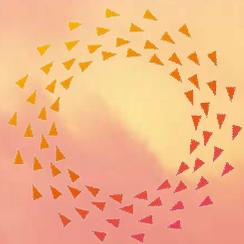


Culture, values, lifestyles, and power in energy futures: a critical peer-to-peer vision for renewable energy

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WP1 Neo-Carbon Enabling Neo-Growth Society – Transformative Energy
Futures 2050

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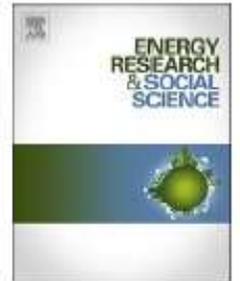
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Original research article

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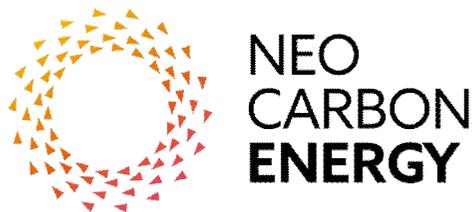
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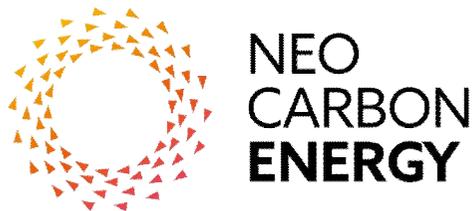
Motivation

- To provide a well-argued peer-to-peer society vision for the era of renewables.
- The four NC scenarios by FFRC are different possible outcomes of a peer-to-peer society.
- To fill a research gap: energy transitions have not been adequately studied from socio-cultural and futures-oriented perspectives.



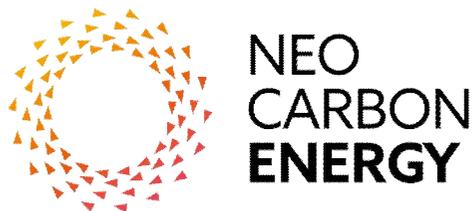
Structure

- Introduction outlines the vision and briefly reviews previous studies on energy-related social changes
- Chapter 2 deals with concepts and theories through which energy transitions and social change can be approached
- Chapter 3 concentrates on media & communication technologies and how they relate to energy systems
- Chapter 4 provides detailed argumentation for the vision and also deals with possible downsides of such a future

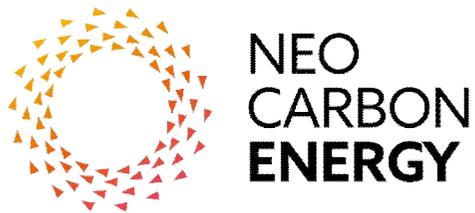


The vision

- By 2050, the (partly) decentralised 100% renewable energy system is in place, we will produce more and cheaper energy than today, with increased energy efficiency.
- Production will be increasingly automated (and powered by renewables), which lowers costs and grants people more free time
- People produce some of their own energy. Energy prosuming citizens increasingly self-organise outside traditional organisations and institutions

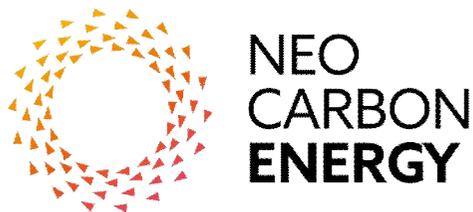


2. Energy transitions and social change



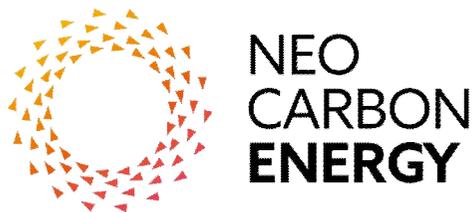
2. Energy transitions and social change

- Every human culture is dependent on its sources of energy – ancient Greek and Roman societies depended on the energy of slaves, and modern industrial societies are dependent on fossil fuels (Lord 2014).
- Despite its fundamental role in human societies, energy has occupied a relatively marginal place in sociological and historical research, and in social sciences in general (Agustoni & Maretti 2012; Sovacool 2014).



2. Energy transitions and social change

- Especially the relation between energy transitions and social change has been neglected.
- Social sciences have had a role in the analysis of public opinion and the acceptability of new energy technologies.
- Wider societal investigation – such as cultural, social and lifestyle-related changes – is often omitted. (Hirsh & Jones 2014; Jasanoff & Kim 2013; Agustoni & Maretti 2012.)

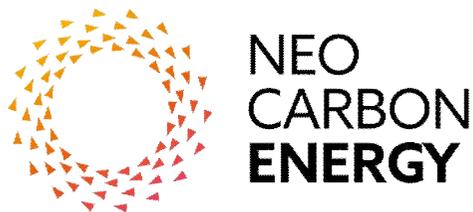


How does energy change societies?

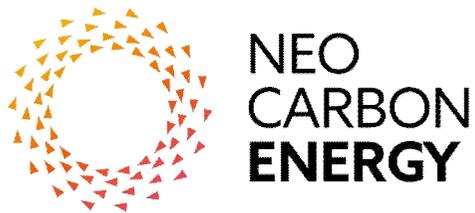
By providing more and cheaper energy than before. The more energy humans are able to harness, the more complex societies are enabled.

“Development” or “progress” can be defined as increased complexity and variety in social structures (Last 2015; 2014) – they make societies more capable in achieving their goals, and more adaptive.

-> if the renewable energy system produces more energy than the previous ones, a new historical period should follow. One way for more complexity is to shift from nation states and organisations to complex networks.

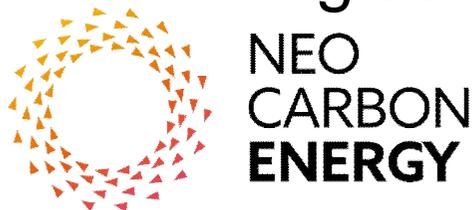


3. Energy and Communications technologies



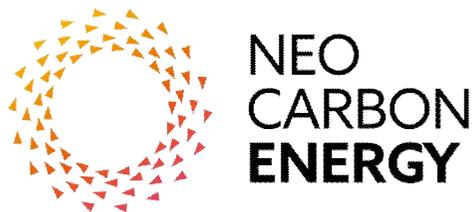
3. Energy and Communications technologies

- All industrial revolutions have emerged from both new energy and new communication technologies (Last 2015; Rifkin 2011). More advanced technologies of communication are needed to organise the increasingly complex production and social relationships (Last 2015) .
- For instance, the second industrial revolution in the early 20th century was powered by electricity and organised with electric communications such as the telephone and the telegraph. Now, the next industrial revolution will likely be powered by renewables and organised with digital communication technologies.



3. Energy and Communications technologies

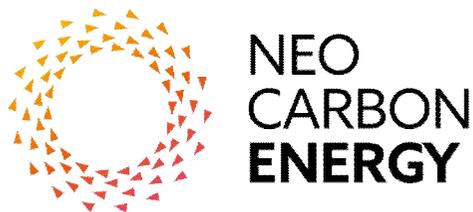
- In the next industrial revolution we may see a return to more communal and local production and lifestyles (peer-to-peer society) – enabled by ren. energy and digital media
- In the article we discuss how this vision is much older. The electrification of the United States was seen as an opportunity to return to the grass-roots communities of the pre-modern society, as energy could be transmitted virtually everywhere (Carey 1989). It was envisioned that “*electric power could serve to create ‘industrial villages’ where handicrafts, manufacturers, agriculture, and scientific investigation could be combined in small-scale regional economies*” (ibid.).



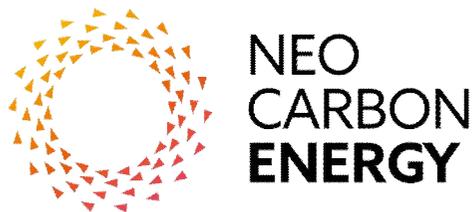
3. Energy and Communications technologies

-> emancipation of the individual and local communities can be seen as among the core aspirations/visions that inspire energy transitions in general, not just now.

Energy futures that increase the autonomy of citizens can be used to promote the transition to renewable energy.

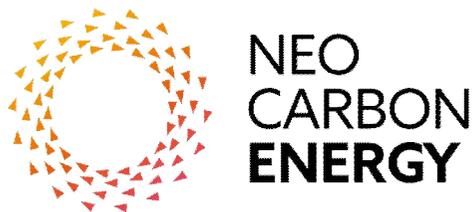


4. Vision for the Renewable Energy System: Peer-to-peer Society



4. Vision for the Renewable Energy System: Peer-to-peer Society

- Peer-to-peer production: distributed networks of individuals and communities, who produce shared services and products with shared resources, and are driven mainly by intrinsic and social motivations (instead of monetary).
- In a p2p society, these properties are applied to society in general: everything from education and journalism to city planning and hobbies would be organised in citizen networks instead of trad. institutions. A peer-to-peer society (Kostakis & Bauwens 2014): citizens self-organise for production, politics, and lifestyles.

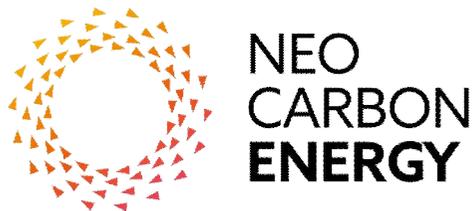


4.1 Declining costs as a driver of peer-to-peer

Core *enablers* towards a peer-to-peer society are the decreasing marginal costs of information, material production, and energy.

Lowering costs enable ordinary citizens things that were unattainable in the past (for instance preventive self-healthcare).

Automation and artificial intelligences will take care of many tasks, and this frees time and resources for peer projects.

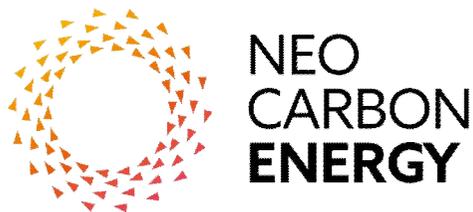


4.2 Motivations for peer-to-peer

The question remains whether masses of people would be motivated enough to engage in p2p.

There are especially two trends that drive toward p2p practices

- According to World Values Survey (2015), self-expression values are strengthening. Peer networks allow more self-expression than hierarchical organisations (Budhathoki and Haythornthwaite 2012).
- People increasingly aspire for self-governing groups in work (Kurki & Wilenius 2016) – people want to be increasingly autonomous.

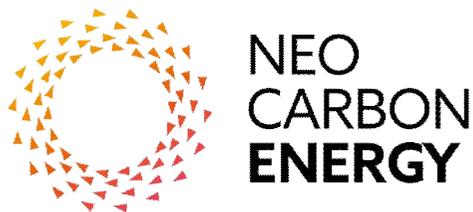


4.2 Motivations for peer-to-peer

People's willingness to participate in media/internet content production is well-documented (Jenkins 2006).

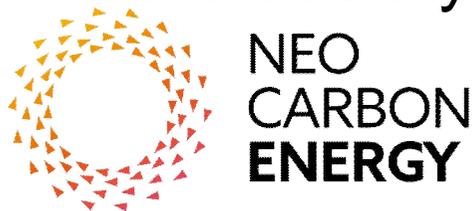
Media technologies, services and applications are so well-developed, inexpensive and easy that ordinary people are able to use them proficiently -> they are the forerunners of general peer-to-peer practices.

We may assume that technological enablers and cultural drivers behind media/internet p2p will spread to other sectors as well.

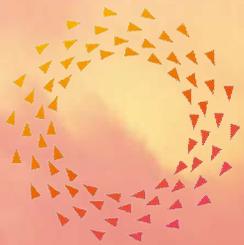


Conclusions

- Energy transitions should be studied more from holistic social sciences perspectives
- Societal visions for the era of renewables are needed more for debates on desirable futures. The transition to renewables is promoted if there is a compelling narrative on how societies and citizens' lives can change for the better.
- There are already trends that show people find self-governing peer-to-peer networks attractive. Renewable energy is among the technologies that enable this kind of future society.



Thank You!

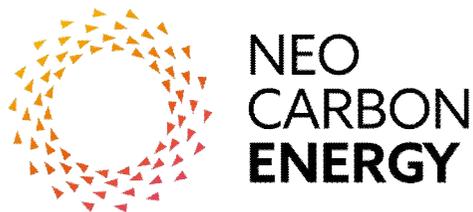


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2. Energy transitions and social change – key concepts

General Purpose Technologies (GPT): can be applied to almost everything. They impact economy, culture and society thoroughly.

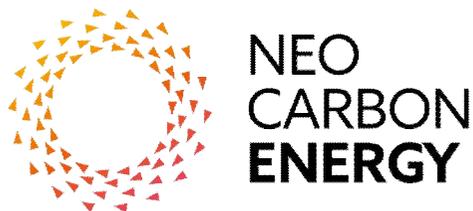
Socio-Technical Systems: large-scale technologies such as electricity networks, telecommunications, and railroads. These systems weave together technical artifacts, organisations, institutional rule systems, and cultural values (Geels and Kemp 2007; Sovacool 2014)



2. Energy transitions and social change – key concepts

Actor-Network Theory: describes social reality as networks consisting of both human and technological “actors”, and sees these human and non-human actors as equal in importance (Latour 1996).

Technological affordance: refers to the possible ways that humans can make use of specific technologies. Seeing technologies as affordances highlights the fact that technologies do not determine human development, but they “afford” certain uses and practices through their properties.



4.2 Motivations for peer-to-peer

Motivations for prosumer solar PV are: 1) falling PV costs and rising retail prices, 2) concern for climate change, 3) greater control and autonomy over energy supply, and 4) the strengthening of social cohesion in local communities (Biggs 2016; Van der Schoor and Scholtens 2015).

These motivations seem general enough to attract a critical mass of people, especially if solar panels are leased and installed by energy companies.

