

# Measurement and Mainstreaming of Energy Access: A Southern Perspective

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# Status and Significance of Energy Access

# Energy Access in the Global South

- 1.7 billion people without access to electricity
- 2.7 billion people without access to clean cooking fuels
- Energy access plays critical role in achieving other MDGs (UN 2005; UNDP 2012; UN HLP 2013)
  - Quality of life
  - Health
  - Communication
  - Education
  - Outcomes for women

## **-Energy poverty ↔ Income poverty ↔ Vulnerability**

- Majority of world's vulnerable population lives in the global South
- Health, livelihoods, resilience to disasters , all depend critically on energy access
- Failures in energy system invariably impact the energy poor the most
- Sustainability of the energy system is a necessary precondition for sustainability of access**

# Progress on Tracking Energy Access

# SE4All Tracking Framework

- 2014-2024 a “Decade of Sustainable Energy for All” (UN GA, 2012)
- SE4All (WB ESMAP, IEA and others) recognises primacy of UEA target in the energy goal for the Global South
- Attempts to move beyond current practice of measuring access on the basis of grid connection, towards a multi-tier framework

## Access to Electricity Supply

Attributes	Tier 0	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Peak available Capacity (W)	-	>1	>200	>500	>2000	>2000
Duration (hours)	-	≥4	≥4	≥8	≥16	≥22
Evening supply (hours)	-	≥2	≥2	≥2	≥4	≥4
Affordability	-	-	√	√	√	√
Legality	-	-	-	√	√	√
Quality (voltage)	-	-	-	√	√	√

Based on six attributes of electricity supply, the index of access to electricity supply =  $\sum (P_T \times T)$

Where,  $P_T$  = Proportion of households at tier T

T = tier number (0,1,2,3,4,5)

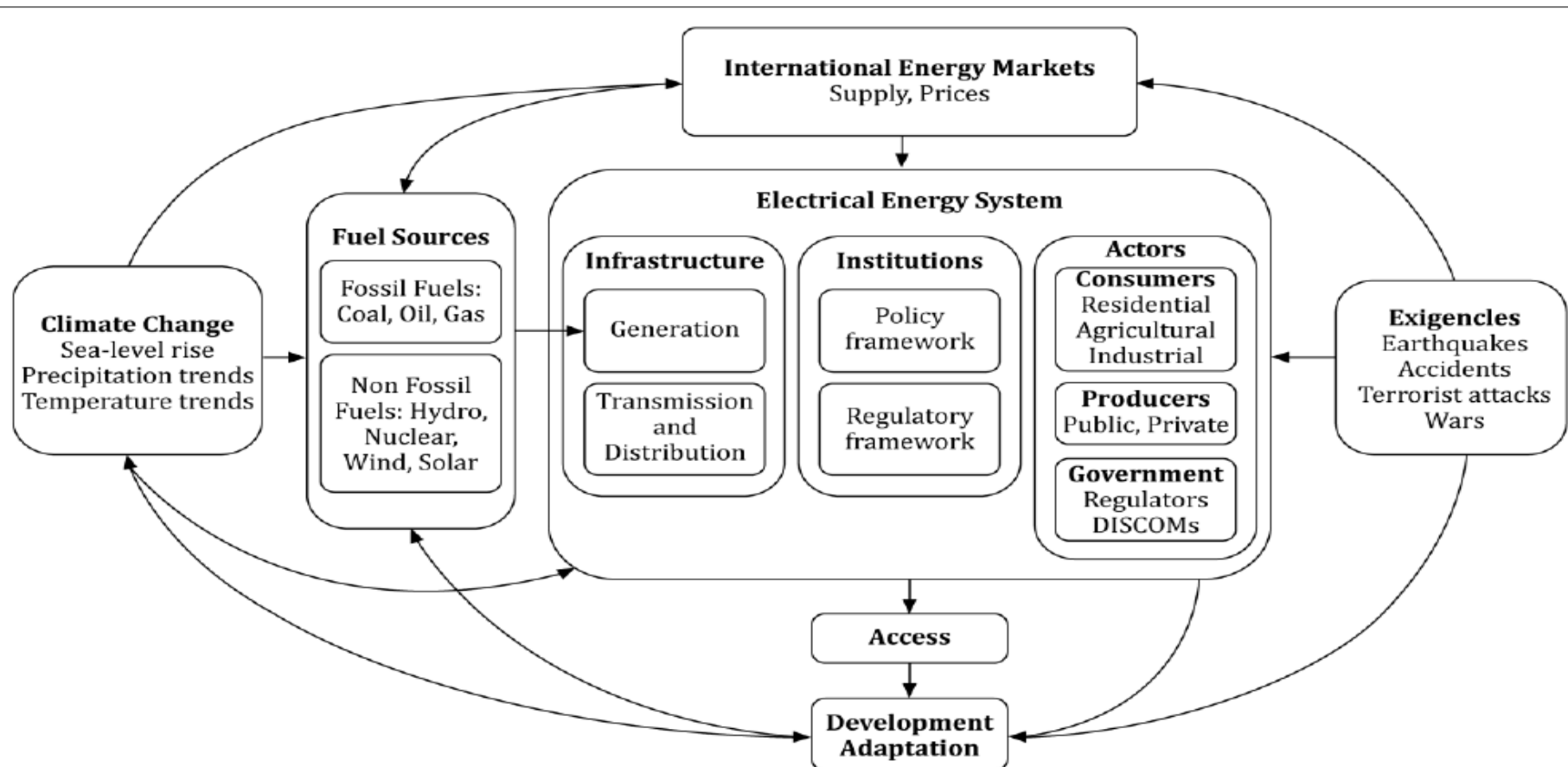
## Use of Electricity Services

Tier 0	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
-	Task lighting and phone charging (or radio)	General lighting, television and fan (if needed)	Tier 2 and any low-power appliances	Tier 3 and any medium-power appliances	Tier 4 and any high-power appliances

# Measuring *Sustainability* of Energy Access

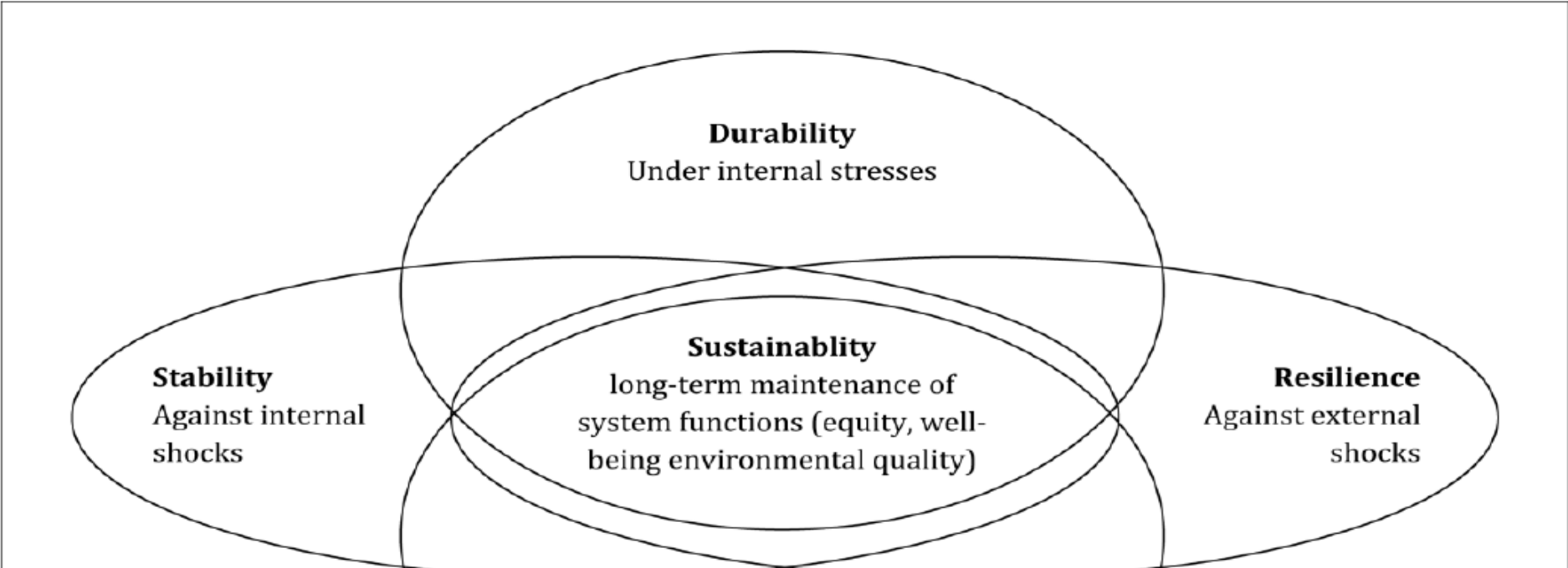
# Energy as a Complex Dynamic System

- Energy system is complex and dynamic, with non-linear relationships and strong path dependencies
- Two-way relationship with the wider environment- Climate change, energy markets, hydrometeorological and geophysical phenomena, macroeconomic environment



# Dynamic Sustainability Framework (Scoones et al, 2007)

Temporality	Internal	External
Shock	1986 Chernobyl disaster	1979 oil shock
Stress	Lack of infrastructure in Sub-Saharan Africa	Three-year drought spell in California



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