Policy Brief

Job opportunities from Ireland's electricity interconnectors

Our 2050

This is one of a series of policy briefs to summarize ongoing findings related to the research project, 'Our 2050 – Opportunities for Ireland in a Low Carbon Economy', which is on the economic and societal opportunities arising from the transition to a low carbon economy and the policies needed to achieve this transition.

MaREI Centre for Marine and Renewable Energy
EPMG Energy Policy & Modelling Group
IERG Intelligent Efficiency Research Group
eri Environmental Research Institute
UCC University College Cork, Ireland Coláiste na hOllscoile Corcaigh

The Our 2050 project is addressing four key questions:

1. What will Ireland's future energy use look like? In particular, how will we generate electricity? How will we heat our buildings? What modes of travel will we use?
2. What technologies are most likely to play leading roles in Ireland's transition to a low carbon economy?
3. What strengths can Ireland play to, and what opportunities can Irish-based firms avail of?
4. What policies are needed? What do government, firms, universities and individuals need to do, individually and collectively, to achieve the transition?

This briefing is addressing the economy-wide job potentials as part of the value-chain opportunities in the third question.

Introduction

Electricity demand and electricity generated from renewables are expected to grow significantly in Ireland in the near future. Growth in electricity demand (driven by data-centres and partial electrification of other sectors such as heat and transport) and growth in electricity generation from variable renewables such as wind and solar underline the importance for Ireland of electricity interconnection. While there have been many economic and energy system assessments of the benefits to Ireland of increased electricity interconnection, what are the job opportunities from electricity interconnectors?

A valuable approach for policy makers in assessing the socio-economic impacts of future clean energy technologies is to focus on changes in employment levels in various industries. In addition to the changes in direct employment, it is necessary to bear in mind changes in indirect employment through supply chains. Examining job opportunities in the entire value chain including upstream and downstream services and manufacturing, offers an insight into the results of policies and initiatives to promote low carbon energy systems. The amount and distribution of life-cycle job creation resulting from the interconnector investment to develop renewable energy systems, is one of the principal value chains of the investment. The identification of the potential key value chain winning and losing sectors in developing low carbon energy is important for future planning.

Many sectors and countries benefit from this investment, especially in import-dependent countries (such as Ireland) where money can be saved by reduced reliance on imported fuels. This briefing outlines the main sectors and countries in which the job creation will occur; it takes into account the effect of inter-industry transactions and international trade; it discusses the potential of Ireland's employment and job spillovers from the electricity interconnectors across European and non-European countries; it outlines the potential job losses from fossil-electricity versus job gains in renewable electricity.

"…job opportunities … offer an insight to the policies and initiatives to promote low carbon energy systems."

"…distribution of life-cycle job creation as a result of the interconnector investment to develop renewable energy."

Ten Year Network Development plan (TYNDP) – Ireland's Interconnectors: 2300 MW for €2261m

Interconnector	€/ MWkm
North	3454
Northwest	8407
Greenlink	5814
Celtic	2380

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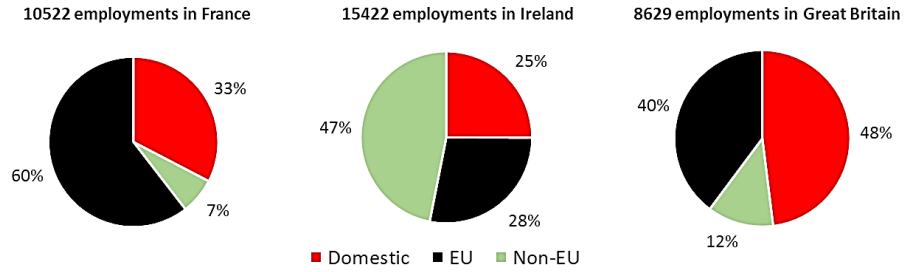
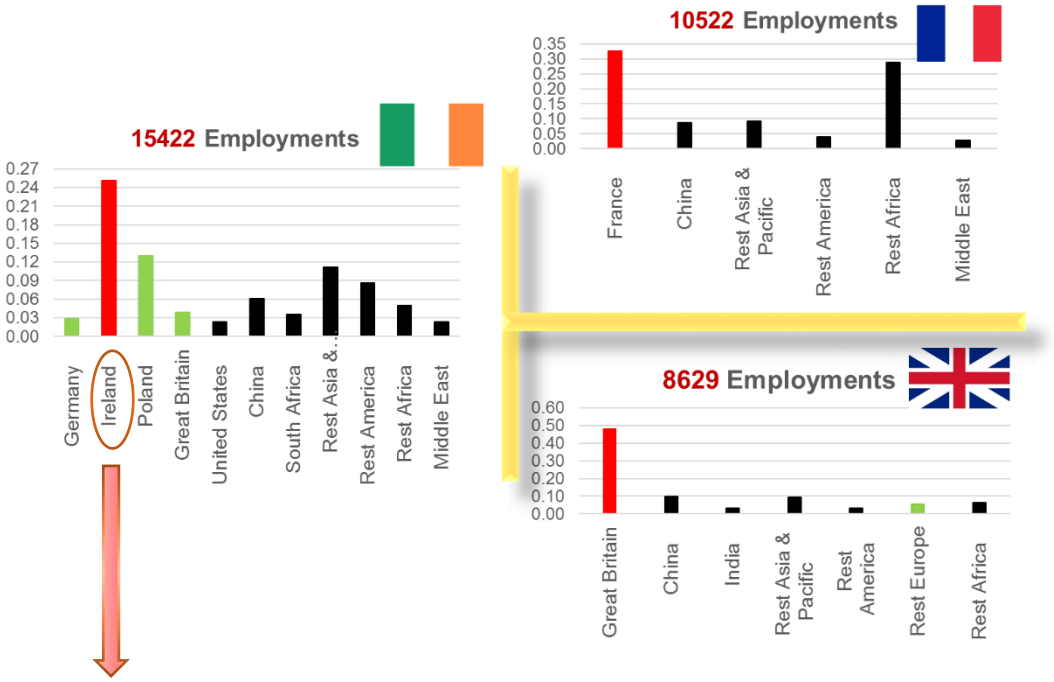
This analysis used an input-output modelling approach. Input-output (IO) analysis began as a method to analyse national or regional economies as interconnected systems of industries that affect each other directly or indirectly. However, production processes have become less domestic, and national economies are actually part of a global economy. Supply chains are increasingly fragmented across borders and this fundamentally modifies the nature of international trade with important consequences for the location of production as well as other related impacts. Multi-regional input-output modelling (MRIO) modelling provides an opportunity to analyze the consequences of this fragmentation in a comprehensive way by including different regions and their trade relationships. This analysis uses the Exiobase 2 MRIO dataset to simulate the potential socioeconomic impacts of three interconnectors of 2,300MW between Ireland, Great Britain and France.

Box 1: Job opportunities- key findings





3,900 direct jobs for Ireland

- 1677 jobs in energy sectors (43%)
- 468 jobs in manufacturing sectors (12%)
- 1755 jobs in services sectors (45%)

1 €m interconnector investment in Ireland

- 3 jobs for Ireland
- 4 jobs for other EU
- 6 jobs for non-EU

Key Findings

There are potential domestic and spillover employments of 34,573 across the world for the investments in Ireland's electricity interconnection infrastructure. The economy interaction between sectors and between countries determines the share of domestic and spillovers jobs (see Box 1 for a graphical illustration of the key findings).

Decision makers should also be informed of the employment losses in the sectors that will suffer from renewable electricity growth policies. In the electricity sectors, the analysis shows that 2.47 jobs and 4.25 jobs would be created from an additional €1m spending on electricity from fossil fuels and renewable electricity, respectively. Thus, each €1m shifted from fossil electricity demand to renewable electricity demand creates a net increase of 1.78 jobs.

> "…each €1m shifted from fossil electricity demand to renewable electricity demand creates a net increase of 1.78 jobs."

Contact Details

Mitra Kamidelivand
mitra.kamidelivand@ucc.ie

Fionn Rogan
f.rogan@ucc.ie

Brian O'Gallachoir
b.ogallachoir@ucc.ie

www.marei.ie/our-2050

Acknowledgements

This material is based upon works supported by the Science Foundation Ireland under Grant No. 12/RC/2302. The authors also acknowledge research funding from NTR Foundation.

Further Reading

1. Kamidelivand M, de la Rua C, Lechon Perez Y, Rogan F, O'Gallachoir B, 2018. Socioeconomic spill overs of the European electricity network development plan. 16th International Conference on Clean Energy, May 2018, Cyprus. Available at https://icce2018.emu.edu.tr/Documents/proceedings/POLC-06-Mitra%20Kami%20Delivand-Socioeconomic%20spill%20overs%20of%20European%20Electricity%20Network.pdf
2. Kamidelivand, Cahill C, Llop M, Fionn Rogan F, Brian O'Gallachoir B, 2018. A comparative analysis of substituting imported gas and coal for electricity with renewables – An input-output simulation. Sustainable Energy Technologies and Assessment, 30, 1-10.