Promoting Energy Efficiency in Nepal

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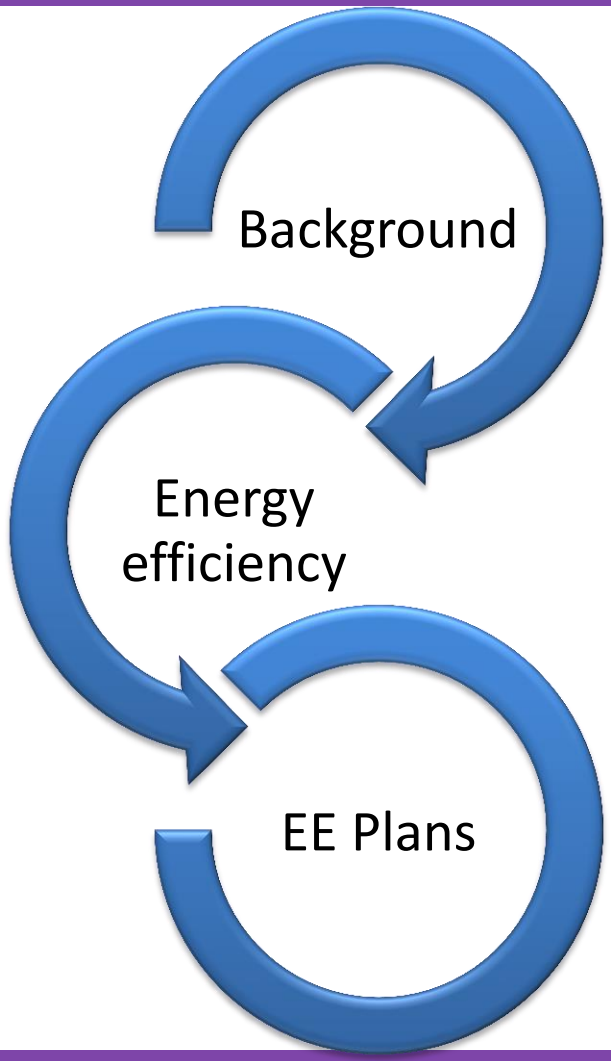
Outline



Nepal's energy context

Understanding EE potential in Nepal

Framing EE ambitions for Nepal

What are Nepal's Key Energy Indicators

- Access to electricity : 67% *(Grid: 58%; Off-grid: 9%) (NPC,2013)*
- Population : 28 Million *(CBS, 2015)*
- Total primary energy supply (toe/capita) : 0.37

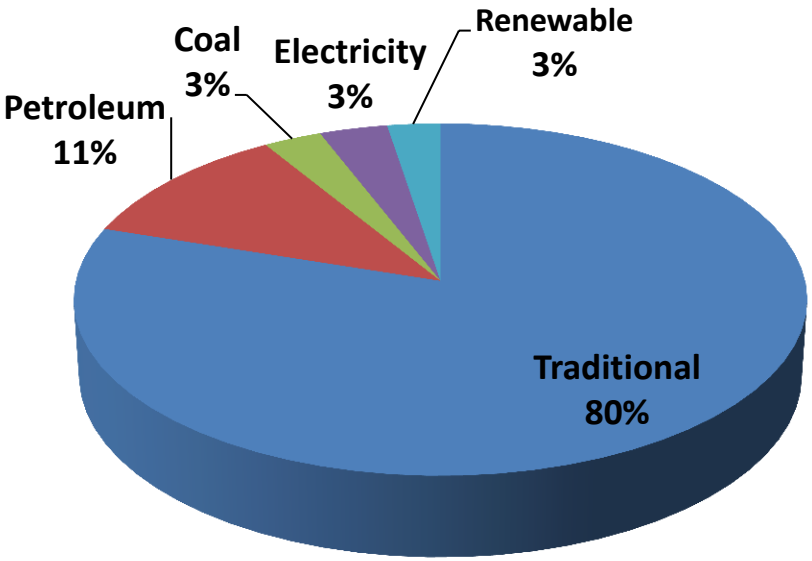
  (India: 0.64; Pakistan: 0.48; Bangladesh:0.21; Asia: 0.71)
- Annual electricity consumption (kWh/capita): 119

  (India: 760; Pakistan: 447; Bangladesh:280; Asia: 893)
- Energy intensity (TPES/GDP) (toe/1000 USD): 0.92

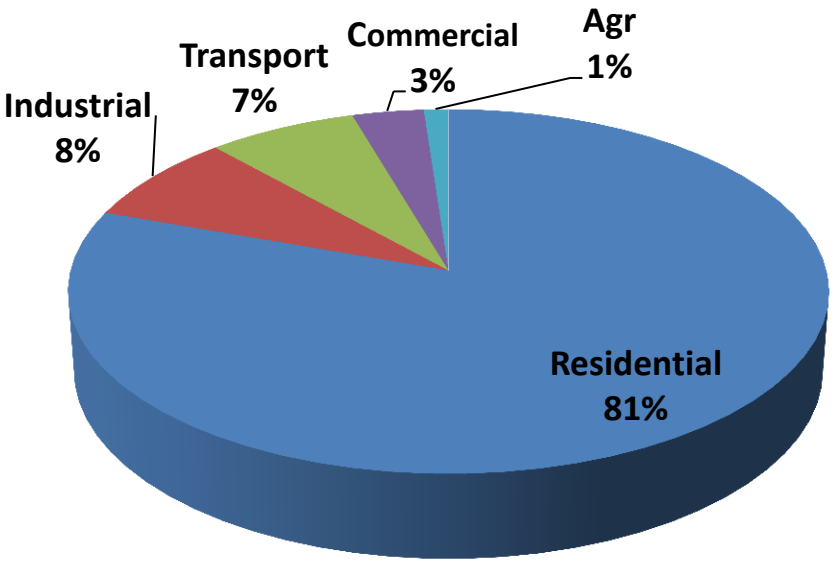
  (India: 0.57; Pakistan: 0.62; Bangladesh:0.36; Asia: 0.46)

(IEA, 2014)

Nepal's Energy Consumption *(Fiscal Year 2013/14)*



Energy consumption by source



Energy consumption by sector

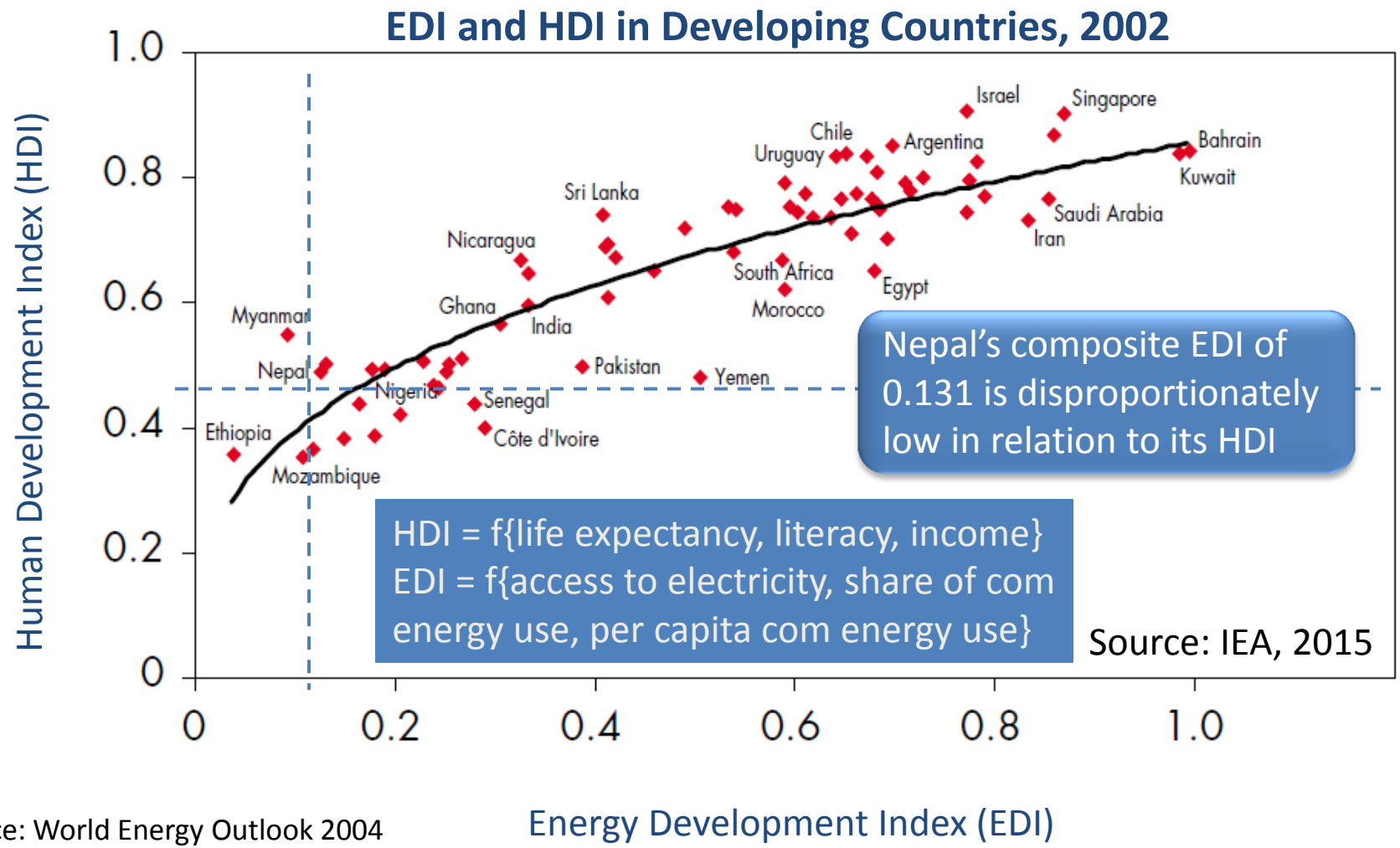
Source: MoF, 2015; WECS, 2013

Total energy consumption = 11232 thousand toe

Nepal faces complex inter-related challenges on energy

- **Energy poverty**
  - low consumption levels
  - traditional energy sources still dominates supply
  - Residential cooking is the largest sector of energy use
- **Energy security**
  - vulnerability of supply, low electricity generation,
- **Energy access**
  - significant share of population without access to modern energy services

Nepal ranks 71 out of 75 developing countries reviewed on EDI



Source: World Energy Outlook 2004

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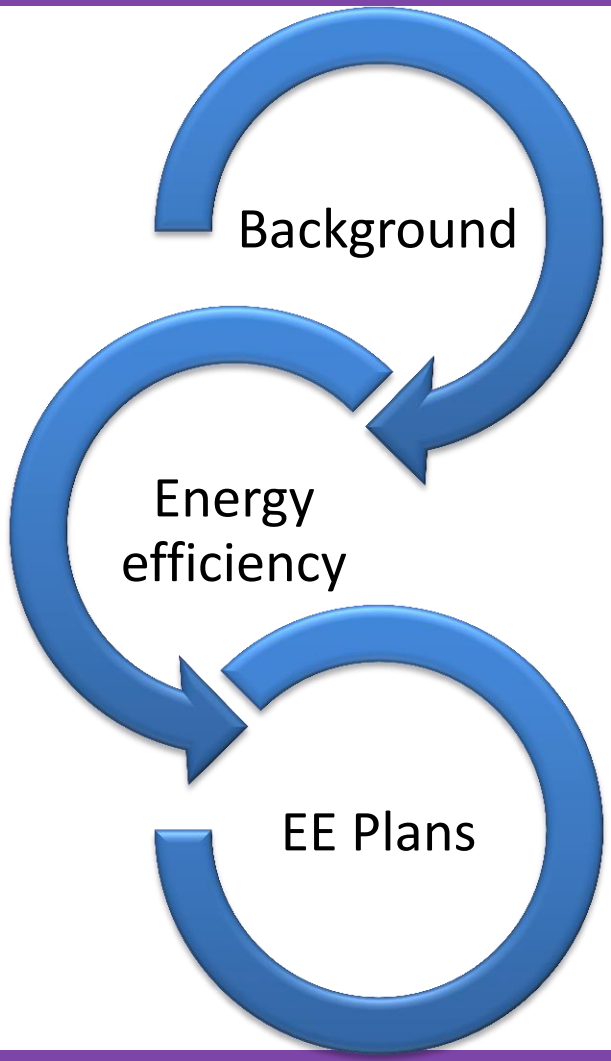

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After a history of disparate efforts on EE, Nepal now needs a platform for EE

Panchayat Period

1990

Conflict Period

1995

2006

80's

- Formal initiation of EE in 1985 & ECM in industries.
- Load curve analysis – load factor in night time (industrial & domestic sectors).

90's

- Strategies for load management, identification of priority areas & action plan, and concept of TOD tariff- 1991.
- 1994 – 98: ECM in hotel & industries, establishment of Office of EES.
- Analysis of rational energy use, EE & fuel substitution – 1995
- Introduction of DSM concept by WECS in 1996.
- 1997-98: Cleaner Production Programme in industries.
- Long-run marginal cost of power production analysis, and PPA.
- DSM measures applied in Hetauda Industrial District by ESPS & TOD meter installation.

2000 – 2010

- Study of NEA by JBIC and recommendation for need of DSM- 2002.
- SARI/E (USAID) study on EE Standard & Labelling of end use appliances in 2003.
- 2004: NEA corporate development plan but lacking DSM aspect. Background doc on policy for EE in industrial sector.
- ESPS in its completion report recommended EE as the best tools for energy saving & env improvement and its institutionalization (in AEPC)
- 2009-11: DSM&EE project.
- 2009: NEEP with 8 year in horizon. EEC at FNCCI, BEST and EEST.

Post 2010

- NEEP's continuity until 2018.
- RETA 8025:SASEC Sub-regional EE Initiative produced a comprehensive technical report in 2012.
- NES as an integrated strategy to energy sector roadmap in 2012.
- SE4ALL 2012
- EEST preparation on-going in 2014

Experience of 3 decades of formative process on EE makes it clear that absence of an institutional EE authority is limiting impact

Nepal Energy Efficiency Programme

- German-Nepal bilateral programme started in 2009
- Executed by the Ministry of Energy, Nepal
- Supported by German Development Cooperation (GIZ) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ)
- Currently in Phase 2 (July 2014 to June 2017)
- Areas of intervention
  - Policy (EE Strategy, Biomass Energy Strategy, EE Institutionalization, Nepal Energy Information System)
  - Clean Cooking (Standards on Improved Cooking Stoves; CD)
  - EE Market (Industries, Public and Commercial Sector)

Nepal faces multiple challenges in promoting energy efficiency

- Lack of proper policy and institutional structure to support EE
- Lack of adequate policy instruments (regulations, standards, reward & punishment provisions, etc)
- Absence of mature EE industry; technology, suppliers and services providers
- Inadequate financial incentive (credit, subsidy)
- Lack of appropriate tariff structure (electricity, petroleum, coal)
- Awareness and information

EE offers significant development dividends

Doubling of energy efficiency penetration between 2010 and 2030

Improved energy access

Energy saved could enable **6.5 million** people to gain access to modern energy by 2030

Improved energy security

Energy saved could avoid 21% of fuel imports resulting in import savings of **$565 million** (2010$) in 2030

Reduced emissions & strain on forests

Energy saved could avoid **2.2 million tonnes of CO_2e** (17% of baseline) in 2030

Energy saved could avoid **3.3 million tonnes of firewood** used for cooking by 2030

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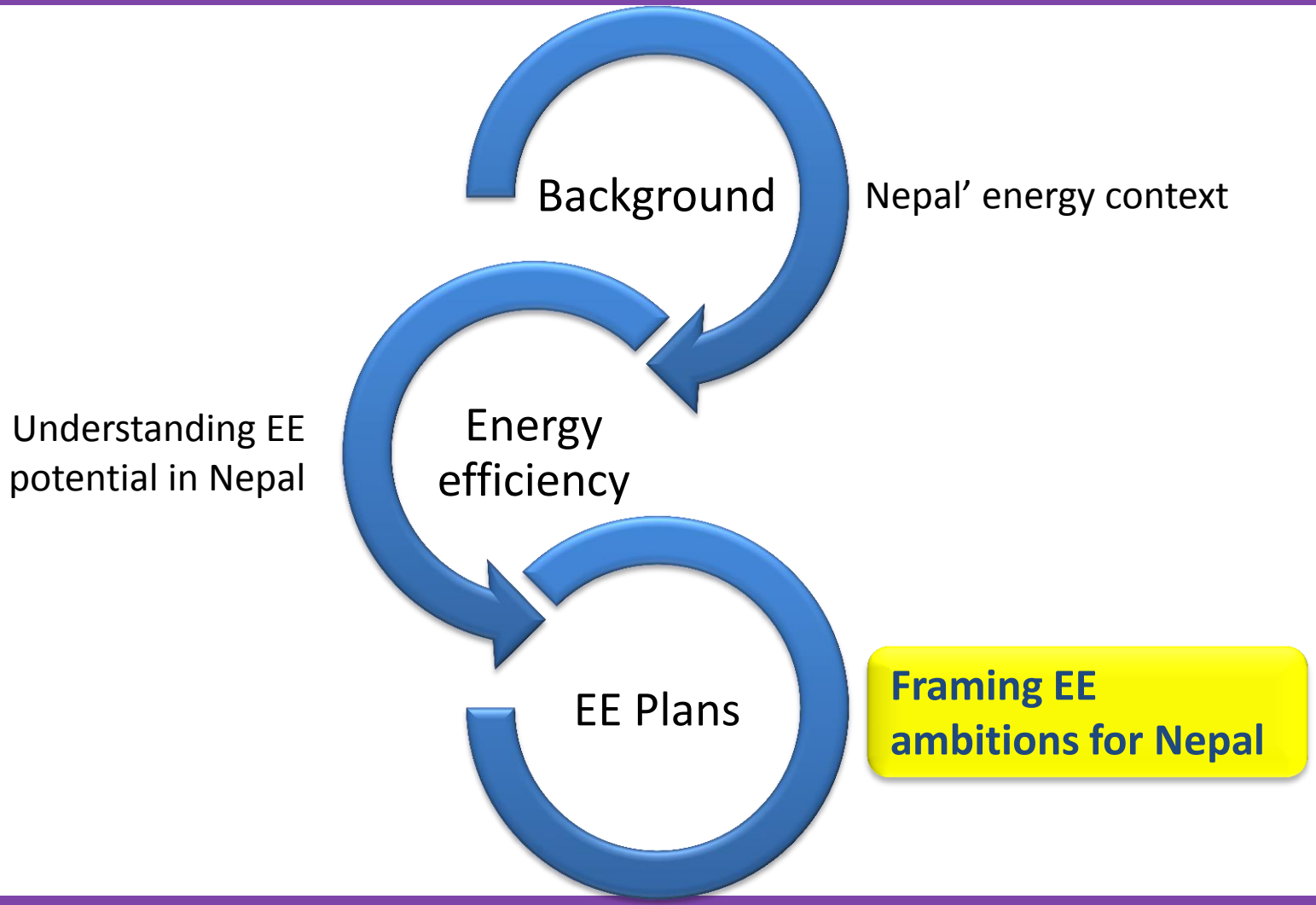
Background
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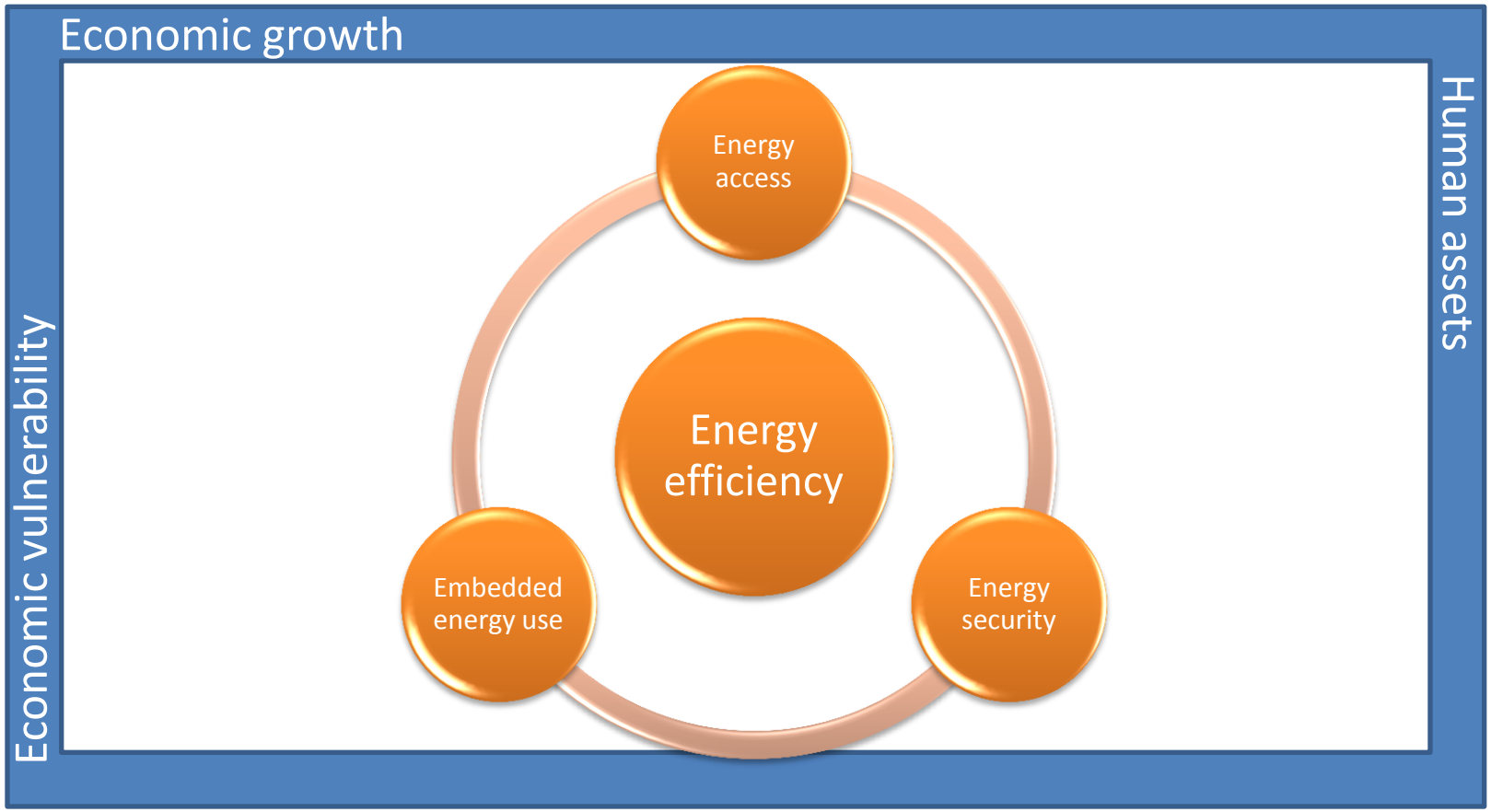
Energy efficiency
EE Plans
Framing EE ambitions for Nepal

Institution dedicated to EE is critical to kick-starting and accelerating EE

- Without a clear institutional authority on EE, Nepal is unlikely to realize the benefits of EE in terms of enhancing energy access and improving energy security

- Nepal's EE aspiration
  - Establish an institution for EE
  - Develop a legal framework for EE
  - Promote and integrate EE as a part of the national development agenda
  - Harmonize implementation of EE measures within existing lines of authority

Frame EE within the social, economic, political imperatives of Nepal



Graduating up from Least Developed Country status by 2022

Principles for institutionalizing EE

Phased

- EE authority gradually institutionalized
- Consistent with legal framework, broader energy context and demand for EE

Partnerships

- Will use existing channels for EE implementation
- Will partner with existing sector/segment authority for implementation

Revenue neutral

- Will enforce mandatory measures only if it at least revenue neutral (or resulting in some savings) for the end-user
- Costs, benefits can accrue over time

THANK YOU