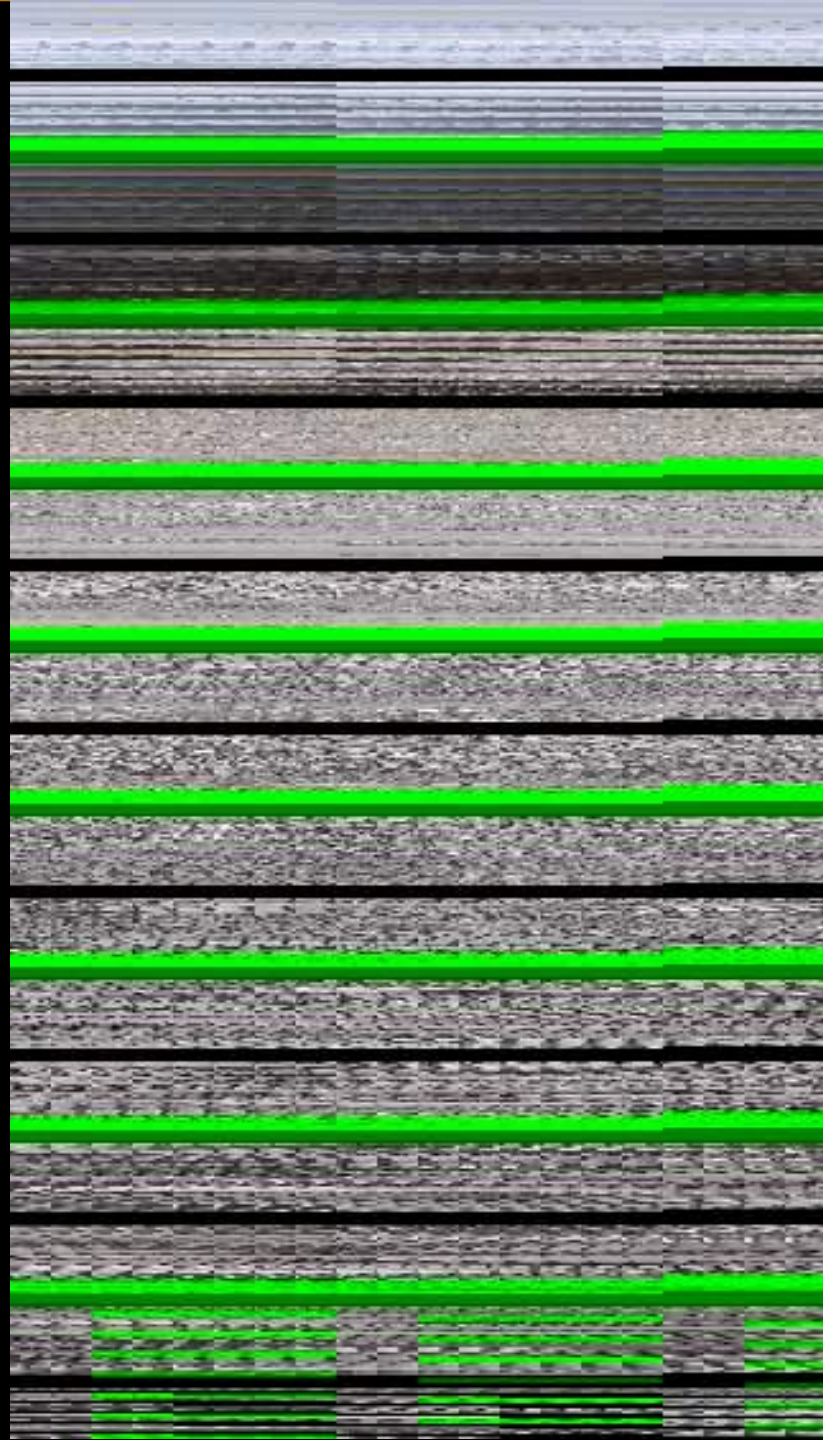




ENVIRONMENT, TERRITORY, AND THE DATA/ENERGY NEXUS IN IRELAND'S BORDER REGION

Dr. Patrick Brodie
Assistant Professor and Ad Astra Fellow
School of Information and Communication Studies
University College Dublin
Patrick.brodie@ucd.ie



Amazon staying tight lipped on landslide at wind farm construction site

Credit: Peat slippage on the Donegal-Tyrone border has polluted NI and RoI rivers | By Shauna Corr | Belfast Live | 28 NOV 2020 | www.belfastlive.co.uk ~~

It was widely reported last year that Silicon Valley juggernaut Amazon had committed to buying the energy from the completed 91.2MW Meenbog 19-turbine windfarm for Amazon Web Services.

But when asked for a comment about the incident, Amazon directed us towards windfarm owner Invis Energy.

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16 NOVEMBER 2020

The Meenbog peat slide in the Republic of Ireland

Posted by [Dave Petley](#)

The landslide has occurred in an area in which construction is underway for the Meenbog wind farm, a project that has been controversial. [According to the Irish News](#), "The wind farm is owned by global retail giant Amazon, which aims to have the site operational by 2022".

THE IRISH NEWS

2 November, 2022

[NEWS](#)[OPINION](#)[SPORT](#)[BUSINESS](#)[LIFE](#)[MAGAZINE](#)[ARTS](#)[Coronavirus](#)[Northern Ireland](#)[Political news](#)[Republic of Ireland](#)[Brexit](#)[UK News](#)[Healthcare news](#)[World news](#)[Civil Rights](#)[M](#)

Video: Concerns over massive peat slide at Co Donegal bog

The wind farm is owned by Invis Energy who said: "Invis Energy, owner of the Meenbog wind farm, confirms that a peat slippage occurred at the site. There is no risk to public health. We are working with the relevant authorities to fully address the matter. We are grateful to the local community for their continued support."

Data Centers Are Pushing Ireland's Electric Grid to the Brink

Ireland has become one of the world's data center hubs. Unfortunately, that means your doomscrolling is starting to take a toll on country's grid.

By Robbie Galvin | Published December 29, 2021 | Comments (19)

CRU Direction to the System Operators related to Data Centre grid connection processing

Decision

Decision Paper

Reference: CRU/21/124 Date Published: 23 November 2021

Executive Summary

Introduction

There is an evolving, significant risk to electricity security of supply in Ireland. A significant contributory factor to this risk is a large increase in electricity demand presented by the growth of the data centre industry, as described in the consultation paper *CRU proposed Direction to the System Operators related to Data Centre grid connection*¹ (CRU/21/060) published in June 2021. To manage this risk, the CRU has decided to issue Directions to the Transmission System Operator (TSO), EirGrid and the Distribution System Operator (DSO), ESB Networks, together the System Operators (SOs), regarding the assessment of data centre connection applications.



Climate extraction and supply chains of data

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Patrick Brodie
Concordia University, Canada

Abstract

The global data center industry relies on what this article defines as 'climate extraction'. Through this peculiar but critical infrastructure for global Internet operations, a focus on Ireland reveals the entanglements of state, corporate, and environmental actors within the extractive calculations of transnational companies. Ireland has been advertised to and by data center developers because of its 'cool' climate while downplaying the importance of its low corporate tax rate and the government and planning system's favorable treatment of big tech companies. Public discourses around big tech 'greenwash' power and contribute to a material climate (both atmospheric and infrastructural) from which value can be extracted. This is achieved by extracting for and from data circulation through the built and 'natural' environment. This article articulates the ways in which the spatial development of data centers as 'strategic infrastructure' contributes to the ongoing naturalization of capital and state power's entanglements with the so-called natural world through technological systems.

Keywords

climate, data centers, extraction, infrastructure, logistics, spatial development

The Republic of Ireland has seen a recent influx of data center development by some of the largest data colocation providers and tech companies in the world. Home to many of the largest companies in the world, and frequently listed as a prime location for data center, a distinction that the Irish government strives to maintain, this 'boom' will likely continue into the near future. Ireland's 'creative economy' has been centered around the tech and financial services sectors since the rapid growth of the Celtic Tiger, and data

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New extractive frontiers in Ireland and the moebius strip of wind/data

EPE: Nature and Space
0(0) 1–20
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DOI: 10.1177/2158146020939712
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Patrick Bresnihan
Maynooth University, Ireland

Patrick Brodie
Concordia University, Canada

Abstract

This article maps the interconnections between two emergent resource frontiers in Ireland: wind and data. Adding to literature about extraction and extractivism, we account for how these expanded extractive frontiers are mobilised within self-sustaining and automated formations. In Ireland, digital infrastructures such as data centres are developed by multinational tech companies to avail of a naturally cool climate and business environment friendly to their investment, part of a wider extractive system by which data are made valuable for their expansive operations. Wind farms similarly make use of Ireland's climate to generate energy, often used to power digital infrastructures, and are increasingly embedded within 'smart' energy and data systems. Wind and data are seen discretely as 'abundant' resources, their infrastructures built on terra or (offshore) mare nullius, and their operations 'green'. However, their infrastructures are entangled with non-renewable energy systems and tax evasive capital, and built across existing communities and environments through policy, planning logics and increasingly automated methods of maintenance and optimisation. Through what we call 'the moebius strip of wind/data', wind and data infrastructures are increasingly formidable in dictating our energy futures. In this article, we articulate how they are connected and how we can disentangle them, especially in their operation across urban and rural geographies.

Keywords

Data, frontiers, extraction, wind energy, Ireland

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Email: patrick.bresnihan@mu.ie



Data sinks, carbon services: Waste, storage and energy cultures on Ireland's peat bogs

new media & society
2023, Vol. 25(2) 361–383
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Patrick Bresnihan
Maynooth University, Ireland

Patrick Brodie
McGill University, Canada

Abstract

This article examines strategies by the Irish state to phase out the extraction and burning of peat as a carbon fuel source in relation to the growing energy demands of data centres. One of the major proposals within the 'just transition' for post-extractive peat boglands is to incentivise the construction of data centres and associated energy infrastructures alongside bog reclamation projects to encourage carbon sequestration. These entangled plans for data, energy and carbon 'storage', driven by large-scale and transformative relations to boglands, inherit colonial ways of valuing bogs as 'wastelands' that must be put to work for industrial capital. We argue that through paired digital and green industrial strategies, the transformative energy cultures and frontiers of capital continue to expand beyond the apparent sites of data and energy infrastructural development, penetrating deeper into the earth and its atmosphere.

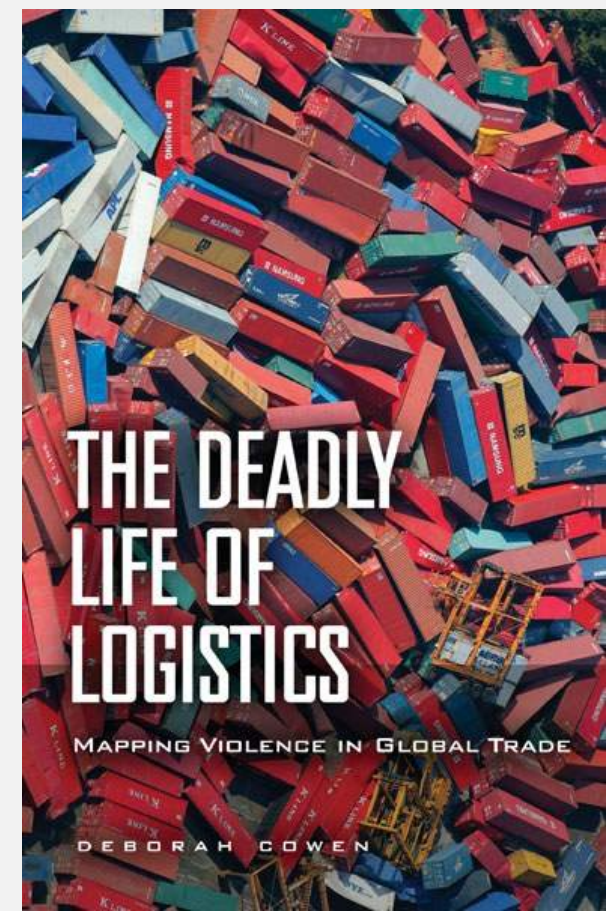
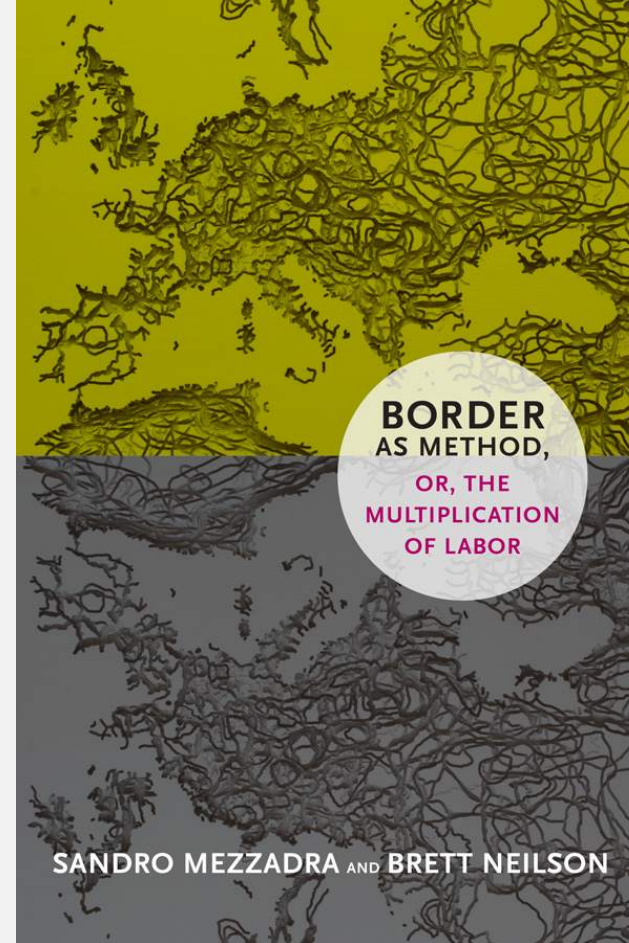
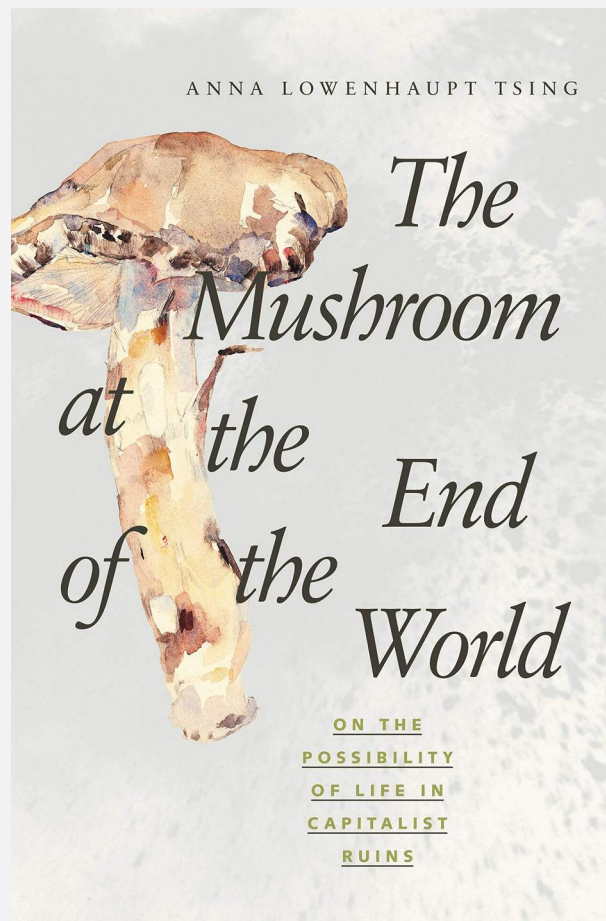
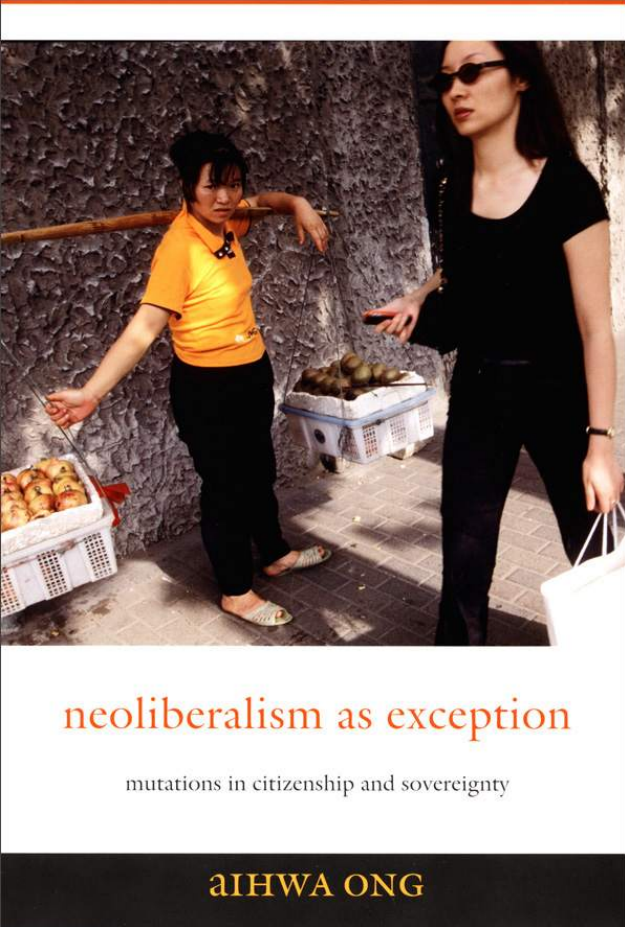
Keywords

Bogs, climate change, data centres, decarbonisation, energy humanities, Ireland, renewable energy, waste

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Nathalie Ortat, A. R. E. Taylor, Julia Velkova, Patrick Brodie,
Alix Johnson, Clément Marquet, Andrea Pollio, and Liza Cirolia
**4 Powering 'smart' futures: data centres
and the energy politics of digitalisation**





What Green Costs

Thea Riofrancos

Deep in the salt flats of Chile lies the extractive frontier of the renewable energy transition.

Perspective

Comparing coal and 'transition materials'? Overlooking complexity, flattening reality and ignoring capitalism

Alexander Dunlap ^a  , Diego Marin ^b

Special Forum on Extractivisms and Global Extractivism

A climate-smart world and the rise of Green Extractivism

Natacha Bruna  

Pages 839-864 | Published online: 30 May 2022

RESEARCH ARTICLE | MAY 01 2016

Aeolian Extractivism and Community Wind in Southern Mexico

Cymene Howe¹; Dominic Boyer

Original article

Towards a climate change consensus: How mining and agriculture legitimize green extractivism in Argentina

Felix Malte Dorn ^a  , Robert Hafner ^b, Christina Plank ^c

- i. development and disruption across the border
- ii. climate, energy, and “shared” responsibility
- iii. peatland path dependence
- iv. border friction

- i. development and disruption across the border
 - *like a blister*

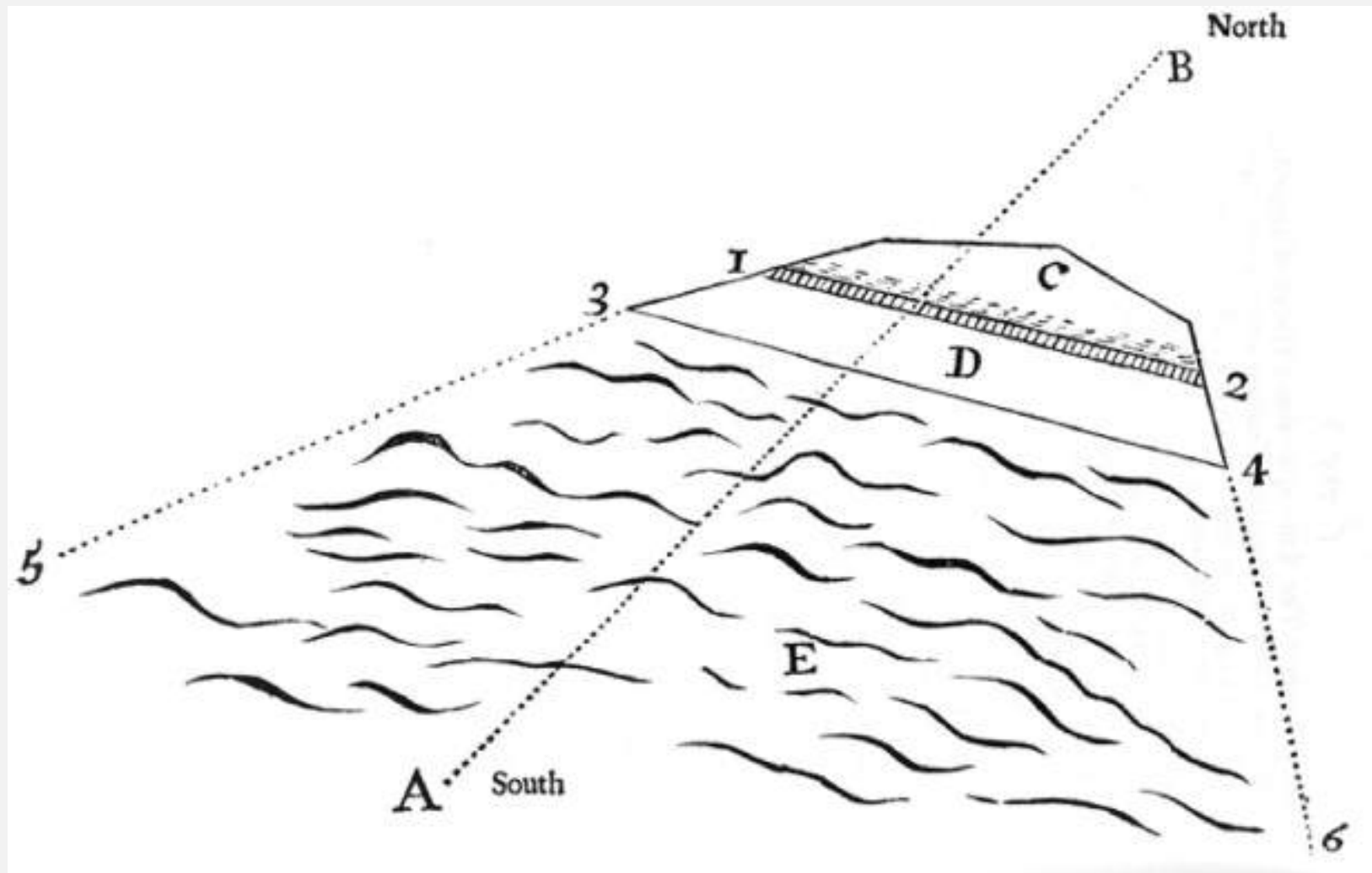
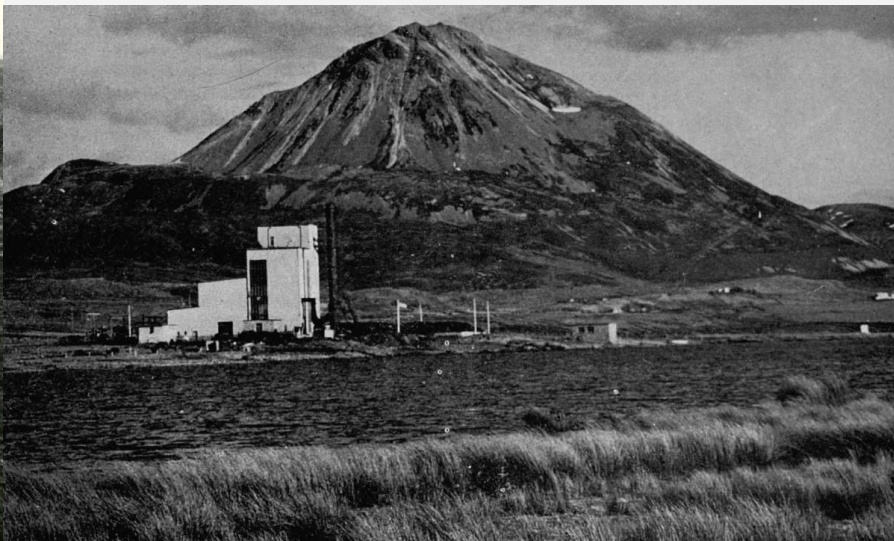


Illustration of bog burst from William Molyneux (1697)

Source:

<https://blogs.nottingham.ac.uk/weatherextremes/2015/09/16/guest-post-bog-bursts-at-cappanihane-ireland-1697-and-1727/>





DUBLIN

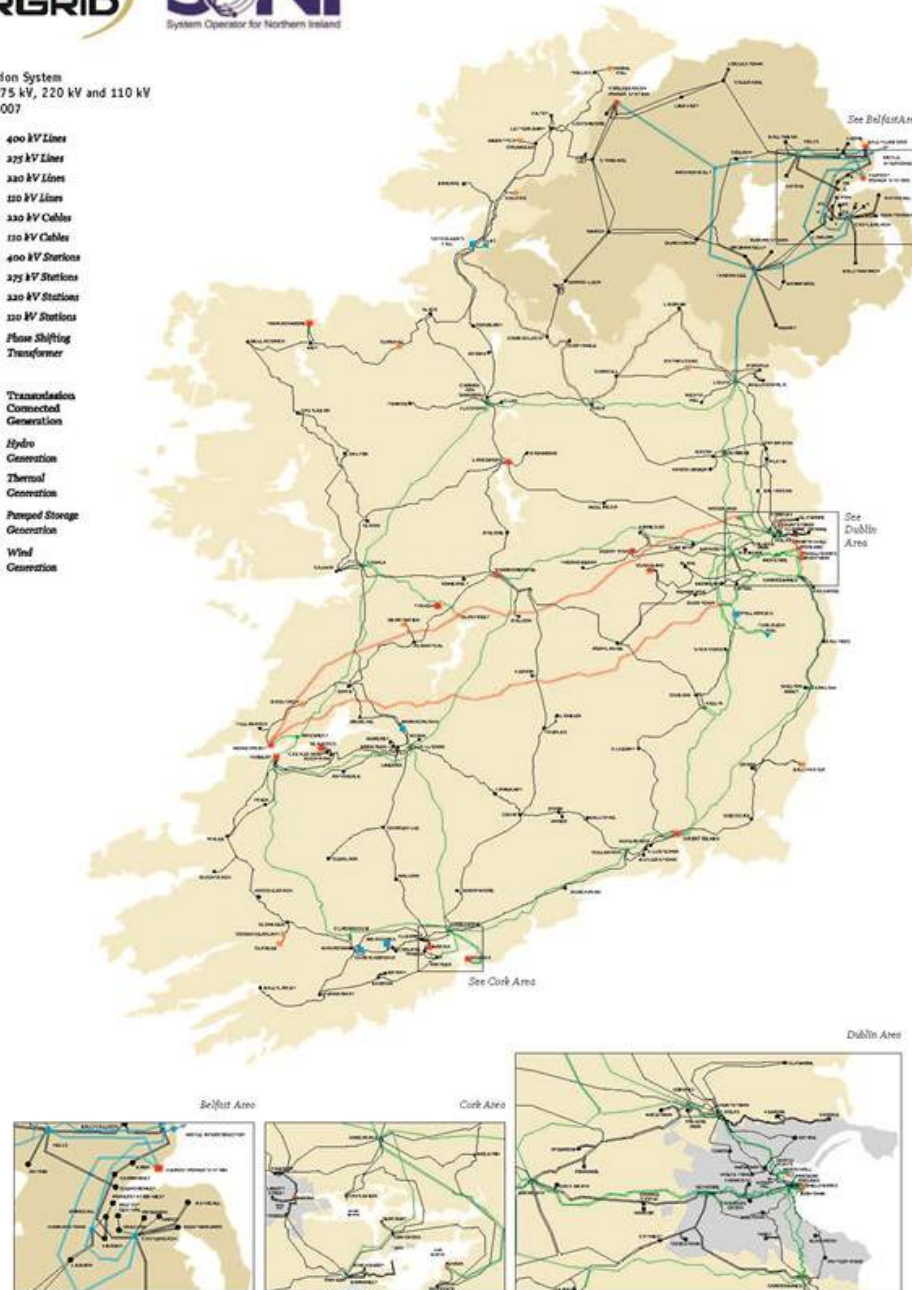
**is just a
sunningdale
away**



**VOTE
UNIONIST**

Transmission System
400 kV, 275 kV, 220 kV and 110 kV
October 2007

- 400 kV Lines
- 275 kV Lines
- 220 kV Lines
- 110 kV Lines
- 330 kV Cables
- 110 kV Cables
- 400 kV Stations
- 275 kV Stations
- 220 kV Stations
- 110 kV Stations
- ⊗ Phase Shifting Transformer
- Transmission Connected Generation
- Hydro Generation
- Thermal Generation
- ▼ Pumped Storage Generation
- Wind Generation



In the median scenario, the traditional residential, commercial and industry sectors remain relatively consistent across the decade.

The largest growth comes from the data centre and new large energy users, and an increased uptake of electric vehicles and heat pumps, particularly later in the decade.

By 2031, 28% of all electricity demand is expected to come from data centres and other new large energy users.

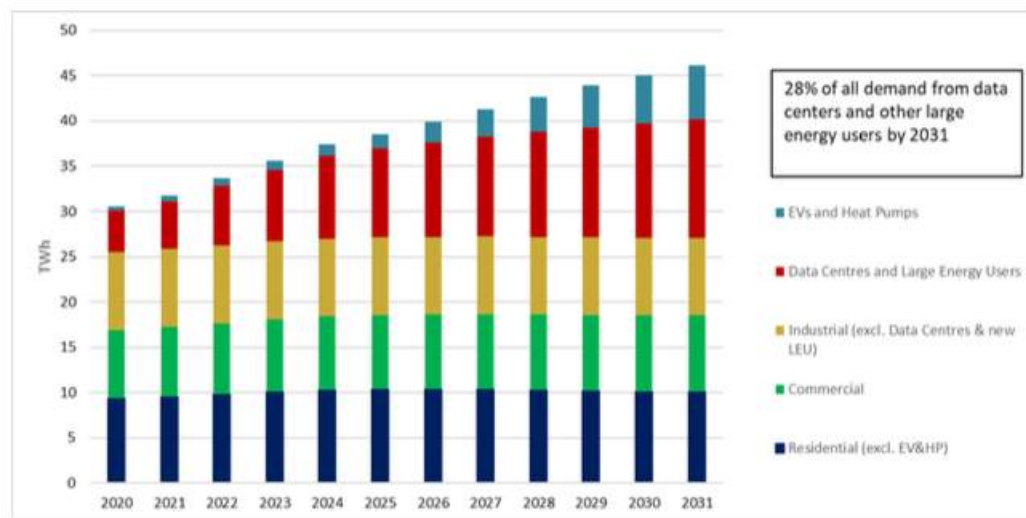


Figure 3 – Ireland Median demand scenario illustrating the approximate split into different sectors

Page 9

ROI Projected Demand

Source: Eirgrid/SONI Ireland Capacity Outlook 2022-2031

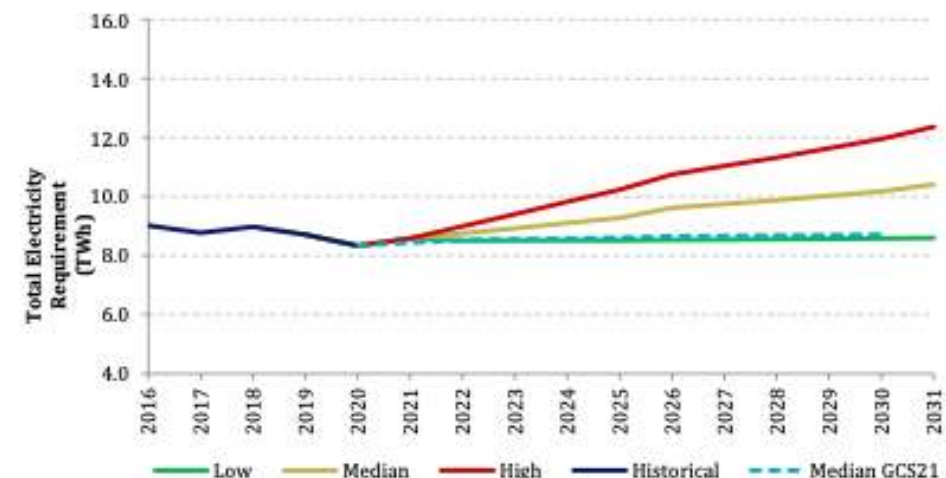


Figure 2.10 - Northern Ireland TER Forecast

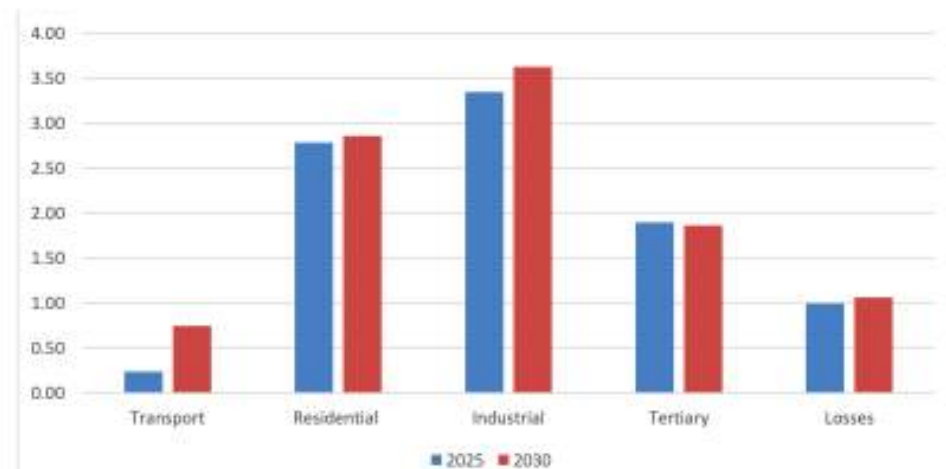


Figure 2.11 - Illustrates how the TER demand forecast is built up from the various demand components for the years 2025 and 2030. Growth in TER from 2025 is primarily driven by the electrification of heat and transport with government policies and incentives expected to drive growth.

NI Projected Demand

Microsoft plans data centre project to help stabilise power grid

Project will use data centre batteries to remove the need for fossil fuel powered 'spinning reserves'

Expand



Wind power from almost 400 farms has provided 36 per cent of the electricity on Ireland's grid so far this year. Photograph: Angel Garcia/Bloomberg

Ciara O'Brien
Fri Jul 8 2022 - 12:16

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THE IRISH TIMES
Business Today



Amazon Web Services Response to the
Commission for Regulated Utilities proposed
Direction to the System Operators related to Data
Centre grid connection

DATA CENTERS AND INFRASTRUCTURE

Our data centers now work harder when the sun shines and wind blows

Apr 22, 2020 · 3 min read

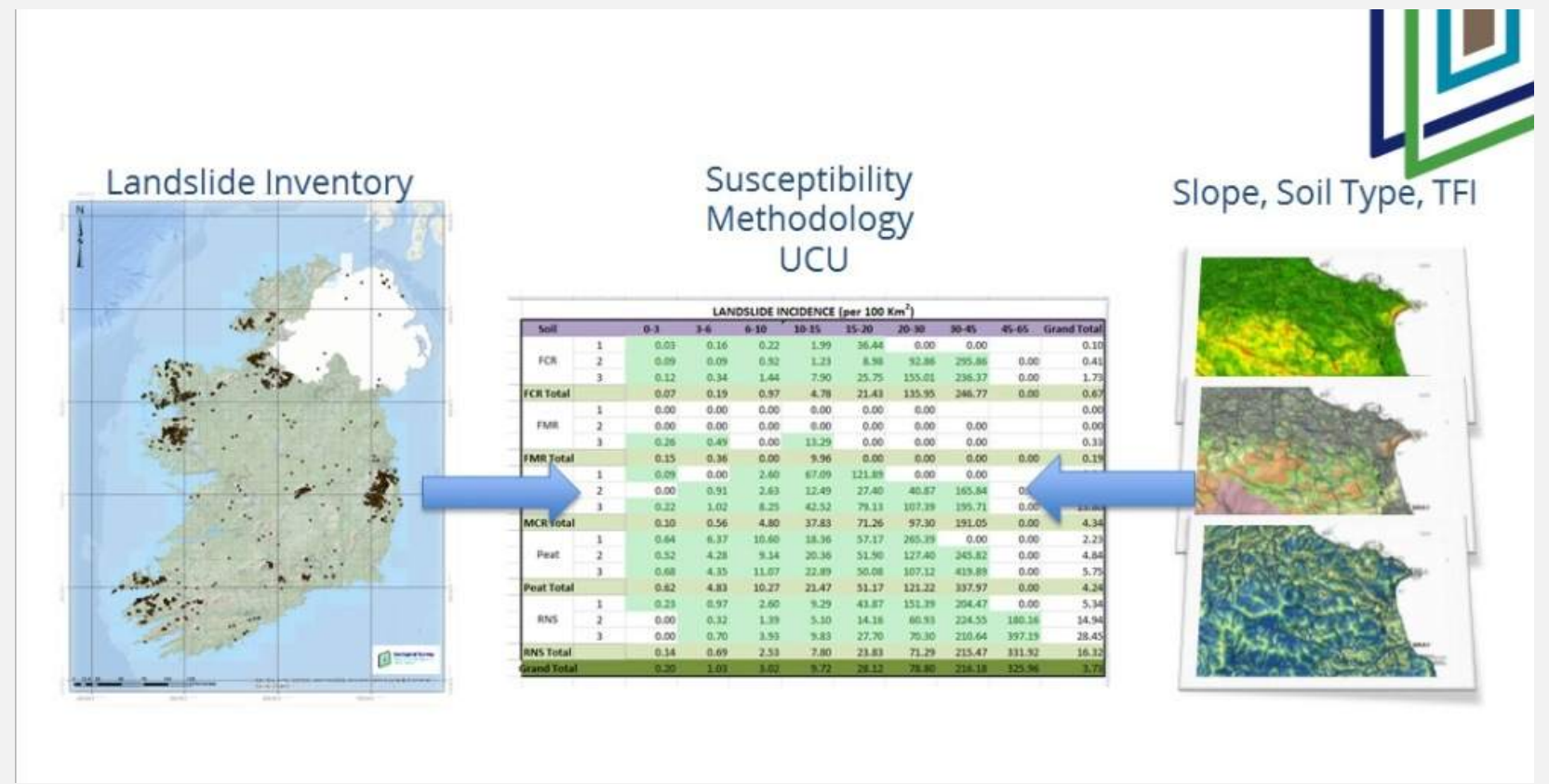
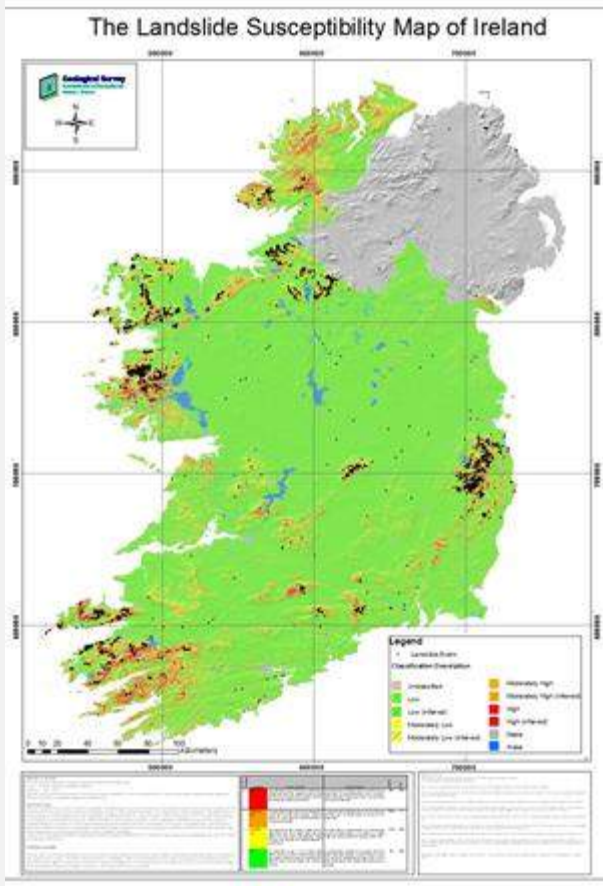


Ana Radovanovic
Technical Lead for Carbon-Intelligent Computing

Share

7 July 2021

- ii. climate, energy, and “shared” responsibility
 - *proven environmental sensitivity*



Source: Geological Survey of Ireland



Inspector's Report

PL05.PA0040

Development: 49 no. wind turbines, 2no. meteorological mast 2no. electrical 110kv substations 9 no. borrow pits and all associated works at Meenbog and other townlands, County Donegal

APPLICATION

| | |
|------------------------------------|--|
| Applicant: | Planree Ltd |
| Local Authority: | Donegal County Council |
| Application Type: | Strategic Infrastructure Case (S 37 E) |
| Oral Hearing | None |
| Transboundary Consultation: | Yes – Northern Ireland |
| Prescribed Bodies | Dep. of Environment, Community and Local Gov. Dep. Commerce, Energy and Natural Resources Dep. of Arts, Heritage and the Gaeltacht Dep. of Transport, Tourism and Sport Environmental Protection Agency Irish water Inland Fisheries Ireland National Roads Authority The Heritage Council The Arts Council |

Submissions

Inspector:

Date of Inspe

APPENDIX

PL05.PA0040

The Finn Valley submission includes a report from a Dr. Pdraig O Cathain a mathematician who critiques the methodology. Prof. Paul Johnston's report also raises the matter of assumptions in understanding the hydrological regime and this is most relevant I consider to the risk assessment. I note that the higher levels of risk (e.g. where FOS is near the 1.30 level) occur in Area 1 in the Western area near the public water supply.

On balance, in view of the potential risk to a significant public water supply by reason of its intake being partly within the development site and adjacent to a key access route and also by reason of the reservoir being down gradient of considerable works, I consider that the approach should be more risk sensitive and evidence based. For example an assessment should demonstrate consideration of the scenario with large fluctuations in rainfall which may increase the rate of groundwater discharges due to springs, given that, if this occurs following a period of drought there is an increased risk that peat landslides may be induced. I am not satisfied that implications for intense rainfall and extreme dry events have been fully ascertained in a range of scenarios.

grei, which was met with the Council.

Experts warned three years ago that Meenbog was unsuitable

Academic flagged how forestry had weakened land

BY CONOR SHARKEY

THE owners of Meenbog Wind Farm were warned three years ago that the development could trigger a landslide.

Meenbog made headlines around the world in November when dramatic footage of trees being swept away as tonnes of peat slipped downhill went viral.

The impact of the slippage is still being assessed but local anglers and conservationists say the effect on local wildlife and fish stocks has been devastating.

It has now emerged that Invis Energy, the company that owns the wind farm, was warned in 2018 by two experts that the site was unsuitable for development.

Trinity College Professor Paul Johnston, in a report drawn up in February 2018 at the request of local campaigners, found that there were "fundamental issues with this site as a suitable location for a wind farm".

Dr Johnston said high levels of rainfall coupled with the general geology of the Meenbog area added to the "overall unsuitability of this landscape for such a development".

"The steep slopes in some places give concern with respect to the stability of the excavations involved, especially given the high rainfall and the nature of the construction involved," the professor added.

A second report, this time by Mathematical Sciences Assistant Professor Dr Pdraig Ó Catháin, cautioned that the Meenbog site had been heavily forested, something that reduced the area's strength and increased "the likelihood of a slope failure".

He pointed out that forestry was a key factor in a landslide in 2003 at Derrybrien, County Galway. It



An aerial view of the Meenbog landslide.

killed up to 100,000 fish and resulted in the State being fined €5 million by the European Commission for breaching environmental safeguards.

"Forestry is known both to directly weaken peat, while also leading to drying and cracking of the surface; leading to an increase in the likelihood of peat failure," Dr Ó Catháin said.

But according to the applicants

'Forestry is known both to directly weaken peat, while also leading to drying and cracking of the surface; leading to an increase in the likelihood of peat failure'

the stability of the peat had been "comprehensively assessed" and no problems found.

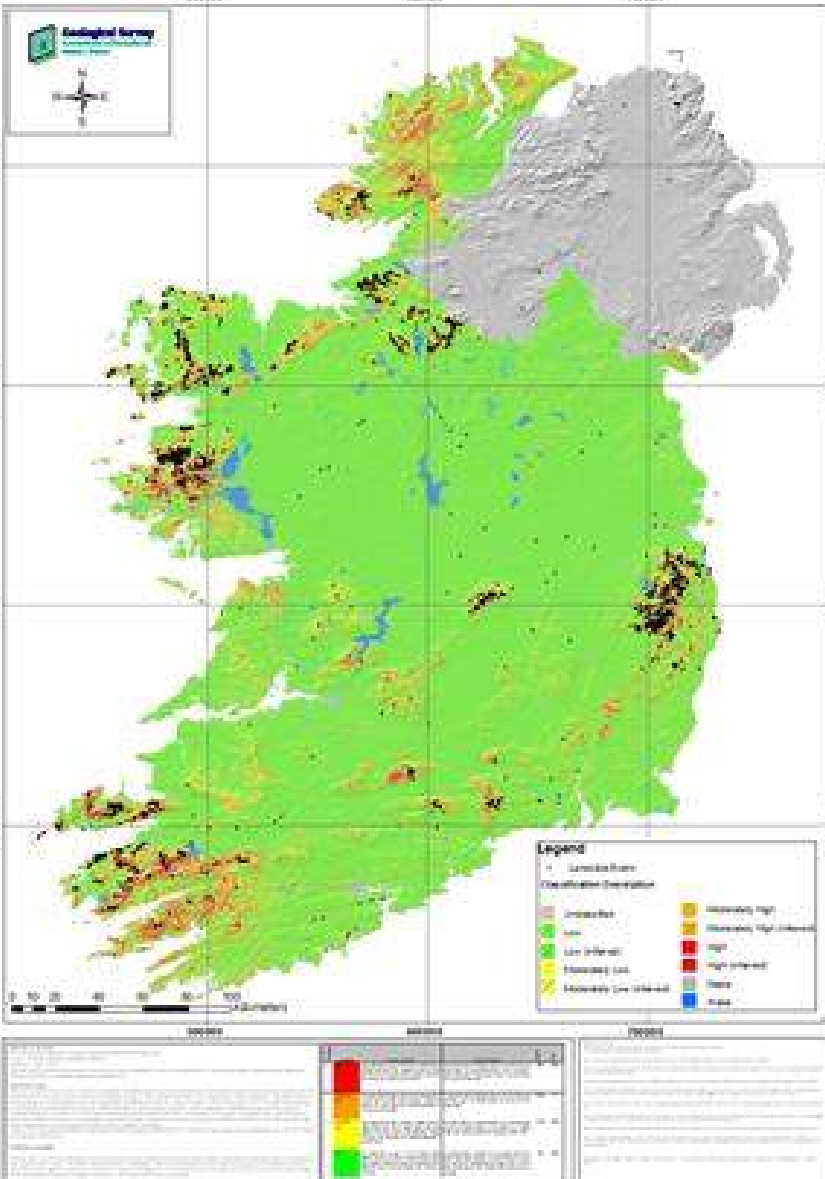
"There is a negligible risk of land instability as a result of forestry removal causing impacts to surface water and drinking water supplies," An Bord Pleanála was told.

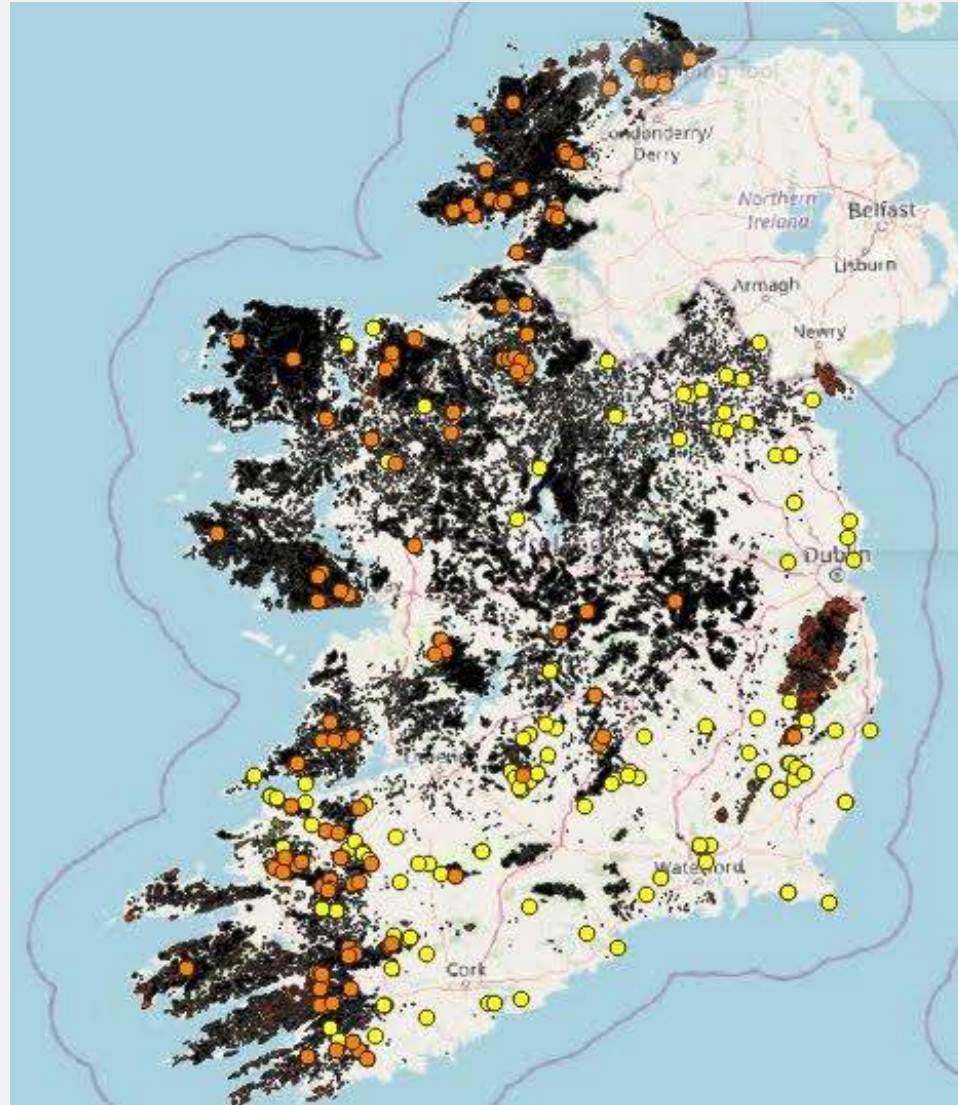
In giving Invis the go ahead to build the wind farm, An Bord Pleanála said it was satisfied all concerns raised had been addressed by the developer and that any risk of peat instability and erosion could be addressed through mitigation measures.

The bog slide is still being investigated by a number of agencies north and south of the border including Donegal County Council and the Environmental Protection Agency.

The Donegal News did ask Invis about the views of both Professor Paul Johnston and Dr Pdraig Ó Catháin but they said they would not be making any comment.

The Landslide Susceptibility Map of Ireland





Source: <https://twitter.com/gloverstweets/status/1623655704228777984>
(collated from NPWS and Teagasc data by activists)

Amazon to invest in Donegal wind farm as it eyes renewable energy goal

Company announces three wind farms in the US and Europe

✂ Expand



Amazon is investing in three renewable energy projects.

Ciara O'Brien

Mon Apr 8 2019 - 14:05

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European stocks jump higher as investors upbeat over post-Brexit deal

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Builder Tom Bailey claims 'shakedown' attempt over farm

Donegal group 'baffled' by Amazon connection to local wind farm



Aisling Kiernan

April 11, 2019 3:40 pm

AWS's investment in renewable projects in Ireland illustrates their continued commitment to adding clean energy to the grid and it will make a positive contribution to Ireland's renewable energy goals. As a significant employer in Ireland, it is very encouraging to see Amazon taking a lead on this issue. We look forward to continuing to work with Amazon as we strive to make Ireland a leader on renewable energy.

-Leo Varadkar on AWS' contract in

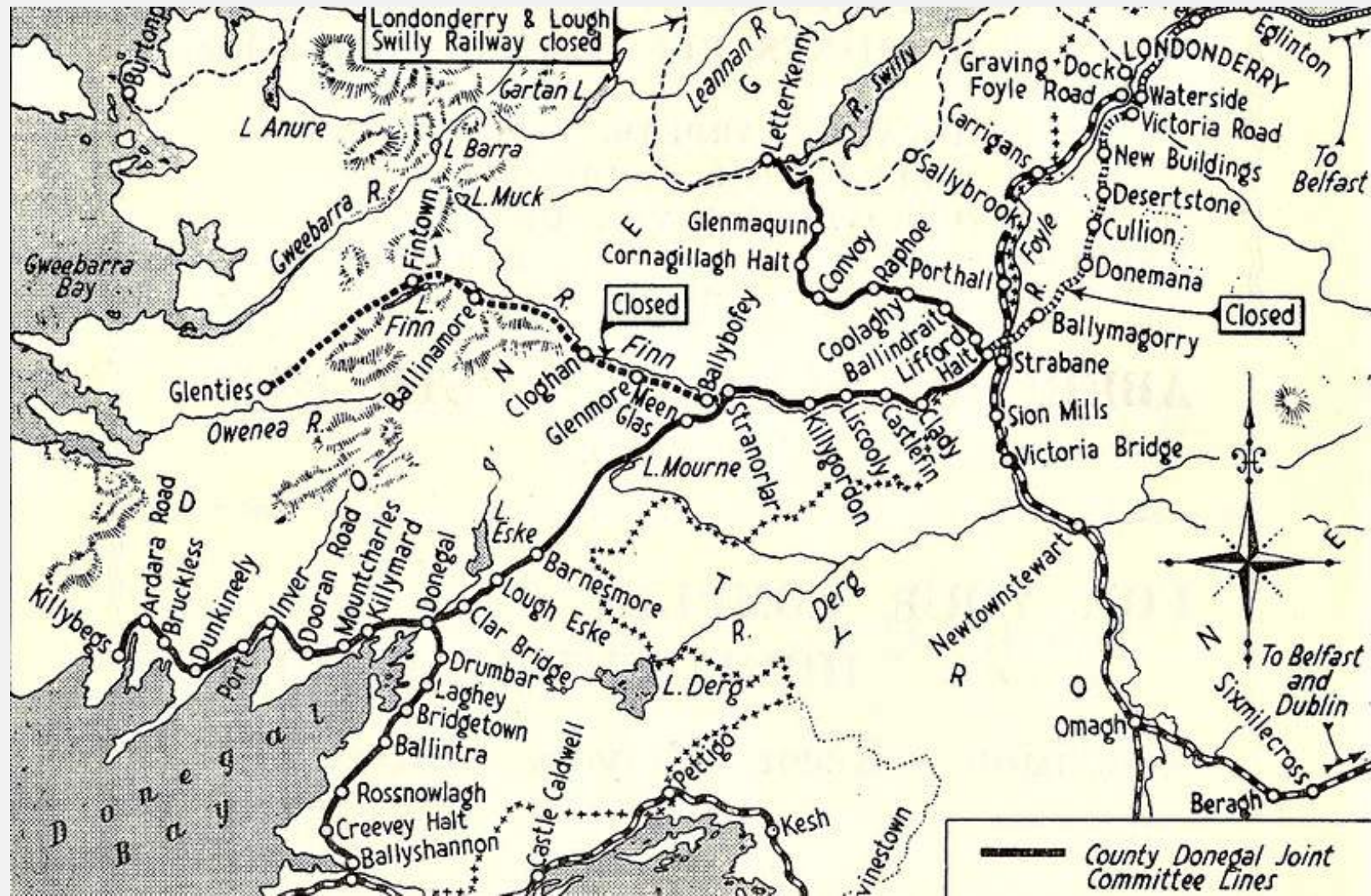
Meenbog, 2019



iii. peatland path dependence

- *deep peat*







12088. - BARNESMOR GAP CO. DONEGAL



REGIONAL SPATIAL AND ECONOMIC STRATEGY

for the Northern and Western Regional Assembly

Considerable asset knowledge has been built during the engagement process, however, this chapter recognises that additional work is needed to better understand the possible impacts of climate change and natural disasters so that this can be incorporated into the regions long term resilience.

The NWRA will encourage as a general principle that when the provision of a new item of infrastructure e.g. road or rail is being considered, then the possibility of incorporation of other services (water, broadband, electricity, gas) within the same corridor should be considered. New roads should essentially be infrastructure corridors.



Northern Ireland Peatland Strategy 2022-2040

August 2022

Version of Strategy to accompany Equality Impact Assessment Consultation

Peatland restoration will be an important means of restoring our environment to a condition that is healthy and will meet our biodiversity targets and our Net Zero contribution. The goal of this Strategy is to ensure that peatlands in Northern Ireland are conserved or under restoration management to become healthy, functioning ecosystems before 2040 and that the ecosystem services that they provide are acknowledged and appreciated, in line with the DAERA vision of "Sustainability at the heart of a living, working, active landscape valued by everyone".

Turf cutting by citizens for their own domestic fuel needs is a valued traditional activity across many peatlands. In many areas, such activity can continue into the future. However, where turf cutting conflicts with conservation objectives and obligations on the State, it will need to be curtailed. This Strategy aims to ensure that where this is necessary, in the interests of the common good, the rights of turf-cutters are fully addressed through compensation or relocation.



Bord na Móna has welcomed the first report by the Just Transition Commissioner which was published by the Government today.

In a statement to employees Bord na Móna Chief Executive, Tom Donnellan, said:

"On behalf of Bord na Móna, I want to thank the Just Transition Commissioner for his very comprehensive report. This report is an apt reminder both of Bord na Móna's historic contribution to the region and its future role as a mainstay of the green economy in the Midlands. The report notes the importance of our Brown to Green strategy that involves a €1.6 billion investment and development programme with a particular emphasis on green projects, using our landbank to help Ireland make progress on climate action."

As the company exits its traditional peat-based businesses Bord na Móna will continue to be a major employer in the Midlands employing people in a range of new green activities through:

- Accelerated development of our renewable energy assets and capabilities
- Expansion of our recycling and resource recovery operations
- A major peatland rehabilitation programme that will involve the rehabilitation of tens of thousands of hectares of peatland for biodiversity, amenity and other uses securing employment for at least 300 people previously engaged in peat harvesting
- The development of new partnerships, joint ventures and the company's own new business projects

iv. border friction

- *wet boots*





Source: IBEC/CBI, “Connected: A Prosperous Island of 10 Million People” (2016)



Border blockade during the “Troubles”



Loughs Agency statement on Meenbog incident

Date: 21/07/2022

The pollution case relating to the Meenbog incident was heard at Letterkenny District Court on 7th June 2022 as FCILC v Planree Limited.

The evidence supplied by Loughs Agency under the relevant provisions of the Fisheries Acts was supplemented by evidence supplied by a number of partner agencies, including Donegal County Council's Environment Team, Environmental Protection Agency Ireland and Northern Ireland Environment Agency. The District Court Judge heard direct evidence from a Loughs Agency Fishery Inspector and, following cross-examination, the company pleaded guilty and was fined €1,500. The company was also ordered to pay legal costs on both sides and reimburse Loughs Agency for capital restoration works completed to date.



Thank you!

Patrick.brodie@ucd.ie



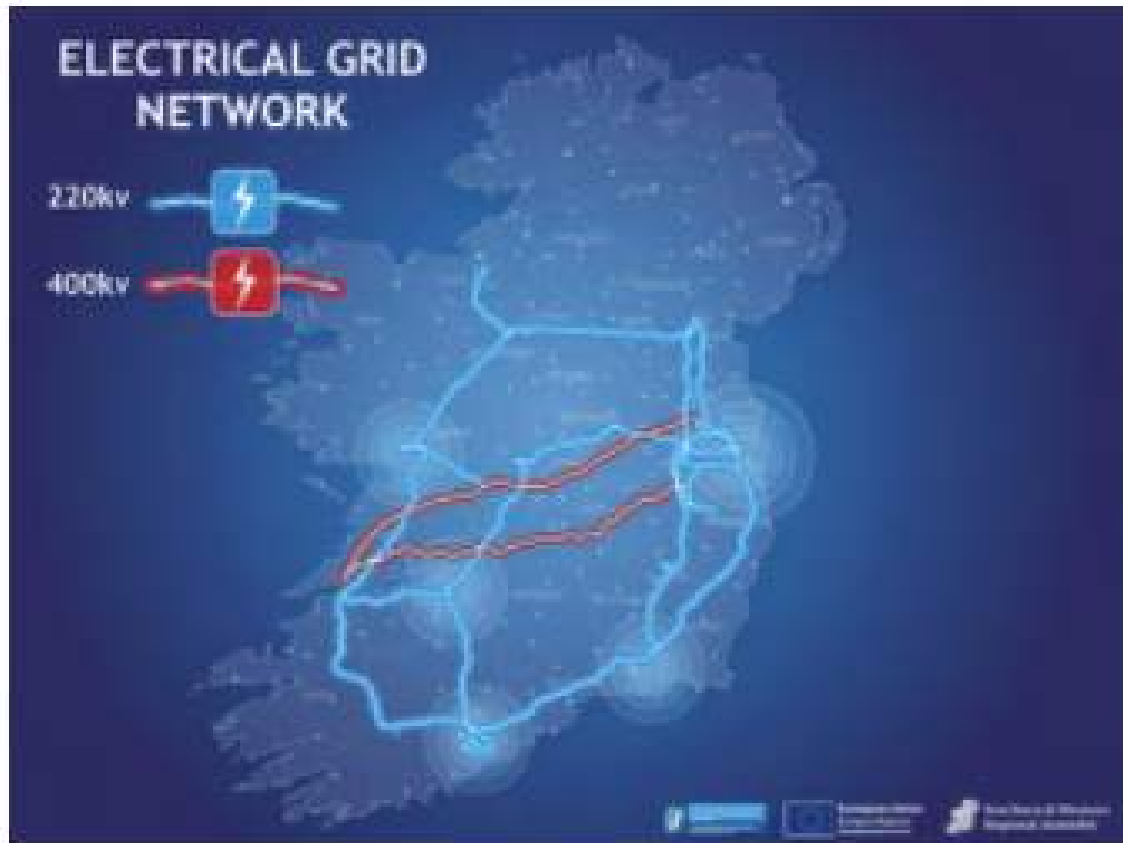


3,000 year old timber bog road uncovered in Westmeath during turf extraction

Lost property: the continuing violence of improvement

8 OCTOBER 2020 | BY BRENNA BHANDAR | ESSAYS

In 17th-century colonial Ireland, the value of land and populations were assessed on the basis of their productivity: the value of land measured according to agricultural output, and the value of people by their capacity to cultivate the land. In Petty's writings we see the beginnings of what could be termed an early labour theory of value, equating the value of both land and human life. The subsequent evaluation of both uncultivated land and the people associated with subsistence modes of life as waste, is distinct, however, from the concept of a surplus population, as elaborated by Marx. The colonial compulsion to 'improve' the native was not conditioned by the need to create a reserve army of labour. Rather, what is evident is a desire to expel or criminalise populations who are not settled on the land and who do not engage in marketised forms of cultivation. The lack of 'fixity' or the nomadic character of populations has long been a basis for their criminalisation and expulsion from the body politic.



Source: Regional Spatial and Economic Strategy for the Northern and Western Regional Assembly



Map 1.1 Sub Regional Examples



3,000 year old timber bog road uncovered in Westmeath during turf extraction

Joint Briefing: Brexit and cross-border environmental cooperation on the island of Ireland

The **Environmental Pillar** and **Northern Ireland Environment Link**, who together represent almost 100 environmental organisations from across the island of Ireland, are working together to draw attention to the cross-border environmental implications of Brexit – one of six key areas of cooperation outlined by the North South Ministerial Council as established under the Good Friday Agreement.

- **Tackling illegal waste issues:**
 - A close working relationship has developed in order to more effectively meet the requirements of waste legislation and address cross-border illegal waste activities. For example, after the discovery of illegal waste in Northern Ireland which had originated in the Republic of Ireland, both governments worked together to develop a framework agreement set within the legal context of the **EU Shipment of Waste Regulation**. Post-Brexit, there is a risk that Northern Ireland could become an easy dumping ground for waste produced in the South if standards and/or enforcement efforts are relaxed.

You are in: > DERRYNOW > LOCAL NEWS

Derry illegal dump site one of the biggest ever found in Europe



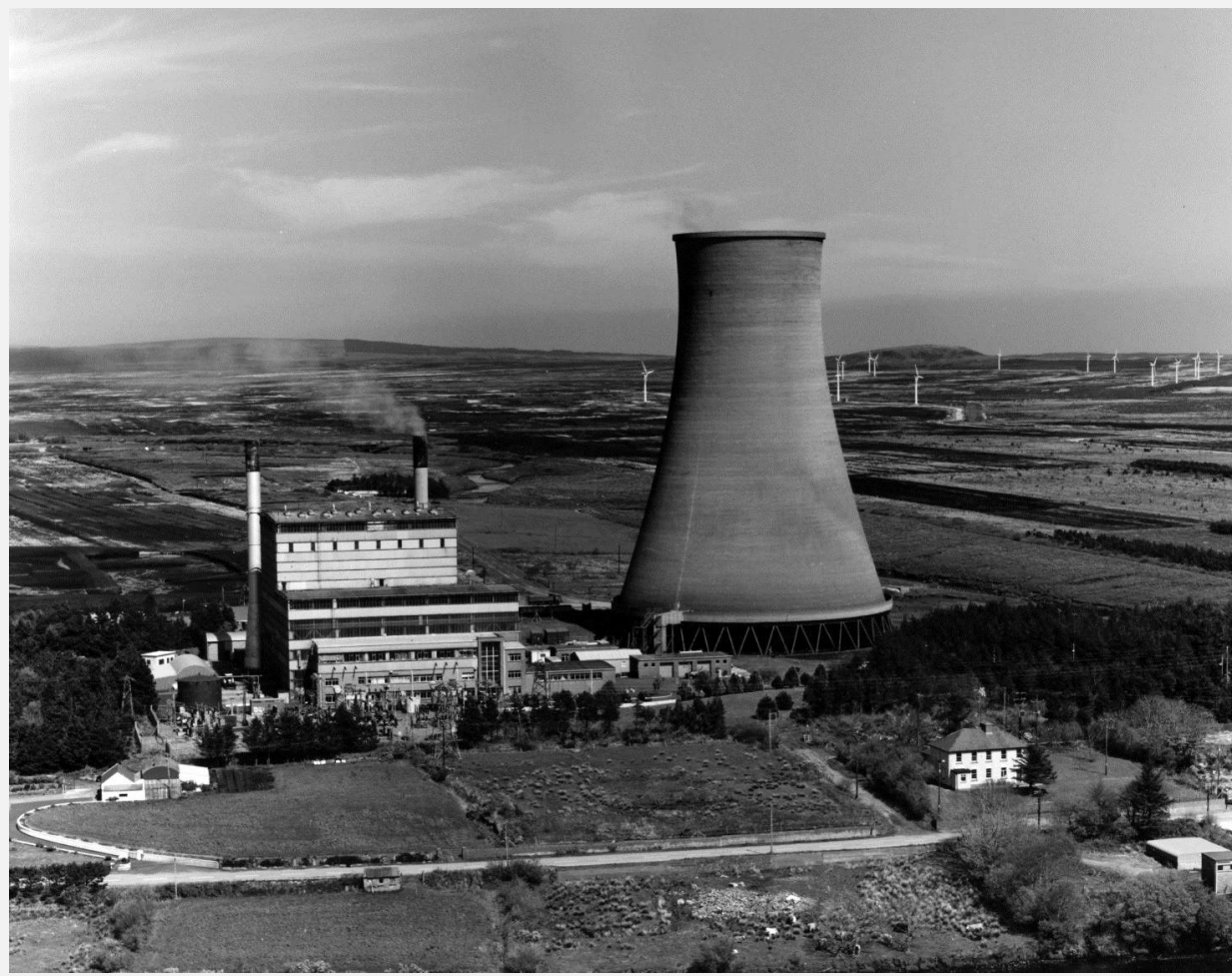
Asahi chemical plant in Killala, Mayo



Aughinish aluminium refinery in Limerick



Intel manufacturing facility in Leixlip



Ireland's Mining Boom:

Development and Impact*

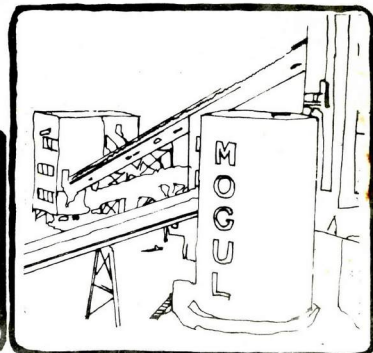
By KEVIN C. KEARNS

ABSTRACT. Over the past 15 years, Ireland has experienced a meteoric rise to prominence in *mining*. A decade ago output of metallic *minerals* was virtually non-existent. Today, metal concentrates from Irish mines are valued at \$55 million annually, or 4 percent of total national *exports*. Metals have assumed fourth place among individual export categories. There is no single explanation for the mining boom. Rather, it must be attributed to several interrelated factors. Most notably, these include government tax relief incentives for *economic development*, recent advances in *mining technology*, the role played by Canadian exploration companies, and the impetus created by initial ore discoveries. Mining development has impacted significantly on the country, in terms both economic and social. It has bolstered the *economy*, provided valuable *employment*, spurred *regional development* and helped discourage *emigration* in rural areas. However, owing to a dramatic reversal of national mining policy in 1974, the industry's future is now in some question.

IRISH MINING- THE NEED FOR ACTION.

3/-

A CASE STUDY OF EXPLOITATION.



Resources
Study Group

Business

Mining in Ireland has key role in ensuring sustainable future – geoscientists warn

IGI launches educational resources to support learning and counter 'misinformation'

Expand



Europe is 75 per cent dependent on imports for almost all metals and up to 100 per cent for some critical minerals. Photograph: iStock

Kevin O'Sullivan

Mon Mar 8 2021 - 00:01

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THE IRISH TIMES
Business Today





Electricity consumed by data centres in Ireland jumped by 144 per cent between 2015 and 2020, according to new figures from the Central Statistics Office (CSO).

Over the same period, the percentage of electricity consumed by these centres rose from 5 per cent to 11 per cent of overall usage.

“The increase in consumption was driven by a combination of existing data centres using more electricity and new data centres being added to the grid,” the CSO’s Niamh Shanahan said.

Building sustainable peace through environmental cooperation in the island of Ireland: modelling transboundary conservation

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ABSTRACT

As Brexit becomes reality, concerns are growing over environmental degradation due to differences in environmental policies on both sides of the border. At the same time, post-conflict peace occupied by neoliberal ideas remains fragile. However, there is no research that explores the nexus between environmental cooperation and peacebuilding in the Irish context. To narrow this loophole, first, this essay engages with the theory of environmental peacebuilding and sheds light on the role of environmental cooperation as an instrument for peacebuilding in post-conflict societies. Then, it proposes three models for environmental peacebuilding that likely fit in the Irish context. While not singling out one most feasible model, the paper concludes that the island of Ireland already has institutional arrangements and resources to implement any of the proposed models. Building a sustainable peace requires an approach to not only facilitate good relationships between divided human communities, but also resolve the human-nature conflict.

KEYWORDS Transboundary conservation; environmental peacebuilding; peace park; Irish border

1. Introduction

Human-made borders are subject to continuous reconfiguration. They are newly created, redefined or dissolved by various socio-political events such as political integration and conflicts (Hataley & Leuprecht, 2018). For example, the European Union (EU) has removed its internal borders between the Member States by political, cultural, economic, legal and social integration while expanding the territory of the European Community. Boundaries between the EU countries are perceived as no more than administrative and geographical lines. However, the issue of 'the Irish backstop' during Brexit negotiations represents the opposite case that political borders can revive and carry the possibility of contestation of sovereignty.

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In the median scenario, the traditional residential, commercial and industry sectors remain relatively consistent across the decade.

The largest growth comes from the data centre and new large energy users, and an increased uptake of electric vehicles and heat pumps, particularly later in the decade.

By 2031, 28% of all electricity demand is expected to come from data centres and other new large energy users.

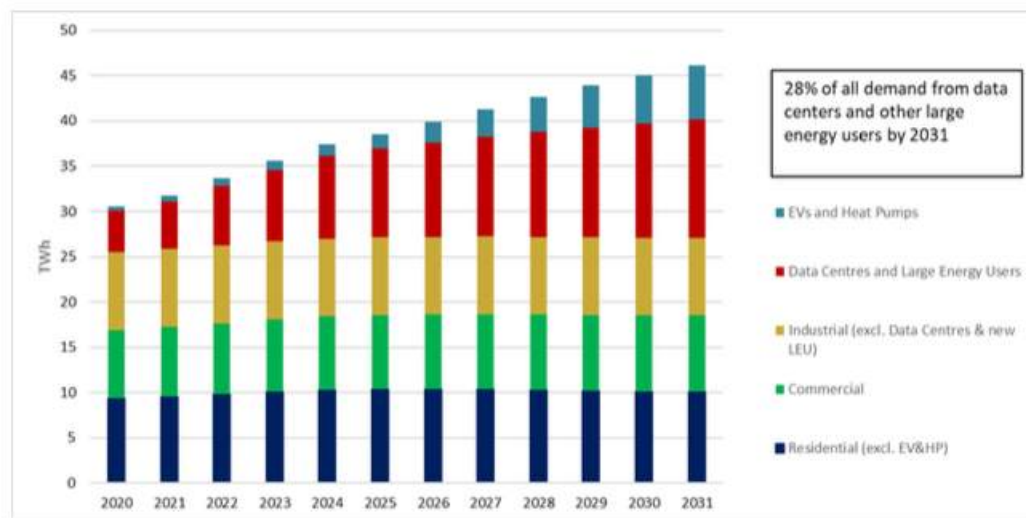


Figure 3 – Ireland Median demand scenario illustrating the approximate split into different sectors

ROI Projected Demand

Source: Eirgrid/SONI Ireland Capacity Outlook 2022-2031

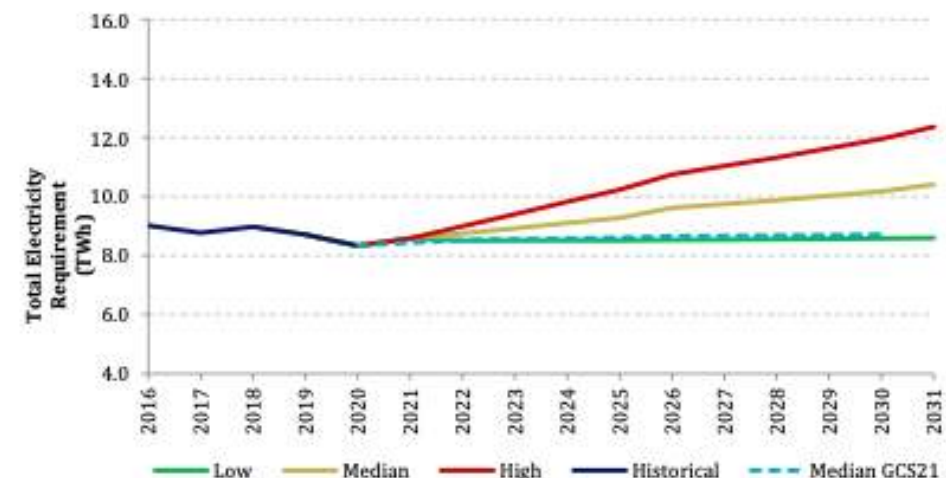


Figure 2.10 - Northern Ireland TER Forecast

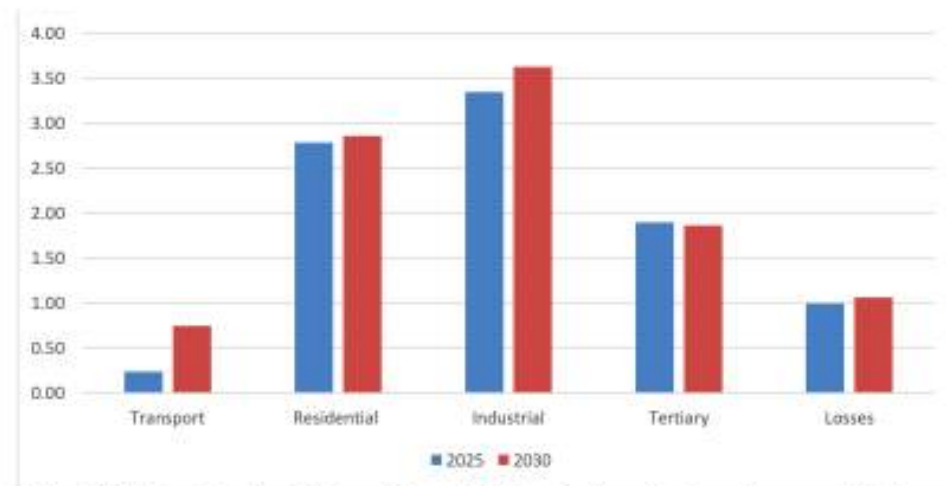


Figure 2.11 - Illustrates how the TER demand forecast is built up from the various demand components for the years 2025 and 2030. Growth in TER from 2025 is primarily driven by the electrification of heat and transport with government policies and incentives expected to drive growth.

NI Projected Demand



What Green Costs

Thea Riofrancos

Deep in the salt flats of Chile lies the extractive frontier of the renewable energy transition.

Perspective

Comparing coal and 'transition materials'? Overlooking complexity, flattening reality and ignoring capitalism

Alexander Dunlap ^a  , Diego Marin ^b

Special Forum on Extractivisms and Global Extractivism

A climate-smart world and the rise of Green Extractivism

Natacha Bruna  

Pages 839-864 | Published online: 30 May 2022

RESEARCH ARTICLE | MAY 01 2016

Aeolian Extractivism and Community Wind in Southern Mexico

Cymene Howe¹; Dominic Boyer

Original article

Towards a climate change consensus: How mining and agriculture legitimize green extractivism in Argentina

Felix Malte Dorn ^a  , Robert Hafner ^b, Christina Plank ^c

New extractive frontiers in Ireland and the moebius strip of wind/data

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Patrick Brodie 

Concordia University, Canada

Abstract

This article maps the interconnections between two emergent resource frontiers in Ireland: wind and data. Adding to literature about extraction and extractivism, we account for how these expanded extractive frontiers are mobilised within self-sustaining and automated formations. In Ireland, digital infrastructures such as data centres are developed by multinational tech companies to avail of a naturally cool climate and business environment friendly to their investment, part of a wider extractive system by which data are made valuable for their expansive operations. Wind farms similarly make use of Ireland's climate to generate energy, often used to power digital infrastructures, and are increasingly embedded within 'smart' energy and data systems. Wind and data are seen discretely as 'abundant' resources, their infrastructures built on terra or (offshore) mare nullius, and their operations 'green'. However, their infrastructures are entangled with non-renewable energy systems and tax evasive capital, and built across existing communities and environments through policy, planning logics and increasingly automated methods of maintenance and optimisation. Through what we call 'the moebius strip of wind/data', wind and data infrastructures are increasingly formidable in dictating our energy futures. In this article, we articulate how they are connected and how we can disentangle them, especially in their operation across urban and rural geographies.

Keywords

Data, frontiers, extraction, wind energy, Ireland

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Data Sinks, Carbon Services: Waste, Storage, and Energy Cultures on Ireland's Peat Bogs

Patrick Bresnihan (Maynooth University) and Patrick Brodie (McGill University)

Forthcoming in *New Media and Society*

(Pre-print ahead of publication, not for citation)

About 20% of the surface of Ireland is covered in peatlands. These unique environments have historically been depicted as 'wastelands,' requiring the interventions of colonial and postcolonial administrators to render them useful for energy and agricultural production. With only 1% of the country's peatlands remaining in a 'natural state,' the majority of drained and cut bog today presents a different kind of wasteland, one left by the aftermath of extraction which continues to actively 'waste' through the emission of carbon long stored underground. These drained and cut peatlands are concentrated in the rural midlands of Ireland where, since the 1950s, large-scale industrial peat extraction for energy generation has been directed by the semi-state company Bord na Móna (BnM). Peat is a dirty carbon fuel – it burns hot and releases more atmospheric pollutants than coal. In 2018, BnM announced plans to phase out industrial extraction and burning of peat as part of state commitments to reduce carbon emissions and offset climate impacts by 2030. Many of the country's peat-fired power plants have already closed, and the few remaining are using the last of their peat stores before closing for good. As one of the country's largest landholders, with a landbank of around 80,000 hectares (~1% of Ireland's total landmass), BnM has been tasked with transforming these brownfields into productive, 'green' assets, including via large-scale renewable energy infrastructure (Fig. 1) and carbon sequestration. They are also tasked with delivering a 'just transition' for the hundreds of industrial workers and their communities reliant on peat-cutting and related industries. The idea of a 'just transition,' developed by the international trade union movement, is that the phasing out of carbon fuels must simultaneously account for significant loss of employment and lifestyle in regions dependent on industrial carbon and, ideally, contribute a groundwork for a new, carbon-neutral society centred on green industrial development (see Morena et al., 2019).

Dublin is less than 50km from Ireland's post-industrial bog landscapes. It also the location of the highest concentration of data centres in Europe and the terminal point for much of Ireland's energy generation. Ireland acts as one of the most significant repositories for data in the world, especially for the big tech 'hyperscalers,' hosting information across Amazon Web Services (AWS), Google, Facebook, and Microsoft's cloud, commerce, and business platforms. Reasons for this include a favourable tax rate, supporting infrastructure and state policies, and a 'climate' suitable for cooling (Brodie, 2020a). The energy required to support this mass concentration of data infrastructures is profoundly affecting Ireland's energy futures, driving many decisions about climate change and renewable energy strategies (Bresnihan and Brodie, 2021b), with state grid operator Eirgrid projecting that 25% of the country's energy will go to

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Data Centers and Decarbonization

Data centers can fit into this narrative of a more open, interactive and flexible power system. Data centers could be well suited to providing flexibility to the grid, as they:

- Represent a sizable load that could potentially be shifted in response to grid conditions
- Are a concentrated load in a single location, which can be easier to access than numerous small loads such as homes and vehicles
- Host a range of energy resources on site, such as batteries and generation
- Already have sophisticated monitoring, control, communication and automation systems in place, unlike other businesses or homes (32)

October 14, 2021

Table 4.1 Private households by type of central heating by county, 2016¹

| Region and county | % of row | | | | | number |
|------------------------|-------------|-------------|-------------|-------------------|-------------|------------------|
| | Oil | Natural gas | Electricity | Peat (incl. turf) | Other | Total |
| Border | 66.4 | 3.3 | 4.2 | 8.0 | 18.1 | 143,888 |
| Cavan | 69.8 | 7.5 | 4.3 | 3.4 | 15.2 | 26,806 |
| Donegal | 64.2 | 1.1 | 2.5 | 11.4 | 20.9 | 58,305 |
| Leitrim | 64.7 | 1.6 | 6.1 | 8.9 | 18.6 | 12,404 |
| Monaghan | 76.3 | 6.0 | 3.9 | 0.6 | 13.3 | 21,612 |
| Sligo | 60.5 | 2.7 | 7.2 | 10.9 | 18.6 | 24,761 |
| Midland | 46.2 | 12.4 | 6.0 | 23.6 | 11.7 | 102,958 |
| Laois | 42.4 | 25.0 | 3.6 | 16.1 | 12.9 | 28,997 |
| Longford | 55.3 | 1.9 | 8.5 | 20.8 | 13.5 | 15,092 |
| Offaly | 41.0 | 7.6 | 5.1 | 37.9 | 8.4 | 27,184 |
| Westmeath | 49.9 | 10.1 | 7.7 | 19.6 | 12.7 | 31,685 |
| West | 56.8 | 5.4 | 7.8 | 18.6 | 11.4 | 164,263 |
| Galway City | 50.3 | 15.3 | 20.7 | 1.4 | 12.3 | 28,827 |
| Galway County | 58.1 | 4.0 | 5.4 | 23.0 | 9.5 | 62,729 |
| Mayo | 60.0 | 2.0 | 5.3 | 19.1 | 13.5 | 48,745 |
| Roscommon | 54.6 | 3.8 | 3.9 | 26.6 | 11.1 | 23,962 |
| Dublin | 11.0 | 68.2 | 14.2 | 0.1 | 6.5 | 479,159 |
| Dublin City | 5.8 | 63.4 | 22.1 | 0.1 | 8.7 | 211,591 |
| Dún Laoghaire-Rathdown | 12.1 | 74.2 | 9.2 | 0.1 | 4.4 | 78,568 |
| Fingal | 17.4 | 69.8 | 7.1 | 0.1 | 5.5 | 96,607 |
| South Dublin | 15.2 | 72.5 | 8.0 | 0.1 | 4.2 | 92,393 |
| Mid-East | 44.8 | 37.0 | 5.4 | 3.1 | 9.7 | 231,577 |
| Kildare | 41.2 | 38.6 | 6.2 | 6.8 | 7.2 | 73,348 |
| Louth | 46.1 | 40.4 | 3.6 | 0.1 | 9.7 | 45,363 |
| Meath | 48.7 | 34.1 | 5.1 | 2.5 | 9.6 | 63,861 |
| Wicklow | 43.9 | 35.2 | 6.4 | 1.0 | 13.5 | 49,005 |
| Mid-West | 53.9 | 18.8 | 6.3 | 4.8 | 16.2 | 173,441 |
| Clare | 59.1 | 12.1 | 5.3 | 7.2 | 16.3 | 43,348 |
| Limerick | 45.7 | 28.6 | 8.2 | 2.1 | 15.4 | 71,022 |
| Tipperary | 60.0 | 11.9 | 4.7 | 6.4 | 17.1 | 59,071 |
| South-East | 56.2 | 17.0 | 6.0 | 0.5 | 20.3 | 152,669 |
| Carlow | 54.3 | 23.6 | 4.9 | 0.9 | 16.2 | 20,465 |
| Kilkenny | 55.2 | 22.1 | 4.2 | 0.9 | 17.5 | 34,743 |
| Waterford | 44.5 | 29.7 | 7.8 | 0.2 | 17.8 | 43,455 |
| Wexford | 66.8 | 1.0 | 6.1 | 0.4 | 25.6 | 54,006 |
| South-West | 45.5 | 28.7 | 8.2 | 2.8 | 14.8 | 249,710 |
| Cork City | 12.1 | 64.6 | 13.9 | 0.1 | 9.4 | 49,370 |
| Cork County | 50.6 | 26.5 | 6.3 | 0.6 | 16.0 | 146,052 |
| Kerry | 62.4 | 2.0 | 8.1 | 11.3 | 16.2 | 54,288 |
| Total | 40.4 | 33.5 | 8.6 | 5.3 | 12.1 | 1,697,665 |

Source: CSO Census of Population

¹ Private households in permanent housing units.

Household heating statistics in the Republic of Ireland (Central Statistics Office, 2016)

Closing Questions:

- How do we reconcile environmental catastrophes like Meenbog with “green” and truly “just” transitions away from fossil fuels for rural communities?
 - *And how to escape from green extractivism?*
- How do we reckon with the increasing power of multinational and specifically tech capital in the construction and delivery of “public” utilities like energy systems?
- How do much older and difficult boundaries shape and affect how we must understand tech regulation in Ireland (and beyond) during this transition?