

Decoupling development  
and energy

# Energy Well-Being



# Outline

- Decoupling Energy and Development
- Energy and Sustainable Development
- Energy and Humane Development
- Conclusion: Energy well-being
- Work with co-authors
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# Interlinkage Energy and Development

Officials have declared a dire water shortage at [Lake Mead](#), the US's largest reservoir, triggering major water cuts in Arizona and other western states.

The lake is at about 35% capacity

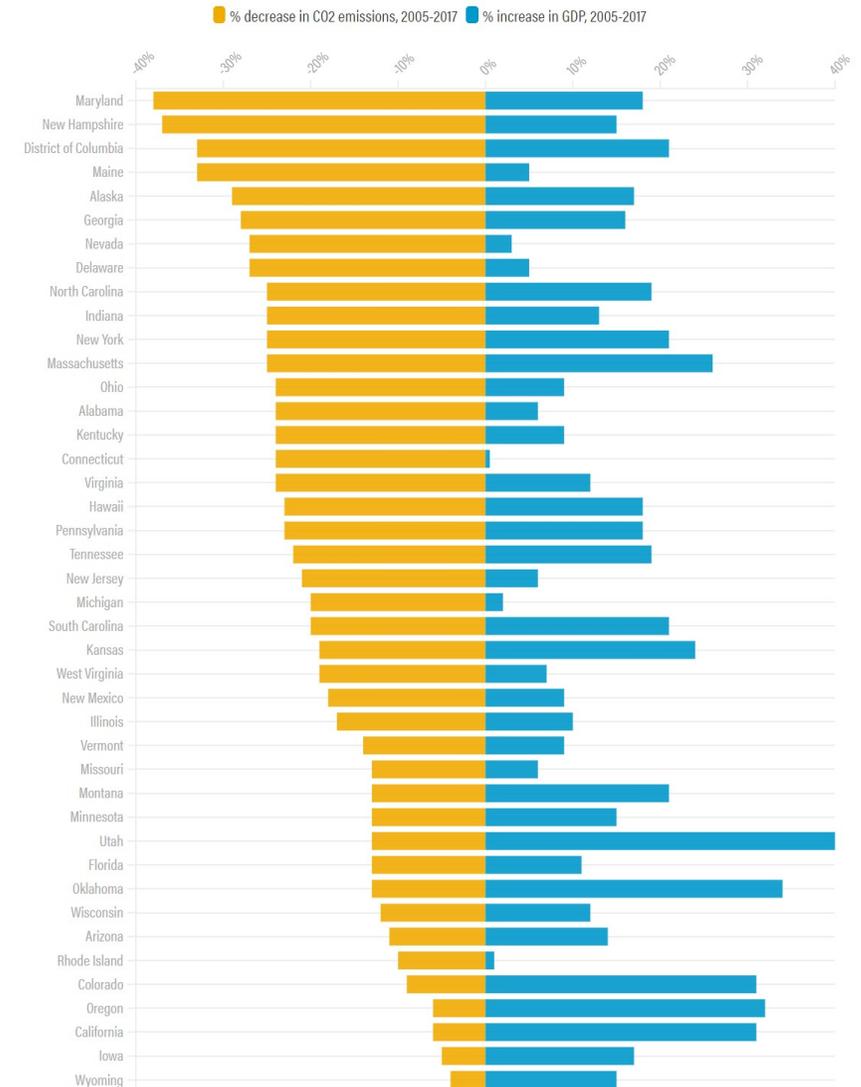
“I think in the next five years, what we need to do is have a reckoning over our water use,” Porter said. “We have to rethink how we use water in the western US.”

[Biggest US reservoir declares historic shortage, forcing water cuts across west](#) | [Climate crisis in the American west](#) | [The Guardian](#)

# Decoupling Growth and Energy: Climate change and economic development

[Which US States Are Decoupling GDP and Emissions? | World Resources Institute \(wri.org\)](https://www.wri.org/insights/which-us-states-are-decoupling-gdp-and-emissions)

41 U.S. States and Washington, D.C. Are Reducing Emissions While Growing GDP



Source: America's New Climate Economy

# Rules of new growth: Sustainable Development Goals



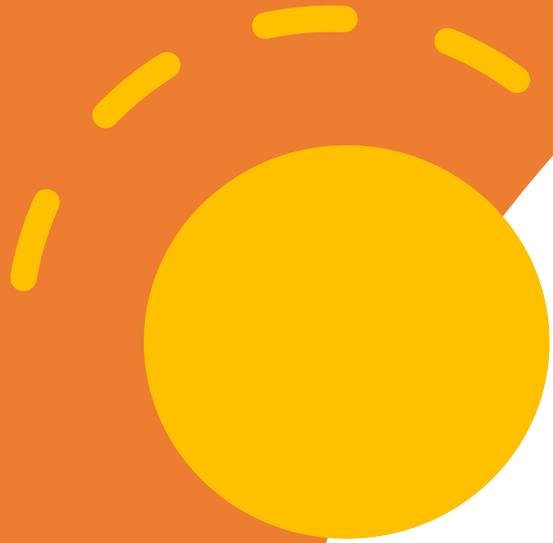
- 17 global goals, which “aim to end poverty, protect the planet and ensure prosperity for every-one by 2030” (Sightsavers, 2017).
- These efforts include the ‘Agenda 2030’, a UN effort building on the previous Millennium Development Goals, which are built on the environmental, social, and economic pillars of sustainability following a holistic approach.
- The progress of SDGs is global in scope but relies on localized adjustments.

# European Union Decoupling

Within the EU, the attempt is to decouple economic growth from resource use – a push to establish a circular economy. In 2015 the UN launched ‘the 2030 Agenda for Sustainable Development’ with the SDGs at its center.

The Union’s long-term budget is set for the 2021-2027 period with EUR 1.211 trillion. In 2020 a new financial package was launched to assist recovery from the Covid pandemic, the Next Generation EU fund (worth EUR 806.9 billion). In this stimulus, there is a total of EUR 2.018 trillion (at current prices).

There is a package of cross-cutting priority areas, which will receive financial support from several programs. The priority areas are green transition, human capital, digital transition, fostering investments, and open strategic autonomy (Publications Office of the European Union, 2021).

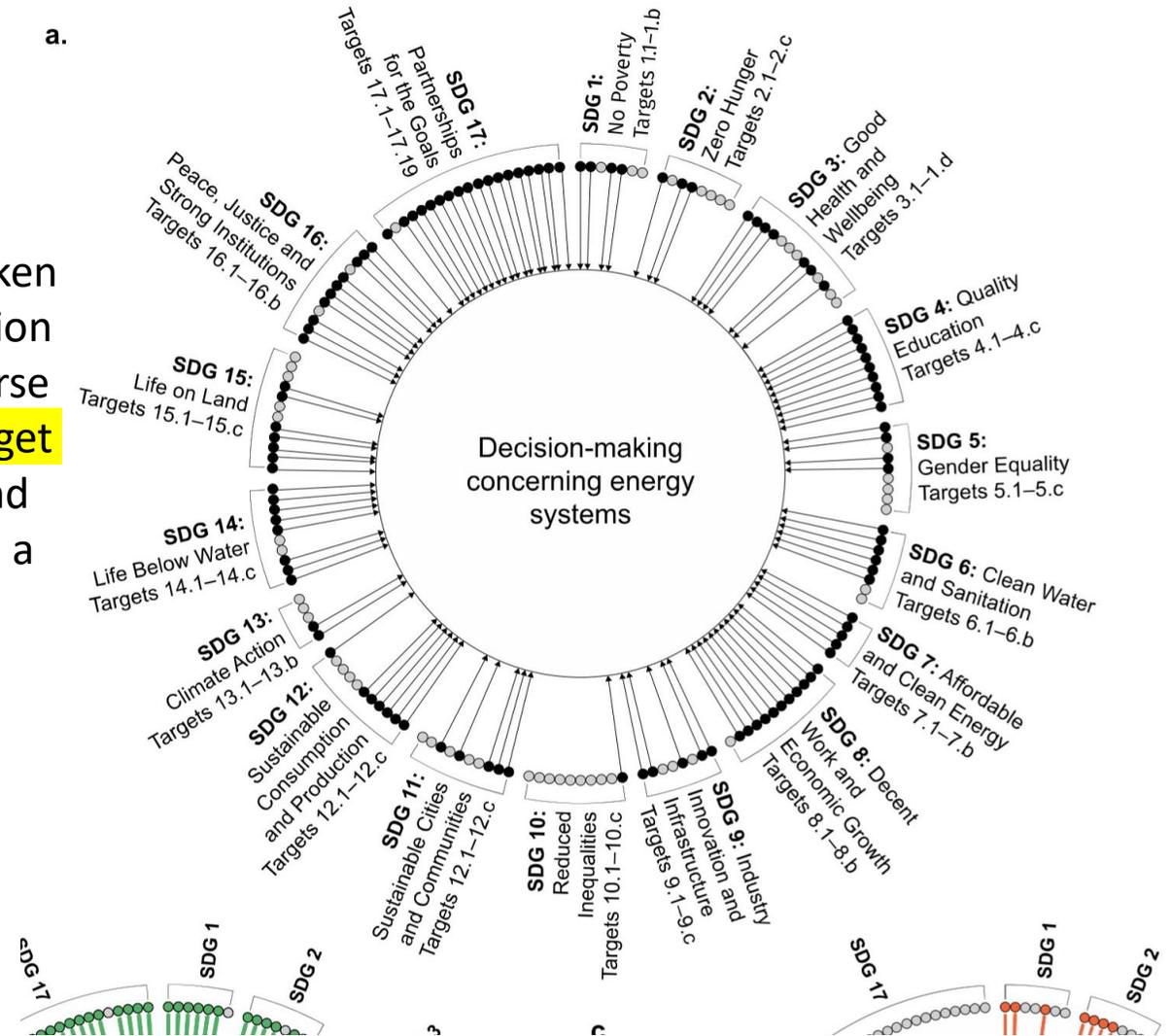


# Energy & Sustainable Development

# Energy is the center

“We found that 113 Targets (~65%) require actions to be taken concerning energy systems (A). Given 109 the broad definition of energy systems mentioned above, these actions are diverse and include efforts 110 to: address climate change (e.g. Target 13.2), reduce deaths from pollution (e.g. Target 3.9), and end 111 certain human rights abuses (e.g. Target 8.7). This gives a strong indication of the substantial changes 112 needed in global energy systems in order to deliver the SDGs.”

a.



## Energy System

### Resources

- Fossil fuels
- Mined and farmed

### Generation

- Coal Power Plant
- Nuclear Power Plant

### Distribution

- Electricity Grid
- Gas Grid

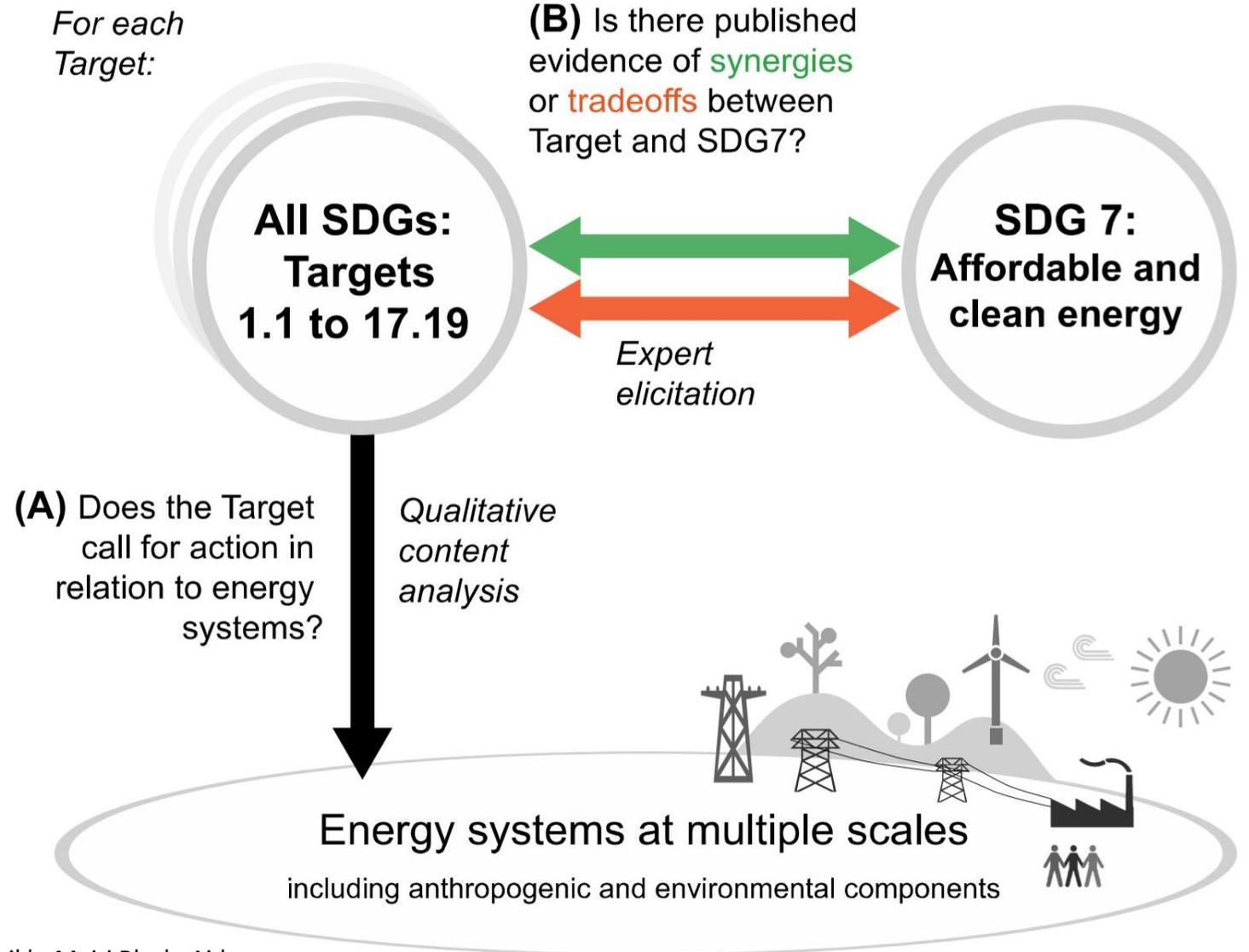
### End-use technology

- furnace
- Computer

### Energy Services

- Cooking
- Illumination

# Energy & Goals

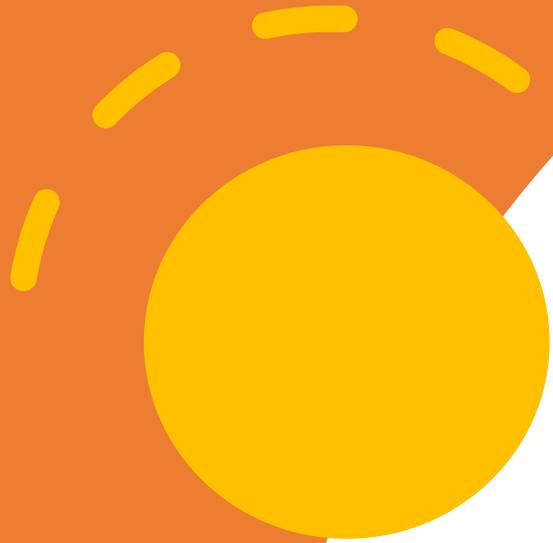


# Synergies and Energy in Development

- “We also identified evidence of synergies or trade-offs between at least Targets (~85%, spanning all of the SDGs) and actions in pursuit of SDG7 (B). There are more than twice as many synergies between SDG7 and other Targets, than trade-offs (synergies and 65 trade-offs). Nearly all trade offs relate to the tension between the need for rapid action to address key issues for human wellbeing (e.g. poverty eradication, access to clean water, food and modern energy, etc.), and the careful planning needed to achieve efficient energy systems with a high integration of renewable energy.”

Fuso Nerini, Francesco, Julia Tomei, Long Seng To, Iwona Bisaga, Priti Parikh, Mairi Black, Aiduan Borrion, et al. “Mapping Synergies and Trade-Offs between Energy and the Sustainable Development Goals.” *Nature Energy* 3, no. 1 (January 2018): 10–15.

<https://doi.org/10.1038/s41560-017-0036-5>. p5



# Energy and Humane Development

Human Development Index

# SDG and HDI

- “There are many links between the human development approach and the 2030 Agenda. But it is worth noting up front that the two are fundamentally different things.
  - The [Sustainable Development Goals](#) (SDGs) are a globally agreed tool for assessing development progress.
  - Human development, meanwhile, is a philosophy – or lens – for considering almost any development issue one can think of.
  - In other words, the SDGs provide a development destination. Human development allows one to design the route to get there.”

Source: [Human development and the SDGs | Human Development Reports \(undp.org\)](#)

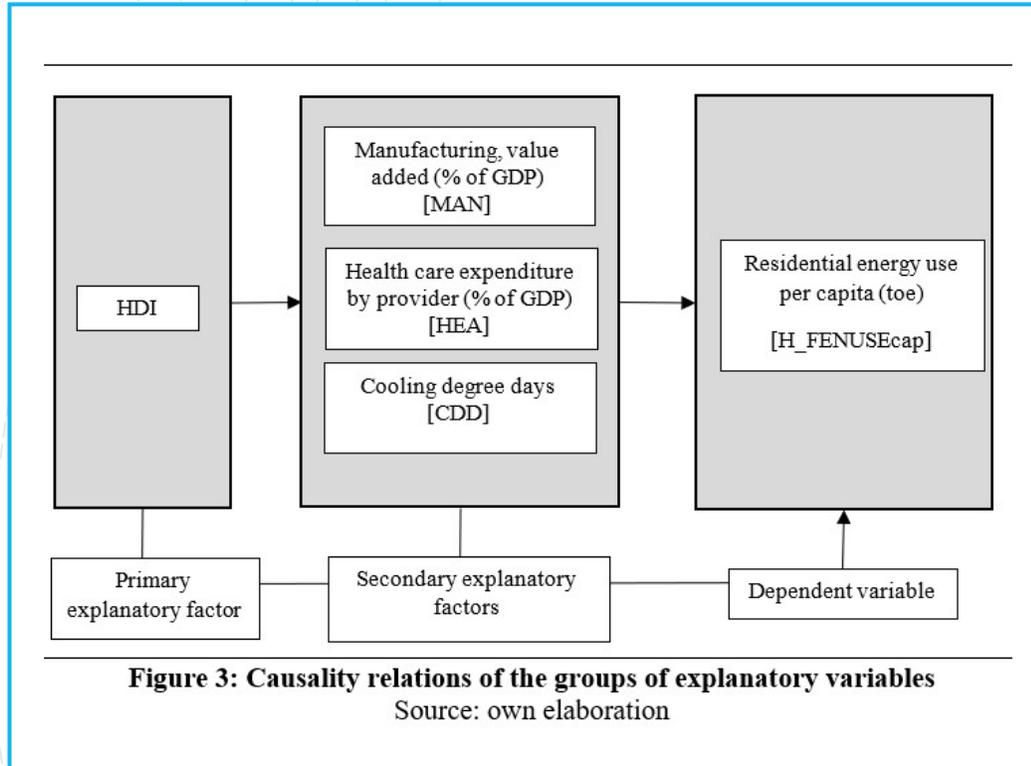
# Human Development Index

The HDI purposes to measure the three key dimensions of human development:

- - long and healthy life,
- - knowledge,
- - decent standard of living (UNDP, 2020).

“Had all people been exactly similar, **equality in one space (e.g. incomes) would tend to be congruent with equalities in others (e.g. health, well-being, happiness)**. One of the consequences of ‘human diversity’ is that **equality in one space tends to go, in fact, with inequality in another.**” (Sen 1995 p 20)

# Energy and HDI Interlinkage

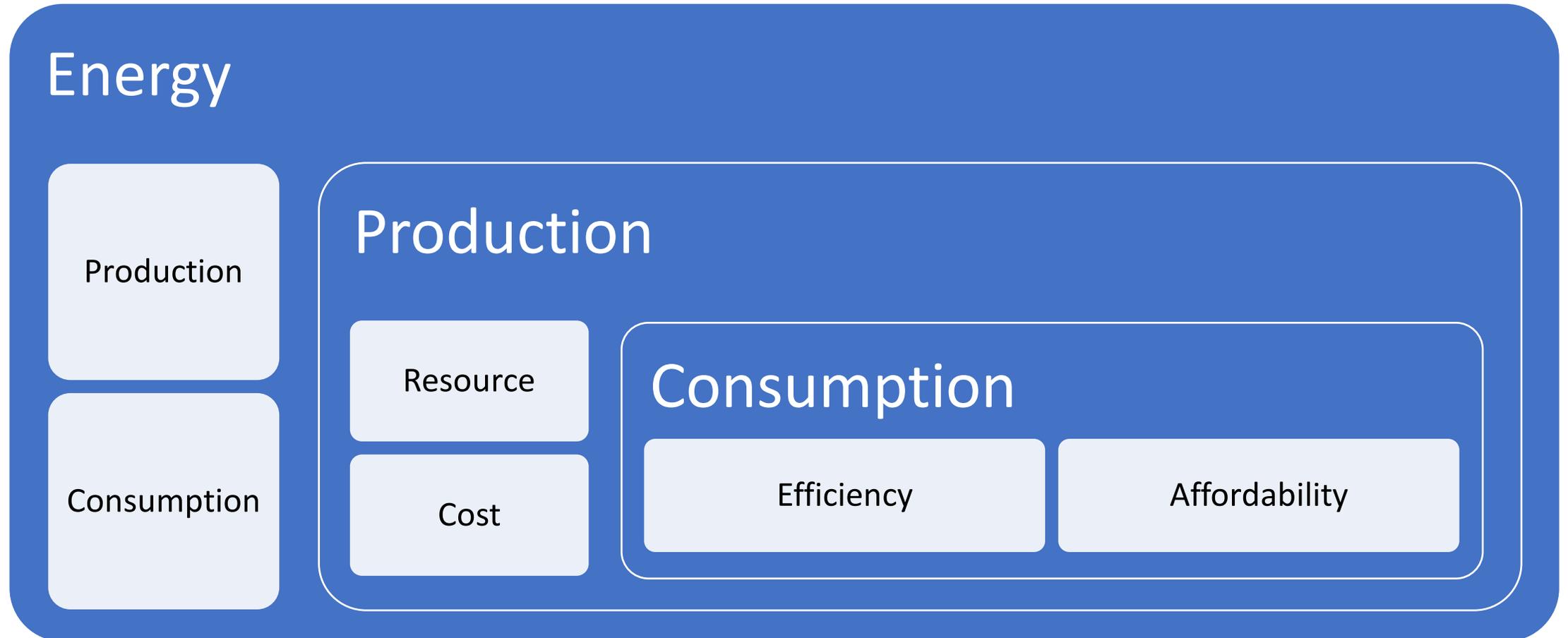


- Residential energy use is linked to HDI. There is a direct relation between HDI level and residential energy use.
- Post-Communist EU Members most sensitive to changes in human well-being.
- Increases in value added, health care expenditure and cooling degree days, have biggest impact on HDI – and thereby increase residential energy use



Energy well-being

# Building blocks of energy well-being



# Conclusion: Decouple Energy and Climate

## Climate Change

- Rules: SDG goals and targets
- Guide: Energy well-being in HDI

## Focused Efforts

- Energy production
- Energy consumption

## Decouple Energy and Economic Development

- Business as usual adaptation: higher energy use
- Smart adaptation: Decouple energy use

## Decouple Energy and Resource use

- The butterfly of the circular economy
- Decouple resource and energy use from economic development