New Frontiers in Energy Justice: Energy Decisions Reframed as Ethical Concerns

Invited Presentation to the "An Inclusive Energy Transition? Global Low-carbon Strategies and their Discontents" Conference, The David Attenborough Building, University of Cambridge, United Kingdom, June 22, 2017

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- What is unjust about energy?
- What is energy justice?
- Proposing six new frontiers
    - *New theorists*
    - *Beyond anthropocentrism*
    - *Cross-scalar issues*
    - *Business models and benefits*
    - *Political economy*
    - *Discourse*

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Why do we need energy justice?

(1) To better assess, deconstruct, and distribute energy risks

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Table 2 | Eight energy system risk profiles.

Technology		Availability	Affordability	Resilience	Sustainability	Security
Oil	Pros	Historically in plentiful supply. Readily transported.	Historically inexpensive.	Many uses (such as electricity, transport).	Established supply networks.	Source of revenue for exporters.
	Cons	Majority of supply is in unstable nations. Risk of rapid depletion.	Future costs could present economic hardship.	Supply is controlled by unstable regimes. Supply routes are prone to risk.	Source of GHG emissions. Depletable. Risk of damaging spills.	Source of dependence and insecurity for importers.
Natural gas	Pros	Historically in plentiful supply. Readily transported.	Historically cheap source of peak load fuel.	Many uses (such as electricity, heating, cooking).	Established supply networks.	Source of revenue for exporters.
	Cons	Significant supply is in unstable nations. Rapid depletion.	Potentially expensive after low-cost reserves are depleted.	Some supplies controlled by unstable regimes. Supply routes are prone to risk.	Source of GHG emissions. Depletable.	Source of dependence and insecurity for importers.
Coal	Pros	Historically plentiful. Linked to transport infrastructure. Supplier diversity.	Historically cheapest source of base-load fuel.	Many uses (such as electricity, steel making). Easily stored.	Historically stable source of employment.	Source of revenue for exporters.
	Cons	Rapid depletion.	Mercury, CO_2 and other emissions produce severe hidden costs.	Supply route congestion.	Key threat to climate change. Source of major health problems.	Source of insecurity for importers.

Source: Stern, PC, BK Sovacool, and T Dietz. "Towards a Science of Climate and Energy Choices," *Nature Climate Change* 6 (June, 2016), pp. 547-555

Hydroelectric dams	Pros	Key domestic resource. Relatively predictable supply.	Cheapest historical source of renewable energy.	Largely subject to domestic control. Flexible renewable source.	Clean source of energy.	Easy to manage once established.
	Cons	Supply expansion has limits.	Environmental damages and decommissioning can represent hidden costs.	Undermined by drought, technical failures, and terrorist attacks.	Engenders environmental degradation and can entail the forced relocation of communities.	Can become targets during periods of social or military conflict.
Solar PV and wind electricity	Pros	Key domestic resource that any nation can exploit.	Many technologies are now commercially viable.	Different technologies suit different needs. Easy to scale up. Decentralized.	Clean source of energy. Among the highest ratio of jobs per kWh.	Decentralized generation improves system safety. Can minimize impact of fossil fuel price increases.
	Cons	Supply can be intermittent and unpredictable.	Intermittency poses hidden costs.	Can be undermined by environmental or climatic changes.	Requires integration with other systems.	Can be expensive and a source of voter dissent. Manufacture of solar cells dependent on rare earth minerals imports.
Nuclear power	Pros	Can help diversify energy portfolios.	Low historic operating costs after facilities have been paid off and/or subsidized.	Large, centralized plants are easy to secure.	Viewed as a low-carbon pathway to cheap energy in the future.	Nuclear technology spin offs can provide scientific benefits. Nuclear power is a status symbol.
	Cons	Requires high level of technical expertise.	Prone to cost overruns and long lead times.	Can undermine the electric grid when malfunctioning. Prone to terrorist attacks.	Presents major waste and safety challenges, as well as health risks.	Presents major waste management and safety challenges. Has troubling links with weapons proliferation. May require authoritarian or interventionist government regimes.

Technology		Availability	Affordability	Resilience	Sustainability	Security
Biofuels	Pros	Most nations have some supply.	Potentially a good use of waste.	Can be produced by a variety of sources.	Meshes well with agrarian communities.	Can enhance agricultural development strategies, and minimize oil imports.
	Cons	Not enough to fully replace other fuels.	Food versus fuel controversy.	Requires continued expansion of land use to expand supply. Hard to ramp up.	Can require inputs such as pesticides and fertilizers.	Not an advanced use of land. Gives rise to deforestation and the resulting human and environmental insecurity.
Energy efficiency	Pros	Opportunities available everywhere.	Cheapest way to reduce carbon footprint.	Significantly reduces impact of conventional fuel price increases.	Gives rise to innovation and competitive advantage. One of the highest ratios of jobs per kWh.	Inexpensive to implement.
	Cons	Knowledge needed to exploit.	Can in some cases cause a rebound or takeback effect.	Solutions exhibit a progressively increasing cost profile.	Displaces jobs in traditional energy industries.	May encourage battles over standard setting.

(2) To enhance equity and fairness

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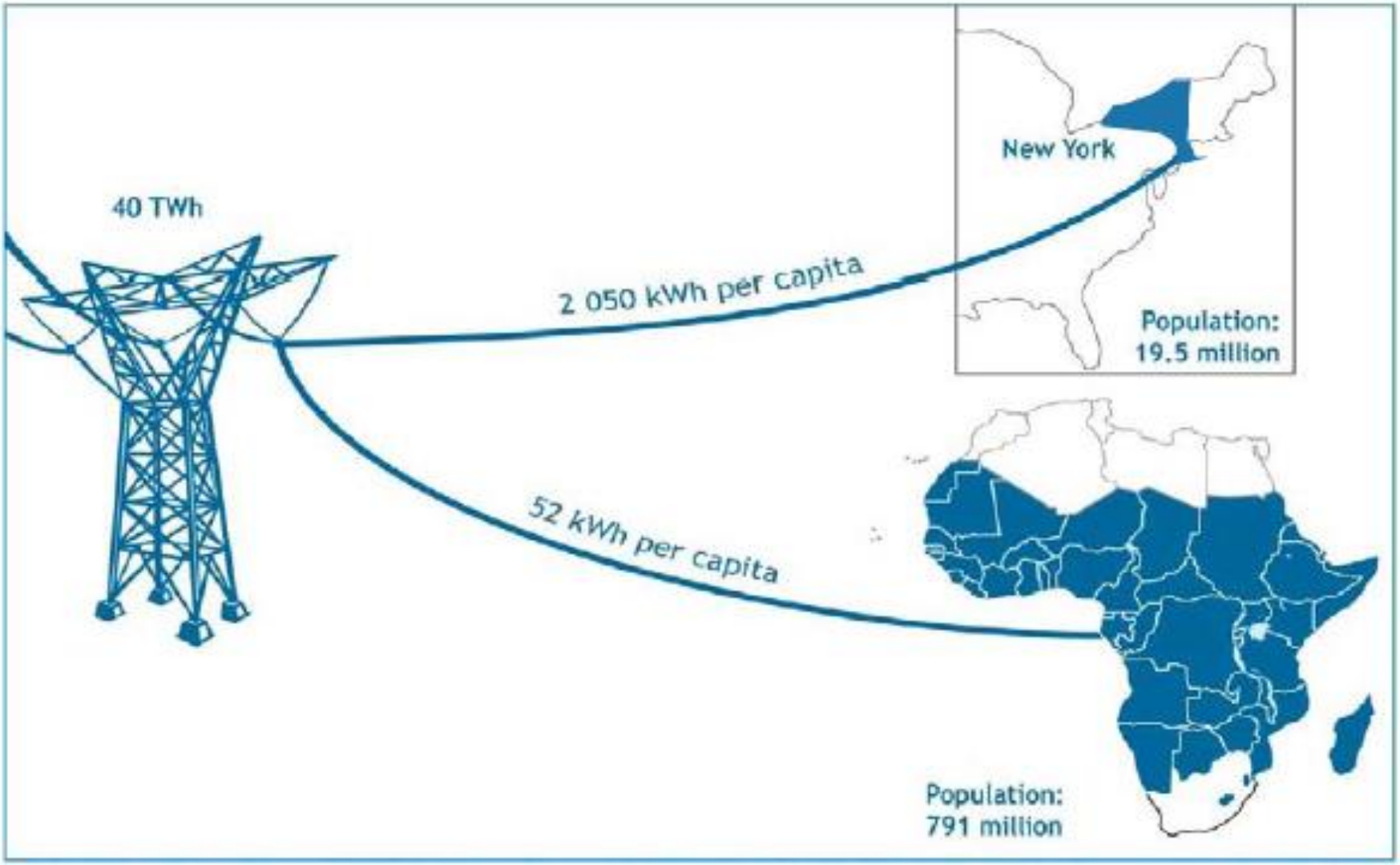

(2) Equity and fairness

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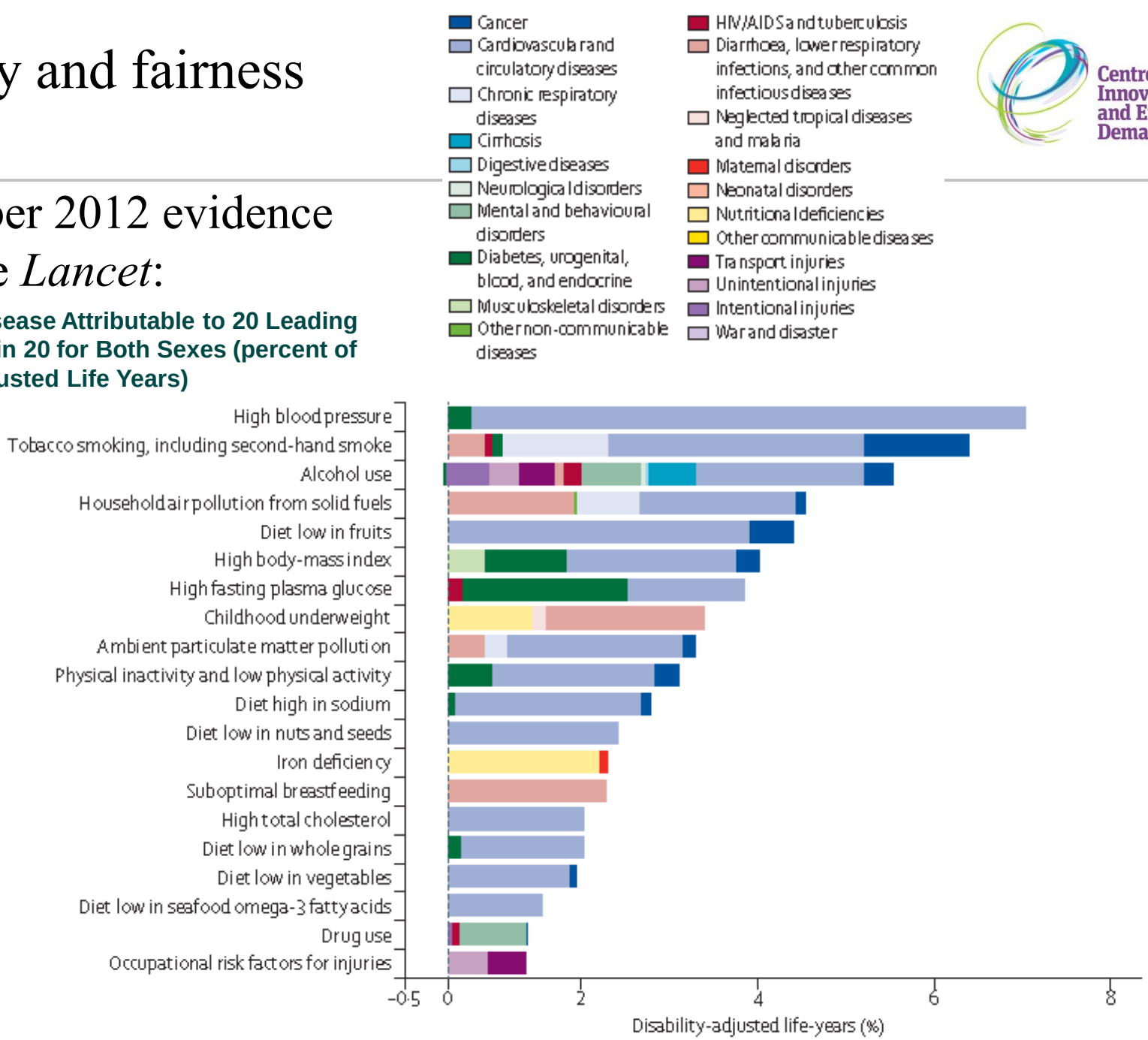
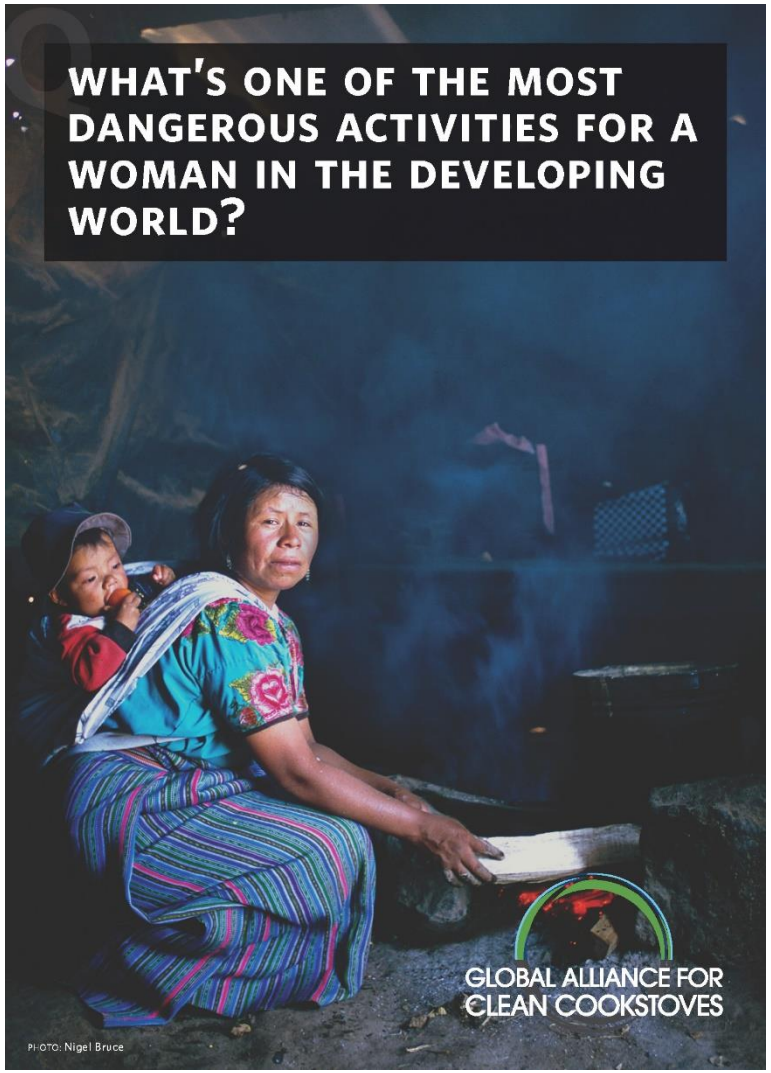
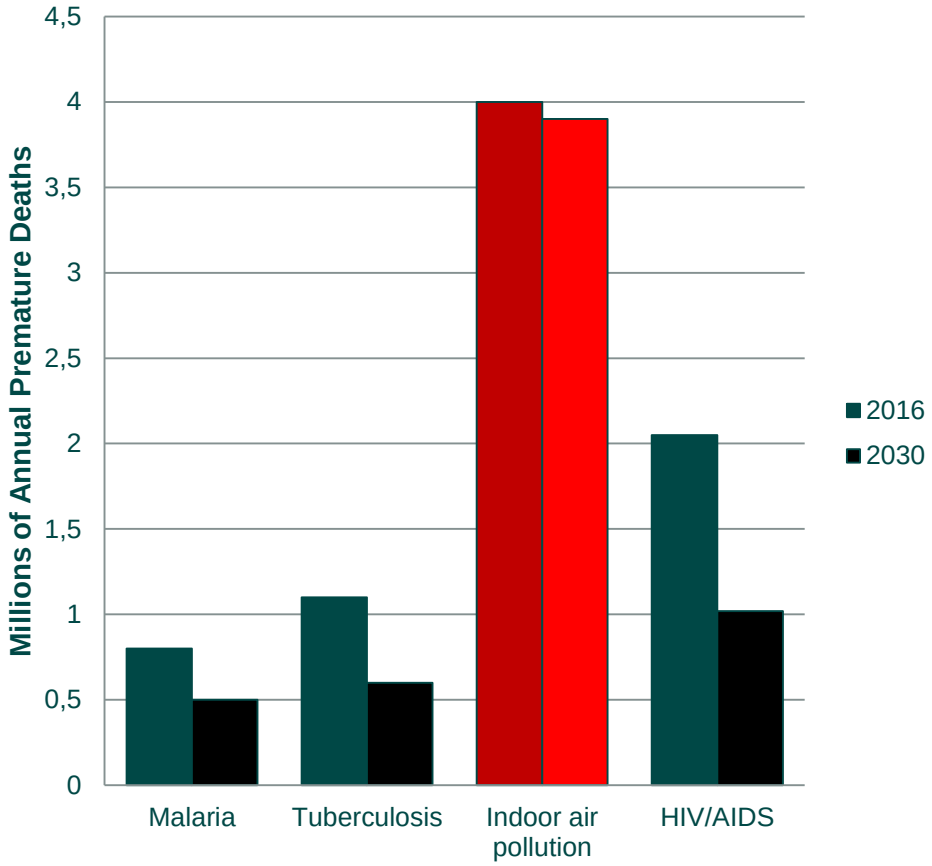
December 2012 evidence from the *Lancet*:

Burden of Disease Attributable to 20 Leading Risk Factors in 20 for Both Sexes (percent of Disability Adjusted Life Years)



(2) Equity and fairness





(3) To promote affordability and reduce vulnerability

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FUEL POVERTY POLICY ACROSS THE UK AT A GLANCE (2016)

KEY: Yes  No 

	UK	England	NI	Scotland	Wales
Energy Regulator	N/A	Ofgem	Northern Ireland Authority for Utility Regulation (NIAUR)	Ofgem	Ofgem
Department responsible for fuel poverty reduction	N/A	UK Government: Department of Energy and Climate Change (DECC)	NI Executive: Department of Social Development (DSD) and Dpt of Enterprise, Trade and Investment (DETI)	The Scottish Government: Cabinet Secretary for Social Justice, Communities and Pensioners' Rights	Welsh Government: Minister for Natural Resources
Current levels of fuel poverty	4.5m	2.73m	0.29m	0.85m	0.39m
Current % of fuel poverty	17%	12%	42%	34.939%	30%
Change since 2010	12%				
Statutory eradication targets			Not met replaced with EPC target for fuel poor households		
Interim statutory eradication targets			Not met replaced with EPC target for fuel poor households		Not met

Source: Energy Action Scotland, 2017, available at http://www.eas.org.uk/en/uk-fuel-poverty_50535/

(3) To promote affordability and reduce vulnerability

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Excess Winter Mortality in Twelve Countries

Country	Population (millions, in 2008 when their study was done)	Average Excess Winter Mortality
Australia	19.5	6,973
Canada	30.3	8,113
Cyprus	0.8	317
France	59.5	24,938
Greece	9.5	5,820
Italy	54.4	37,498
Japan	127.9	50,887
New Zealand	3.5	1,600
Spain	37.5	23,645
Sweden	8.8	4,034
United Kingdom	60.9	36,700
United States	287.3	77,884
Total		278,409

Source: Sovacool, BK. *Energy & Ethics: Justice and the Global Energy Challenge* (Basingstoke UK/New York USA: Palgrave, 2013).

Despite its utility, justice and ethics remain under-valued within the energy studies community

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NEGLECTED TOPICS
Twelve subjects seldom considered in energy studies.

Topic	Example
Gender and identity	Pollution from cooking stoves posing greater risk to women than men
Philosophy and ethics	Future generations bearing the burden of pollution
Communication and persuasion	Energy information changing individual or firm behaviour
Geography and scale	Mismatching the size of energy systems to patterns of demand
Social psychology and behaviour	Shaping energy choices by trust, control and denial
Anthropology and culture	Temporal and regional differences in conceptions of energy services
Research and innovation	How people, markets and institutions drive innovation
Politics and political economy	Resources contributing to conflict or stymying growth
Institutions and energy governance	Evolving rules and norms to address collective energy problems
Energy and development	Energy use contributing to economic growth and falling poverty
Externalities and pollution	Costs to society of erosions of environmental and ecological capital
Sociology of technology	Economic, political and social drivers of energy consumption

Source: Sovacool, BK. "Energy Studies Need Social Science," *Nature* 511 (7511) (July 31, 2014), pp. 529-530.

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What is energy justice?

Some key justice concepts:

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Concept	Definition	Major influence(s)
Justice	The act of being morally right or fair, and providing equal rewards for equal merit	Plato, Socrates, the Bible, Thomas Hobbes, John Locke
Distributive justice	Equitable distribution of social and economic benefits and burdens within and across different generations	John Rawls, Ronald Dworkin, Brian Barry
Procedural justice	Adherence to due process and fair treatment of individuals under the law	The Magna Carta, Edward Coke, Thomas Jefferson
Cosmopolitan justice	Universal respect for individual human rights regardless of one's identity	Immanuel Kant, Charles Beitz, Amartya Sen, Martha Nussbaum, David Held, Thomas Pogge, Peter Singer
Justice as recognition	Appreciation for the vulnerable, marginalized, poor, or otherwise under-represented or misrepresented populations and demographic groups	Nancy Fraser, Gordon Walker, Kirsten Jenkins

Source: Sovacool, BK and MH Dworkin. *Global Energy Justice: Problems, Principles, and Practices* (Cambridge: Cambridge University Press, 2014).

In sum, “energy justice” involves

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- Costs, or how the hazards and externalities of the energy system are disseminated throughout society;
- Benefits, or how the ownership of and access to modern energy systems and services are distributed throughout society;
- Procedures, or ensuring that energy decision-making respects due process and representation;
- Recognition, or assessing the impact of energy systems on the poor, vulnerable, or marginalized.

Synthesis into a conceptual framework:

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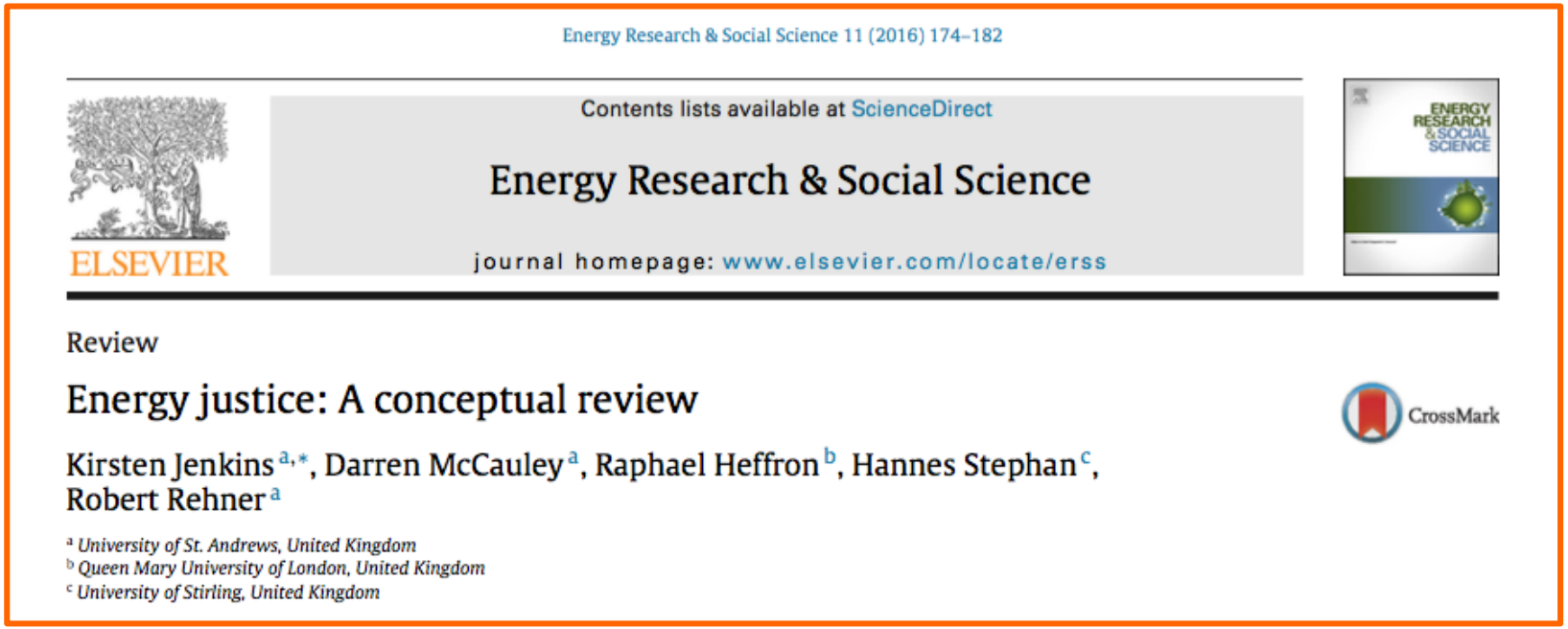
Table 2 | Energy justice decision-making framework.

Principle	Description	Contemporary applications
Availability	People deserve sufficient energy resources of high quality	Investments in energy supply and energy efficiency; upgrades to infrastructure
Affordability	The provision of energy services should not become a financial burden for consumers, especially the poor	Fuel poverty eradication efforts; low-income assistance for weatherization efficiency improvements; retrofits to older buildings
Due process	Countries should respect due process and human rights in their production and use of energy	Social and environmental impact assessments; free, prior and informed consent
Transparency and accountability	All people should have access to high-quality information about energy and the environment, and fair, transparent and accountable forms of energy decision-making	The Extractive Industries Transparency Initiative; independent accountability mechanisms; international accounting standards for energy subsidies
Sustainability	Energy resources should not be depleted too quickly	Natural resource funds designed to save for future generations; system benefits charges
Intragenerational equity	All people have a right to fairly access energy services	The UN's Sustainable Energy for All initiative; Sustainable Development Goal 7
Intergenerational equity	Future generations have a right to enjoy a good life undisturbed by the damage that our energy systems inflict on the world today	Promoting environmentally friendly forms of low-carbon energy such as renewables or efficiency that can minimize externalities or prolong resource efficacy; implementing environmental bonds
Responsibility	All nations have a responsibility to protect the natural environment and reduce energy-related environmental threats	UN Framework Convention on Climate Change; the Green Climate Fund

Source: Sovacool, BK, RJ Heffron, D McCauley, and A Goldthau. "Energy decisions reframed as justice and ethical concerns," *Nature Energy* 16024 (May, 2016), pp. 1-6.

It's far more than just "me":



Energy Research & Social Science 11 (2016) 174–182

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journal homepage: www.elsevier.com/locate/erss

Review

Energy justice: A conceptual review

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[c] University of Stirling, United Kingdom

Tenet	Evaluative	Normative
Distributional	Where are the injustices?	How should we solve them?
Recognition	Who is ignored? Who is responsible?	How should we recognise? How do we achieve responsibility?
Procedural	Is there fair process?	Which new processes?
Cosmopolitanism	Is everyone afforded equal moral rights?	How do we engage in global decision-making?

It's far more than just "me":

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Virtual Special Issue: Exploring the Energy Justice Nexus; Edited by Darren McCauley, Kirsten Jenkins and Alister Forman

Energy justice: A policy approach
Pages 631-634
Kirsten Jenkins, Darren McCauley, Alister Forman
Purchase PDF - $19.95

Energy justice for all? Rethinking Sustainable Development Goal 7 through struggles over traditional energy practices in Sierra Leone Original Research Article
Pages 635-641
Paul Munro, Greg van der Horst, Stephen Healy
Abstract | Close research highlights | Purchase PDF - $19.95

Highlights

- Examination of the justice issues within the text of Sustainable Development Goal 7.
- Investigates how fuelwood is entangled with energy justice issues in Sierra Leone.
- Argues energy solutions need to shift away from simple technological fixes.
- Energy policy needs to be built on a range of energy knowledges and experiences.

Economizing justice: Turning equity claims into lower energy tariffs in Chile Original Research Article
Pages 642-647
Carla Alvial-Palavicino, Sebastián Ureta
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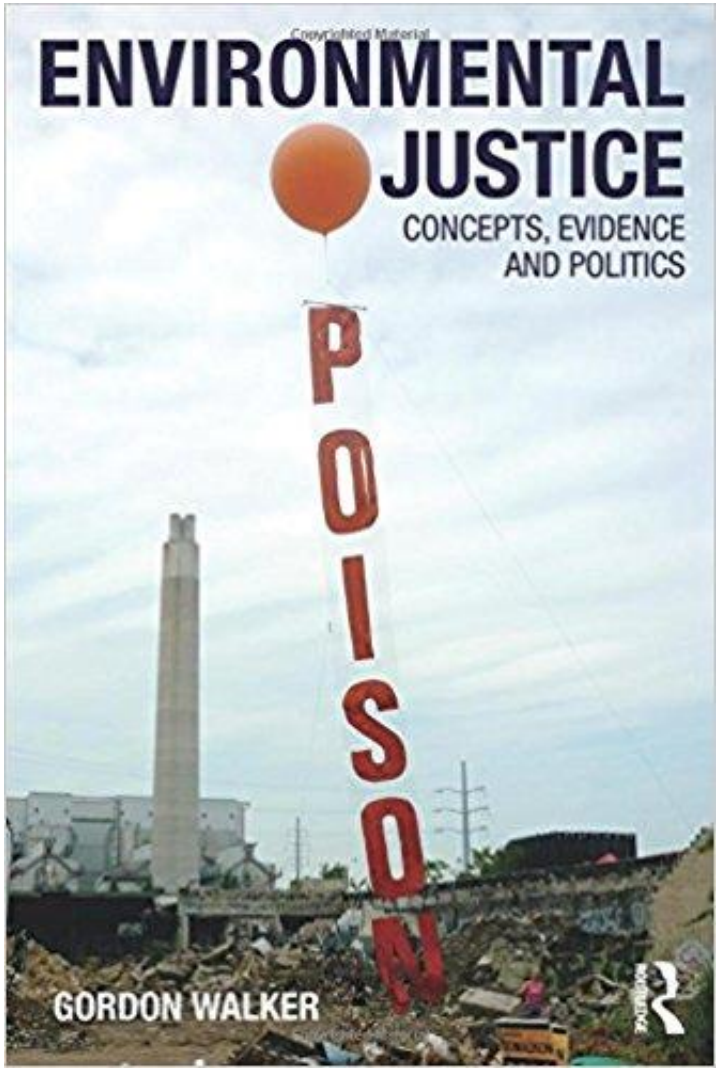

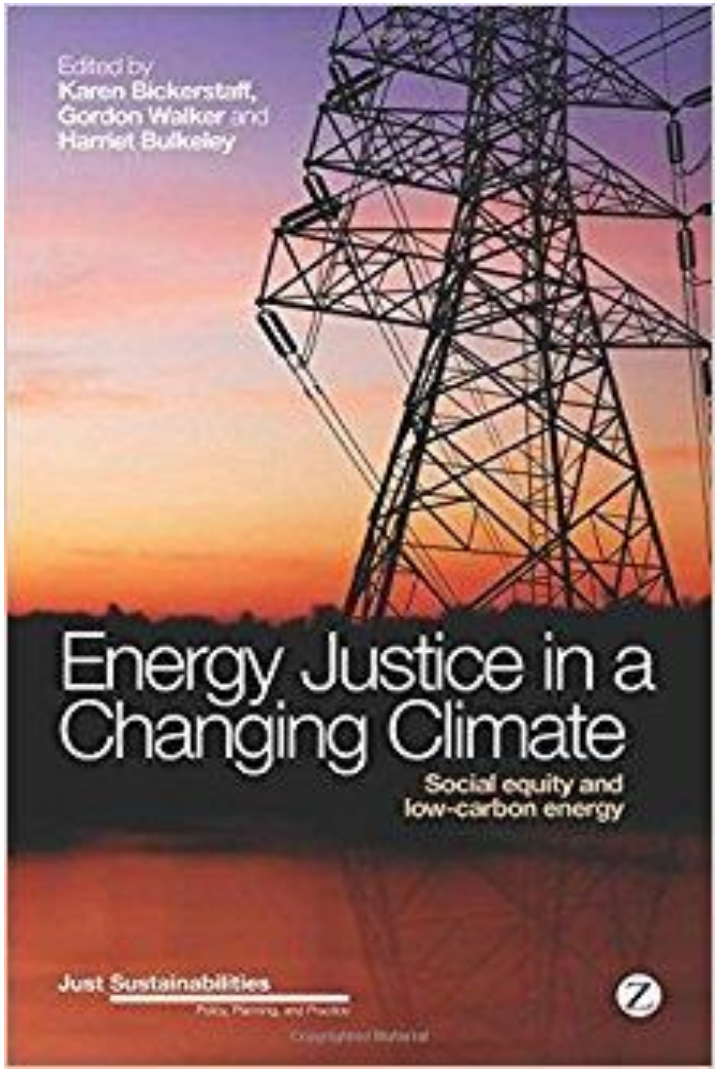

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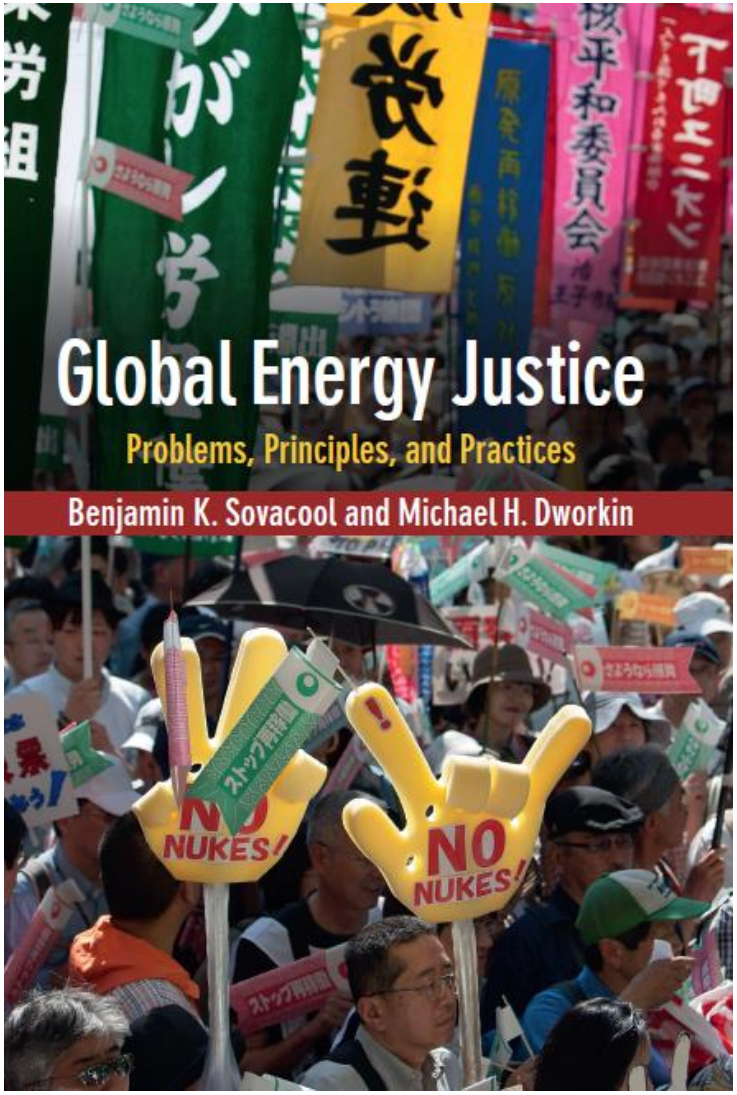
Six new energy justice frontiers

(1) New theorists



Topic	Concept(s)	Major philosophical influence(s)
Energy Efficiency	Virtue	Plato and Aristotle
Energy Externalities	Utility	Jeremy Bentham, John Stuart Mill, Henry Sidgwick
Human Rights and Social Conflict	Human rights	Immanuel Kant
Energy and Due Process	Procedural justice	Edward Coke, Thomas Jefferson, Jürgen Habermas
Energy Poverty	Welfare and happiness	John Rawls, Amartya Sen, Martha Nussbaum
Energy Subsidies	Freedom	Robert Nozick, Milton Friedman
Energy Resources	Posterity	Ronald Dworkin, Brian Barry, Edith Brown Weiss
Climate Change	Fairness, responsibility, and capacity	Peter Singer, Henry Shue, Paul Baer, Stephen M. Gardiner, Dale Jamieson, Simon Caney

Non-Western Theories and Applications to Energy Justice

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Concept	Definition	Application to energy
Ubuntu	The act of building community, friendship and oneness with the larger humanity.	Neighbourhoods efforts to promote energy efficiency, decisions about energy resources within a community
Taoism and Confucianism	The Tao or Dao emphasizes the virtuous path that leads to greater harmony amongst humanity. It assumes a universal nature and the means to an end is more important than the end itself.	Respecting due process in energy decisions, adhering to human rights protections when implementing energy projects
Hinduism and Dharma	Dharma carries the notion of righteousness and moral duty and is always intended to achieve order, longevity and collective well-being. It is context specific and doesn't render itself to universalization. Gandhi, a prominent example that espoused and practiced Dharma	Seeking to minimize the extent and distribution of energy externalities, offering affordable energy access to help address poverty
Buddhism	Expounds the notion of selflessness and the pursuit of individual salvation or nirvana. Often criticized for its inability to deal with real social issues	Respecting future generations with energy decisions, minimizing harm to the environment and society
Indigenous Perspectives of the Americas	Cultivation of a cultural mindset that recognizes interdependence of all life and enables good living through responsibility and respect for oneself and the natural world, including other people	Energy systems developed cautiously through long-term experience and sovereign cultural protocols, avoiding dramatic transformation of ecosystems, requiring restoration

Source: Sovacool, BK, M Burke, L Baker, CK Kotikalapudi, and H Wlokas. "New frontiers and conceptual frameworks for energy justice," *Energy Policy* 105 (June, 2017), pp. 677-691.

(2) Beyond anthropocentrism (appreciating non-human life)

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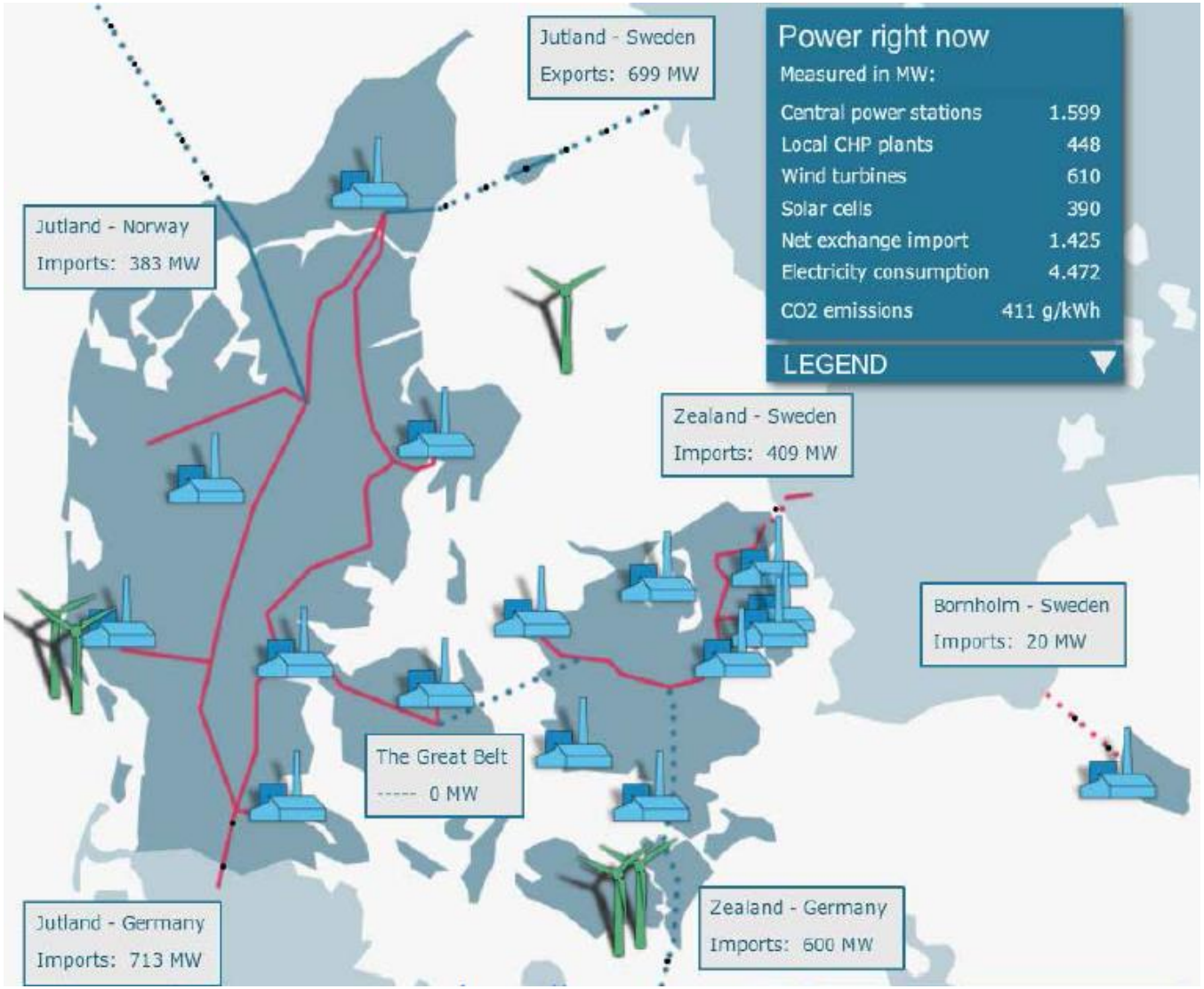
Concept	Definition	Application to energy
Animal-centrism	Difference in degree but not in kind between humans and all other animals. Valuing and recognizing rights of all sentient life	Energy development avoids harm and provides benefits to all sentient animals
Biocentrism	Valuing all living beings based on a reverence for life that stems from recognition of the will to live and the basic interest to survive and flourish	Energy decisions guiding by consideration of competing claims to a fair share of environmental resources among all living beings, where basic welfare interests outweigh non-basic welfare interests
Ecocentrism	Moral consideration for human and nonhuman communities and the basic functioning and interdependence of the ecological community as a whole	An energy system is right when it tends to preserve the integrity, diversity, resilience, and flourishing of the whole community, involving direct caring relationships and formal rights of nature

Source: Sovacool, BK, M Burke, L Baker, CK Kotikalapudi, and H Wlokas. "New frontiers and conceptual frameworks for energy justice," *Energy Policy* 105 (June, 2017), pp. 677-691.

(3) Cross-scalar justice issues

The Danish National Electricity Grid, 2014



Cross-scalar issues: fossil fuel exports

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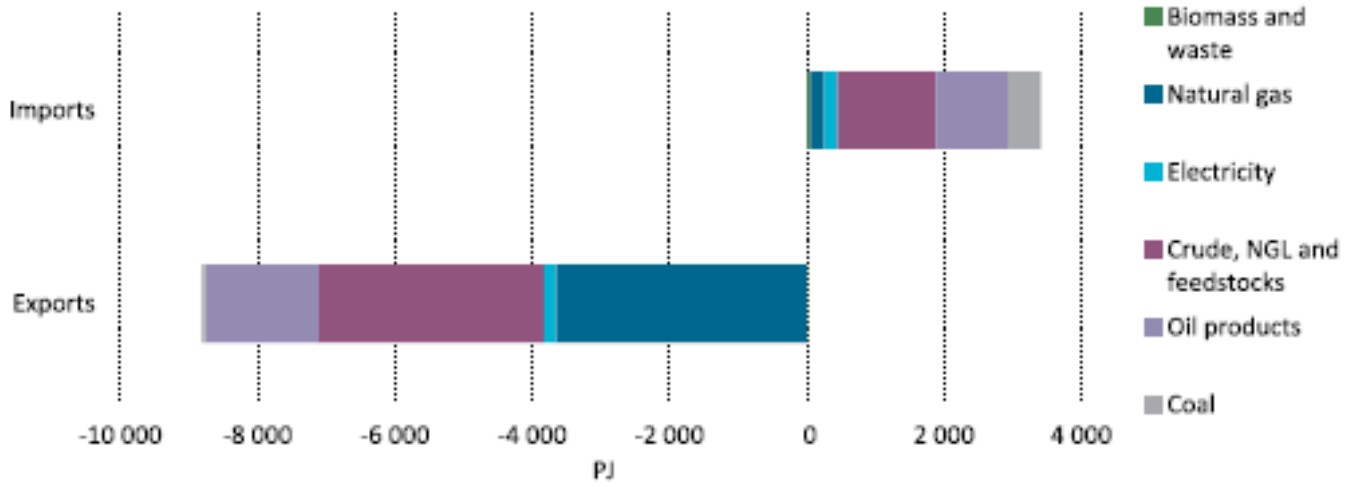
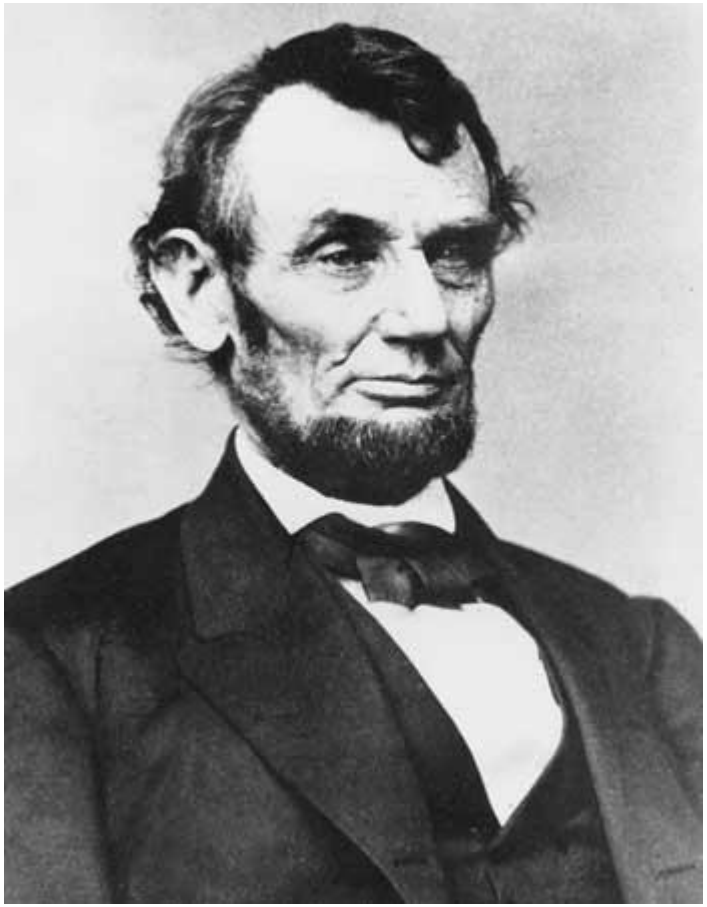


Fig. 12. Nordic exports of primary energy, 2011.

Source: Sovacool, BK. "Contestation, contingency, and justice in the Nordic low-carbon energy transition," *Energy Policy* 102 (March, 2017), 569-582.

(4) Business models and co-benefits



"No [person] can see the word of justice when it's covered by a silver dollar."

Scale and Name	Business model	Elements of energy justice
Community scale: Carbon coop	a community benefit group, 100% owned and run by the householders (members); not for profit company; creates value by providing capacity building, training, and access to discounted materials, services and low cost finance to reduce household energy usage; captures value by creating a community of knowledge and for action; benefiting from acting as a group and from members donating their time	Reduced household energy usage; Enhanced access to energy services and benefits; Participation in energy decision making and vision building
Urban scale: Robin Hood Energy	100% owned by Nottingham City Council; not for profit company; creates value by offering low cost energy (tariffs) to households; captures value by supplying energy (electricity and gas) to households and tackling fuel poverty	Providing energy and heat comfort and services to vulnerable consumers and businesses; Providing low energy tariffs, easy to switch and payment arrangements
European scale: RenEsco	A residential private ESCO and social enterprise; Dutch company operating in the Eastern European market; Creates value by financing and performing deep renovations of soviet-era apartment buildings; and providing a minimum price guarantee for energy exceeding operational costs and debt obligations; Captures value by using energy performance contracting and support from national renovation program; and locking in customers for 20 years	Low risk (no collateral required) and no cost deep retrofits for apartment owners; Energy savings (guaranteed for 20 years); Flat owners receive 25% profit share of Renesco's net result; Increased heat and energy comfort for residents; Use of renewables and heat generation on site; Straightforward and transparent process for residents
Global scale: Yansa	A community interest company working on wind energy development and sustainable community development; Creates value by developing large scale community wind farm projects and reinvesting a share of the earning in the community; Captures value by generating and selling wind energy; and by working with institutional investors to lower overall financial costs and risk	Providing renewable energy to local communities; Reinvesting share of the wind energy project profits in the local community; empowering locals to decide on social and environmental returns delivered

Source: Hiteva, R and BK Sovacool. "Harnessing Social Innovation for Energy Justice: A Business Model Perspective," *Energy Policy* (in press, 2017)

(5) Political economy (winners, losers and tradeoffs)

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(5) Political economy (winners, losers, and tradeoffs)

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(6) Deconstructing discourse

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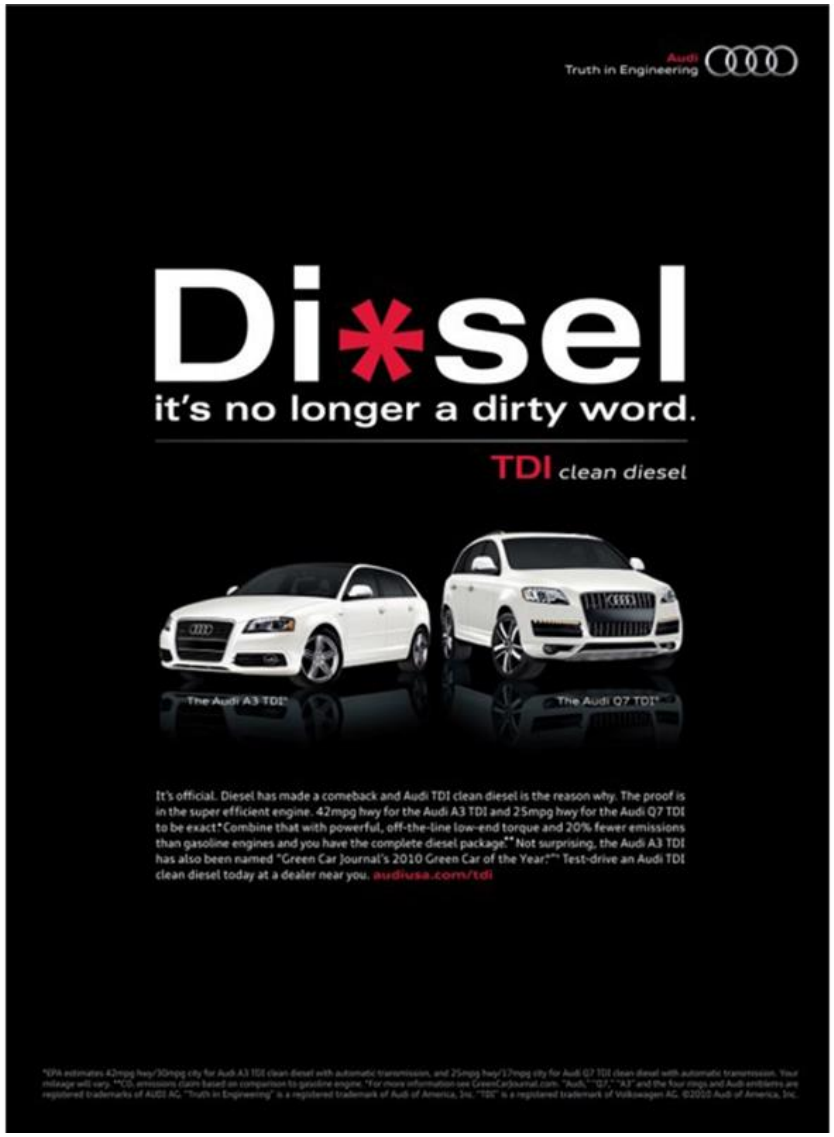

Concluding thoughts

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- Energy justice can be a *conceptual tool* for that better integrates usually distinct distributive, procedural, cosmopolitan, and recognition justice concerns.
- It can be an *analytical tool* for energy researchers striving to understand how values get built into energy systems or to resolve common energy problems.
- It can offer a *decision-making tool* that can assist energy planners and consumers in making more informed energy choices.

Source: Sovacool, BK and MH Dworkin. "Energy Justice: Conceptual Insights and Practical Applications," *Applied Energy* 142 (March 15, 2015), pp. 435-444.

Concluding thoughts

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- It can lastly be a positive *discursive tool* for generating more compelling, impactful narratives or frames

Frame	Explanation	Key proponents
Technological optimists	Energy is merely a property of heat, motion, and electrical potential. We can design various technologies to provide it and to repair whatever damage is done.	Physicists, scientists, engineers, some politicians
Free market libertarians	Energy is a commodity, or collection of commodities such as electricity, coal, oil, and natural gas. It is best managed by the free market.	Economists, financiers, some politicians
Defenders of national security	Energy supply is a strategic resource that must be defended militarily.	Security experts, defense analysts, political scientists, some politicians
Energy philanthropists	Energy services are a fundamental human right.	Nongovernmental organizations, aid groups, economic development theorists
Environmental preservationists	Energy production and distribution can be an environmental bane.	Environmentalists, consumer and public interest organizations, affluent households, some (green) politicians
Justice advocates	Energy decisions must respect free, prior, informed consent, and be equitable in their distribution of costs and benefits	Lawyers, ethicists, philosophers, some politicians
Neo-Marxists	The global energy system exploits class inequality.	Activists, socialists, unions, labor economists and political ecologists
Conscientious consumers	We consume energy to affirm, or even realize, our social values and lifestyles.	Anthropologists, psychologists, sociologists, behavioral economists

Source: Sovacool, BK and MA Brown. "Deconstructing Facts and Frames in Energy Research: Maxims for Evaluating Contentious Problems," *Energy Policy* 86 (November, 2015), pp. 36-42.

Contact Information

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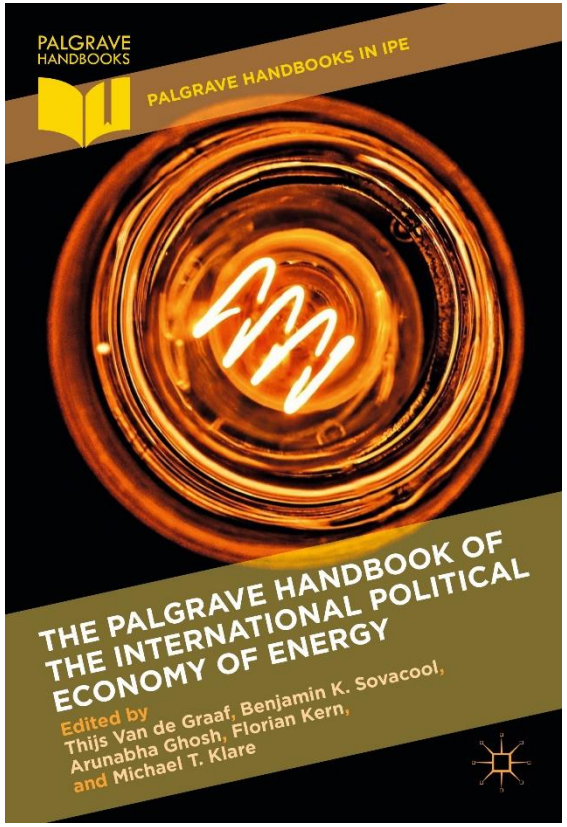

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