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CALL FOR PAPERS: special issue

Energy sufficiency in buildings and cities

Guest editors:

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Deadline for abstracts: 15 January 2024

How can conditions be created for decent living standards for all without exceeding planetary limits, during an energy transition and beyond?

This question is at the heart of this special issue. The aim is to examine fundamental questions about what is necessary to live a good life: to have the capabilities to satisfy human development, to live enjoyably, and to participate fully in civic life. This exploration will include analysing how energy services are embedded in ways of living and working, and the social and environmental consequences of how cities are organised. By better understanding the past and present, in diverse settings, and by projecting towards futures, this special issue will explore how pathways towards energy sufficiency can be developed and consolidated for cities, buildings and infrastructures. This implies changes to infrastructures and institutional frameworks, but also changes in consumption, habits, meanings and everyday life dynamics.

Defining sufficiency

The nascent and dispersed literature provides a starting point for defining energy sufficiency: a concept paper introduced a working definition of energy sufficiency as:

"a state in which people's basic needs for energy services are met equitably and ecological limits are respected."

(Darby & Fawcett 2018)

This definition was echoed in the 6th Assessment Report of the IPCC. This is the first such report to include and address sufficiency, reflecting the extreme urgency of attending to energy demand in order to accelerate the woefully slow progress in mitigating climate change. In the report, sufficiency policies are defined as:

"a set of measures and daily practices that avoid demand for energy, materials, land and water while delivering human well-being for all within planetary boundaries."

(IPCC 2023, footnote 52, p.29)

The IPCC definition, with its mention of avoided demand, reflects the fact that much work on energy sufficiency has focussed on containing or reducing the demand of relatively affluent energy users. For example, Barrett *et al.* (2022) offer a framework for estimating the potential for energy demand reduction at national level and apply it to the UK, where they estimate that reductions of 52% between 2020 and 2050 are possible without compromising quality of life. However, there will be *increases* in demand for reliable basic energy services from hundreds of millions who do not yet have access to them. This raises vital questions as to how to meet these demands in ways that avoid the huge environmental and social costs of the last two centuries. The need to interpret sufficiency in positive as well as negative ways, in terms of 'enoughness' as well as 'avoiding too-much-ness,' will mean unpacking the many ways in which energy services and usage are understood, moving beyond the remit of 'behaviour change' to reduce demand for fuel and power (usually at the level of individuals) to grapple with more complex understandings of access to decent living conditions, equity, power and social change dynamics. Context will be crucial.

The qualitative issue of what constitutes well-being is also immensely important for the debate on sufficiency. Jackson (2016) offers a useful guide, based on Amartya Sen's work on capability: he describes prosperity, a concept we can reasonably link with well-being, as including but going *'beyond material pleasures. It transcends material concerns. It resides in the quality of our lives and health and happiness of our families... It hangs on the potential to participate fully in the life of society'* (p.22).

Early work addressed general principles of sufficiency, contrasting it with efficiency (Wilhite & Norgaard, 2003; Princen, 2005; Darby, 2007). A second wave focused on quantifying sufficiency actions (Thomas *et al.* 2015), and developing notions of sufficiency in relation to minima and maxima (Spengler 2016), leading to the development of frameworks such as consumption corridors (Fuchs *et al.* 2021; Büchs *et al.* 2023), or the notion of decent living standards related to energy needs (Rao *et al.* 2019; Millward-Hopkins *et al.* 2020), both of which consider the centrality of satisfying human needs, and the necessity to differentiate needs from wants (Gough 2017), and energy services / satisfiers from needs (Max-Neef 1991). A 'safe and just space for humanity', the doughnut economics model (Raworth 2017), may also provide a useful conceptualization of sufficiency, one that takes us into questions of post-growth economies.

Operationalising concepts of energy sufficiency

There is a small body of literature focusing specifically on applying sufficiency ideas to buildings and cities (Jungell-Michelsson & Heikkurinen 2022). Bierwirth & Thomas's (2019) concept paper focuses on four characteristics of buildings - space, design and construction, equipment, use - and explores how energy sufficiency actions, potentials, and policies relate to these. Cohen (2021) investigates the idea of 'sufficient home size' and presents five cases demonstrating how to provide more 'environmentally tenable and globally equitable' forms of housing in high-income countries. Lorek & Spangenberg (2019) present examples of housing projects guided by sufficiency criteria and outline the potential roles of different actors in advancing this agenda.

While there is a considerable literature on sustainable cities, more could be done on relating sufficiency to cities, and on applying sufficiency principles to the infrastructures that give city-dwellers access to basic, intelligible, accountable services and a healthy environment. Burning questions relate to the political economy of sufficiency – for example, who decides what is sufficient for whom? To what extent is sufficiency imagined and implemented bottom-up, top-down or middle-out? Questions of scale are likely to be important: for example, in what ways might 'neighbourhood sufficiency' complement household- or business-level sufficiency? What levels of government and governance are appropriate for decisions on sufficiency in cities and for resolving disputes, and how can they be coordinated to best effect?

Energy sufficiency and policy

While energy and climate policies have tended to focus on the promotion of energy efficiency and renewable energies, there is no evidence that these alone will suffice to meet climate and sustainable development goals, with the latter being taken as the 'global floor' of decent living standards. Lage *et al.* (2023) demonstrate how Citizens' Assemblies in ten European countries are recognising the importance of sufficiency policies; in this, they tend to be ahead of their governments. Increasingly, scholars and policy makers are sceptical of technological silver bullet solutions and placing more attention on the need to reduce overall energy production *and* demand. In relation to cities, the latest IPCC Climate Change Synthesis Report Summary for Policymakers notes that:

"Urban systems are critical for achieving deep emissions reductions and advancing climate resilient development ... in the design and planning of settlements and infrastructure; land use planning to achieve compact urban form, co-location of jobs and housing; supporting public transport and active mobility...; the efficient design, construction, retrofit, and use of buildings; reducing and changing energy and material consumption; sufficiency; material substitution; and electrification in combination with low emissions sources."

(IPCC 2023, C3.4, p.29)

A further consideration, increasingly important in the eyes of policymakers, is energy security. For example, the European Union is aiming for a 15% reduction in gas usage in the wake of the Ukraine invasion by Russia; research from India highlights the significance of demand for security (Narula *et al.* 2017). More work is needed on how best to conceptualise and achieve sufficient energy security at scales from the household or business to the city, nation and region.

Aims & scope of this special issue

Contributions are sought that complement, challenge or further develop current conceptions of 'sufficiency': the aim is not to argue about definitions, but rather to explore sufficiency practices, policies, programmes, projects or experiments, to then discuss the relevance of sufficiency to socially just change. We welcome empirical research, case studies, experimental studies and findings from living labs, analysis of secondary data, and theoretical or analytical contributions. The contributions can discuss energy production and usage in households, buildings, cities and infrastructures at a range of

scales. Contributions can address both operational and embodied energy in the provision of energy services, as well as the relation between energy and land use and infrastructure, freshwater consumption, and biodiversity loss, among other topics. Questions of (in)equity and energy sufficiency are central and we particularly welcome perspectives from scholars based in the Global South and those who research focuses on or includes Global South locations.

As indicated above, the scope for authors is wide. However, it is probably worth stressing that we aim for a focus on how far the concept of sufficiency can help deliver significant change. In practice, this will mean papers that consider socio-technical arrangements and their governance that have an important energy dimension in buildings and cities. It will not cover, for example, the design of individual technologies unless this is linked to design principles for energy-using equipment in general.

Possible topics

1. **Sufficiency, equity and justice:** contribution of the wealthiest and upper limits; inequality and crisis; shift of attention from income to wealth, flows to assets; meeting Rawlsian principles for energy / climate justice
2. **Sufficiency as a concept:** how to avoid polarising; how to effectively combine social and environmental dimensions; how to bridge to other concepts (care, commons, etc.); resistance to sufficiency; links to indigenous and traditional knowledge
3. **Sufficiency as a social practice:** sufficiency as it relates to working and living, everyday life dynamics, mobility and travel (speed limits, vehicle size, 15-minute cities, private vs public mobility), meanings and social norms; skills for sufficiency; sufficiency and thermal comfort (heating or cooling); digitalisation and sufficiency
4. **How to operationalize sufficiency:** needs vs wants; universal basic income / basic services; individual vs collective/social sufficiency; city and country sufficiency; scenarios for sufficiency; quantifying sufficiency; experimenting with limits and caps; access to energy and sufficiency.
5. **Sufficiency governance:** planning for sufficiency; sustainable welfare and sufficiency; sufficiency in times of crisis and polarisation; sufficiency and informal sectors; sufficient infrastructure; scale issues for sufficiency/geography of sufficiency; communicating sufficiency
6. **Financing sufficiency:** raising capital for sufficiency measures, developing sufficiency investments attractive to different financing routes, accessing investments for sufficiency at the city –administration level
7. **System sufficiency:** considering broader dynamics such as energy production and distribution systems; DER (distributed energy resources) penetration and distribution, off-gridding
8. **Sufficiency synergies:** identifying multiple benefits of sufficiency policies and programmes
9. **Questions of scale:** what do sufficiency and security mean at household, business, neighbourhood, city and regional levels? How are they operationalised and governed at different scales?
10. **Contexts for sufficiency:** involving material arrangements (building stock and infrastructures), climatic considerations, expectations and social practices; comparative studies; Global South perspectives.
11. **Sufficiency in relation to IPCC work:** international governance, models and framings
12. **Evaluation of practices, projects, programmes, policies and experiments:** including evaluation of whether the energy sufficiency element has delivered socially just change. These can be long-established, *e.g.* the Swiss 2000 Watt Society initiative, or novel initiatives
13. **Sufficiency and the ultra-rich:** with respect to buildings and cities. Their direct and indirect impacts, *e.g.* on land values, service demands and expectations; actual and potential policy responses

Timeline

Abstracts due

Full papers due

Referees' comments

Revised version due

Publication

15 January 2024

15 April 2024

31 July 2024

16 September 2024

31 October 2024

NB: authors can submit sooner if they wish

NB: papers are published as soon as they are accepted

Briefing note for contributors

You are invited to submit an abstract for this special issue. Please send a **500 word (maximum) abstract** to editor **Richard Lorch** richard@rlorch.net by **15 January 2024**. Your submission must also include these 3 items:

- the author's and all co-author's names, institutional & departmental affiliations and contact details
- the question(s) or topic(s) in this Call for Papers that the abstract and intended paper address
- the abstract (300 - 500 words maximum) defining the research question(s), scope, methods and results

Abstracts will be reviewed by the editors to ensure a varied, yet integrated selection of papers around the topic. Authors of accepted abstracts will be invited to submit a **full paper (6000-7500 words)**, which undergoes a double-blind review process.

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Questions?

The Editors are happy to discuss ideas with potential authors. Please contact: **Richard Lorch** richard@rlorch.net, **Tina Fawcett** tina.fawcett@eci.ox.ac.uk, **Sarah Darby** sarah.darby@ouce.ox.ac.uk, **Marlyne Sahakian** Marlyne.Sahakian@unige.ch

References

- Barrett, J., Pye, S., Betts-Davies, S., Broad, O., Price, J., Eyre, N., Anable, J., Brand, C., Bennett, G., Carr-Whitworth, R., Garvey, A., Giesekam, J., Marseden, G., Norman, J., Oreszczyn, T., Ruyssevelt, P. & Scott, K. (2022). Energy demand reduction options for meeting national zero-emission targets in the United Kingdom. *Nature Energy* 7, 726-735.
- Bierwirth, A. & Thomas, S. (2019). Energy sufficiency in buildings: Concept paper for ECEEE. <https://www.energysufficiency.org/libraryresources/library/items/energy-sufficiency-in-buildings-concept-paper/>
- Büchs, M., Cass, N., Mullen, C., Lucas, K. & Ivanova, D. (2023). Emissions savings from equitable energy demand reduction. *Nature Energy* 8(7): 758-769.
- Darby, S. (2007) Enough is as good as a feast: sufficiency as policy. Proceedings, *ECEEE Summer Study*, paper 1, 255.
- Darby, S. & Fawcett, T. (2018). Energy sufficiency: an introduction. Concept paper for ECEEE. <https://www.energysufficiency.org/libraryresources/library/items/energy-sufficiency-an-introduction/>
- Fuchs, D., Sahakian, M., Gumbert, T., Di Giulio, A., Maniates, M., Lorek, S. & Graf, A. (2021). *Consumption Corridors: Living Well within Sustainable Limits*. Abingdon: Routledge.
- Gough, I. (2017). *Heat, Greed and Human Need*. Cheltenham: Edward Elgar Publishing.
- IPCC. (2023). Climate Change 2023 Synthesis Report. Summary for Policymakers. Intergovernmental Panel on Climate Change. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf
- Jackson, T. (2016). *Prosperity without Growth: Foundations for the Economy of Tomorrow*. 2nd edition, Routledge, London and New York
- Jungell-Michelsson, J. & Heikkurinen, P. (2022). Sufficiency: A systematic literature review, *Ecological Economics*, 195, 107380. <https://doi.org/10.1016/j.ecolecon.2022.107380>
- Lage, J., Thema, J. Zell-Ziegler, C., Best, B., Cordroch, L. & Wiese, F. (2023). Citizens call for sufficiency and regulation: A comparison of European citizen assemblies and National Energy and Climate Plans. *Energy Research & Social Science* 104, 103254.
- Lorek, S. & Spangenberg, J.H. (2019). Energy sufficiency through social innovation in housing, *Energy Policy*, 126: 287-294. <https://doi.org/10.1016/j.enpol.2018.11.026>
- Max-Neef, M.A. (1991). *Human Scale Development: Conception, Application and Further Reflections*. The Apex Press.
- Millward-Hopkins, J., Steinberger, J.K., Rao, N.D. & Oswald, Y. (2020). Providing decent living with minimum energy: A global scenario. *Global Environmental Change*, 65, 102168. <https://doi.org/10.1016/j.gloenvcha.2020.102168>
- Narula, K., Reddy, B.S. & Pachauri, S. (2017). Sustainable energy security for India: An assessment of energy demand sub-system. *Applied Energy* 186 (2), 126-139.
- Princen, T. (2005). *The Logic of Sufficiency*. MIT Press.
- Rao, N.D., Min, J. & Mastrucci, A. (2019). Energy requirements for decent living in India, Brazil and South Africa. *Nature Energy* 4(12): 1025-1032.
- Raworth, K. (2017). *Doughnut Economics: Seven Ways to Think like a 21st-century Economist*. London: Random House Business Books.
- Spengler, L. (2016). Two types of 'enough': sufficiency as minimum and maximum. *Environmental Politics*, 25(5), 921-940.
- Thomas, S., Brischke, L., Thema, J. & Kopatz, M. (2015). Energy sufficiency policy: An evolution of energy efficiency policy or radically new approaches? *ECEEE Summer Study*. Pres'que Ile de Giens, France.
- Toulouse, E., Sahakian, M., Bohnenburger, K., Bierwirth, A., Lorek, S. & Leuser, L. (2019). Energy sufficiency: how can research better help and inform policy-making? *ECEEE Summer Study*, paper 2-190-19.
- Wilhite, H. & Norgaard, J. S. (2003). A case for self-deception in energy policy. Proceedings, *ECEEE Summer Study*, paper 1, 206.