Session 4:
Urban energy analytical tools, metrics, frameworks

Current ETP analytical framework

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How we generate our scenarios

Global energy system today

Primary energy
- Renewables and waste 68 EJ
- Fossil fuels 411 EJ
- Nuclear 29 EJ

Transformation sector
- Power plants 191 EJ
- Refineries and other transformation 177 EJ

End-use sectors
- Industry 127 EJ
- Other end-use 23 EJ
- Buildings 115 EJ
- Transport 93 EJ

Service demands
- Own use, conversion and distribution losses 149 EJ

Legend:
- Renewables and waste
- Fossil fuels
- Nuclear
- Oil products
- Electricity
- Commercial heat
How we generate our scenarios

Global energy system in 2050
How we generate our scenarios

ETP model finds cost effective investment and operation of energy technologies to meet energy demands from now to 2050
How we generate our scenarios

Cost-effective strategies for meeting global energy system demands...

- ...from now to 2050, in 28-40 regions
Cost-effective strategies for meeting global energy system demands...

- Technology-rich representation of the system
- Given a set of constraints: resource, technical, capacity build-up, behavioural, environmental
- Necessarily aggregate!
  - Improved temporal resolution (integration of VRE) but limited spatial detail
  - Sub-national infrastructures difficult to model but fundamental impact
Key questions for this session

- Within the urban context: what metrics, indicators, proxies to assess energy use, environmental impact, infrastructure, technology penetration?
  - What are the key data limitations encountered by analysts?
  - Is the urban/rural split sufficient?

- What formal tools are in use for policy support at the urban level?
  - At what scales is it appropriate to analyse urban energy systems?

- How can findings from urban analytical frameworks be scaled-up to national and global levels?

- How can national planning tools enhance their representation of the urban context?