

Dynamics of energy transition and innovation: The question of equity

12th October 2018

MeeNilankco Theiventhran
PhD Research Fellow
Faculty of Engineering and Science
Western Norway University of Applied Sciences (HVL)

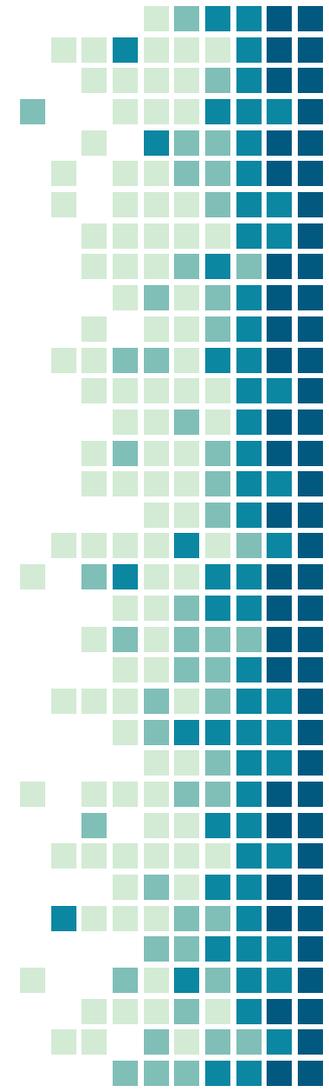


**Western Norway
University of
Applied Sciences**



Global Warming of 1.5°C

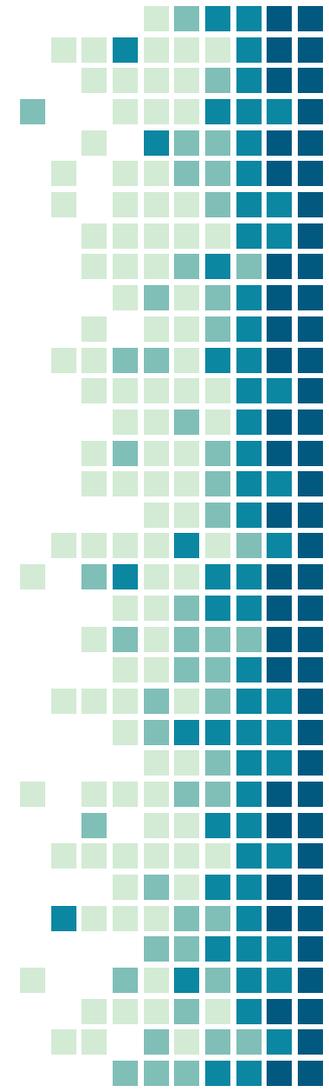
An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.





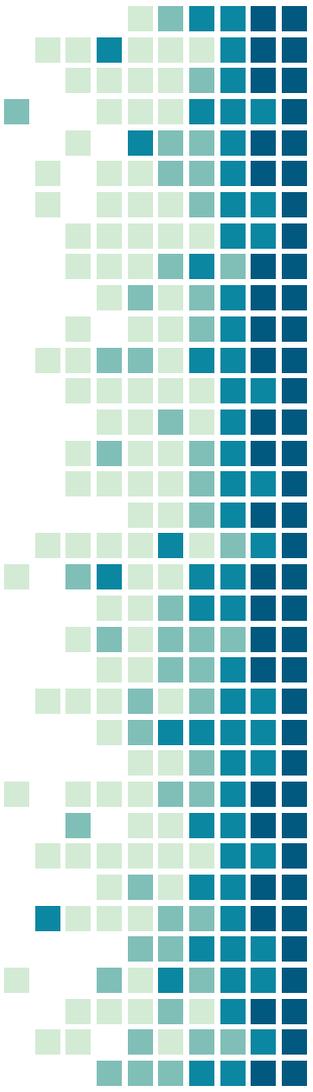
Outline

- Energy transition: Nuances and intricacies
- Equity: Going beyond equality
- Innovation questions: Points to ponder
- Future research
- Key considerations



Three questions

- Why energy transition challenging innovation discourse?
- Does equity question needs attention in energy innovation?
- How can the pathways for just energy transitions be created?



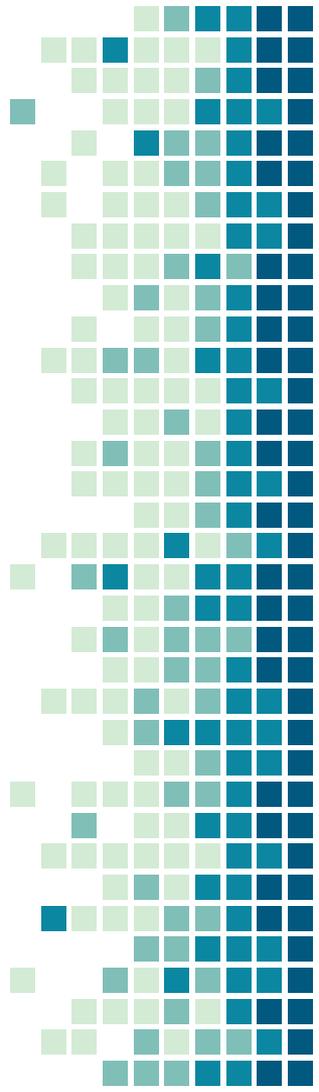
Energy transition: Nuances and intricacies

- Defining Energy transition:

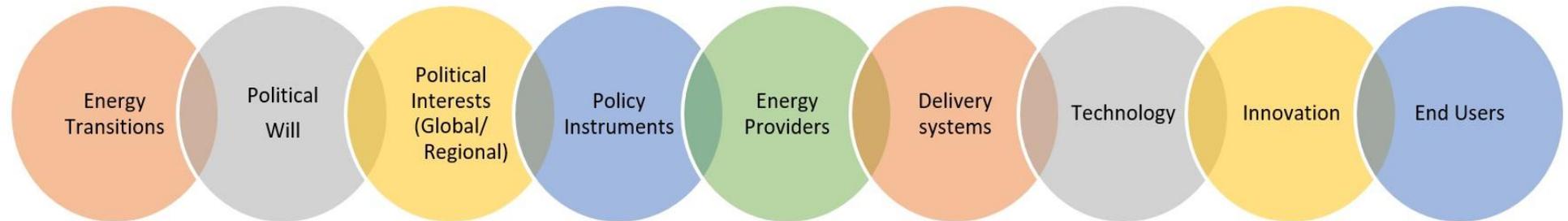
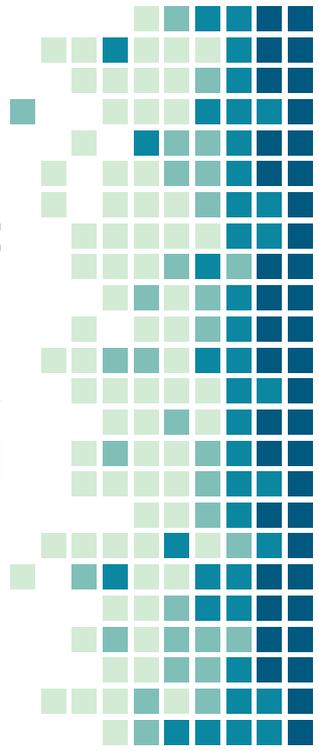
A particularly significant set of changes to the patterns of energy use in a society, potentially affecting resources, carriers, converters, and services. (O'Connor 2010)



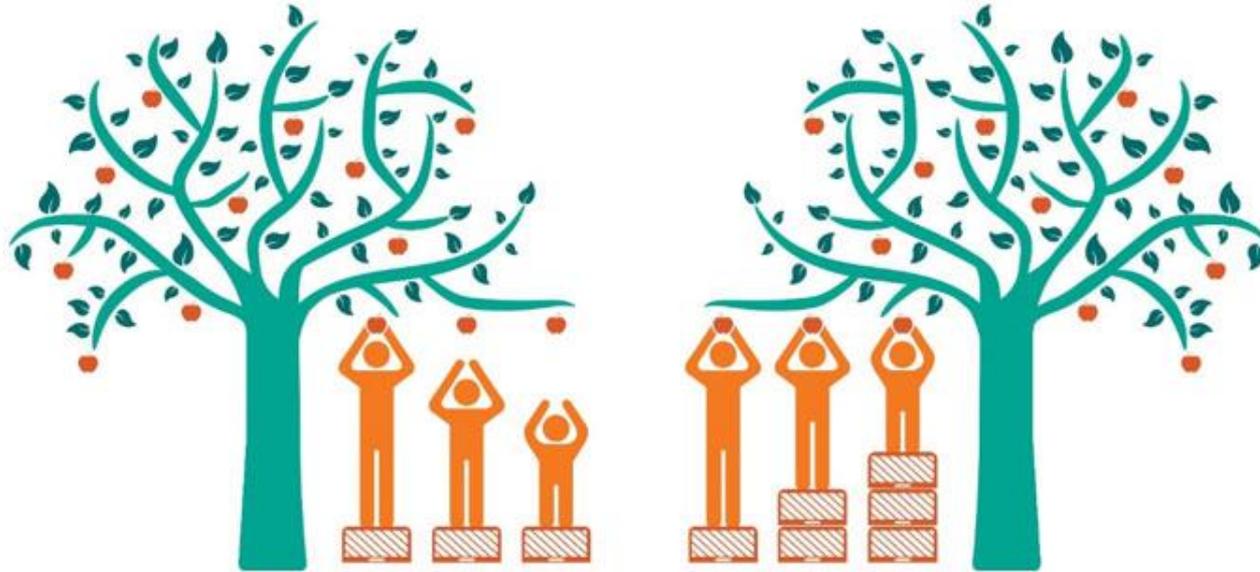
- A central challenge for global energy governance is to manage a complex 'energy trilemma' that involves the interconnected but often competing, demands of **energy security**, **climate change mitigation**, and **energy equity** (Gunningham 2013).
- Trade-offs between the different dimensions of the trilemma. *Equity dimension is least considered.*
- The needs of the poorest and the embedded inequalities of the global energy system makes energy transition challenging.



- Energy transition involves all links in the chain: political will, regional and global political interests, policy instruments, energy providers such as utilities, delivery systems, technology, innovation and end users.



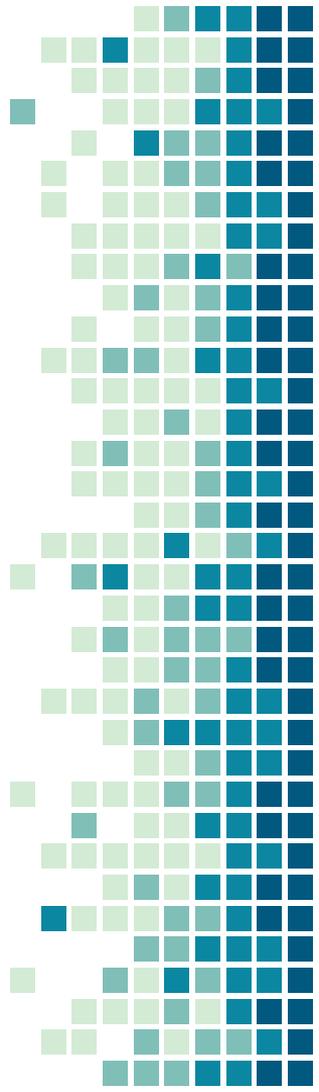
Equity: Going beyond equality



Equality isn't the same as **Equity**

EQUALITY = SAMENESS
GIVING EVERYONE THE SAME THING
It only works if everyone starts from the same place

EQUITY = FAIRNESS
ACCESS TO SAME OPPORTUNITIES
We must ensure equity before we can enjoy equality



Equality



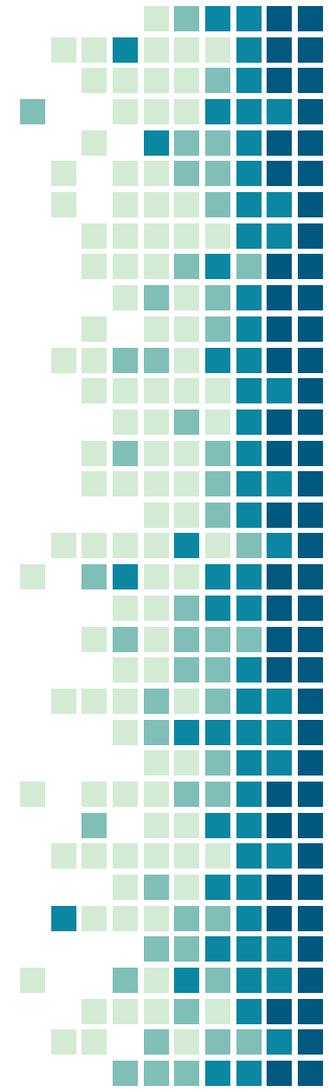
Equity



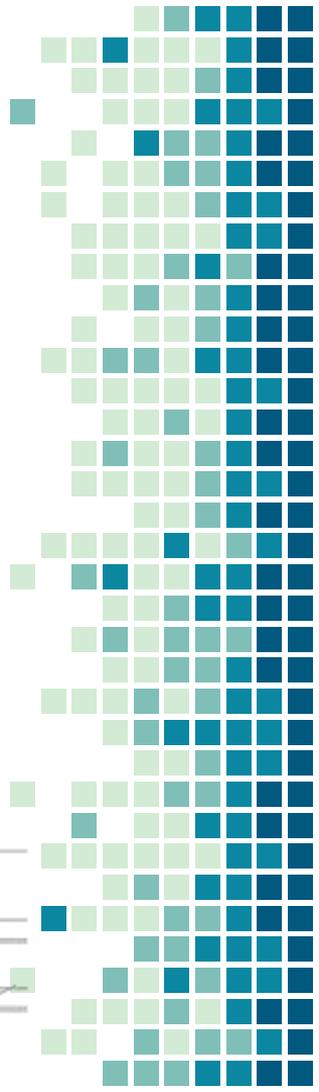
Defining equity

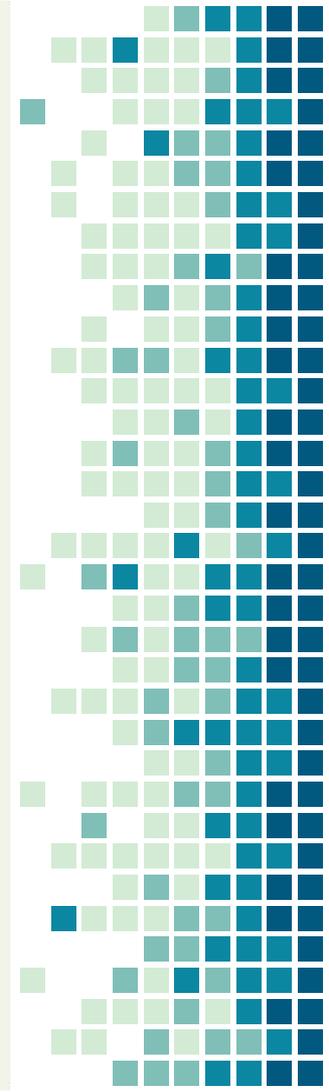
Equity is the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically or geographically.

(World Health Organisation)



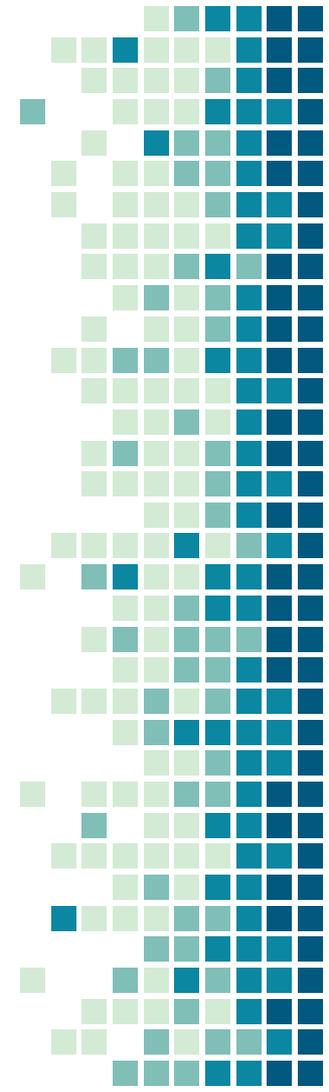
- Equity in an energy context, is defined in terms of access to affordable, safe and reliable energy, and the distribution of the risks and benefits of new technologies, would vary over space and time, and within social groups (Sareen & Haarstad 2018, Savacool & Dworkin 2015).

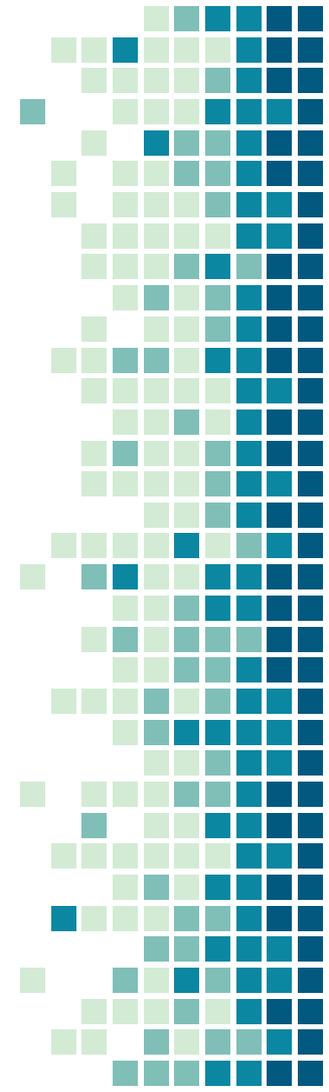
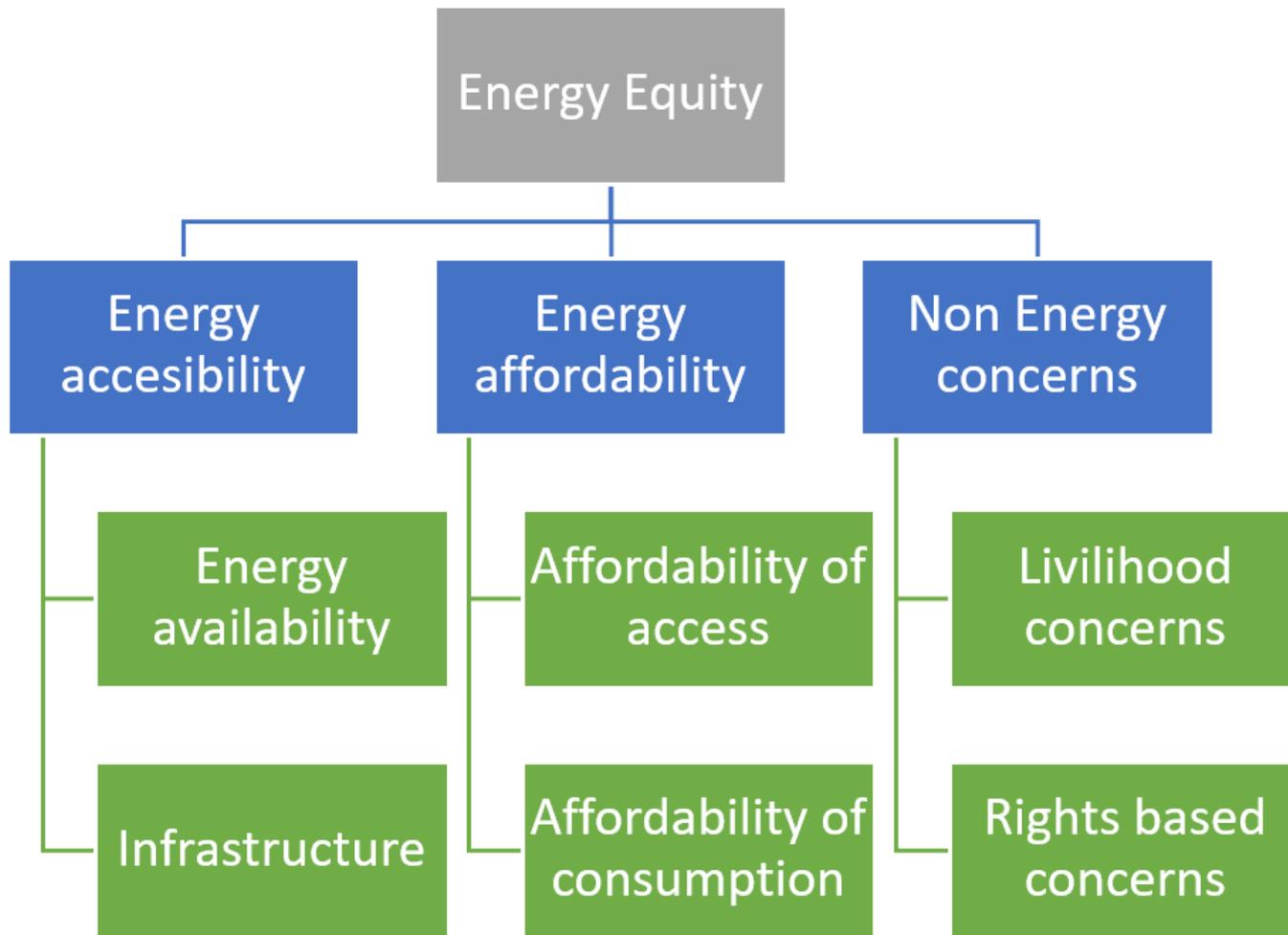




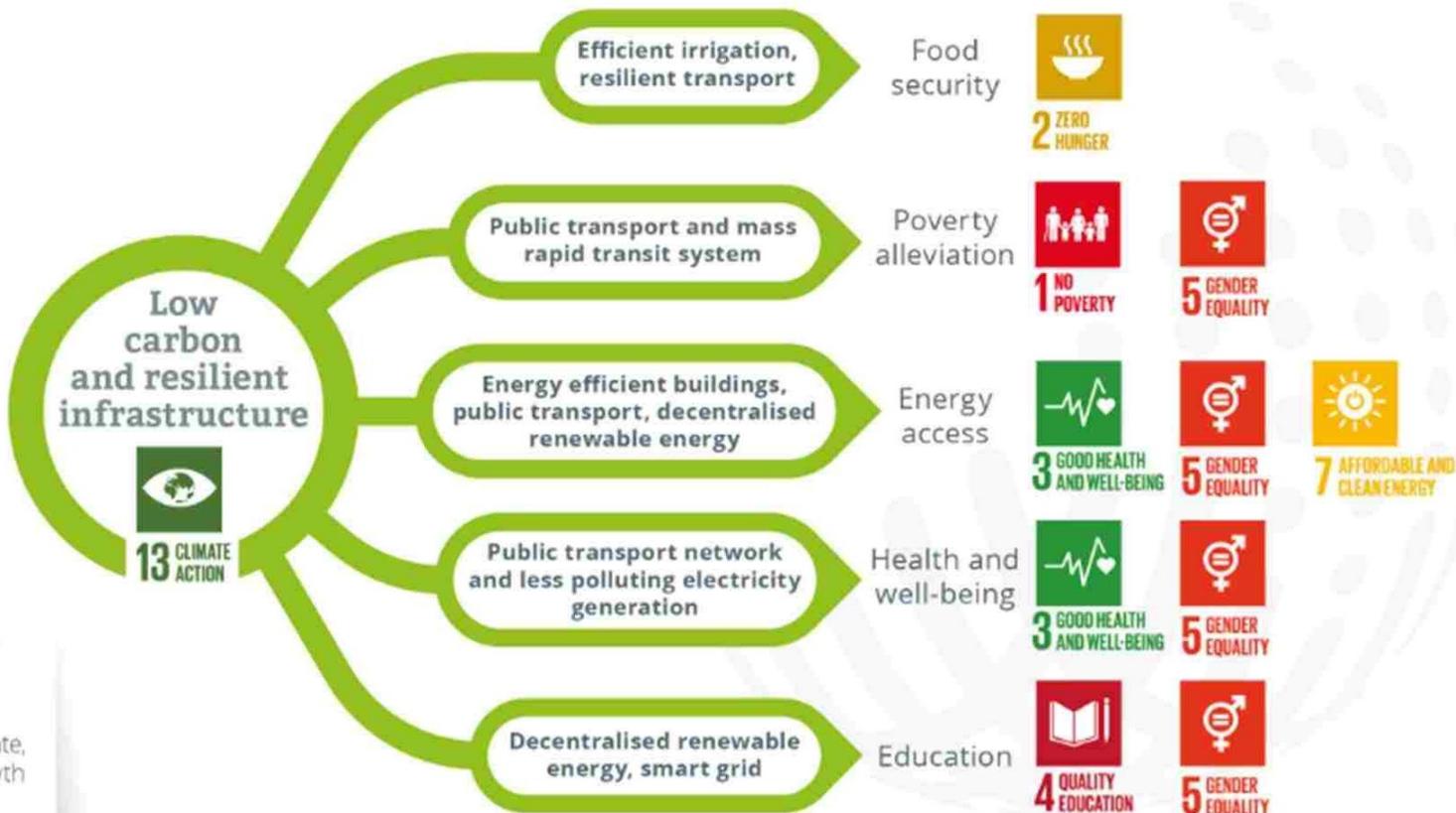
- Much current energy research remains focused on two areas:
 1. Technical questions as to which innovations can be cheap, produce more and reduce emissions.
 2. Political questions about how to achieve energy security.

Equity related questions are mostly not considered especially in transitional societies





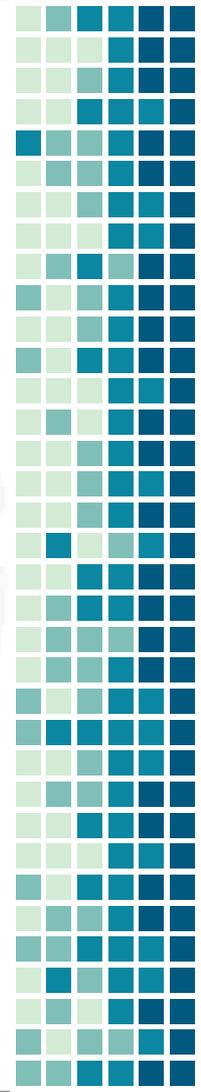
The links between low-carbon, climate-resilient infrastructure and the SDGs



Investing in Climate,
Investing in Growth



(OECD, 2017)

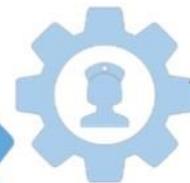


MODERNISATION OF THE ECONOMY

Climate Action

Investment Plan

Attracting additional Investments



Skills Agenda

Adapting the workforce

Digital Single Market

Empowering citizens and consumers

Capital Markets

Triggering sustainable finance for the clean economy



Innovation

Bringing new technologies from research to market

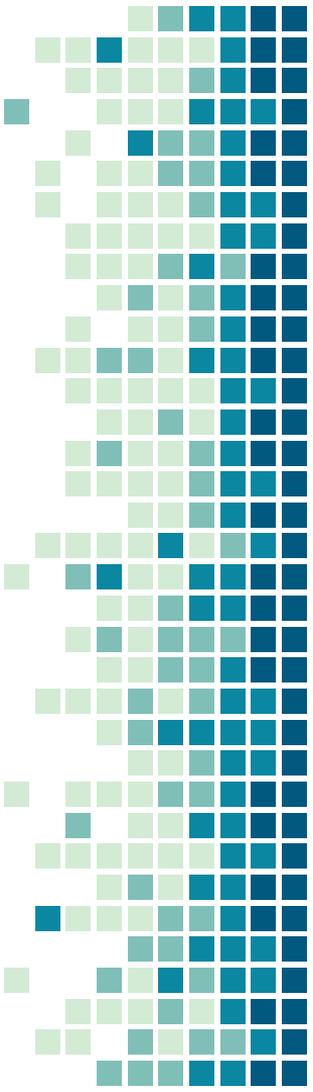


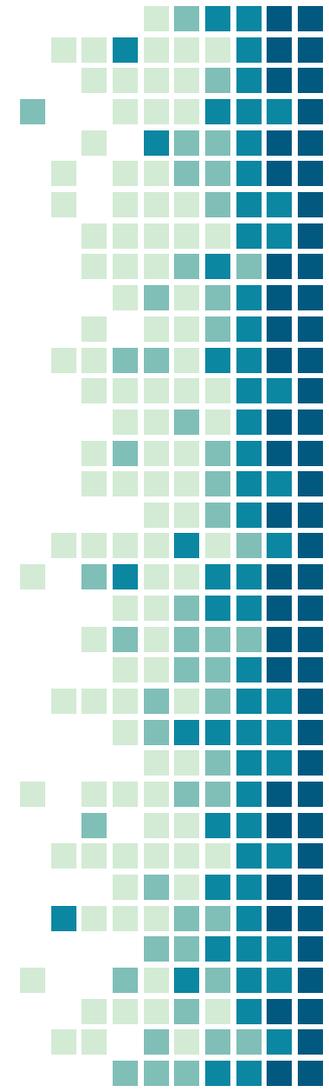
Circular Economy

Achieving a resource efficient, low-carbon economy

Innovation in energy transitions

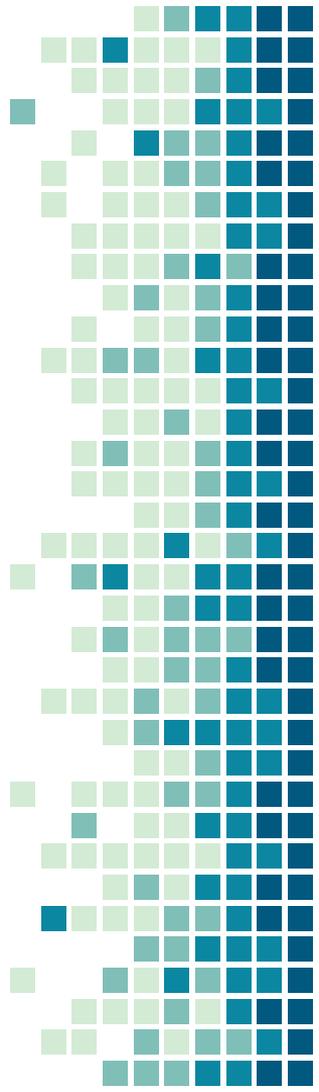
- An imperative in energy transition dynamics is innovation.
- Innovations act in multiple ways as 'push' and 'pull' factors in driving energy transition.
- Advances in technology, improved efficiency and reduction of cost have made renewable a competitive aspect of the energy transition discourse.





NOKIA
Connecting People

 ***BlackBerry***



Innovation questions: Points to ponder

- What does innovation really mean?
- Why do we do innovation?
- To whom we do innovation?
- How do we assess our innovation?
- What is our unit of analysis?



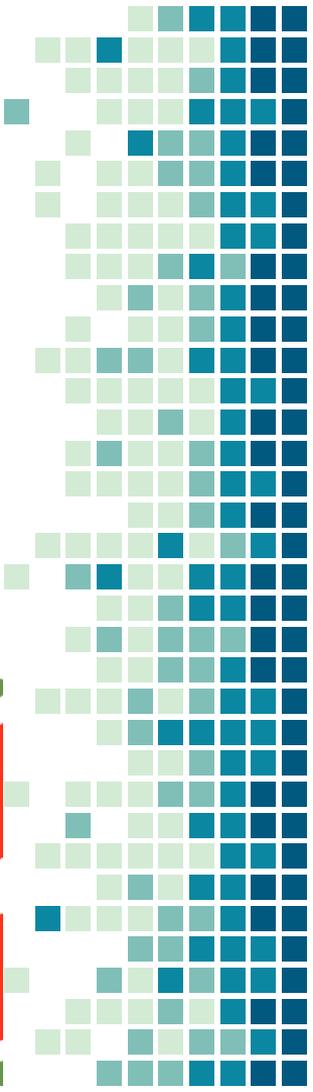


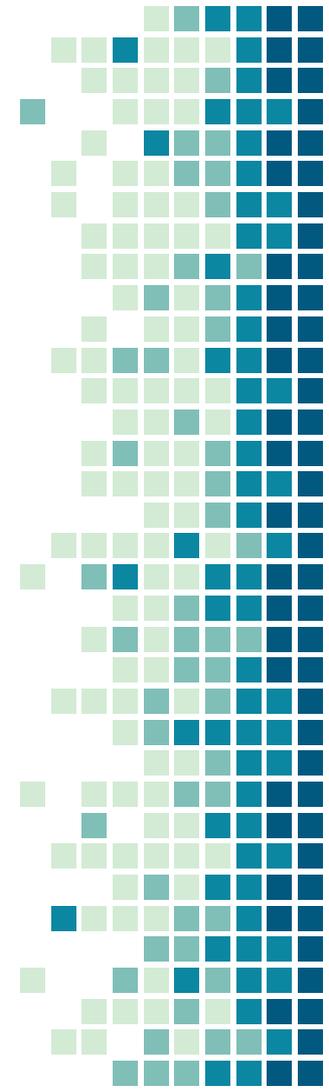
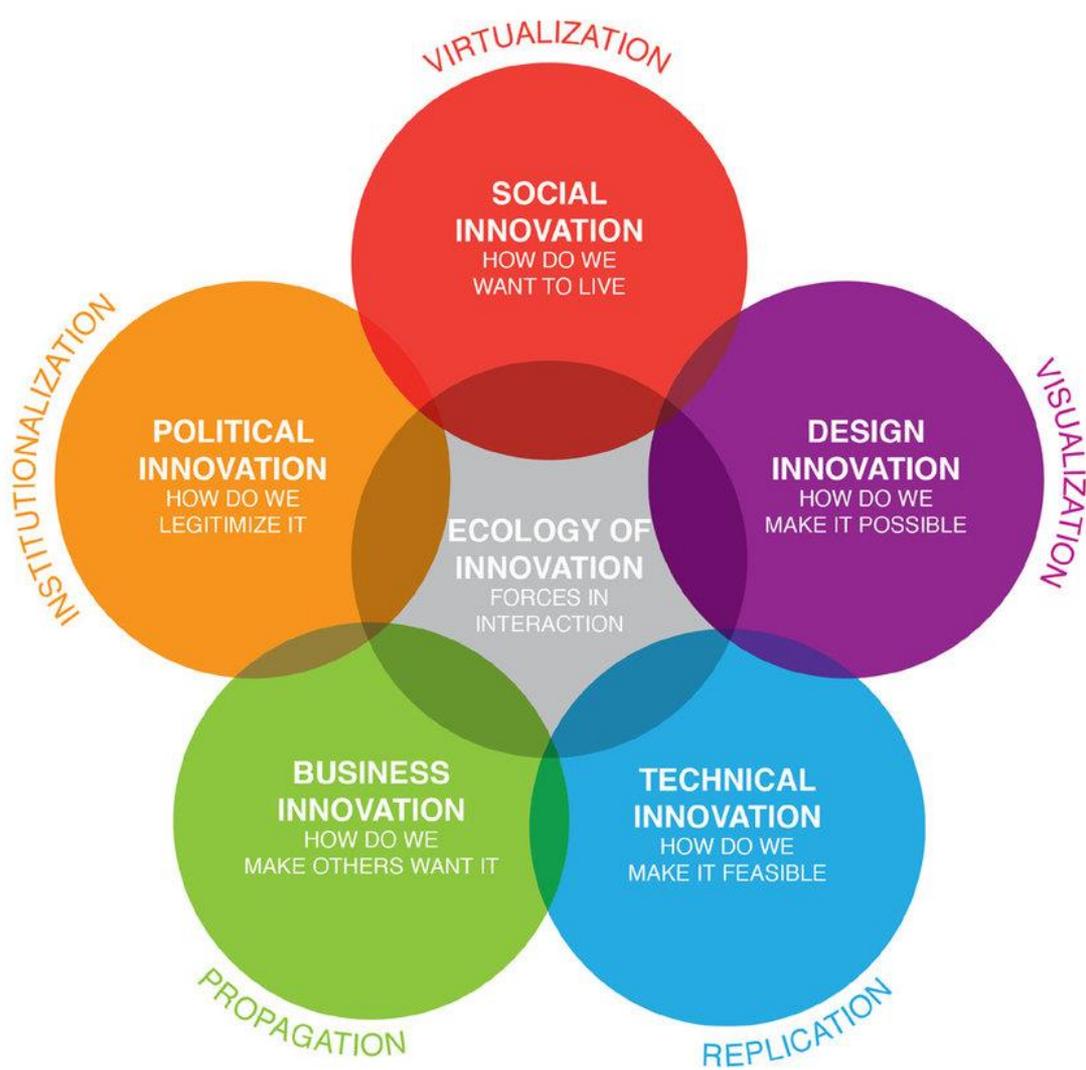
4 questions for decoding

- (1) Why is the market not delivering clean energy to the poor and those in need—not only in hard-hit urban areas but also in rural communities that feel left out of the economic recovery?
- (2) How can that change and what role can renewable energy industry play to achieve this?
- (3) How can the realisation and maximisation of the technology benefit those most in need?
- (4) What are the market barriers that need to be overcome to reach the less well-off, so that we create a just transition to a clean energy future?



How to make the transitions just?





Future research

- How to integrate social insights with the more technical questions of the design and development of particular energy technologies.
- critically examine the role of power relations, structures, and institutions in creating the specific patterns of energy inequity.
- Understanding the social meanings of energy in everyday life, if we are to promote the participation of citizen-consumers in more sustainable and equitable energy systems.



Key Considerations

- Equity in an unequal world
- 20th century institutions and governance for a 21st century challenge
- Special case of transitional societies
- A new, smarter road to the future transitions
- The opportunities of taking the road less travelled

