

Energy Justice and Just Transitions in Urban Climate Action Planning

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ENERGY JUSTICE

A highly academic concept/tool to analyse and help resolve common and **complex socio-environmental problems** in energy systems globally.

General definition of energy justice¹

Is a global energy system that:

- fairly distributes both the benefits/gains and costs/burdens of energy services, and
- considers the interests of all populations in an equitable and impartial/unbiased/neutral manner.



NOVELTY OF STUDY

Energy justice

Coverage at the **national level**²

But: has hardly looked at the **urban level**

Urban energy transitions

Focus on **technical and economic** issues³

But: little attention to **social, political** and **cultural** problems.

Research gap: **Connection needed between the fields of energy justice and urban energy transitions**

Study objective: Presentation of an **urban practical framework** that formulates **solutions** to address this research question: **How to make urban energy transitions more just and equitable?**

SOCIAL INJUSTICES IN ENERGY SYSTEMS

The production and use of energy lead to and exacerbate social inequities and injustices

Energy policy and **techno-economic** studies often:

- **Target energy infrastructure** related to housing, transportation, electricity consumption and production.
- **Overlook** the **current socio-economic status** of **disadvantaged populations**

Energy inequality example: low-income households spend a much **higher proportion** of their **income** on **electricity bills** due to:

- living in **energy-inefficient homes**, and
- **barriers** from **adopting cleaner** and **more affordable technologies**.

URBAN ENERGY AND CLIMATE ACTION

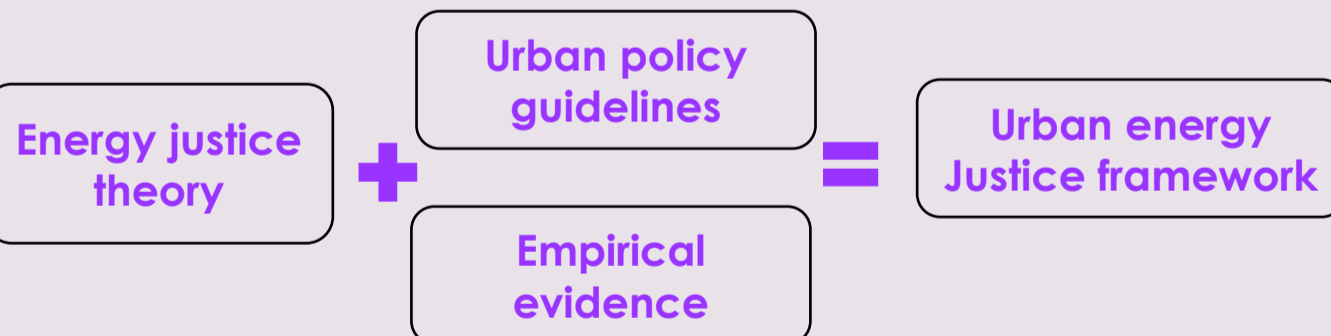
Cities are central to renewable energy transition

1. Cities are both major energy consumers and contributors to greenhouse gas emissions globally.
2. Cities are particularly vulnerable to extreme climate change-driven weather events due to their high concentration of people and infrastructure.



Problem: Climate change + influx of people = challenges for cities, especially vulnerable groups.

STUDY OVERVIEW AND METHODS



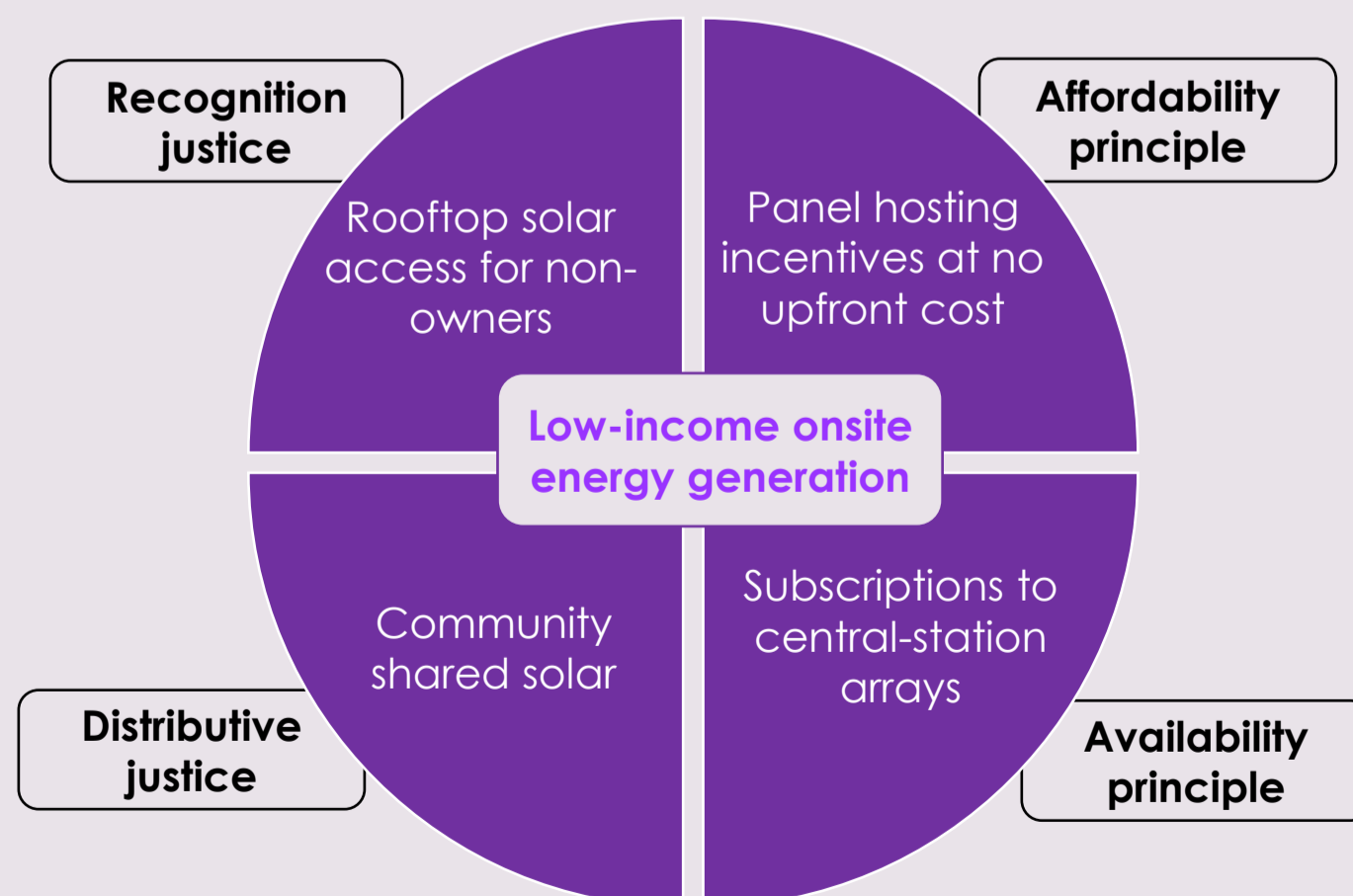
Framework input:

- **Theory:** energy justice principles and types of justice
- **Urban policy guidelines:** the American Planning Association (APA)(2019)'s Equity Policy Guide and UN-Habitat World Cities Report 2024.
- **Empirical evidence:** Climate action plans (CAPs) from C40 urban network members (via thematic analysis).

Framework output:

Provides **structure** to investigate how **concepts** of **equity** and **fairness** within **energy systems** can inform **urban energy policy**.

Fig 1. On-site energy technologies and economic incentives to alleviate socio-economic disparities in low-income households



CONCLUSION

1. **Cities** are both major **energy consumers** and **contributors** to **GHG emissions globally**, making **cities critical** for the **energy transition**.
2. However, the **benefits** and **burdens** of the **energy transition** are also **unevenly distributed** among **citizens**.
3. **Techno-economic energy transition measures** need to **address** the **heterogeneous socio-economic baseline conditions** across **different populations**.

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3. Rutherford, J. & Coutard, O. Urban Energy Transitions: Places, Processes and Politics of Socio-technical Change. *Urban Studies* **51**, 1353–1377 (2014).