WORKSHOP PROCEEDINGS

ENERGY@CORK

13th April 2011

Contents

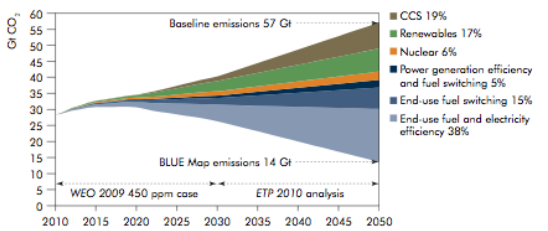
SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Sustainable Energy Opportunities

Energy@Cork
13th April 2011

Our Mission

To play a leading role in transforming Ireland into a society based on sustainable energy structures, technologies and practices.



Key SEAI Priorities

Energy efficiency first: implementing strong energy efficiency actions that radically reduce energy intensity and usage

Low carbon energy sources: accelerating the development and adoption of technologies to exploit renewable energy sources

Innovation and integration: supporting evidence-based responses that engage all actors, supporting innovation and enterprise for our low-carbon future

SEAI approaches

Driving standards, building markets

Analysis and advice

Facilitator, innovator, advocate

Efficient and effective delivery

Stakeholders

International Community

Agencies

Government

Public

Energy Sector

Business

Intellectual Contribution

A moment of opportunity

Global transition has started

Ireland has comparative advantages

It is time to step up our action

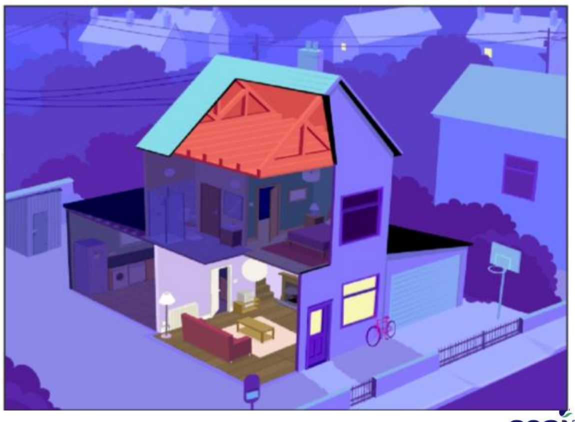
Key Opportunities

Efficiency offers immediate benefits

Our resources create a great renewables opportunity

The cleantech revolution particularly suits Ireland

Retrofitting for Energy Efficiency



Retrofitting efficiency

Reduces energy spend, cuts emissions, supports jobs

Undertaking 1000 full home upgrades

- Supports one hundred jobs for a year
- Saves €10 million more than it costs
- Reduces CO_2 emissions by 2500 tonnes

Potential to upgrade more than one million buildings

Building a national initiative

The foundations are in place:

120,000 homes upgraded in past two years

1000 grants per week, 600 phone calls per day

Lifetime savings are six times the exchequer costs

Building a national initiative

The goal is to widen and deepen

- Additional funding to drive early action
- Energy companies to push demand for upgrades
- Start to move towards new financing

The next steps are ready

Frontload demand through additional capital resources

Adjust supports and take specific initiatives

Commence move to “pay as you save” and utility obligations

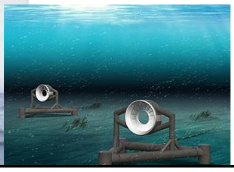
Potential for a large, beneficial activity

The renewables opportunity

Major natural resource

Economic, security and environmental benefits

Wind power is lowering wholesale prices



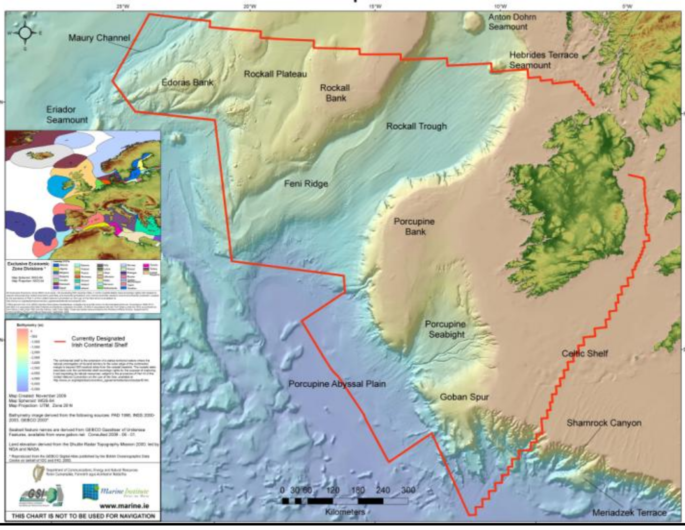
The renewables opportunity

Large opportunity in marine renewables

Marine energy by 2030:

- supporting 50,000 jobs
- cumulative benefit of €12 billion

The Real Map of Ireland



The renewables opportunity

Short term issues include:

- Permissions and connections
- Grid upgrade
- REFIT supports
- Microgeneration supports

The renewables opportunity

The longer term path:

Building an industry sector
Focus on the export market

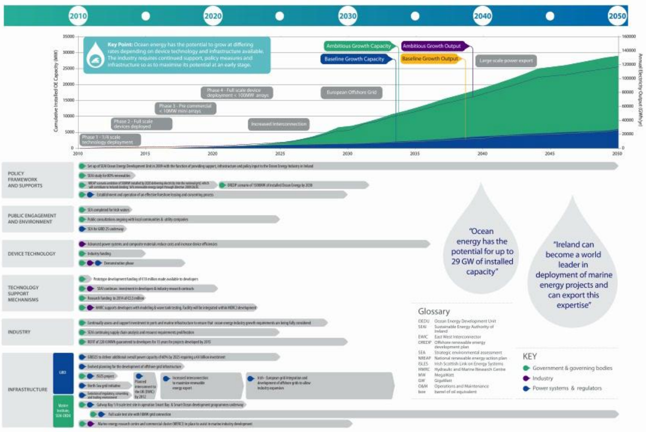
Requires early action and leadership

Energy technology roadmaps

Residential, Bioenergy, Ocean Energy & Smart Grid

- Facilitate the energy and climate policy analysis required to fast-track the transition to low-carbon energy technologies
- Build a deeper understanding of what has to be done when and by whom; identify priority actions for governments, industry, business, finance and civil society
- Evaluate future technology impacts
- Provide a more secure context for investment

Ocean Energy - wave and tidal installation capacity and electrical generation potential to 2050



Our actions

Positioning Ireland as a leader

Supporting the emerging companies

Galway Smart Bay test bed

Belmullet wave energy test site

Data, evidence and business case

2050 Roadmap

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Leading energy technology innovation

Ireland's comparative advantage in ICT

Considerable innovation and enterprise activity underway

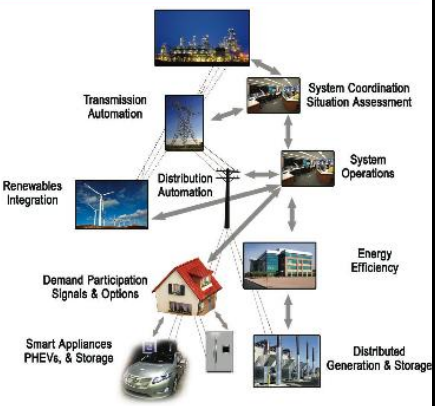
From early movers to building clusters

Could employ 30,000 by 2015

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

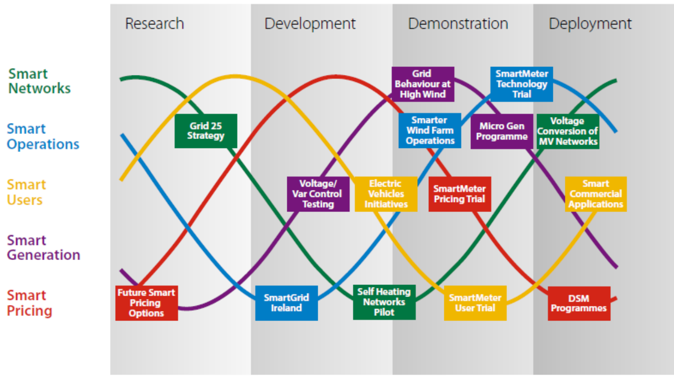
Smarter systems

- Internet-like grid, distributed generation
- Motivated, empowered consumers
- Smarter homes and workplaces and transport
- Efficient utilities, rewarded for delivering energy services



seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

SmartGrid activities in Ireland



Ready actions

Clear statement and positioning

System responsiveness and cross-departmental, cross-agency working

Offer test bed opportunities

Enterprise and employment promotion

Flexibility and imagination

Our Vision

Making Ireland a recognised global leader in sustainable energy.

A society fully engaged in the sustainable energy agenda and an economy fully exploiting the global opportunities in clean, low-carbon solutions.

The challenges

Transforming the Irish building stock while reducing dependence on exchequer funding

Positioning Ireland as the most efficient solution to Europe’s clean energy imperative

Connecting up the public sector to make things move for enterprise and communities

Notes on Discussion Group 1 – Demand Side Management

GENERAL

Points outlined in Discussion Document distributed by facilitator Aiden O'Neill used to initiate discussion. This noted that the South Western Regional Planning Guidelines 2010-2022 expect demand for electricity in the Cork and Kerry region to rise by 60% by 2025. The discussion examined customer, supplier and distributor initiated Demand Side Management (DSM). Recent examples of DSM in practice, including smart networks, smart meters, peak demand reduction programmes and energy management in buildings were noted.

GROWTH OPPORTUNITIES

- Suggestion for Workshop to be called "Demand Side Management & Efficiency Improvements".

- Enormous potential for growth was highlighted on the demand side across the whole supply chain - we are way behind the curve based on the resources we have to hand.

- It was noted that over 90% of energy saving light bulbs are imported: there is huge potential to manufacture these in Cork based on the expertise available locally.

- The example of Tyndall/IERC was cited, where a cluster of 12 companies have come together to look at low energy lighting.

- Concern expressed at the lack of focus on the customer and lack of information as to what they want, suggestion to use the "Tesco" club card approach in terms of finding out more about the customer. An example was cited of how people in the UK turned down free meters as part of the UK smart metering project .

- The Energy Services Directive and other Policy Instruments are tools which will create a market in themselves to drive demand side management and efficiency improvements – external factors including higher commodity prices and carbon credit issue also.

- Planning Authorities/Building Control Departments need to enforce building standards and BER (Building Energy Rating) which would have a positive impact on efficiency improvements and Demand Side Management.

- The increasing limiting factors against deployment of renewable energy in this country (e.g. too much energy from wind produced relative to demand at that time), in addition to the variables in price on a one day market (peak versus trough), where price could vary from 3 – 400%, were cited as the reason why ALL customers should be exposed to the real-time energy market and smart metering which would have a significant impact on Demand Side Management.

- Expose all to real price electricity as the only mechanism to deliver a shift in demand.

- It was suggested that the incoming site value tax be linked to the BER of the property

EMPLOYMENT PROSPECTS

- We should harness the existing intellectual that there is in the Cork region to generate more employment opportunities.

- The potential to promote "Energy Officers" in each organisation.

- The potential to export the software & hardware of the Tyndall/MERC cluster of companies which will encourage the creation of high tech jobs in Cork.

OPPORTUNITIES FOR COLLABORATION

- Much expertise prevails in the region with regards to knowledge of ISO 50001 (Energy Management) and associated training potential, in addition to a multitude of tools already available such as the SEAI road maps and training initiatives, which could be packaged and exported as an international market service. Ireland is the only English speaking country in Europe with the expertise.

- It was acknowledged that there is room for competition in the global marketplace, and in order to tap into this market, we need to look at establishing demonstrators in this country. The example was cited of interest expressed by Chinese companies working with home-grown SMEs.

- People/organisations both nationally and internationally are not aware of the assets the region possesses. There is not enough being done to communicate what we have at a macro level. We need regional leadership to achieve this with a clear communications plan so that we can inform the international community, mobile intellectual capital etc what is available in the Cork region. This communications plan needs to be focused across all sectors including research, education, industry etc This plan needs clear objectives, should be endorsed by government and a road map which focuses on key sectors.

- Development of a portal showcasing Cork's Energy Network – we need to start working as a team if we are to target international markets.

- We should make use of Cork's Free Port status to enhance our status and we need to maximise the expertise of MERC.

- In terms of the 1% ringfenced rates fund, a part of this should be allocated to a HIGH VISIBILITY project in one town in the area of Demand Side Management and then communicate and roll it out to other towns.

Notes on Discussion Group 2 - Building Standards and Construction

GENERAL

- Ireland imports 90% of its energy requirements, costing the state nearly €6bn annually.
- The biggest capital outflow from Ireland, despite our economic debt repayment, is likely to come in the form of energy bills.
- It is imperative therefore to reduce our energy costs.

GROWTH OPPORTUNITIES

- There are growth opportunities in the following areas.
    - Retrofitting of existing housing.
    - Refurbishment of existing housing, i.e. where extensions and alterations are being made that these would have to comply with the new energy requirements.
    - New build housing.
- There are over 1.2m homes in the country built before 2002 (before the major changes in insulation requirements).
- Main emphasis up to now has been on housing with the scheme operated by SEAI. However, at its present level of take up it could take up to 80 years to retrofit all current stock of housing at the current pace to bring them up to C1 BER.
- There should be clarification in relation to planning requirements as to whether planning is required or not i.e. if the external cladding of a house is being changed due to insulation of the external walls and a different form of finish is being put on, does this need planning? These areas should be clarified and made simple so as to encourage rather than discourage work to take place.
- A pilot (or cluster) should take place on improving the energy efficiency of a small group of existing buildings. This would deal with consumer resistance, promotion of new products, etc.
- Grants for energy efficiency should be all-embracing, i.e. present grant system does not include windows which are a cause of significant energy loss.
- While the emphasis should be on accelerating energy efficiency in housing, it needs to also look at commercial and public buildings.
- A sizable number of public buildings are occupied by state, semi-state or local authorities, so there could be a reduction in the day-to-day cost of running the state directly by cutting energy wastage in public buildings.

- The introduction of a scheme of green loans on favourable terms to consumers and business via the establishment of "green funds" along the lines operated in the Netherlands.

- Upfront installation costs could be financed by green loans which would be repaid with the help of renewable energy traffics (RET) while generating substantial savings in terms of energy bills.

- Consideration of reduction in commercial rates linked to energy rating.

- Proposed property tax levels linked to BER rating.

Products

- New products at the moment tend to be secured from outside the country. There is great opportunity to develop these products within Ireland.

- A register of Irish made products, i.e. a database should be available identifying these products.

- Capital allowances should be available for development of new energy rated products.

EMPLOYMENT PROSPECTS

- There are major employment prospects and it is estimated that the areas indentified above could create 40,000 direct construction jobs and reverse the flow of nearly €1bn out of the country each year in energy bills.

- There is plenty spare capacity in construction and construction related jobs to engage in these areas. However, retraining may be needed in some cases.

- Any retraining must be of a practical nature and should be available to self-employed also.

- It is important that the trainers themselves should be properly trained and screened with particular attention to the training of mechanical people, which it was felt was weak at the moment.

- Specific training should be available for the installation of new energy related products.

- While it was important to have standards, there must be a system put in place demonstrating verification that the standards are being met.

OPPORTUNITIES FOR COLLABORATION

- Manufacturers and suppliers should come together and jointly promote products and even offer finance, if possible.

- The source of expertise on technical information available within the third level institutions should be tapped into.

- There should be a merging of technical and wiring standards, e.g. smart metering is available, but for this to be fully efficient the premises needs to have smart wiring to make best use of this.

- Smart metering should be available across the full range of utilities.

- Cork has a strong ICT base and this should be tapped into.

- Shared experiences (or mentoring), i.e. past experiences and expertise already acquired, should be passed on to others in the area.

- Tap into the northern periphery energy programme which UCC is part of.

Notes on Discussion Group 3 - Technology/Cleantech

GROWTH OPPORTUNITIES

There is potential local growth in two areas: services and manufacturing.

Services
The concerns about carbon management (measurement, reporting and reduction), combined with the imminent adoption of ISO 50001 will stimulate a demand for energy management services. Using renewable energy sources has brand reputation benefits (Corporate Social Responsibility) and potentially security of energy supply. These are added drivers. There is local expertise in management of regulated industry (biopharmachem – quality, environment, safety), ICT expertise in data gathering and treatment, efficiency improvement using techniques such as lean manufacturing and six sigma in the biopharmachem and electronics sectors. This know-how can be combined to deliver products (sensors and software) and services (energy management and reporting) to an export market.

Manufacturing
Ocean energy generation, whether tidal or wave, is an emerging technology which is not yet dominated by any country. Ireland, and Cork in particular, has relative advantages with ocean energy potential, availability of port access, technical simulation expertise (HMRC, MERC), marine operations competence (NMCI), some equipment manufacturing experience (Verolme) and a number of product inventors. There is a possibility to replicate Denmark's dominance of the wind energy sector, but only if significant, co-ordinated investments are undertaken immediately.

- Renewables, enabling technologies, energy efficiency applications.
- Manufacturing of ocean technology.
- Focus on proven areas (process engineering, manufacturing of pharmaceuticals). This experience could be relevant to constructing/running a biofuels plant or would have previous knowledge on improving energy efficiency within a highly regulated environment.
- Growth in services in areas such as assessment of energy efficiency, software services, expandable services which are available on-line.
- In telecommunications, growth can be achieved through standardisation. Could a similar approach be adopted in the energy sector ?
- Create a Centre of Excellence in IP, licensing, commercialisation, facilitating financial investment – where would this Centre be located ?
- Possibility of replacing traditional jobs e.g. in Denmark where wind turbines are manufactured.
- As Marine Energy sector is growing, could the manufacturing requirements be supported from Ireland.

- Innovate by means of lowering energy costs, by using a higher proportion of renewables.

- There is a demand for renewable energy as it is stable and guaranteed.

- Using lower cost green energy could be a differentiator for the manufacturing sector.

- Anaerobic digestion in rural areas – this effort would need cooperation.

- Energy management / energy efficiency (short term).

- ISO 50001 will be a huge driver of opportunities towards the end of this year.

- Developing a strong, green brand as a selling point for a region.

EMPLOYMENT PROSPECTS

Continuing with the themes of services and manufacturing:

Services
There is a need for "joined-up" development and delivery of products and services. Engineers, ICT developers, sensor manufacturers, marketers need to collaborate to produce items that are tailored for users, internationally. The efficiency expertise (lean manufacturing, operation in a regulated environment) needs to be focused into the energy area.

Manufacturing
Agricultural supply of energy sources, whether growing fuels (e.g. miscanthus) or treatment of waste (e.g. anaerobic digestion of slurry), will provide local, widespread employment. Such activities tend to engage a large number of workers and are closely linked to the local economy. Small scale biomass-fuelled energy plants have been extensively developed and deployed elsewhere, but the ability of Ireland to grow biomass whether as a product or by-product suggests we have a potential as an energy producer in this area.

Ocean energy devices are relatively simple, but characterised by their need to be robust. Interlinking them efficiently into a grid requires sophisticated sensors and ICT. All of these could be developed and manufactured in the Cork area.

- Manufacturing and services.

- Employment in Photovoltaic Technology.

- Renewable energy in rural areas – an opportunity in biomass which is labour intensive.

- Green energy supply chain : assessing potential, design, build, operation and maintenance.

- Make existing manufacturing base more energy efficient.

- What problems do we have?
  -Are we too fragmented ?

-Use Ireland as the test bed
-Use Centre for Marine Research as a prototype

- Opportunities in Wireless Systems blending the thin film technology capability in Tyndall with the Wireless Sensor Network knowledge at CIT and then have have the manufacturing of the resulting high technology devices in existing companies.

- Energy management (metering, software etc.)

- Renewables – biomass, biofuel crops.

- There are big users of energy in the Cork region.

- There will be a global need for ISO 50001.

- Need to create a solution that is scalable. WE need to combine the skills of the local engineers and IT providers to provide effective solutions to energy management problems.

- Domestic retrofitting.

- Selling IT services internationally. With effective energy efficiency branding. Quantifying carbon emissions.

OPPORTUNITIES FOR COLLABORATION

The national commitment to invest in water metering provides an opportunity. The installed technology should be state-of-the-art, rather than traditional. This is an opportunity to jump the technology and build expertise in smart meters and grids. This expertise could be further extended to other utility grids: gas, electricity. The required devices could be manufactured in Ireland, obviously they will be installed in Ireland – providing a pilot testing facility - and will be monitored and maintained in Ireland. The know-how could be exported. Local piloting and demonstration facilities are needed to develop, prove and promote indigenous technologies. These will provide visible, communicable examples that will reduce uncertainty in buyers' minds. The local authorities, through their public procurement, could take a lead in this, e.g. the installation of sections of energy efficiency lighting.

Technology transfer between industry and third level institutes must be enhanced. There must be locally relevant, accessible, research and competence centres that interact with industry, to satisfy industry's needs and to guide industry.

- Domestic water metering. The target should be a state-of-the-art water metering system. Use the opportunity to jump to the most modern available technology.

- Smart Meters, Smart Grid, Smart Networks – can we lead in these areas ? Need to collaborate with the Commission for Energy Regulation.

- Developing technology (wind, biomass). Need to identify the roadblocks early.

- Combine the knowledge in CIT, UCC, Tyndall with industrial know-how. There is a need to train people.

- There is a wealth of knowledge in the pharmaceutical industry. Internal teams have extensive energy expertise and this information needs to be accessed.

- Need to push useful research out of the third level sector and also give companies more access to this research.

- The technology needs to be proven on test beds. Cork could be the test bed.

- Pilot activities could be carried out in CIT, Tyndall, UCC, MERC, IERC, NMCI, Bord Gáis etc.

- Nualight in Cork are developing a new range of energy efficient LED's – public procurement should be used to offer these companies business opportunities.

- Have in-house R&D teams in companies collaborate with each other.

- There are R&D funding opportunities available in FP7 e.g. Factories of the Future.

- Need to publicise the activities of the Energy Competence Centre I2E2.

- There are funding opportunities available at a national and European level.

- A team approach is required with all the players and barriers identified.

- Use an open source approach which is standard within software development.

Notes on Discussion Group 4 – Energy Supply Initiatives

GROWTH OPPORTUNITIES

- Cork is an energy hub and the group noted the 2020 renewable targets: 20% Growth and 40% penetration.

- International connectivity: currently only UK and NI; HVDC connector to Pan-European Grid through France.

- Current wind farm where wind is best and remote from settlement; why not edge of towns and villages.

- Wind energy strategy for county Cork. New phase will be more nuanced with smaller developments and factoring in cost of putting in the wires.

- Oil; 2040 targets for fossil fuels; all petrol and diesel must be 4% biofuel or renewable rising to 6% by 2012; could go to 10% providing a real opportunity for import substitution.

- Anaerobic digestion – there was a sense that this was largely ignored in the region the region despite potential to use natural waste streams from farms and deliver and use by-products – methane into grid and slurry spreading.

EMPLOYMENT PROSPECTS

- Lost out in current wave to Denmark for wind; need to identify and exploit next wave
- Open up network for bio-gas and bio-grasses
- Retro-fitting of two apartment blocks in Tralee with wood chip plant (sourced in Coillte forests was raised but the question of what is true cost of wood chip from Coillte was asked.

- Explore using waste water used to generate electricity.
- Micro generation from hydro sources was highlighted and could be designed into water systems.

- Need to look outside existing technologies e.g. alternative wind technologies.
- Need for mentoring of new technology companies is essential in order to test viability.

- We must not wait for others; must do this ourselves.
- New EU Programme €75-85bn for energy sector; requires multi-location submission; number of Irish Universities successful.

- Should not confine ourselves to Ireland; Bristol Channel wind farms – huge opportunities in IT, Services, etc.
- Indigenous – what is economic return? Needs to be understood; what will work in Cork?

- Export: scale through bringing together.
- Business Plan development is important to ensure cash flow generated; balance risk.
- How quickly CHP systems can deliver savings was raised.

OPPORTUNITIES FOR COLLABORATION

- Learn from models in other countries; strategic thinking; joined up; waste to energy.
- Look at European experiences over last 20-30 years.
- Competitiveness v collaboration.
- SEAI criteria need to be reassessed with a switch from MW considerations to operational areas.
- Whitegate hub/Cork Energy hub provides obvious opportunities.
- We need to focus on things that will give an economic return.
- Changing mindsets very important.
- Education very important; specifications must keep up with technology development in renewable energy.
- Periodic event to pitch ideas to investors would be welcome and this could be facilitated by the Energy@Cork cluster.

Notes on Discussion Group 5 – Transport

Security of energy supply for transport and the hierarchy of transport as set out in the Government's 'Smarter Travel' policy set the context for this discussion. Transport's role as a facilitator of economic activity was noted.

GROWTH OPPORTUNITIES

- Significant opportunities in intelligent transport systems (ITS) and transport related ICT were identified, examples of those involved include Avego (real-time ridesharing), GlobeTech, Park Magic (both parking management and solutions).
- ITS hardware is viewed as not being readily available in Ireland.
- Charge point infrastructure is required and these must be use as green energy as possible.
- The potential of biogas in sustainable public transport is being demonstrated by Cork City Council and UCC and Bord Gáis working together at Black Ash.
- Using local, indigenous fuel sources must also be considered for use in transport, these may include food waste, grass.
- Biogas was preferred as it is cheaper than diesel and available locally, these are key criteria.
- Shipping has a role in transporting both goods and people and Cork must seek to maximise its port facilities.
- The difficulties in transporting large renewable energy components, e.g. some turbines, was noted.
- There was a view that CNG and bio CNG require more policy support.
- The need for bike schemes to encourage more cycling in Cork was highlighted.
- Ways to encourage taxi fleets to use electric powered vehicles was raised.
- Battery swap points for electric vehicles are required.

EMPLOYMENT PROSPECTS

- Green, efficient transport touches and benefits employment in all sectors the economy.
- It was noted that vehicles running on local Cork biogas will only be manufactured outside of Ireland.
- A focus should be put on ensuring that any technology or knowledge developed here is exportable.

- Cork's ship building heritage was noted and the possibilities this provides in the development of green transport modes (and also in ocean energy hardware). A 'bio gas' ship idea was suggested.

- Opportunities to use the port assets to service tidal energy installations were highlighted.

- Upgrading the transport infrastructure to ensure it is as efficient and future proofed as possible provides employment opportunities.

OPPORTUNITIES FOR COLLABORATION

- Transport's importance in facilitating economic development was highlighted again and collaboration opportunities therefore exist across all sectors.

- Opportunities to link up with regional and predominately rural based sectors to explore the development of biogas must be explored.

- More complementary systems can be explored and opportunities also exist in developing a public transport system across the region that operates for the benefit of all in the region.

- Collaboration between the public and private sector is essential, as is closer working between state agencies.

- Cork should aim to be a pioneer and leader in integrated transport systems and should also seek to develop niche markets.

- Collaboration opportunities are also obvious in car-sharing.

- Cork City Council are looking at a renewable energy filling station.

Notes on Discussion Group 6 – Research

GROWTH OPPORTUNITIES

- Energy research is a high priority nationally
  - Irish Energy Research Council Strategy
  - SFI inclusion of energy research as third focus (joining ICT and Biotech)

- Cork has a number of significant strengths in energy research;
  - Research Activity (UCC secured €23 million in the period 2004 – 2010) in key strategic areas, namely
    - Energy supply – ocean energy (MERC), biofuels (ERI), wind energy (ERI and CIT) and EVs (UCC-Elec and UCC-ERI)
    - Energy demand – in industry (I2E2) in buildings (ITOBO)
    - Energy Modelling – energy demand, electricity dispatch and energy systems modelling (ERI)
  - Unique energy engineering education and training - PhD in Energy Engineering, MEngSc in Sustainable Energy, BE (Energy Engineering), BEng (Sustainable Energy), BER training.

- Ocean energy device development (HMRC) - Project established through Interreg to look at potential of maritime based energy. CIT examining possibility of leading training aspect of this project, as there is a potential for 50,000 jobs in the sector. Ireland could become the focal point for training. It was also stated that the SEAI has two marine test sites – Galway Bay & Belmullet – at present, and there is no requirement for Cork to develop a similar facility, despite our proximity to the Atlantic. The HMRC could expand its role in device sized development going forward.

- Micro Hydro- It was suggested that there may be potential for harnessing rivers, i.e. run if the river micro hydro – it is currently being examined on the Barrow / Suir / Nore rivers. There may be employment prospects in capturing raw data from rivers in the short term. However the main obstacles to the development of micro hydro on rivers could be planning and conservation issues.

- Research into funding for green energy. There could be an opportunity for the HEI's to lead research into the development of new funding mechanisms for renewable energy sources, i.e. off shore wind etc.

- Energy generation/storage

- Microgeneration - In the UK, microgeneration by homes and businesses is being incentivised through generous feed-in tariffs. However, these tariffs are currently low in Ireland and do not incentivise the roll out of microgeneration infrastructure. It was noted however that the UK rates were unusually high and will be reduced going forward.

- Biomass - Energy from Algae and the possibilities for this in West Cork, possibilities in wood, waste and grass. Whilst generating energy from Algae may not be an area where Cork can become competitive, the region's strong agricultural sector could support the development of energy generation from grass, wood and biomass. Carbon sequestration in forests was also suggested.

- How to manage capacity of research and ensure its relevance across the energy sphere. There may be competing sources of energy, and the absence of an overall national policy might hinder the focused development of the sector.

EMPLOYMENT PROSPECTS

- Training required for assessors, contractors across a range of fields, e.g. ocean energy, biomass, ICT etc. Whilst no common training standard is available for some energy sectors, there are already companies in Cork providing training for large organisations in the US etc. Cork could, like Aberdeen, become a focal point for training across a range of energy related sectors. MERC could lead the region in this regard, and possesses the capacity to grow in scale in a short period of time.

- Ocean energy in particular provides jobs in research and in spin out start ups.

- Socio-economic job opportunities in facilitating deployment. One of the main obstacles to the development of infrastructure is the lack of social acceptability for projects, in addition to the general awareness of the benefits of such schemes. There may be an opportunity to generate employment through research into these issues.

- A Cork Science and Technology park offers opportunities. The proposed park could become a base for small spin-out companies in the energy sector providing training etc.

- Biomass has research potential and provides an opportunity to build on existing capacities.

- ICT for building management and in energy – building controls, EMS, data analysis, distribution networks. The expertise in UCC in ICT, in addition to the ICT firms in the region, could be leveraged to develop ICT for building and energy management in tandem with renewable energy sources. This may create employment in research and manufacturing. For example, smart metering, the need for data analysts and the development of distribution networks are three areas where employment might be created. The possibility for job creation in the short term is high with regards to this aspect of ICT.

OPPORTUNITIES FOR COLLABORATION

- Gather and sell skills abroad (e.g. China) as Sweden have done. Cork could sell its collective knowledge in various energy sectors abroad.

- Could create and international grouping of local Energy@ clusters around world. There will be funding available from the European Union towards the end of 2011 to develop regional energy clusters.

- Make Cork the Sustainable County.

- Use Ireland as a test bed for sustainable energy technologies.

- Needs to be industry led and a research infrastructure is also required. It is important that the HEI's are delivering graduates with the appropriate skills required by industry. Increased engagement between academia and industry is required. The need to have collaboration across all disciplines, and not just engineering related disciplines, was also highlighted. The short term nature of some research projects in CIT, and the unsuitability of this for long term PhD related study, was also noted.

Next Steps

The workshop is the first step in developing a commercially focused Energy@Cork cluster based on the critical mass of activity ongoing in the region. To bring this forward delegates were encouraged to express their interest in forming the steering group (and likely thematic subgroups) to take the concept further and begin work on delivering the economic opportunities for the region identified on the day.

To date over 100 people have expressed their interest in this steering group. Others interested in this are asked to inform sean@corkchamber.ie and all those who have expressed an interest will be communicated with shortly regarding the next phase in capturing Cork's energy opportunity.

Appendix 1 – Workshop Programme

Workshop Programme – Energy@Cork – 13th April 2011

1:30 Registration and Tea/Coffee

Session 1 – Chair, Tim Lucey (Cork City Manager; Chair CASP steering committee)

2:00 Welcome and open, **Tim Lucey**

2:10 Aims and objectives of the workshop, **John Mullins** (Vice President, Cork Chamber; Chief Executive, Bord Gáis)

2:20 Sustainable Energy Opportunities, **Professor Owen Lewis**, (Chief Executive, Sustainable Energy Authority of Ireland)

2:30 -3:30 Discussion groups
Parallel facilitated sessions discussing activity in the region in:

- **Group 1 - Demand side management** (facilitated by Aiden O'Neill, Coakley O'Neill)
- **Group 2 - Building standards and Construction** (facilitated by Joe O'Brien, Construction Industry Federation)
- **Group 3 - Technology/Cleantech** (facilitated by Noel Duffy, Cork Institute of Technology)
- **Group 4 - Energy supply initiatives** (facilitated by Neil O'Carroll, ConocoPhillips Ireland)
- **Group 5 - Transport** (facilitated by Joe Fitzgerald, Bus Éireann)
- **Group 6 - Research** (facilitated by Dr. Brian Ó Gallachóir, University College Cork)

3:30 -3:45 Coffee break/networking

Session 2 – Chair, Martin Riordan (Cork County Manager; Chair CASP Economic Sub Committee)

3:45 Report back –feedback from each discussion group
Identification of next steps and priority actions

4:35 Reflections, **Brendan Halligan**, Chairman, SEAI

4:45 Close, **Martin Riordan** (Cork County Manager; Chair CASP Economic Sub Committee)