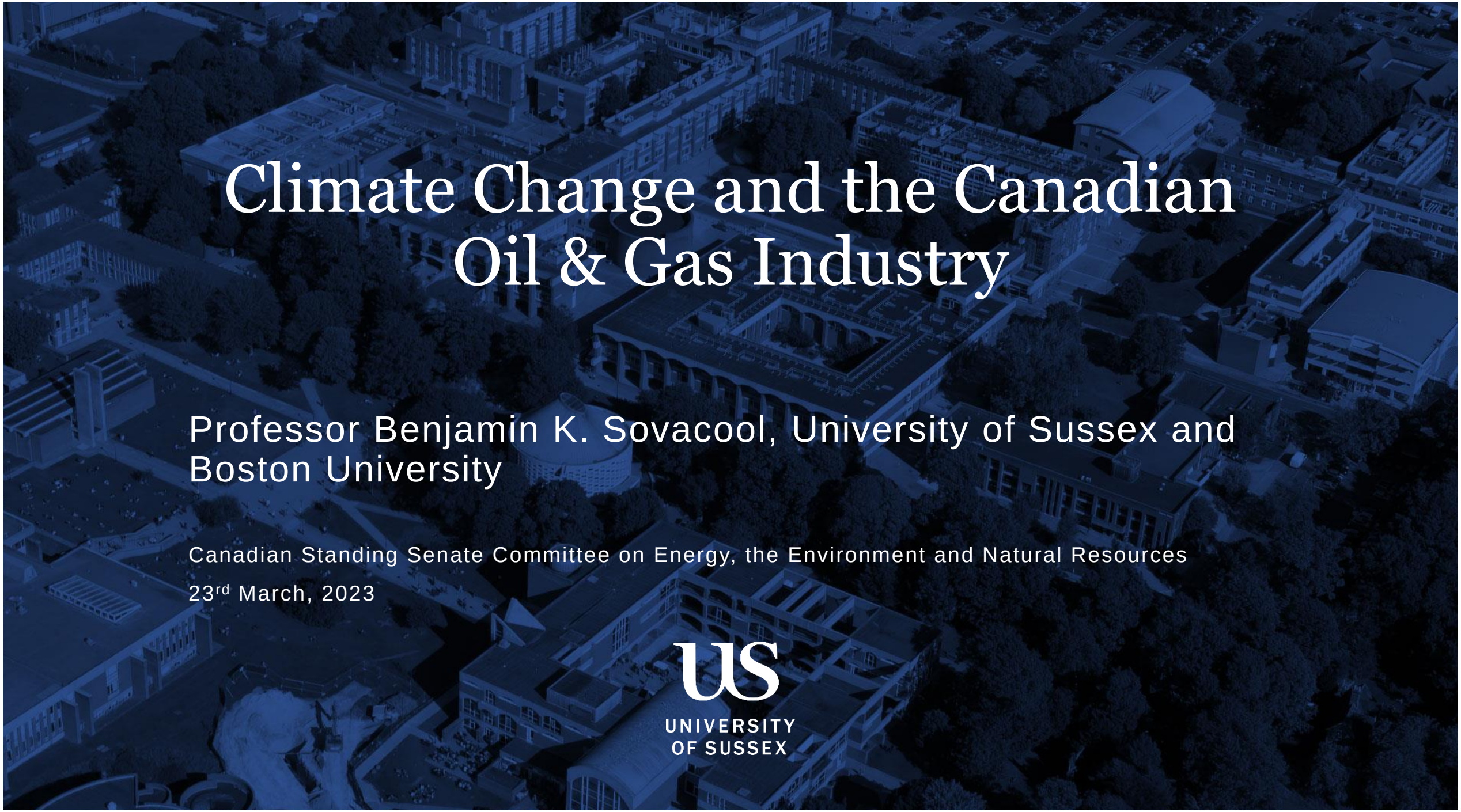

Climate Change and the Canadian Oil & Gas Industry

Professor Benjamin K. Sovacool, University of Sussex and Boston University

Canadian Standing Senate Committee on Energy, the Environment and Natural Resources

23rd March, 2023

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Justice and Equity in Low Carbon Transitions

- Low-carbon transitions are not universally positive. There is compelling evidence that, without vigilance, they can:
  - Create new injustices and vulnerabilities
  - Fail to address pre-existing structural drivers of injustice (both in energy and the wider economy)
- These negative impacts may occur through four different processes:

Concept or process	Dimension	Explanation
Enclosure	Economic	Capturing resources or authority: transferring public assets into private hands, or the expansion of private roles into the public sector
Exclusion	Political	Marginalizing stakeholders: limiting access to decision-making processes and fora, unfair planning or policymaking procedures or access to recourse
Encroachment	Ecological	Damaging the environment: intruding on biodiversity areas or other areas with predisposed land uses, interfering with ecosystem services, shifting emissions sources (but not reducing them)
Entrenchment	Social	Worsening inequality: aggravating the disempowerment of women or minorities, exacerbating vulnerability, and/or worsening concentrations of wealth

Papers:
- Who are the victims of low-carbon transitions? Towards a political ecology of climate change mitigation
- Decarbonization and its discontents: a critical energy justice perspective on four low-carbon transitions

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Projects
- INNOPATHS

Justice and Equity in Low Carbon Transitions

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Review

Who are the victims of low-carbon transitions? Towards a political ecology of climate change mitigation

Benjamin K. Sovacool [a, b, *]

Abstract

This study critically examines 20 years of geography and political ecology literature on the energy justice implications of climate change mitigation. Grounded in an expert guided literature review of 198 studies and their corresponding 332 case studies, it assesses the linkages between low carbon transitions—including renewable electricity, biofuel, nuclear power, smart grids, electric vehicles, and land use management—with degradation, dispossession and destruction. It draws on a

Papers:

- Who are the victims of low-carbon transitions? Towards a political ecology of climate change mitigation

Projects

- INNOPATHS

Table 3
Vulnerable groups mentioned in academic research on political ecology and climate mitigation (n = 198 studies).

Vulnerable group	No. of articles	% of articles
Non-human species	153	77.3%
Local communities, host communities, adopters or households	152	76.8%
Farmers, agriculturalists, or pastoralists	74	37.4%
Rural poor	73	36.9%
Occupational workers, wage laborers, or their unions	72	36.4%
Indigenous/aboriginal groups, ethnic/racial minorities, or members of a lower caste	71	35.9%
Future generations (e.g., nuclear waste)	71	35.9%
Fishers and water resource users	51	25.8%
Environmental groups, civil society, wildlife reservists, land managers or nature conservationists	38	19.2%
Urban poor	36	18.2%
Women (including gender roles)	27	13.6%
Recreationists, campers, hikers, forest users	27	13.6%
Banks, financiers, investors (including fossil fuel incumbents)	27	13.6%
Elderly	13	6.6%
Students	13	6.6%
Disabled individuals	12	6.1%
Forced labor or modern slaves	10	5.1%
Coastal homeowners (e.g. offshore wind energy)	10	5.1%
Prostitutes	10	5.1%
Children or youth (including health impacts)	5	2.5%
Local businesses (including tourism)	5	2.5%
Refugees (including displaced persons and forced migrants)	3	1.5%
Alcoholics	3	1.5%
Affluent suburban homeowners	1	0.5%

Source: Author.

Example: Carbon Intensive Regions

- CINTRAN is exploring Just Transitions and decarbonization pathways in Ida-Virumaa in Estonia, the Rhenish Mining area in Germany, Western Macedonia in Greece and Silesia in Poland
- There are a much wider range of regions and communities that can lose out in a low carbon transition, and they're not always that obvious.
- Social issues can be just as important as economic ones, i.e. changes to the social structures and institutions in a community.
- Communities and regions need to be given agency to decide their own plans, rather than having them decided from above.

Papers:

- Towards a multi-scalar and multi-horizon framework of energy injustice: A whole systems analysis of Estonian energy transition
- Conflicted transitions: Exploring the actors, tactics, and outcomes of social opposition against energy infrastructure

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Projects

- CINTRAN (Carbon Intensive Regions in Transition - Unravelling the Challenges of Structural Change)

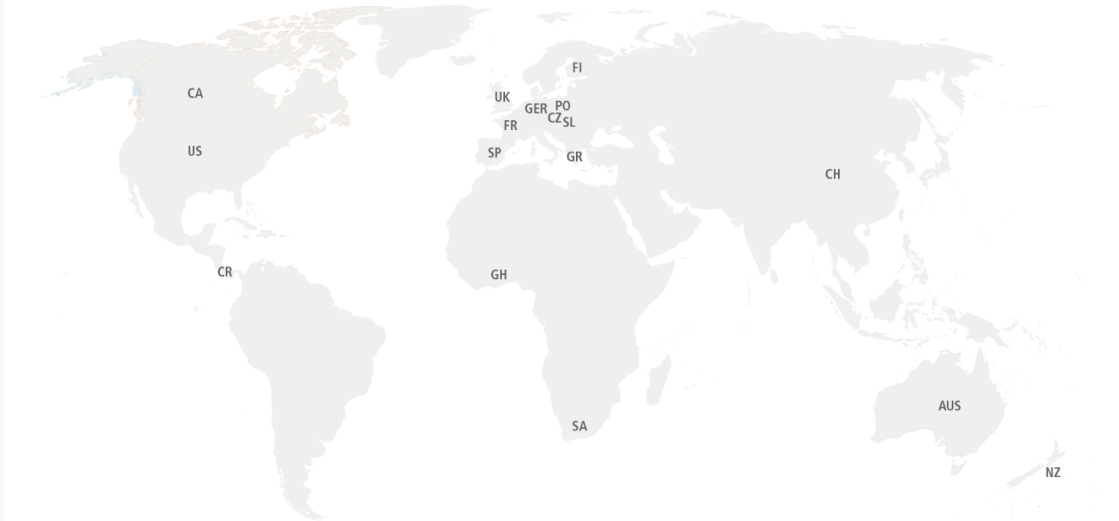
Equity and just transition in the IPCC

- **Just Transition. "**A set of principles, processes and practices that aim to ensure that no people, workers, places, sectors, countries or regions are left behind in the transition from a high-carbon to a low-carbon economy."
- "It stresses the need for targeted and proactive measures from governments, agencies, and authorities to ensure that any negative social, environmental or economic impacts of economy-wide transitions are minimised, whilst benefits are maximised for those disproportionally affected."
- "Key principles of just transitions include: respect and dignity for vulnerable groups; fairness in energy access and use, social dialogue and democratic consultation with relevant stakeholders; the creation of decent jobs; social protection; and rights at work."
- "Just transitions could include fairness in energy, land use and climate planning and decision-making processes; economic diversification based on low-carbon investments; realistic training/retraining programs that lead to decent work; gender specific policies that promote equitable outcomes; the fostering of international cooperation and coordinated multilateral actions; and the eradication of poverty."
- "Lastly, just transitions may embody the redressing of past harms and perceived injustices."

Pathak, M, R. Slade, P.R. Shukla, J. Skea, R. Pichs-Madruga, D. Ürge-Vorsatz, BK Sovacool et al. "Technical Summary." In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.002

“Just Transition” can also be indicated by actions and policies

(a) Just Transition commissions, task forces and dialogues



Australia: La Trobe Valley Authority

Canada: Task Force on Just Transition for Canadian Coal Power Workers

China: Mine closure provisions in the 13th Five Year Plan for Coal Industry Development, 2016–2020

Costa Rica: National Decarbonisation Plan 2018–2050

Czech Republic: Czech Coal Commission

Finland: Working group to ensure a fair and just transition and acceptability of climate measures

France: 2018 Ecological Transition Contracts programme

Germany: German Commission on Growth, Structural Change and Employment (German Coal Commission)

Ghana: The National Dialogue on Decent Work and ‘Just Transition’ to a Sustainable Economy and Society

Greece: National Just Transition Fund for Lignite areas

New Zealand: ‘Just Transitions Unit’ within the ministry of Business, Innovation and Employment (MBIE)

Poland: The 1998 Mining Social Package and Special Privileges for the mining communes

Scotland: Scottish Just Transition Commission

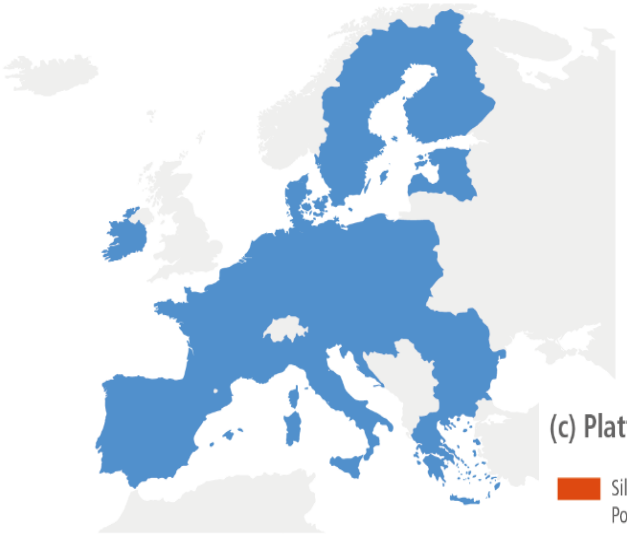
Slovakia: Transformation Action Plan of coal region Upper Nitra

South Africa: National Planning Just Transition Dialogue + the One Million Climate Jobs Campaign

Spain: Framework Agreement for a Just Transition on Coal Mining and Sustainable Development

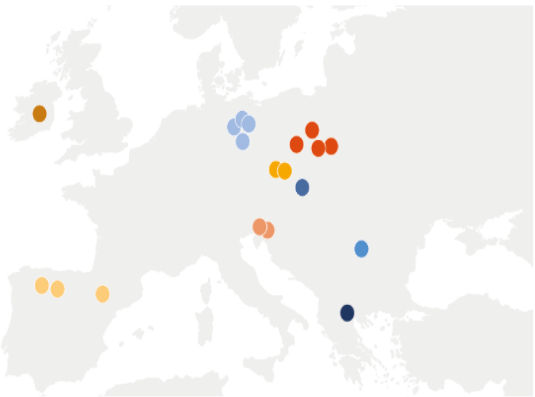
United States: Partnership for Opportunity and Workforce and Economic Revitalisation Plan (POWER+)

(b) European Green Deal – Just Transitions Fund



(c) Platform for coal regions in transition

- Silesia, Lower Silesia, Greater Poland, Lesser Poland
- Brandenburg, Saxony, Saxony Anhalt, North Rhine-Westphalia
- Moravia-Silesia, Usti, Karlovy Vary
- Asturias, Aragón, Castilla-y-León
- Western Macedonia
- Upper Nitra
- Jiu Valley
- Zasavska, Savinjsko-Šaleška
- Midlands

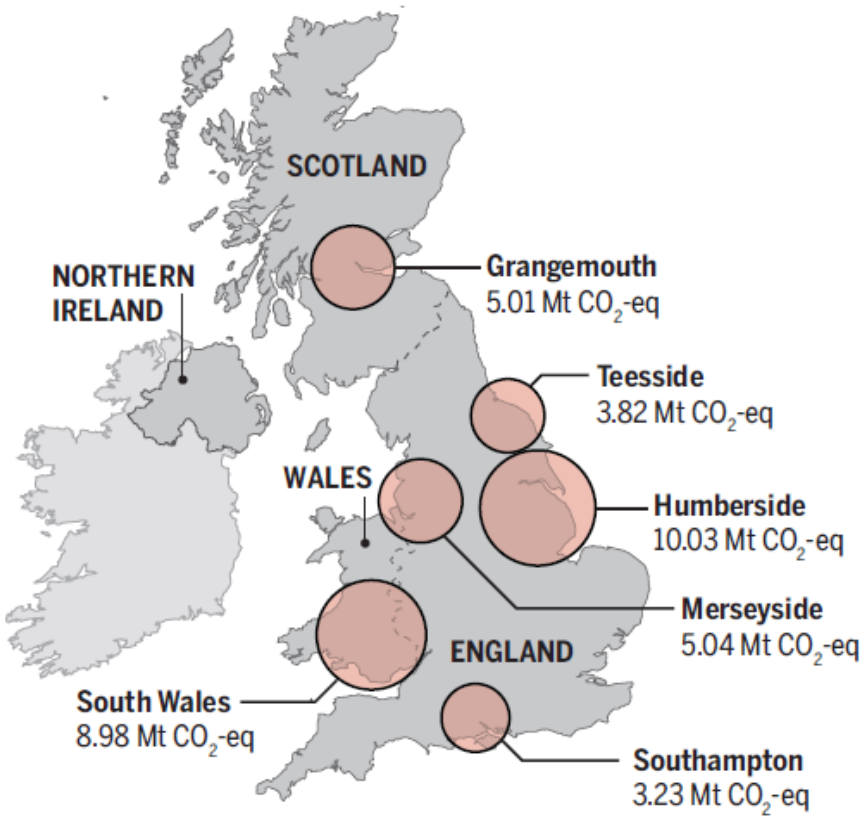


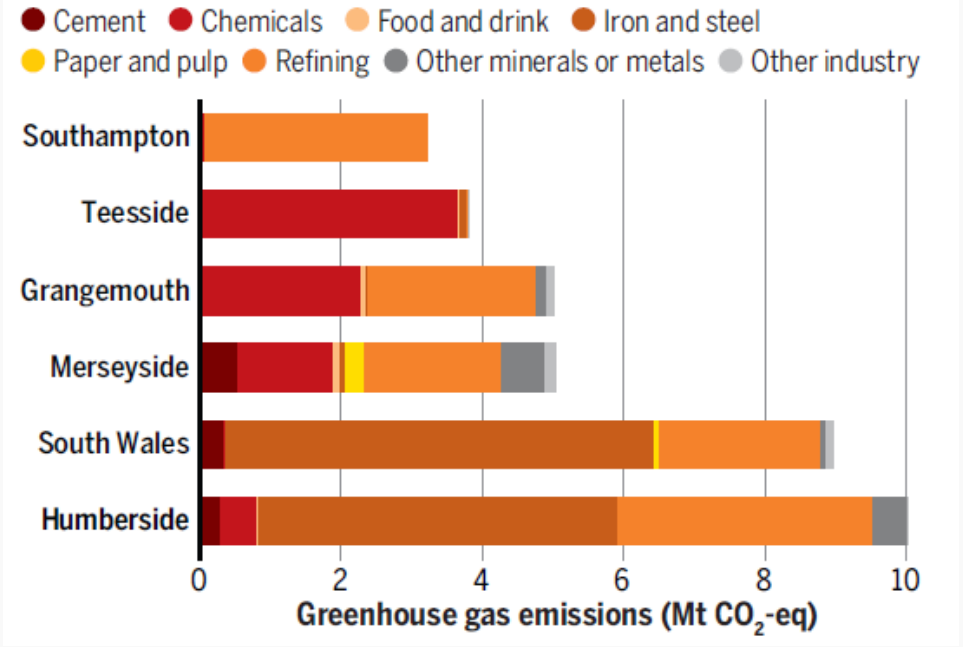
Lecocq, F., H. Winkler, J.P. Daka, S. Fu, J.S. Gerber, S. Kartha, V. Krey, H. Lofgren, T. Masui, R. Mathur, J. Portugal-Pereira, B. K. Sovacool, M. V. Vilariño, N. Zhou. “Mitigation and development pathways in the near- to mid-term. In Climate Change 2022: Mitigation Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Chang [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.006

Industrial clusters for deep decarbonization

Decarbonization in UK industrial clusters

The map shows the location of the six largest clusters in terms of annual greenhouse gas (GHG) emissions (million metric tons (Mt) of CO_2-eq) (top). The graph shows emissions from different industrial sectors (excluding power generation) in six UK clusters (bottom), dominated mostly by chemicals, refining, and iron and steel. Each of these clusters has aggressive plans in place for deployment of net-zero infrastructure.



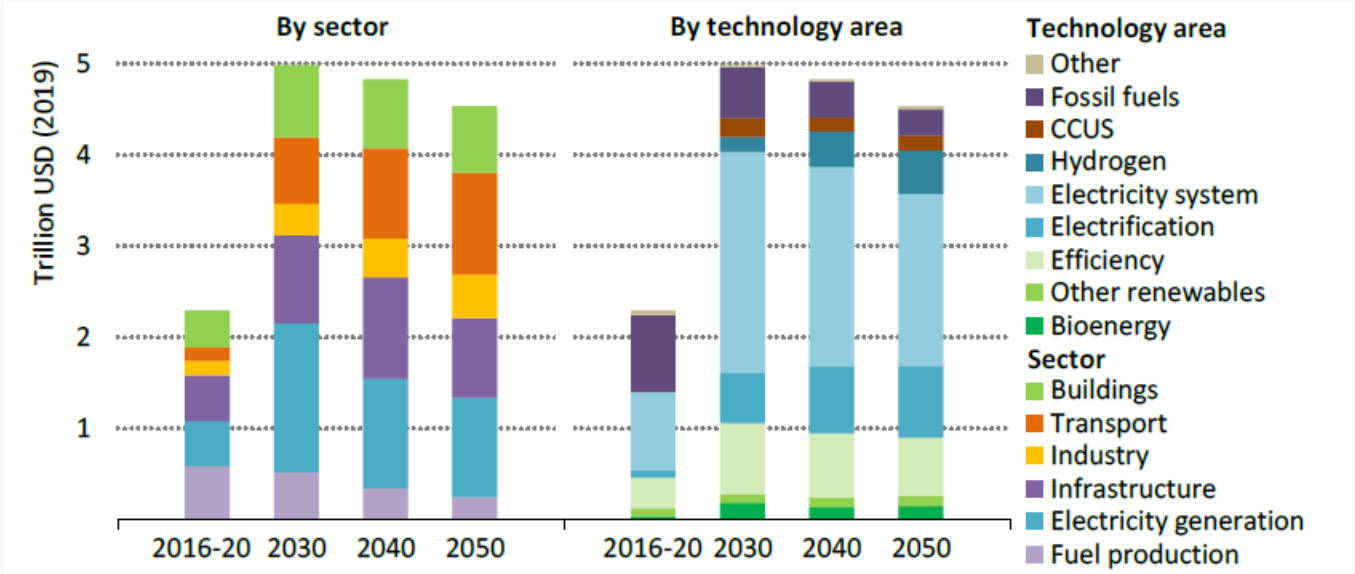


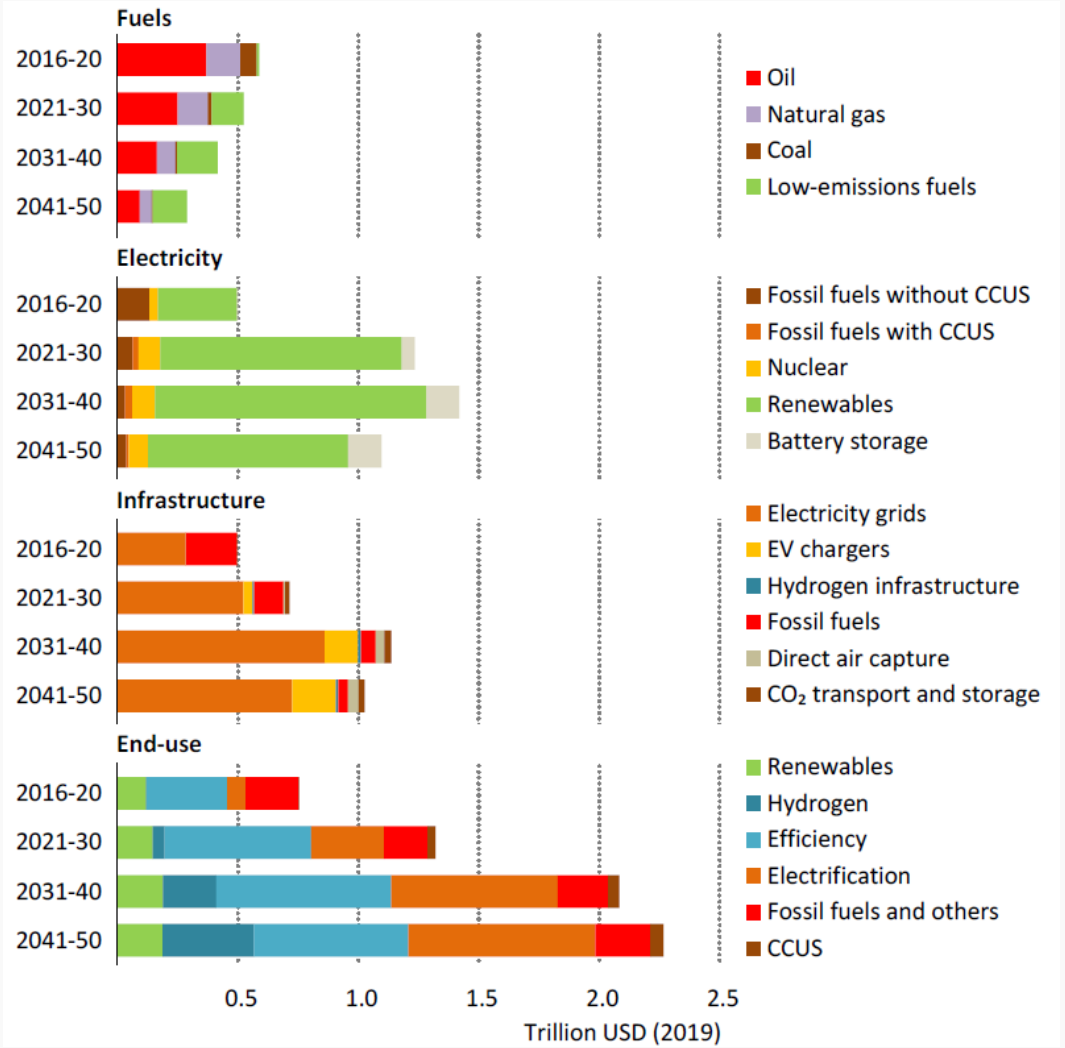
Business models, policy mechanisms

1. **Dispatchable power agreements**
   Offer power plants with carbon capture and storage a payment for available capacity and a variable payment per megawatt-hour of generated low-carbon electricity.
2. **Industrial carbon capture business models**
   Incentivize the deployment of carbon capture technology by industrial users with industrial carbon capture contracts to provide ongoing revenue support and capital grant funding where relevant.
3. **Low-carbon hydrogen agreements**
   Pay hydrogen producers a flat (indexed) rate between the "strike price" (a price for electricity that reflects the investment cost for low-carbon technology) and the "reference price" (a measure of the average market price for electricity in the market).
4. **Regulated asset base model**
   Used for transport and storage infrastructures, regulated asset base models include a payment for the amount of CO_2 that has been moved and stored and a payment for building the infrastructure.
5. **Carbon border-tariff adjustments**
   Restrictions are placed on traded and imported carbon-intensive goods, which reduces leakage and ensures that carbon is more properly valued in the market.

Sovacool, BK, FW Geels, and M Iskandarova, "Industrial clusters for deep decarbonization: Net-zero megaprojects in the UK offer promise and lessons," *Science* 378 (6620) (November 10, 2022), pp. 601-604.

Projections of annual average capital investment in net-zero energy infrastructure by sector and technology area





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