

**OVERVIEW OF THE  
MAIN  
INFRASTRUCTURE  
ISSUES FOR  
ENTERPRISE**

**MAY 2012**

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# 1. Executive Summary

The availability of a competitively priced world class infrastructure (energy, broadband, transport, waste and water) and related services is critical to support enterprise development, competitiveness and job creation. While Ireland has made significant investment in infrastructure in recent years, further investment and reform is required to ensure that our critical infrastructure can support economic recovery and enterprise growth.

This paper draws on more in-depth research carried out by Forfás on infrastructure issues that are of importance to enterprise. The references to the more detailed work are provided in each section and a full list of recent Forfás publications on infrastructure policy issues is available in the appendix.

The capital review published in November 2011 notes that we are now effectively at the end of a major phase of Exchequer funded capital investment<sup>1</sup>. In the context of significantly reduced budgets, we need to develop smarter solutions to leverage the significant investments already made and improve our competitiveness. There is also significant scope for Government to improve infrastructure capacity and services without the need for Exchequer investment by addressing policy and regulatory barriers.

The main infrastructure priorities to underpin sustainable export growth and job creation are:

- *Broadband*: From an enterprise development perspective, the timely delivery of advanced broadband services in key urban centres is the top infrastructure priority. The best solution for delivering advanced broadband services is that the market invests but in the event the market does not deliver, the State will need to intervene. The priority actions are to:
  - Agree the advanced broadband targets and milestones, and ensure the National Broadband Plan, currently being developed by the Department of Communications to achieve the agreed targets, is implemented as quickly as possible;
  - Progress measures to make it easier for the private sector to invest (i.e. lower investment costs, reduce red tape and stimulate demand); and
  - Map existing telecommunications networks and concrete investment plans to identify the infrastructure deficits nationally. As well as identifying areas that will not be served in the context of meeting agreed targets, this exercise should also determine the quality of existing and planned services (e.g. minimum upload and download speeds, latency, contention).
- *Energy*: The planned development of the new energy policy framework in 2012 provides a timely opportunity to review and agree energy and energy related policy priorities from now until 2030. In particular, we need to:

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<sup>1</sup> The capital budget for 2012 has been cut by €755 million to €3.9 billion, it will fall to €3.3 billion in 2013 and €3.2 billion per annum between 2014 and 2016. For more details see: <http://per.gov.ie/wp-content/uploads/Infrastructure-and-Capital-Investment-2012-20161.pdf>

- Ensure that the changes to the all island electricity market to comply with the EU market integration requirements deliver efficiencies and least cost electricity to consumers;
- Reduce our reliance on imported fossil fuels (increase electricity interconnection, and oil and gas storage, increase renewables, especially in heat, etc.);
- Take further steps to manage controllable costs downwards (e.g. drive efficiencies in network operating and capital costs); and
- Improve energy efficiency particularly among SMEs and households.
- *Water and waste water services:* A commitment to supporting enterprise development and national competitiveness should be a core principle underpinning the functions of Irish Water. We need to ensure a reliable, high quality and competitively priced water supply is available to meet enterprise needs in the main urban centres:
  - Further investment is required to address expected water and waste water capacity deficits in Dublin, Galway, Athlone, Letterkenny and waste water capacity in Mallow and Wexford; and
  - We need to ensure that water pricing supports enterprise cost competitiveness.
- *Waste:* To enable businesses operating in Ireland to compete successfully in international markets, it is essential that the forthcoming national waste policy addresses the current regulatory and policy uncertainty in waste management in Ireland and promotes private sector investment to:
  - Deliver a range of cost effective waste treatment options across the waste management hierarchy (e.g. thermal, biological, recycling) to meet enterprise needs.
- *Road and rail:* An efficient and integrated national transport system with adequate capacity, and levels of service comparable to other countries with which we compete for investment and trade, plays an essential role in Ireland's ability to compete successfully in international markets. An integrated approach across all modes of transport is critical to ensure a high standard of connectivity to and within the country:
  - Given the limited capital resources available in the short to medium term, it is critical that we prioritise investment that will support economic recovery and sustainable growth. These include the completion of the Cork and Galway ring roads and two short sections of the Atlantic Corridor (Galway-Limerick-Cork) which will improve the mobility of people and goods in and between Ireland's main regional cities. Improving public transport in the main cities is critical to enhance mobility for all urban transport users.
- *Air and sea ports:* The key issue for enterprise is ensuring that we have good international access by air and sea in terms of locations served, frequency and costs:
  - Clarity on the ownership and governance of our air and sea ports is important to enable the parties involved invest in a timely manner to ensure the current and future needs of enterprise are met (e.g. development of deeper water facilities).
- *Intelligent infrastructure:* Intelligent infrastructure is the application of technology to deliver a more effective and efficient infrastructure service. These technologies are

ideally suited to help resolve many of Ireland's pressing infrastructure problems which affect the competitiveness of our enterprise base. Intelligent infrastructure offers innovative solutions to address issues such as a congested capital city with limited potential to build new roads, our excellent but highly variable renewable energy resources and an extensive water distribution network with high levels of leakage.

## 2. Broadband

### Background

Advanced broadband services are crucial to achieve the productivity growth necessary to improve competitiveness, sustain high-level incomes and ensure Ireland captures new opportunities for entrepreneurship and jobs across all sectors. Although Ireland has made significant progress in terms of the widespread availability and take-up of basic broadband services by firms and households, we lag competitor countries in the rollout and take-up of advanced broadband services.

### Recent Developments

- In August 2010, the EU adopted the Digital Agenda which sets out a roadmap for developing a single digital market by 2020 to support sustainable long term economic growth and social progress<sup>2</sup>. The strategy set three targets for member states:
  - Access to basic broadband should be available to all citizens by 2013;
  - Access to broadband with speeds of 30 Mbps or above should be available to all citizens by 2020; and
  - 50 per cent of European households should be subscribed to services of 100 Mbps or higher by 2020.
- In October 2011, the European Commission announced plans to fund a €50 billion investment, the Connecting Europe Facility (CEF), to improve Europe's transport, energy and digital networks. It proposes a €9.2 billion fund to support investment in fast and very fast broadband networks and pan-European digital services between 2014 and 2020; at least €7 billion would be available for investment in high speed broadband infrastructure to meet the 2020 Digital Agenda targets. It is proposed that the CEF funding, which would include equity, debt instruments and grants, would leverage other private and public money, by giving infrastructure projects credibility and lowering their risk profiles.
- In May 2012, the Minister for Communications launched the report of the Next Generation Broadband Taskforce (NGBT)<sup>3</sup>. The NGBT was established to create a forum for key industry stakeholders to highlight the legislative, policy and regulatory levers to facilitate greater investment in advanced broadband services in Ireland<sup>4</sup>. Following a period of consultation seeking views on the industry recommendations and on how best to facilitate the provision of high speed broadband, the Department of Communications will publish the National Broadband Plan in July.

<sup>2</sup> [http://ec.europa.eu/information\\_society/digital-agenda/index\\_en.htm](http://ec.europa.eu/information_society/digital-agenda/index_en.htm)

<sup>3</sup> <http://www.dcenr.gov.ie/Communications/Communications+Policy/Report+of+the+Next+Generation+Broadband+Taskforce+and+Consultation.htm>

<sup>4</sup> <http://www.dcenr.gov.ie/Press+Releases/%e2%80%9cWe+want+to+ensure+faster+broadband+everywhere+soon%e2%80%9d+%e2%80%93+Rabbitte.htm>

- NewERA is responsible for coordinating water, broadband and energy investment<sup>5</sup>. It will use the proceeds from the sale of State assets and existing National Pension Reserve Fund resources to work with the public and the private sector to develop and implement proposals for commercial investment in line with Programme for Government commitments in energy, water and broadband<sup>6</sup>.

## Key Issues for Enterprise<sup>7</sup>

- While the advanced broadband needs of ICT-intensive enterprises are generally well met in the large urban centres, businesses, particularly SMEs, outside the main urban centres have significantly less choice and less access to good quality services<sup>8</sup>. The European Commission in their 2011 assessment of the Irish telecommunications market concluded that ‘broadband speeds are relatively slow in Ireland compared to other member states<sup>9</sup>.’
- Delivering advanced broadband services is the top infrastructure investment priority of the development agencies. The policy actions taken and investment made to date are necessary but are not sufficient to ensure the widespread availability of world class advanced broadband services within a timescale that will allow Ireland to catch up with competitor countries.

## Policy Priorities for Enterprise

- The best solution for delivering advanced broadband services is that the market invests but in the event the market does not deliver, the State will need to intervene.
- We need to agree the advanced broadband targets and milestones, and ensure the National Broadband Plan, currently being developed by the Department of Communications to achieve the agreed targets, is implemented as quickly as possible.
- We need to make it easier for the private sector to invest in rolling out advanced broadband services, in particular, we need to progress measures to lower investment costs, reduce red tape and stimulate demand.
- Existing telecommunications networks and concrete investment plans need to be mapped to identify the infrastructure deficits nationally. As well as identifying areas that will not be served in the context of meeting the agreed targets, this exercise should also determine the quality of existing and planned services (e.g. minimum upload and download speeds, latency, contention).

<sup>5</sup>[http://www.taoiseach.gov.ie/eng/Government\\_Press\\_Office/Government\\_Press\\_Releases\\_2011/NewERA\\_and\\_the\\_Strategic\\_Investment\\_Fund\\_Establishment\\_and\\_Appointment.html](http://www.taoiseach.gov.ie/eng/Government_Press_Office/Government_Press_Releases_2011/NewERA_and_the_Strategic_Investment_Fund_Establishment_and_Appointment.html)

<sup>6</sup> In February, the Government announced that it plans to sell State assets up to a value of €3 billion and that the Troika had agreed to using up to a third of the monies realised from the sale of State assets for re-investment in the economy, while the remainder would be used to pay down national debt. In April, the Government said that a higher proportion of the proceeds from the sale of state assets will be used to support jobs and economic growth but that the exact amount is yet to be determined.

<sup>7</sup> For further details, see Ireland’s Advanced Broadband Performance and Policy Priorities, Forfás, November 2011.

<sup>8</sup> Forfás defines advanced broadband services as services offering download speeds of 100 Mbps or more, with significantly higher upload capability (including the widespread availability of symmetric services for enterprise) and low latency (speed of response of the system to the user).

<sup>9</sup>[http://ec.europa.eu/information\\_society/policy/ecomm/doc/implementation\\_enforcement/annualreports/15threport/ie.pdf](http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/annualreports/15threport/ie.pdf)

- Having identified the deficits, design a mechanism (e.g. competition/procurement process) to determine the level of market interest in addressing the identified deficits through a collaborative approach between the industry players and the State.
- Make a firm commitment to providing or sourcing the funds required to achieve the goals set out in the Programme for Government, and set objectives and targets to ensure the timely rollout of advanced broadband services. The level of funding required will depend on the extent of the advanced broadband deficits identified by the mapping exercise, the degree to which the market players can invest and how the deployment of advanced broadband infrastructure is phased.
- If the competition/procurement process is not successful in leveraging investment from the market players to support the State's broadband objectives and targets, progress with a State asset collaboration approach using the existing state telecommunications infrastructure, in consultation with the European Commission. The level of funding required will depend on the degree to which the market players can invest and how the deployment of advanced broadband infrastructure is phased<sup>10</sup>.
  - The investment required to deploy fibre to the cabinet in those towns with a population greater than 1,500 is estimated to be €1.62 billion while rolling out fibre to all premises would cost an estimated €2.23 billion.
  - Given the constraints on Exchequer funds and the challenges in raising private investment that currently exist; a phased build-out programme could be commenced in the immediate term as part of a concrete overall implementation plan to address identified deficits. For example, deploying fibre to the home in all National Spatial Strategy NSS centres (excluding Dublin) would cost approximately €440 million (deploying fibre to the cabinet would cost €270 million).

*For further information on the main broadband issues and priorities for enterprise development, see:*

- Ireland's Advanced Broadband Performance and Policy Priorities, Forfás, November 2011 - [www.forfas.ie/media/ffs111107-NGNs.pdf](http://www.forfas.ie/media/ffs111107-NGNs.pdf)

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<sup>10</sup> As set out in its 2011 report, Forfás examined in detail how such a State asset collaboration model could deliver advanced broadband infrastructure to all towns with a population above 1,500 within five years. If the State has to invest or leverage funding from external sources, it will have to choose a technology. Our assessment looks at the cost of deploying open access fibre to the cabinet and home as fibre is regarded as the most future-proofed solution.

## 3. Energy

### Background

Energy competitiveness remains an important issue for enterprise development. Ireland's ability to maintain and grow our existing export base and to continue attracting high levels of foreign direct investment is dependent on our capacity to deliver a secure and sustainable energy supply while ensuring an improvement in cost competitiveness.

### Recent Developments

- The International Energy Agency (IEA) is currently carrying out an in-depth review of Ireland's energy policy; it is due to be published July 2012. The IEA review will also include an assessment of the efficiency of the Irish electricity and gas markets as required under the EU-IMF Programme for Financial Support for Ireland.
- The Department of Communications, Energy and Natural Resources is to prepare a new energy policy framework for the period to 2030 during 2012. The Department of Environment recently published its climate change review and set out the steps to develop a national low-carbon plan out to 2050<sup>11</sup>.
- Member States have committed to implementing a single European electricity market by 2014. This will have significant implications for the all island electricity market (known as the Single Electricity Market or SEM). In the SEM, all electricity generated must be sold into a gross market pool and all wholesale electricity for consumption must be purchased from that pool. Most other EU member states operate bilateral markets (contracts between electricity generators and suppliers). The regulators (north and south) are currently considering the options to transition the SEM to meet the EU single market requirements<sup>12</sup>. If Ireland decides to put in place transitional arrangements, we must be fully compliant with the single European electricity market requirements by 2016 - otherwise we must comply with the new rules by 2014. Transitional arrangements must be in place by 2014<sup>13</sup>.
- NewERA has responsibility for coordinating water, broadband and energy investment<sup>14</sup>. It will also carry out the corporate governance function, from a shareholder perspective, of ESB, Bord Gáis, EirGrid, Bord na Mona, and Coillte and will be responsible for reviewing their capital investment plans.
- In April 2012, Eirgrid announced plans to invest €500 million in the 'Grid Link' Project<sup>15</sup>. The proposed project will upgrade the electricity grid in the south and east to ensure secure and adequate electricity supply to meet future enterprise needs and support job creation in Munster and Leinster, and facilitate the integration of

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<sup>11</sup><http://www.environ.ie/en/Environment/Atmosphere/ClimateChange/ClimatePolicyReview2011/News/MainBody,28331,en.htm>

<sup>12</sup> The consultation paper is available at:

[http://www.allislandproject.org/en/TS\\_Current\\_Consultations.aspx?article=41f5681a-ef37-41ca-ab7d-7a1bdd7db385](http://www.allislandproject.org/en/TS_Current_Consultations.aspx?article=41f5681a-ef37-41ca-ab7d-7a1bdd7db385)

<sup>13</sup> Transitional arrangements relate to capacity allocation and congestion management issues.

<sup>14</sup>[http://www.taoiseach.gov.ie/eng/Government\\_Press\\_Office/Government\\_Press\\_Releases\\_2011/NewERA\\_and\\_the\\_Strategic\\_Investment\\_Fund\\_Establishment\\_and\\_Appointment.html](http://www.taoiseach.gov.ie/eng/Government_Press_Office/Government_Press_Releases_2011/NewERA_and_the_Strategic_Investment_Fund_Establishment_and_Appointment.html)

<sup>15</sup> <http://www.eirgridprojects.com/projects/gridlink/overview/>

additional renewable capacity onto the grid to meet Ireland's 2020 target. A similar project, Gridwest, is planned to upgrade the electricity network in the west of the country.

- In February 2012, the Government announced its plans for the sale of State assets. Some of ESB's electricity generation capacity and Bord Gáis Éireann's energy business (electricity generation and electricity and gas supply) are to be sold while the electricity and gas networks are to be retained in State ownership<sup>16</sup>. NewERA will work with the Department of Public Expenditure and Reform and other relevant departments on the disposal of State assets.
- In January 2012, the report of the International Expert Commission established to review and report on a case for, and cost of, undergrounding all or part of the north-south interconnector was published but it made no clear recommendations<sup>17</sup>. It concluded that there is no "one right solution" and that each project must be decided on its own merits, taking into account specific local conditions (e.g. type of terrain, existing network). From an enterprise perspective, a quick decision is required to progress the significant energy infrastructure investment needed to support future growth and competitiveness (see priorities below for more details).
- The Minister for Communications, Energy and Natural Resources announced in July 2011 that the ownership of the electricity transmission grid would remain with ESB. The decision will have to be certified by the CER and the European Commission in 2012<sup>18</sup>.
- Ireland continues to make progress towards its 2020 renewables targets. In 2010, renewables accounted for 14.8 per cent of electricity needs. However in transport only 2.4 per cent of energy used was from renewable sources while in heat, renewables accounted for 4.4 per cent of energy consumption<sup>19</sup>. DCENR recently announced that the European Commission had approved the price support schemes (REFIT 2 and 3) for new onshore wind, hydro, landfill gas and biomass technologies to incentivise investment in the additional renewable electricity capacity required to meet the 2020 target<sup>20</sup>.

### Key Issues for Enterprise

- Energy costs in Ireland are primarily determined by international fuel prices (oil, coal and gas) but they are also influenced by domestic decisions. In recent years, electricity and gas prices have been more competitive; between 2008 and 2010, the cost of electricity for large energy users in Ireland decreased by 32.1 per cent while SME prices fell by 20.3 per cent. But prices are currently increasing sharply, mainly

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<sup>16</sup> <http://per.gov.ie/2012/02/22/government-secures-substantial-reinvestment-in-economy-from-disposal-of-state-assets/>

<sup>17</sup> When publishing the report, the Minister for Energy indicated that he will bring a memo to Government on the matter in due course.  
<http://www.dcenr.gov.ie/Press+Releases/Minister+Rabbitte+publishes+International+Expert+Commission+Report+on+North+South+Interconnector.htm>

<sup>18</sup> <http://www.dcenr.gov.ie/Press+Releases/GOVERNMENT+DECISION+ON+ELECTRICITY+TRANSMISSION+ASSETS+IN+THE+CONTEXT+OF+EU+3RD+PACKAGE+ON+ENERGY.htm>

<sup>19</sup> Energy in Ireland 1990-2010, SEAI, December 2011.

<sup>20</sup> <http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/REFIT.htm>

due to increases in the price of gas and the phasing out of the temporary rebate for large energy users.

- Ireland is heavily reliant on fossil fuels and imports around 90 per cent of its energy needs. Given the limited potential for additional hydro generation and the ban on nuclear power, this dependence on fossil fuels for energy is likely to continue in the medium term even with significant increases in renewable energy (mainly wind).
- The level of spare electricity generation capacity (peak demand relative to supply) was a particular concern in Ireland until recently. However, the combination of falling demand, new gas generation plant, increased wind capacity and increased interconnection (from 2012) means that Ireland's position has improved considerably and the outlook to 2020 is positive.
- While significant progress in improving energy efficiency has been made by business, particularly large users, there is further scope for enterprise to reduce their energy use and reduce energy costs.

## Policy Priorities for Enterprise<sup>21</sup>

Balancing the energy policy objectives of improving cost competitiveness while ensuring secure and sustainable supply in the medium to long term presents enormous challenges for energy policymakers. The priority policy actions for enterprise development are:

### 1. *Improving cost competitiveness:*

- The move to the single European electricity market is likely to require significant and costly changes to the all island electricity market. Ireland needs to ensure that any changes to the market design that are required to deliver the single European electricity market deliver efficiencies and at least cost electricity to consumers. However, in the longer term, it should have benefits for our cost competitiveness (i.e. bring us more into line with EU prices) and for security of supply;
- The need to adapt the fuel mix will not only affect cost competitiveness but also our ability to meet security and sustainability objectives. While the choice of fuels will be determined by the investment decisions of market players, policy tools can be used to incentivise investment in particular fuels or type of generation plant. One of the key challenges for the new energy policy framework will be to decide what mix of fuels will best deliver Ireland's long term energy objectives and ensure incentives (e.g. price supports) and market rules are put in place to achieve them<sup>22</sup>;
- Continue to bring the differential in controllable domestic costs (i.e. non-fuel costs) into line with costs in our main competitor countries. In particular a strong regulatory focus is needed to drive greater efficiencies in the operating, maintenance and capital costs of transmission and distribution networks;

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<sup>21</sup> For more details see: Review of Energy Competitiveness Issues and Priorities for Enterprise, Forfás, December 2011.

<sup>22</sup> Forfás' Irish Energy Tetralemma report analysed the suitability of 20 different fuels for meeting long term energy objectives and provided a summary of the relative attractiveness or appropriateness of each fuel under different scenarios, for different time periods, and with different weights given to the different policy pillar. Irish Energy Tetralemma - Framework for Fuel Choices in Ireland, Forfás, August 2010.

- Review the timeframes for grid investment plans to take account of the implications of reduced demand and planning delays while ensuring that future enterprise needs are met. Work underway by Eirgrid to examine the timing of specific projects under the grid development strategy, Grid 25, is a welcome development. We also need to ensure more geographically focused renewables investment to minimise the amount of additional grid investment required. In particular, optimal wind sites in terms of electricity generation potential and proximity to the existing grid should be prioritised;
- High-tension transmission lines should continue to be placed overhead as it provides a technically superior solution at a fraction of the cost to all energy users<sup>23</sup>. It is critical that a decision is made quickly following the report of the expert international commission on the case for undergrounding part or all of the north-south interconnector and that it provides the policy certainty required to progress the significant energy infrastructure investment (e.g. north-south interconnector, proposed Grid Link project) needed to support future growth and competitiveness. Delays in completing the North-South interconnector are negatively affecting the efficient functioning of the SEM and are estimated to be costing approximately €20-30 million per annum, which means higher costs for Irish electricity consumers<sup>24</sup>;
- DCENR is reviewing the PSO levy on peat this year<sup>25</sup>. Given the cost implications for electricity customers and environmental impact, subsidies for peat generated electricity should be abolished. Proposals to convert the peat plants to biomass should not be progressed until a full cost benefit analysis of the implications for Irish electricity prices and energy security and sustainability is undertaken; and
- As a mature technology, the price support scheme for onshore wind should be revised so that the price support levels for new onshore wind projects are phased out over time. While there are potentially significant enterprise opportunities in emerging energy technologies (e.g. offshore wind/ocean energy), they should be funded through funding mechanisms for R&D, if deemed competitive, rather than by energy customers through expensive guaranteed price supports. Government recently decided not to introduce guaranteed price supports for offshore wind capacity.

## 2. Ensuring security of supply

- Reduce Ireland's reliance on imported fossil fuels to ensure long term energy security. In spite of our ambitious plans to increase the use of renewable energy sources, Ireland is expected to remain largely reliant on imported fossil fuels for its total energy needs well beyond 2020:
  - In the short term, it is important that the Corrib reserves are brought on stream without further delay. It is critical that the new energy policy framework prioritises the actions required to increase oil and gas storage (including liquefied natural gas (LNG)) so as to ensure security of supply;

<sup>23</sup> See Section 3.1 of the Forfás report, Review of Energy Competitiveness Issues and Priorities for Enterprise, December 2011.

<sup>24</sup> Speech by the Minister for Communications, Energy and Natural Resources at the Energy Ireland conference, June 2011.

<sup>25</sup> For 2011/2012, the total PSO levy amounts to €92.1 million, of which €40.4 million is for peat subsidies.

- In the longer term, increasing electricity interconnection to Great Britain and continental Europe will reduce our reliance on gas and wind and help diversify the electricity fuel mix. The potential of individual renewable heat sources is limited in an Irish context (e.g. CHP, district heating, geothermal). However, if we want to diversify the heat fuel mix and meet the 2020 renewables target, we need to promote investment in alternative sources that are most cost effective;
- Address planning delays and inefficiencies to ensure network investment and new generation/storage capacity are delivered on time to meet future enterprise needs at least cost. It is vital that actions to reduce planning delays and to improve the efficiency of planning approval system are progressed quickly. In particular, we need to make the planning approval system more effective so that it can deliver greater certainty of outcome in a consistent, timely and transparent manner, while protecting rights to fair process; and
- Climate change proof Ireland's critical energy infrastructure (e.g. generation plants in coastal areas) to ensure that risks are minimised at least cost.

### *3. Improving Environmental Sustainability:*

- Continued and enhanced efforts are required by Government departments, enterprise agencies and business representative associations to ensure that businesses are fully aware of how best to reduce their energy use. Actions to improve domestic energy efficiency (e.g. smart metering, retrofitting of homes) also need to be progressed as reducing peak domestic electricity use will lead to benefits for all users;
- A continued focus on delivering new renewable energy capacity (wind, geothermal, biomass). In particular, actions to reduce planning delays and to improve the efficiency of the grid connection process need to be prioritised; and
- Implementation of the Department of Transport's smarter travel policy is critical to changing behaviour and reducing use of the private car. Key actions include selective investment in public transport in the main cities, promoting other modes of transport (walking, cycling, public transport) and consideration of the introduction of congestion charges in key urban centres to facilitate better use of road infrastructure and increased mobility.

*For further information on the main energy issues and priorities for enterprise development, see:*

- Review of Energy Competitiveness Issues and Priorities for Enterprise, Forfás, December 2011 - [www.forfas.ie/publication/search.jsp?tp=Infrastructure#Energy](http://www.forfas.ie/publication/search.jsp?tp=Infrastructure#Energy)

## 4. Water and Waste Water Services

### Background

The provision of adequate and affordable water services is crucial to ensure the sustained growth and development of enterprise in the gateways and hubs. Access to secure and competitively priced water supplies, at appropriate quality levels, is core to the delivery of these services.

### Recent Developments

- Under the EU-IMF agreement, Ireland committed *to undertake an independent assessment of the transfer of responsibilities for water service provision from local authorities to a water utility and prepare proposals for implementation, as appropriate with a view to start charging in 2012/2013*<sup>26</sup>. Ireland is the only member of the OECD which does not currently charge domestic users directly for water services.
- In January 2012, the Department of Environment, Community and Local Government (DECLG) published its position paper setting out proposals for the structure, functions and operation of Irish Water as well as a background PwC report<sup>27</sup>. In April 2012, the Government announced that Irish Water will be established as an independent state owned subsidiary of Bord Gáis<sup>28</sup>. DECLG is developing a detailed implementation plan for the transition of water services functions from the local authorities to Irish Water, which will cover the legal, governance, organisational, human resources, financial, operations and regulatory issues that need to be addressed in the establishment of Irish Water. The Government also announced that it will commence rolling out a water metering programme for domestic water users later this year.
- The Infrastructure and Capital Investment 2012-16 plan is prioritising water and waste water services expenditure on ensuring adequate capacity for economic development and meeting environmental targets<sup>29</sup>. The stated priorities include significantly reducing leakage levels, improved water capacity and security of supply in Cork, Leixlip and Tullamore and planning for long term supply in Dublin. Waste water priorities are focused on towns and villages in counties Kildare, Waterford, Laois and Donegal.
- NewERA has responsibility for coordinating water, broadband and energy investment. It will use the proceeds from the sale of State assets and existing National Pension Reserve Fund resources to work with the public and the private sector to develop and implement proposals for commercial investment in line with Programme for Government commitments in energy, water and broadband<sup>30</sup>. NewERA will also

<sup>26</sup> [http://ec.europa.eu/economy\\_finance/articles/eu\\_economic\\_situation/pdf/2010-12-07-mou\\_en.pdf](http://ec.europa.eu/economy_finance/articles/eu_economic_situation/pdf/2010-12-07-mou_en.pdf)

<sup>27</sup> <http://www.environ.ie/en/Environment/Water/WaterSectorReform/>

<sup>28</sup> <http://www.environ.ie/en/Environment/Water/WaterSectorReform/News/MainBody,29944,en.htm>

<sup>29</sup> <http://per.gov.ie/wp-content/uploads/Infrastructure-and-Capital-Investment-2012-20161.pdf>

<sup>30</sup> [http://www.taoiseach.gov.ie/eng/Government\\_Press\\_Office/Government\\_Press\\_Releases\\_20111/NewERA\\_and\\_the\\_Strategic\\_Investment\\_Fund\\_Establishment\\_and\\_Appointment.html](http://www.taoiseach.gov.ie/eng/Government_Press_Office/Government_Press_Releases_20111/NewERA_and_the_Strategic_Investment_Fund_Establishment_and_Appointment.html)

identify possible synergies between the investment programmes of different State companies. This offers significant potential to exploit costs savings. For example, coordinating water network investment and fibre deployment, as up to 80 per cent of the costs of telecoms infrastructure rollout is civil works.

- In November 2011, the European Commission informed the Irish Government that it was of the opinion that Ireland has incorrectly implemented the concept of water services as described in the EU Water Framework Directive, leading to inappropriate water pricing<sup>31</sup>. Ireland is of the opinion that the cost recovery should apply only to the supply of drinking water and the disposal and treatment of wastewater. The Commission however defines water services more broadly to include water abstraction. Ten other member states have a similar interpretation of the Water Framework Directive as Ireland. It is likely that the case will be referred to the EU Court of Justice during 2012.

## Key Issues for Enterprise

- The provision of adequate and affordable water and waste water services is crucial to ensure the sustained growth and development of enterprise in the main urban centres. Access to secure and competitively priced water supplies, at appropriate quality levels, is core to the delivery of these services. Adequate waste water treatment capacity is also essential for environmental sustainability.
- Although Ireland has made substantial investment in water and waste water infrastructure in recent years, further investment is required to address expected water and waste water capacity deficits in a number of key urban centres (Dublin, Galway, Athlone, Letterkenny, Mallow and Wexford).
- Ireland has relatively high levels of unaccounted-for water (treated drinking water that is lost through the distribution network, largely via pipe leakage and illegal connections).
- Enterprises require greater transparency and consistency with regard to how the charges for water and waste water services are calculated. It is currently not possible to determine if water charges are fully cost reflective. Currently, enterprises pay the marginal cost for capital projects, that is, they pay the difference between the cost of providing water service infrastructure to domestic users (which is borne by the State) and the total cost of providing water services to all users. Water services are set by local authorities and vary considerably across the country. In 2011, the average consolidated charge (water and waste water per metre cubed) was €2.33<sup>32</sup>.

## Policy Priorities for Enterprise

- We need to plan for a smooth transition to ensure that the establishment of Irish Water and the transfer of responsibilities from the local authorities to the national utility company do not cause any disruption to water services. A commitment to

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<sup>31</sup><http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/1433&format=HTML&aged=0&language=EN&guiLanguage=en>

<sup>32</sup> Kildare County Council had the lowest charge in the country at €1.49 per metre cubed while Wicklow County Council had the highest charge at €3.04 per metre cubed.

supporting enterprise development and national competitiveness should be a core principle underpinning the establishment and operations of Irish Water. Given the announcement that Irish Water is to be established as subsidiary of Bord Gáis, clear rules will be required to ensure that the ‘parent’ State company does not gain any unfair competitive advantage from the relationship (e.g. cross subsidisation, joint marketing). It is also essential that the legislation requires an independent review after a defined period of time to assess when best to separate Irish Water into a stand-alone entity;

- Irish water prices for enterprise are relatively competitive, ranking joint fifth cheapest of 14 countries benchmarked (latest comparable data is for 2009). While it is likely that in the longer term, there will be a single national price for water, we need to minimise the impact on the international competitiveness of Irish enterprise, particularly water intensive sectors like food and pharmaceuticals.
- Ensuring adequate and affordable water services are in place is critical to support enterprise development. Reducing the high leakage levels that exist in many NSS centres needs to be the first course of action taken by water service providers, as it will increase the volume of water available to meet demand without necessitating significant capital investment in new water treatment capacity. In this context, no Exchequer funds should be allocated to provide additional water treatment capacity to any urban centre until action plans to reduce leakages to an acceptable level are implemented.
- The availability of quality performance data is extremely limited both at national and international level, making it difficult to benchmark quality performance. Quality indicators of relevance to enterprise need to be collected monitored and published. Consideration also needs to be given to the introduction of a customer charter with service level guidelines covering billing arrangements, response times to service disruption and compliance with quality standards.
- We need to better manage demand for water by reducing water use. Greater conservation will help to protect a precious resource, as well as reducing the need for capital investment in new infrastructure. Reducing water use will require behavioural changes by both enterprise and the domestic user.

*For further information on the main water and waste water issues and priorities for enterprise development, see:*

- Assessment of Water and Waste Water Services for Enterprise, Forfás, September 2008 - [www.forfas.ie/media/forfas080902\\_water\\_waste\\_water.pdf](http://www.forfas.ie/media/forfas080902_water_waste_water.pdf)

## 5. Waste

### Background

The availability of waste management services and the associated costs continue to be important competitiveness issues for enterprise in Ireland. Given the unprecedented challenges facing the Irish economy, a key challenge for waste policy in Ireland is to balance economic and environmental goals in a way which will minimise business costs and avoid putting jobs at risk.

### Recent Developments

- DECLG is due to issue the new waste policy shortly. In August 2011, the Department of the Environment, Community and Local Government (DECLG) issued a discussion paper to inform the preparation of a new national waste policy framework<sup>33</sup>. DECLG also published a consultation paper in June 2011 on reorganising household waste collection, with a particular focus on introducing competitive tendering for household waste collection.
- The EU Waste Framework Directive (WsFD) 2008/98/EC was fully implemented into Irish law in 2011. The substantive changes in the Directive are aimed at encouraging the greater reuse and recycling of waste, whilst it also sets out to simplify the fragmented legal framework that has regulated the waste sector to date<sup>34</sup>.
- The Government is considering introducing a packaging levy to drive waste reduction. No decision has yet been made on its implementation. The EU target for packaging recovery is 60 per cent by 2011. According to the Environmental Protection Agency (EPA), Ireland has already achieved that target, recovering 65 per cent of packaging waste in 2008 and 70 per cent in 2009 (latest data available).
- As of 1 September 2011, the landfill levy was increased by €20 to €50 per tonne. Further increases are planned - to €65 per tonne from July 2012 and €75 per tonne from July 2013.

### Key Issues for Enterprise

- Ireland has limited waste management infrastructure options compared with international competitors, which is leading to an ongoing heavy reliance on landfill. Irish enterprise needs a range of waste treatment options across the waste management hierarchy and delivering this infrastructure is a key priority. Applying significantly increased landfill waste levies, in the absence of alternative waste management options, will increase the costs of doing business further, particularly for those in manufacturing in key sectors such as food and pharmaceuticals, and runs counter to national policies to improve Ireland's cost competitiveness.

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<sup>33</sup> The discussion paper is available at:

<http://www.environ.ie/en/Publications/Environment/Waste/WasteManagement/FileDownload,27540,en.pdf>

<sup>34</sup> The WsFD streamlines EU waste legislation by repealing the current Waste Framework Directive (2006/12/EC), the directive on hazardous waste (91/689/EEC) and part of the directive on waste oils (75/439/EEC).

- Although landfill costs in Ireland have moderated significantly, advertised prices and prices which can be negotiated in the market remain comparatively high, and gate fees in Ireland for food waste remain among the highest of the benchmarked countries and regions.

## Policy Priorities for Enterprise

Finalisation of the new waste policy by DECLG is essential to providing market certainty for waste services providers and consumers. While many of the proposed guiding principles that will underpin the new waste policy (adhering to the EU waste hierarchy; promoting waste prevention; facilitating investment in infrastructure and ensuring it is flexible enough to respond to technological developments) are to be welcomed, a greater focus on supporting competitiveness objectives is required. Among the policy priorities for enterprise development are:

- Ensuring that the new waste policy addresses the current regulatory and policy uncertainty in waste management in Ireland: In particular, we need to provide a level playing field for private and public service infrastructure providers and address the potentially conflicting role of local authorities as infrastructure providers and as regulators;
- The national coordination of regional waste plans to promote competition, increasing efficiencies and realising economies of scale: If the regional approach to waste plans is retained, the current classification of waste regions should be reviewed to ensure that it reflects natural waste markets and their hinterland in order to facilitate economies of scale and the development of more commercially viable and more cost effective infrastructure. In particular, the DECLG should be given the power to compel the small number of individual counties/local authorities that have stayed outside the current regional groupings into bigger regional groupings so that businesses in those areas can take advantage of the benefits arising from greater economies of scale and more cost effective infrastructure delivery;
- Improving waste management cost competitiveness: While waste costs have moderated, Irish enterprises have more limited waste management infrastructure options than international competitors have. Any future increase in the landfill levy should reflect the pricing of externalities (environmental and other damage caused by landfill such as remedial treatment costs and emissions)<sup>35</sup>;
- Reducing planning delays: Lengthy delays in the planning process continue to have a negative impact on the timely delivery of key waste management infrastructures. We need to make the approval system more effective and transparent, while protecting rights to fair process and environmental standards<sup>36</sup>;
- Delivering new waste infrastructure capacity along the waste hierarchy: A range of infrastructures are required along the waste hierarchy to meet Ireland's waste management requirements and to reduce our reliance on landfill. We need to address

35 The ESRI recommends a €44.50-55.10 levy for landfills with no flaring or gas capture and reduced rates for landfills with appropriate methane management.

[www.esri.ie/news\\_events/latest\\_press\\_releases/launch\\_of\\_report\\_an\\_econo/index.xml](http://www.esri.ie/news_events/latest_press_releases/launch_of_report_an_econo/index.xml)

36 The Irish Academy of Engineering report on the cost effective delivery of essential infrastructure, which was partially sponsored by Forfás, outlines a series of policy actions to reduce planning delays and enable more efficient infrastructure delivery: <http://www.forfas.ie/publications/2011/title,8075,en.php>

the barriers to private sector investment such as the regulatory uncertainty and the lack of national coordination to facilitate economies of scale. Specific infrastructures that need to be prioritised include:

- Thermal treatment capacity to recover energy from municipal and industrial waste;
- Thermal treatment or landfill capacity for hazardous waste in light of increasingly strict rules on the export of waste;
- Biological treatment capacity (composting, anaerobic digestion); and
- Reprocessing capacity for recovered materials.

*For further information on the main waste issues and priorities for enterprise development, see:*

- Waste Management in Ireland, Benchmarking Analysis and Policy Priorities, Forfás, October 2010 - [www.forfas.ie/publication/search.jsp?ft=/publications/2010/Title,6852,en.php](http://www.forfas.ie/publication/search.jsp?ft=/publications/2010/Title,6852,en.php)

## 6. Domestic Transport (Road and Rail)

### Background

Access to markets is one of the key factors for companies in deciding where to locate. An efficient and integrated national transport system with adequate capacity, and with levels of service comparable to other countries with which we compete for investment and trade, plays an essential role in Ireland's ability to compete successfully in international markets. Good transport infrastructure is also essential to supporting labour mobility. There have been significant improvements in transport capacity and connections nationally, notably the completion in 2010 of the motorway network from Dublin to Waterford, Cork, Limerick, Galway and Belfast.

### Recent Developments

- Following a period of significant and sustained investment, public capital spending on road and rail infrastructure will be reduced over the period 2012-2016:
  - According to the capital review, the bulk of investment in the national road network will be in maintenance and rehabilitation work (€2.9 billion over five years);
  - Very limited funds will be available for new roads, although the NRA is seeking to progress a number of projects by public private partnership (PPP)<sup>37</sup>. The two most advanced PPP projects are the N11 Arklow-Rathnew/N7 Newlands Cross Interchange and N17 Gort to Tuam. It is also proposed that the New Ross/Enniscorthy PPP project and the Galway city outer by-pass will also be progressed during the lifespan of the review. Other road projects important for competitiveness and enterprise are to be prioritised in the event of additional resources becoming available; and
  - The focus of rail investment is on protecting and extracting maximum value from existing assets and linking the LUAS lines. Large proposed public transport projects such as Metro North and the DART underground have been deferred.
- The national road network now extends some 5,500 km, including almost 1,200 km of motorway which carry 45 per cent of the country's total road traffic. The improvements in our transport infrastructure are reflected in data from the IMD's World Competitiveness Yearbook on the perception of distribution infrastructure, which shows a significant improvement in Ireland's performance between 2005 (Ireland scored 4.5 out of 10) and 2011 (8 out of 10). However, Ireland continues to lag competitor countries - in 2011 Ireland ranked 26<sup>th</sup> of the 59 countries benchmarked in terms of the perceptions of its distribution infrastructure (31<sup>st</sup> in 2010)<sup>38</sup>.

37 The Infrastructural and Capital Investment 2012-16: Medium Term Exchequer Framework  
<http://per.gov.ie/2011/11/10/infrastructural-and-capital-investment-2012-16-medium-term-exchequer-framework/>

38 IMD World Competitiveness Yearbook 2010.

- Journey times on the key routes now stand at:
  - M1 Border / Dublin: 1 hour
  - M8 Cork / Dublin: 2 hours 30 minutes
  - M4/N6 Galway / Dublin: 2 hours 10 minutes
  - M7 Limerick / Dublin: 2 hours 15 minutes
  - M9 Waterford / Dublin: 1 hours 45 minutes
- In March 2012, the Government decided not to seek an extension of Ireland's derogation under EU legislation opening access to the rail market. The Department of Transport will consult on how best to restructure Iarnród Éireann before the derogation ends on the 14<sup>th</sup> March 2013<sup>39</sup>. The 'leap' card was launched in December 2011 as part of the implementation of an integrated ticketing system across existing public transport services in the Dublin area. Real time information is also now available to users of the Dublin Bus network and will be rolled out to Cork, Galway, Limerick and Waterford during 2012.
- In December 2011, the National Transport Authority approved fares increases across all public transport operators (Dublin Bus, Iarnród Éireann, Bus Éireann and the Luas), following a reduction in the subvention available to them in Budget 2012. The increases came into effect in January, 2012. Cash fares increased by significantly more than fares for leap card holders.
- Traffic volumes through the Dublin Port Tunnel grew by two million commercial vehicles (HGVs and light vans) in 2010, a ten per cent increase on 2009, reflecting the strong export performance.

## Key Issues for Enterprise

- For exporters and importers, the entire chain from their premises to the customer is important for the effective movement of goods in and out of the country. An integrated approach across all modes of transport is critical to ensure a high standard of connectivity to and within the country.
- Given the limited capital resources available in the short to medium term, it is critical that we prioritise investment that will support economic recovery and sustainable growth.

## Policy Priorities for Enterprise

- Given the constraints on capital expenditure, there are a number of bottlenecks around the country that if addressed in the immediate term will allow the full benefits of the significant investment in road and other infrastructures already made to be fully captured:
  - These include the completion of the Cork and Galway ring roads and two sections of the Atlantic Corridor (Gort-Tuam and Croom-Mallow) which will improve mobility of people and goods in and between Ireland's main regional cities. They

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<sup>39</sup> <http://www.dttas.ie/pressRelease.aspx?id=517>

would also improve access to Cork and Shannon airports and Shannon-Foynes and Cork ports for the south west, mid west and west regions; and

- Other enterprise road priorities include the PPP projects to be progressed under the capital review (see earlier section on recent developments), the N28 Cork to Ringaskiddy upgrade and the N22 Macroom/Ballyvourney by-pass.
- Completing the Atlantic corridor from Galway to Waterford remains an important medium term priority to support sustained economic growth and job creation. In the longer term, consideration needs to be given to progressing the Eastern Bypass and the Leinster Orbital Route corridor within the lifetime of the Dublin area transport strategy.
- Improving public transport in the key urban centres is critical to improve mobility for all transport users. A selective continued investment in the options (as between bus and rail) with the highest economic and social returns, based on a full cost benefit analysis, to improve public transport in the key urban centres, particularly Dublin, Cork, Galway and Limerick, is required.
- Reform of the regulatory framework for public transport, particularly in urban bus services, to promote competition and ensure quality services in terms of routes served and frequency of service is required.
- Greater clarity is needed on Ireland's rail freight policy objectives, including rail freight's role as part of an integrated transport system across all modes of transport. We need to improve awareness of the recent expansion of rail freight services and promote its use. Future investment in rail freight must be driven by market demand, both existing and potential.

## 7. International Transport (Air and Sea Ports)

### Background

Good international air and sea access coupled with effective internal connectivity is a key factor in mitigating the impact of Ireland's peripheral location in the eyes of potential investors and overseas customers. An efficient and integrated national transport system with adequate capacity, and with levels of service comparable to other countries with which we compete for investment and trade, plays an essential role in achieving this.

### Recent Developments

- In April 2012, the Irish Maritime Development Office (IMDO) published ports traffic data for 2011<sup>40</sup>. Ro-ro volumes were flat in 2011 both in Ireland and on an all island basis while lo-lo (container) volumes continued to fall, mainly because of declining imports. The decline in container volumes in recent years has led to greater concentration in the sector - in 2011, three ports (Dublin, Belfast and Cork) accounted for 93 per cent of the traffic on the island compared to a combined share of 82 per cent in 2007.
- Following three years of declining passenger numbers, the three main airports, Dublin, Cork and Shannon, handled more than 22.7 million passengers during 2011, an increase of one per cent on 2010. Dublin Airport handled over 18.8 million passengers in 2011, which was a two per cent increase on the previous year. Passenger numbers at Cork (down three per cent to 2.4 million) and Shannon (down seven per cent to 1.6 million) declined. The number of air passengers travelling between the Irish airports declined to 200,000 in 2011 from a peak of 1.5 million in 2005.
- During 2012, new routes are opening from Dublin Airport to Dubai, Washington, Verona, Stockholm, and Dusseldorf, while Cork Airport is adding new routes to Pisa, Palma, Brussels and Girona. A number of airlines have also announced extra capacity on a significant number of existing routes across the three airports.
- In February 2012, the Department of Transport, Tourism and Sport published a redacted version of the report commissioned from Booz and Company on the options for the optimal ownership and operational structures for Cork and Shannon airports<sup>41</sup>. The report outlined two potential approaches:
  - maintaining State control of both airports but each airport would be given the status of independent subsidiary within the overall group; and
  - separating Shannon airport from the Dublin Airport Authority (DAA) and placing it in a new entity, possibly with other local public bodies. Cork airport would remain within the ownership and operation of the DAA but with greater autonomy.

Following consultation with the relevant stakeholders, the Minister will bring proposals to Government on the future of Cork and Shannon airports.

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40 The Irish Maritime Transport Economist, IMDO, April 2012 - <http://www.imdo.ie/imdo/shipping>

41 <http://www.dttas.ie/pressRelease.aspx?id=505>

- In February 2012, the Government announced its plans for the sale of State assets. It plans to dispose of the State's remaining shareholding in Aer Lingus when market conditions are favourable and at an acceptable price to Government<sup>42</sup>. NewERA will work with the Department of Public Expenditure and Reform and other relevant departments on the disposal of State assets.
- In 2011, the Government announced cuts in support for four of the six regional airports. Donegal, Knock Ireland West, Kerry and Waterford will continue to be supported, subject to the availability of funds, until the end of 2014. The State will not be providing operational or capital funding to Galway or Sligo airports.
- In August 2011, the Government announced that it is to continue funding for public service obligation (PSO) air services between Kerry and Dublin (operated by Aer Arann) and Donegal and Dublin (by Loganair)<sup>43</sup>. The contracts are for a three year period from November 2011 and require the airlines to operate two return flights each day. The volume of exports and imports going through Irish seaports increased by six per cent and one per cent between 2009 and 2010 respectively (latest data available)<sup>44</sup>. Over 1.6 million containers were handled at the country's seaports with an estimated €135 billion worth of merchandise passing through them in 2010. While lo-lo traffic declined by four per cent in 2010, this represents a significant decrease from a decline of 21 per cent in 2009. After three years of consecutive decline, ro-ro traffic increased by five per cent in 2010.
- In February 2012, the Dublin Port Company published its Masterplan 2012-2040 with the goal of ensuring that the port can provide additional throughput capacity to cater for projected traffic growth<sup>45</sup>.

## Key Issues for Enterprise

- The key issue for enterprise is ensuring that we have good international access by air and sea in terms of locations served, frequency and costs.
- While Ireland is moving towards a services economy, manufacturing remains hugely important to the economy (55 per cent of total exports in 2011). The change in the composition of Irish merchandise exports from higher volume, lower value goods to lower volume, higher value goods, particularly in key growth sectors like pharmaceuticals and ICT, has resulted in a change in the type of freight services demanded by these sectors, with an increasing demand for air freight services<sup>46</sup>.
- However, exports from these higher value sectors are small as a proportion of the overall volume of traffic in and out of Ireland and as a result, these changes will have very little impact on the overall demand for sea freight services, which is driven by volume. What is likely to continue to change in terms of the needs of enterprise is that both importers and exporters will require increasingly sophisticated, high quality and cost competitive sea freight services to get their products to market efficiently.

42 <http://per.gov.ie/2012/02/22/government-secures-substantial-reinvestment-in-economy-from-disposal-of-state-assets/>

43 <http://www.dttas.ie/pressRelease.aspx?id=389>

44 Irish Transport Maritime Economist, IMDO, April 2011 <http://viewer.zmags.com/publication/790d31e6#/790d31e6/1>

45 [http://www.dublinport.ie/fileadmin/user\\_upload/documents/Dublin\\_Port\\_Masterplan.pdf](http://www.dublinport.ie/fileadmin/user_upload/documents/Dublin_Port_Masterplan.pdf)

46 While only one per cent of the State's international merchandise trade in volume terms is moved by air, air freight accounts for 25 per cent in value terms.

- In 2009, Forfás published its *Assessment of Port Services Issues for Enterprise*<sup>47</sup>. The report concluded that by and large, the needs of enterprise are well served along the supply chain from the ports to the shipping lines to the logistics providers. Costs were relatively competitive and the range and frequency of routes served was good. However, internal road and rail access remained an issue for enterprise in getting their goods to overseas markets. The sharp deterioration in Irish imports since 2008 has meant that Ireland has to import empty containers to meet the capacity requirements of exporters which has implications for costs, as does the increasing price of oil.
- The international trend toward larger shipping vessels will reduce the ability of Irish ports to continue to offer the current range and frequency of services unless adequate deeper water facilities are provided. It will also lead to increases in costs because of reduced capacity.

## Policy Priorities for Enterprise

- While air and sea access infrastructure is generally not funded directly from public capital expenditure budgets, public policy has a key role to play in ensuring that the private sector (i.e. commercial semi-states and others) invests in a timely manner to ensure the current and future needs of enterprise are met. Periodic reviews of future needs are required to ensure that we continue to have good sea and air access in the long term. Important decisions pending in 2012 are the review of ports policy and the decision on the future ownership and operation of Cork and Shannon airports.
- In the long term, we need to develop deeper water facilities at Irish ports to accommodate the international trend toward larger shipping vessels and ensure that Irish importers and exporters continue to have access to a wide range and frequency of port services at competitive prices.
- Consideration should also be given to creating the regulatory environment to develop Ireland's potential as an entrepot port (e.g. setting out a clear framework ensuring port companies are autonomous and commercial companies).
- Developing new direct air links with key existing markets e.g. the US West Coast, and high growth markets e.g. India and China, and maintaining air links with key European markets are critical to support export growth and job creation.
- The privatisation of air and sea ports needs careful consideration. As set out in Forfás' report on the role of State owned enterprises, Ireland needs to develop a clearer rationale to guide the potential disposal of state assets in future<sup>48</sup>. From an enterprise development perspective, it is essential that privatisation policy protects and promotes competition in the market (i.e. by not selling monopoly assets or assets to dominant competitors), ensures that investment and regional development is promoted and that regulatory capabilities are sufficiently advanced to achieve public policy goals in the absence of ownership rights.
- The potential to implement stronger corporate governance frameworks at Irish air and sea port companies needs to be considered. Many of the governance challenges faced

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<sup>47</sup> Assessment of Port Services Issues for Enterprise, Forfás, January 2010.

<sup>48</sup> The Role of State Owned Enterprises, Forfás, July 2010.

by large State owned companies and large private sector companies are often very similar. Ownership does not necessarily equate with control. International experience suggests that there is potential to implement stronger corporate governance frameworks, including:

- developing clearer mandates and improving monitoring by shareholders. This requires the development of specific and transparent mandates to ensure that State owned companies have clear objectives and targets which can be monitored and reported on over time. From an enterprise development perspective, benchmarking the quality and costs of air and sea services provided to enterprise relative to trading partners and competitors would be important<sup>49</sup>; and
- putting in place transparent mechanisms to ensure that Boards comprise relevant expertise - for example, competency databases as are used in Nordic countries.

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<sup>49</sup> When Forfás undertook its research for its ports study, we found it difficult to benchmark the quality and price of services relative to competitor countries. While the size and diversity of function complicate benchmarking, it is important to note that enterprise needs are relatively clear. Ireland and by extension our ports must be able to compete with the best in the world.

## 8. Intelligent Infrastructure

### Background

“Intelligent infrastructure” or “smart infrastructure” is the application of technology to deliver a more effective and efficient infrastructure service. It uses a layer of technologies, which can be embedded in the design of new infrastructure or applied to existing infrastructure. For example, some local authorities in Ireland have placed sensors in their water distribution pipes to enable speedy identification of leakages.

“Intelligent” or “smart” infrastructure can play a substantial role in reducing the burden on the Exchequer and in freeing up scarce capital resources. Intelligent infrastructure optimises the operation of infrastructural services and reduces infrastructure costs. It improves the productivity of infrastructure and by creating a better business environment can enhance national competitiveness. In addition, developments in intelligent infrastructure present opportunities for new products and services for the Irish enterprise sector.

### Recent Developments

Smart technologies have already been applied to a range of infrastructures in Ireland:

- In the area of electricity, for example, the development of a smart electricity grid is at a relatively advanced stage, and a large pilot study on smart electricity metering has been concluded with the results presenting a very positive outcome from the cost benefits analysis. The CER recently consulted on the national rollout of smart electricity and gas meters to residential and SME customers and is due to publish its decision shortly.
- A number of intelligent transport system (ITS) initiatives have also been established in Ireland such as barrier-free tolling on the M50 and the use of sensors to monitor traffic and sequence traffic lights accordingly in some urban areas.
- IBM has opened a Smarter Cities Technology Centre in Dublin which will enable city authorities and other stakeholders to research and develop new ways of making city infrastructure systems more connected, sustainable and intelligent.

### Key Issues for Enterprise

- The availability of a competitively priced world class infrastructure and related services are critical to enable the productive sector to continue to grow exports and support economic recovery and sustainable long term growth. In the context of significantly reduced public capital budgets, we need to develop smarter solutions to leverage the significant investments already made and improve our competitiveness.
- Smart technologies are ideally suited to help resolve many of Ireland’s pressing infrastructure problems which affect the competitiveness of our enterprise base. Intelligent infrastructure offers innovative solutions to address issues such as a congested capital city with limited potential to build new roads, our excellent but

highly variable renewable energy resources and an extensive water distribution network with high levels of leakage.

### Policy Priorities for Enterprise

- An assessment of the potential for intelligent infrastructure to substitute or complement traditional capital investment should be required as part of the investment appraisal process. In addressing infrastructural deficits, there is a need, where possible, to utilise management and operational solutions rather than capital intensive investment solutions. The application of smart technologies to enhance the capacity of existing infrastructure is an example of an effective infrastructure management approach (e.g. using sensor technology to identify water network leaks reduces the need for costly additional water treatment capacity). Appraisal methods may need to be modified to capture the benefits and costs of intelligent systems.
- Given the cross-infrastructural synergies of smart technology, institutional cooperation can yield significant benefits in terms of cost savings and other economies of scales. A more integrated approach to infrastructure planning would facilitate improved efficiency, effectiveness and competitiveness. Coordinating the roll out of different infrastructure services (e.g. roads, telecoms, water, and energy) has the potential to deliver significant cost savings, particularly where projects are undertaken simultaneously. Appropriate structures for exploiting these benefits should be explored in more detail. For example, the NewERA and the development of integrated utility agencies with a national remit (e.g. national water authority) could play significant roles in facilitating greater coordination.
- Ensure that consumer concerns regarding privacy, data security and costs are addressed through cooperation between consumer and citizens rights groups, the infrastructure providers, utility regulators and the Commissioner for Data Protection. In particular, where third parties are involved in the processing, management or usage of user data it will be essential that effective protocols are in place to protect the rights to privacy of individuals and households.

In 2011, Forfás undertook a study to explore the potential for the deployment of intelligent infrastructure in Ireland, focusing specifically on the core infrastructures of energy, water, transport and waste. The Forfás report also included a number of actions to realise the intelligent infrastructure opportunities for Irish based enterprises.

*For further information on the intelligent infrastructure issues and priorities for enterprise development, see:*

- Intelligent Infrastructure: Delivering the Competitiveness Benefits and Enterprise Opportunities, Forfás, November 2011- [www.forfas.ie/media/ffs111103-Intelligent\\_Infrastructure.pdf](http://www.forfas.ie/media/ffs111103-Intelligent_Infrastructure.pdf)

## Appendix 1: Information Sources

A more detailed assessment of infrastructure policy issues and the implications for enterprise in Ireland is available in the infrastructure publications section of the Forfás website, <http://www.forfas.ie/publication/search.jsp?tp=Infrastructure>.

### Forfás Publications

#### Broadband

- Ireland's Advanced Broadband Performance and Policy Priorities, November 2011  
[www.forfas.ie/media/ffs111107-NGNs.pdf](http://www.forfas.ie/media/ffs111107-NGNs.pdf)

#### Energy

- Review of Energy Competitiveness Issues and Priorities for Enterprise, December 2011  
<http://www.forfas.ie/publication/search.jsp?tp=Infrastructure#Energy>

#### Water

- Assessment of Water and Waste Water Services for Enterprise, September 2008  
[www.forfas.ie/media/forfas080902\\_water\\_waste\\_water.pdf](http://www.forfas.ie/media/forfas080902_water_waste_water.pdf)

#### Waste and Waste Water Services:

- Waste Management in Ireland, Benchmarking Analysis and Policy Priorities, October 2010  
[www.forfas.ie/publication/search.jsp?ft=/publications/2010/Title,6852,en.php](http://www.forfas.ie/publication/search.jsp?ft=/publications/2010/Title,6852,en.php)

#### Intelligent Infrastructure

- Intelligent Infrastructure: Delivering the Competitiveness Benefits and Enterprise Opportunities, November 2011
- [www.forfas.ie/media/ffs111103-Intelligent\\_Infrastructure.pdf](http://www.forfas.ie/media/ffs111103-Intelligent_Infrastructure.pdf)

#### General Infrastructure

- The Cost-Effective Delivery of Essential Infrastructure, June 2011  
[www.forfas.ie/media/IAE110621-cost\\_effective\\_delivery\\_of\\_essential\\_infrastructure.pdf](http://www.forfas.ie/media/IAE110621-cost_effective_delivery_of_essential_infrastructure.pdf)
- Adaptation to Climate Change: Issues for Business, August 2010  
[www.forfas.ie/publication/search.jsp?ft=/publications/2010/Title,6655,en.php](http://www.forfas.ie/publication/search.jsp?ft=/publications/2010/Title,6655,en.php)
- The Role of State Owned Assets, July 2010  
[www.forfas.ie/publication/search.jsp?ft=/publications/2010/Title,6603,en.php](http://www.forfas.ie/publication/search.jsp?ft=/publications/2010/Title,6603,en.php)

## Other Publications

### Broadband

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- Guide to Broadband Investment, European Commission, January 2012 [www.ec.europa.eu/regional\\_policy/sources/docgener/presenta/broadband2011/broadband2011\\_en.pdf](http://www.ec.europa.eu/regional_policy/sources/docgener/presenta/broadband2011/broadband2011_en.pdf)
- Next Generation Broadband: Gateway to a Knowledge Ireland, Department of Communications, Energy and Natural Resources, 2009 [www.dcenr.gov.ie/NR/rdonlyres/F9B1D956-358D-4870-AA99-DD25A4417F59/0/NextGenerationBroadbandPaperGatewaytoaKnowledgeIreland.pdf](http://www.dcenr.gov.ie/NR/rdonlyres/F9B1D956-358D-4870-AA99-DD25A4417F59/0/NextGenerationBroadbandPaperGatewaytoaKnowledgeIreland.pdf)
- Quarterly Report Q3 2011, ComReg, December 2011 [www.comreg.ie/publications/quarterly\\_report\\_q3\\_2011.539.103992.p.html](http://www.comreg.ie/publications/quarterly_report_q3_2011.539.103992.p.html)

### Energy

- National Renewable Energy Action Plan, Department of Communications, Energy and Natural Resources, July 2010 [www.dcenr.gov.ie/NR/rdonlyres/03DBA6CF-AD04-4ED3-B443-B9F63DF7FC07/0/IrelandNREAPv11Oct2010.pdf](http://www.dcenr.gov.ie/NR/rdonlyres/03DBA6CF-AD04-4ED3-B443-B9F63DF7FC07/0/IrelandNREAPv11Oct2010.pdf)
- Energy White Paper: Delivering a Sustainable Energy Future for Ireland, Department of Communications, Energy and Natural Resources, March 2007 [www.dcenr.gov.ie/NR/rdonlyres/54C78A1E-4E96-4E28-A77A-3226220DF2FC/30374/EnergyWhitePaper12March2007.pdf](http://www.dcenr.gov.ie/NR/rdonlyres/54C78A1E-4E96-4E28-A77A-3226220DF2FC/30374/EnergyWhitePaper12March2007.pdf)
- Energy in Ireland 1990 - 2010, SEAI, December 2011 [www.seai.ie/Publications/Statistics\\_Publications/Energy\\_in\\_Ireland/Energy\\_in\\_Ireland\\_1990\\_-\\_2010.html](http://www.seai.ie/Publications/Statistics_Publications/Energy_in_Ireland/Energy_in_Ireland_1990_-_2010.html)
- All-Island Generation Capacity Statement 2012-2021, Eirgrid, December 2011 [www.eirgrid.com/media/All-Island%20GCS%202012-2021.pdf](http://www.eirgrid.com/media/All-Island%20GCS%202012-2021.pdf)
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- Grid 25, Eirgrid, October 2009 [www.eirgrid.com/media/EirGrid%20GRID25.pdf](http://www.eirgrid.com/media/EirGrid%20GRID25.pdf)

### Water and Waste Water Services

- Reform of the water sector in Ireland - Position Paper, Department of Environment, Community and Local Government, January 2012 [www.environ.ie/en/PublicationsDocuments/FileDownload,29192,en.pdf](http://www.environ.ie/en/PublicationsDocuments/FileDownload,29192,en.pdf)
- Irish Water - Phase I, PwC, November 2011 [www.environ.ie/en/Publications/Environment/Water/FileDownload,29193,en.pdf](http://www.environ.ie/en/Publications/Environment/Water/FileDownload,29193,en.pdf)

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- A New National Waste Policy - Discussion Document, Department of Environment, Community and Local Government, August 2011 [www.environ.ie/en/Publications/Environment/Waste/WasteManagement/FileDownload,27540,en.pdf](http://www.environ.ie/en/Publications/Environment/Waste/WasteManagement/FileDownload,27540,en.pdf)

- Altering the Structure of Household Waste Collection Markets - A Discussion Document  
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- ESRI, 'ESRI's Waste Policy Roadmap will support Economic Development and Ireland's Competitiveness', 2010,  
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- EU Waste Framework Directive (WFD) 2008/98/EC, Department of Environment, Community and Local Government, Statutory Instruments, 2011  
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### Transport

- Smarter Travel - A Sustainable Transport Future, Department of Transport, February 2009  
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- Ports Policy Review Consultation Document, Department of Transport, September 2010  
[www.transport.ie/pressRelease.aspx?Id=235](http://www.transport.ie/pressRelease.aspx?Id=235)

### General Infrastructure

- Infrastructure and Capital Investment 2012-2016, Department of Public Expenditure and Reform, November 2011  
[www.per.gov.ie/2011/11/10/infrastructural-and-capital-investment-2012-16-medium-term-exchequer-framework/](http://www.per.gov.ie/2011/11/10/infrastructural-and-capital-investment-2012-16-medium-term-exchequer-framework/)
- Report of Special Group on Public Service Numbers and Expenditure Programmes, Department of Finance, 2010  
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- NewERA and the Strategic Investment Fund Establishment and Appointment,  
<http://www.merrionstreet.ie/index.php/2011/09/newera-and-the-strategic-investment-fund-establishment-and-appointment/>

## Appendix 2: Forfás Board Members

			
<p><b>Eoin O'Driscoll</b> Chairman, Forfás Chairman, Southwestern</p>	<p><b>Martin Shanahan</b> Chief Executive, Forfás</p>	<p><b>Bob Brannock</b> President, European Operations, Genworth Financial</p>	<p><b>Timothy Dullea</b> Former Chief Executive Officer, Tipperary Co-op</p>
			
<p><b>Mark Ferguson</b> Director General, Science Foundation Ireland</p>	<p><b>Miriam Magner Flynn</b> Managing Director, Career Decisions</p>	<p><b>William O'Brien</b> Chief Executive, William O'Brien Plant Hire Ltd</p>	<p><b>Barry O'Leary</b> Chief Executive Officer, IDA Ireland</p>
			
<p><b>Frank Ryan</b> Chief Executive Officer, Enterprise Ireland</p>	<p><b>Dr Don Thornhill</b> Business Adviser and Company Director</p>		
			
<p><b>Michael O'Leary</b> Secretary to the Board</p>			

## Appendix 3: Recent Forfás Publications

Ireland's Productivity Performance, 1980-2011 Forfás / National Competitiveness Council	May 2012
The Community Innovation Survey 2008 - 2011	April 2012
The Irish Enterprise Funding Environment Forfás	April 2012
The Expert Group on Future Skills Needs Statement of Activity 2011 Expert Group on Future Skills Needs	April 2012
Playing our Part: Statement on Horizon 2020 Advisory Council on Science, Technology and Innovation	March 2012
Report of the Research Prioritisation Steering Group Research Prioritisation Steering Group	March 2012
Vacancy Overview 2011 Expert Group on Future Skills Needs	February 2012
Guidance for Higher Education Providers on Current and Future Skills Needs of Enterprise Forfás	February 2012
Addressing High-Level ICT Skills Recruitment Needs: Research Findings Expert Group on Future Skills Needs	January 2012
Ireland's Competitiveness Challenge 2011 National Competitiveness Council	January 2012
Strategy for Science, Technology and Innovation Indicators Forfás, DJEI, DAF&M, DoH, DEC&LG, DE&S, DCENR	December 2011
Review of Energy Competitiveness Issues and Priorities for Enterprise Forfás	December 2011
South East Region Employment Action Plan Forfás	December 2011
Statistics at a Glance 2011 Forfás	December 2011
The Voice of Small Business: Report of the Advisory Group for Small Business Advisory Group for Small Business	November 2011
Review of the Economic Impact of the Retail Cap Forfás	November 2011
Business Continuity Planning In Severe Weather Forfás	November 2011

Intelligent Infrastructure: Delivering the Competitiveness Benefits and Employment Opportunities Forfás	November 2011
The Games Sector in Ireland: An Action Plan for Growth Forfás	October 2011
Ireland's Competitiveness Scorecard National Competitiveness Council	September 2011
Research and Development Funding and Performance in the State Sector 2009 - 2010 Forfás	August 2011
Monitoring Ireland's Skills Supply 2011 - Trends in Education and Training Outputs Expert Group on Future Skills Needs	August 2011
Developing a Green Enterprise Forfás	July 2011
National Skills Bulletin 2011 Expert Group on Future Skills Needs	July 2011
Forfás Annual Report 2010 Forfás	June 2011
Costs of Doing Business in Ireland 2011 National Competitiveness Council	June 2011
Annual Employment Survey 2010 Forfás	May 2011
Response from Ireland to the European Commission Green Paper: Framework for Research and Innovation Funding Advisory Science Council, Forfás, DJEI	May 2011
The Expert Group on Future Skills Needs Statement of Activity 2010 EGFSN	May 2011
Business Expenditure on R&D 2009/2010 Forfás, CSO	April 2011
Developing Recognition of Prior Learning EGFSN	April 2011
Vacancy Overview 2010 EGFSN	March 2011

The publications of Forfás and the advisory groups to which it provides research support are available at [www.forfas.ie](http://www.forfas.ie)

To sign up for our email alerts contact us at [info@forfas.ie](mailto:info@forfas.ie) or through the website.

May 2012

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