



Energy & India

*The **SCALE** issue*



Key points

Scale – Globally the largest growth in energy services to 2050?

and

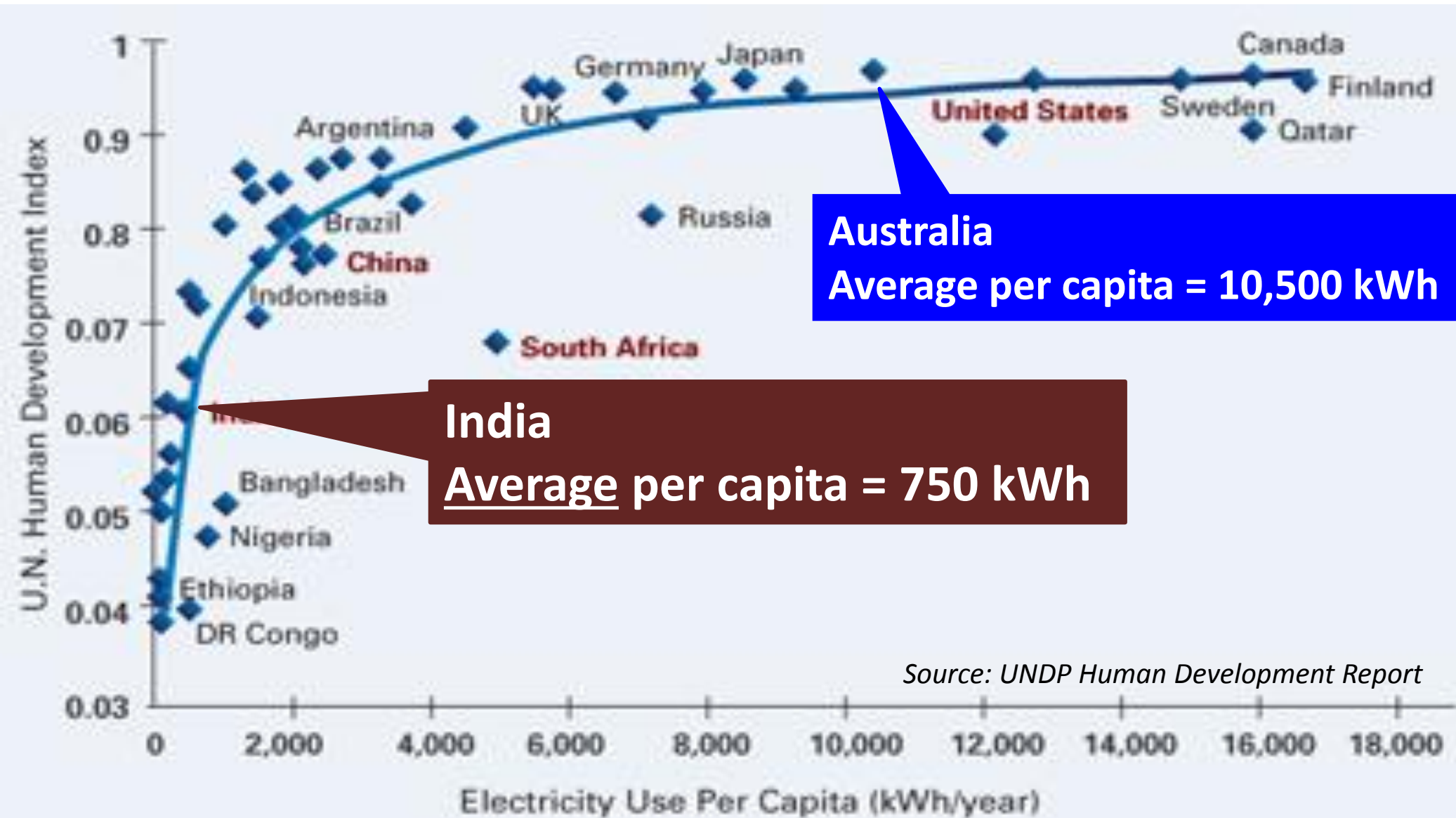
Transitions

- **Access**
- **Affordability**
- **& Reliability**

- **Sustainability**



Electricity affects Human Wellbeing



Average electricity consumption is deceiving

India averages 750 kWh per person per year

BUT 400 million lack ACCESS

> 1,000 kWh / year

Access is defined as

- 50 kWh per person per year (rural)
- **100 kW h per person per year (urban)**

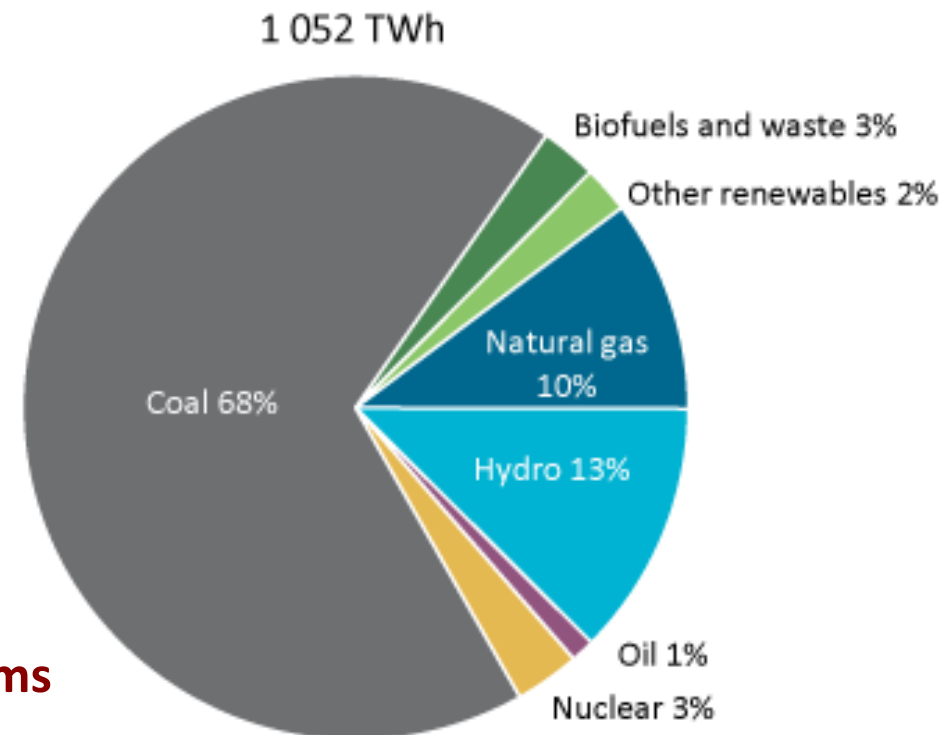


Indian energy economy has a long way to go... **BUT.....** India is actually a major energy economy

The **world's 4th biggest primary energy consumer**
and in the last 30 years:-

- **India's primary energy consumption grew by more 400%**
- **Electricity grew more than 500%**
 - 3rd biggest coal consumer
 - 4th biggest oil consumer
 - 5th biggest wind power consumer
 - 6th biggest hydro power consumer
 - 6th biggest renewable energy consumer
 - 13th biggest natural gas consumer
 - 14th biggest nuclear energy consumer

Next 30 years growth - larger in absolute terms



Next 30 years likely to see even greater growth

For India's poor to emerge from poverty,

Energy for PRODUCTION & MOBILITY is required ...

- **Electricity consumption** will grow very substantially... by **> 400%**
- **Large scale generation**, transmission & distribution will be required
- **Many forms of energy necessary** including coal, gas, nuclear and renewables

**Critical that the most efficient, least polluting options
applied in ALL CASES**