn, The wind industry saw these measures as internalising the extra costs incurred by setting up of renewable industry Krohn, However, the energy suppliers reacted negatively. It was claimed that the aggregate of the market was being charged to support the individuals of wind industry Tranaes, The fixed price system was very successful in encouraging wind installation and it experienced continuous growth DWTMA, This involved the trading of green certificates in conjunction with specified quotas to ensure supply PricewaterhouseCoopers, In effect, this would change the system to a market set price, and state set quantity Krohn, The Minister of the Environment and Energy stated that the aim was to increase efficiency. Wind industry representatives campaigned vigorously and successfully against the changes DWIA, Disagreement was based on a perceived lack of economic analysis of the implementation, rather than opposition to the mechanism DWTMA, The domestic onshore wind market also reacted negatively to the uncertainty as it experienced its first stagnant year in

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Chapter 9 : Energy Ireland conference (Jun), Dublin Ireland - Conference

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