

# Dynamics of energy transition in rural and urban household in India

YAWALE Satish Kumar<sup>1</sup>, HANAOKA Tatsuya<sup>1</sup>, Manmohan KAPSHE<sup>2</sup>

<sup>1</sup>National Institute for Environmental Studies, <sup>2</sup>Maulana Azad National Institute of Technology (NITB) Bhopal India.

## OVERVIEW

- India is a diverse country, so it is interesting to analyze historical characteristics of energy transition and consumption pattern across rural and urban household in various states of India.
- India's 70% population resides in rural and uses biomass. It is the main source of indoor air pollutants thus we want to analyze the low carbon pathways for mitigating indoor air pollutant and other GHGs from residential sector.

### ESTABLISHING ENERGY BALANCE TABLE

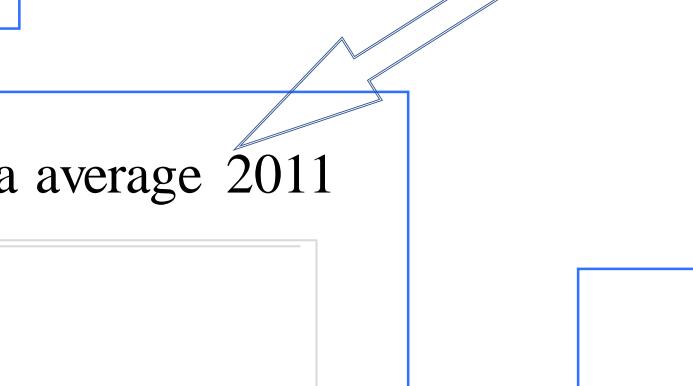
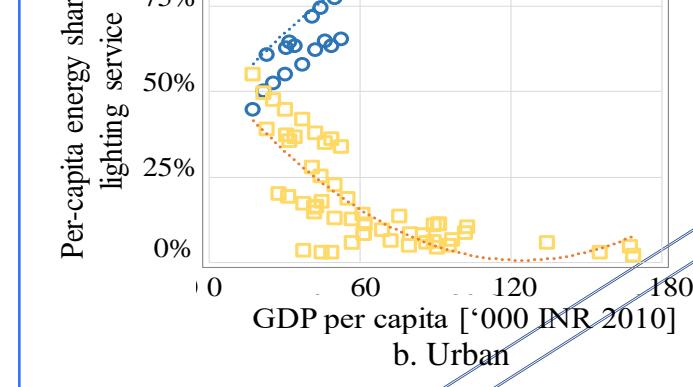
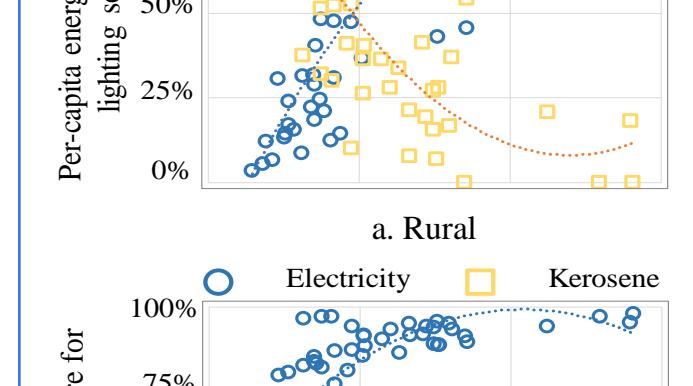
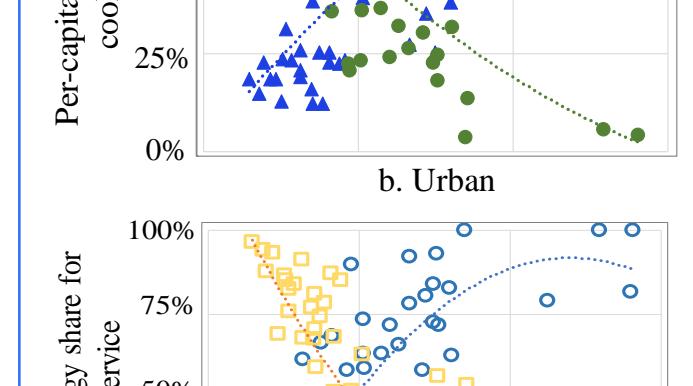
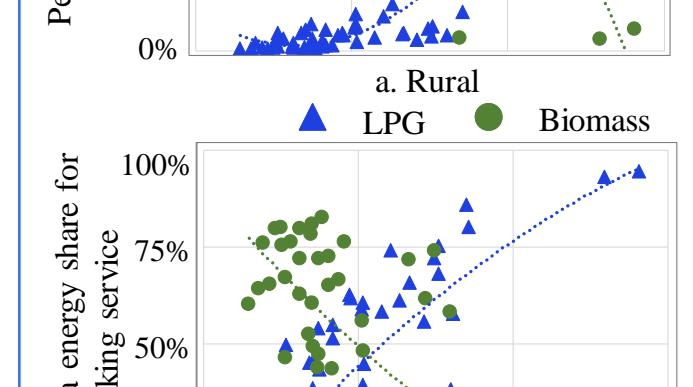
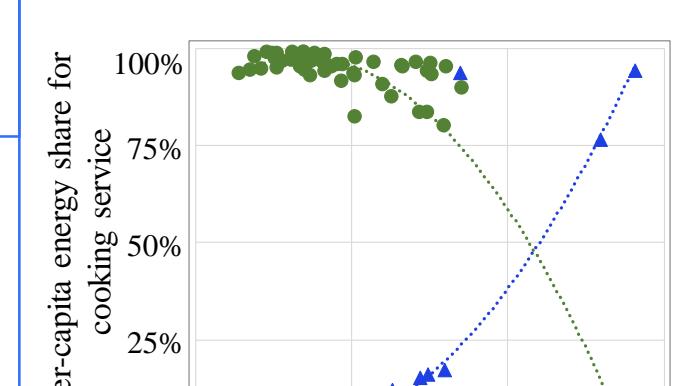
Energy type	Service type						Total
	CK	HW	HT	LT	CL	OA	
BMS							DA
DNC	Z						DA
COL							DA
CHK							DA
OLK	Z						DA
OLL							DA
ELYR	Z						DA
Total	NO	NO	NO	NO	NO	NO	NO

Notation Key: Definition						
<b>Data available</b>						
Values are zero in India.						
DA : Data Available in rural & urban States of India						
NE : Values available in National Estimates only						
<b>Data not available</b>						
NO : NO data are available in India						
Z : assumed Zero for each state- rural and urban						
□ : Data to be estimate in state-wise rural and urban						

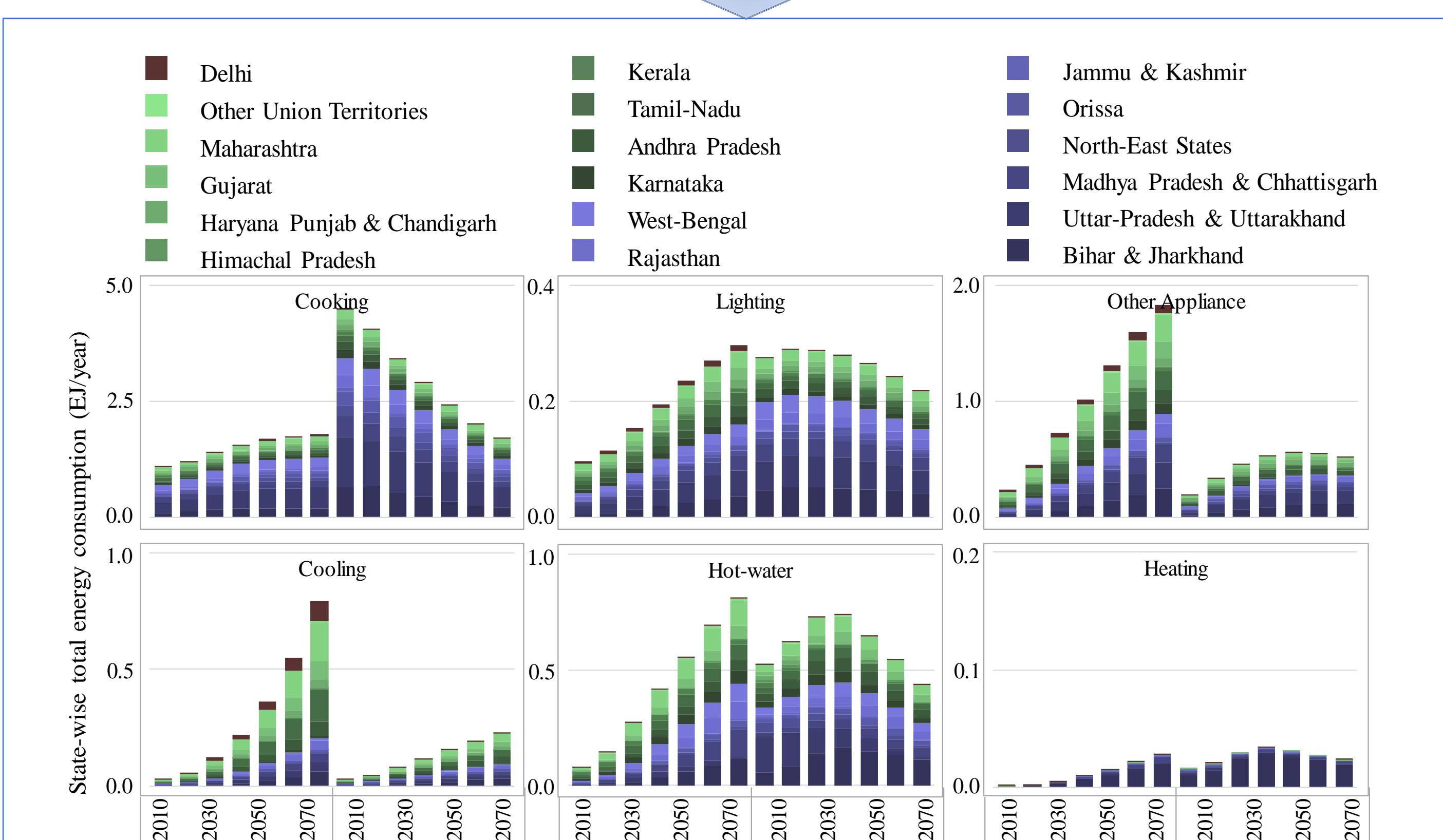
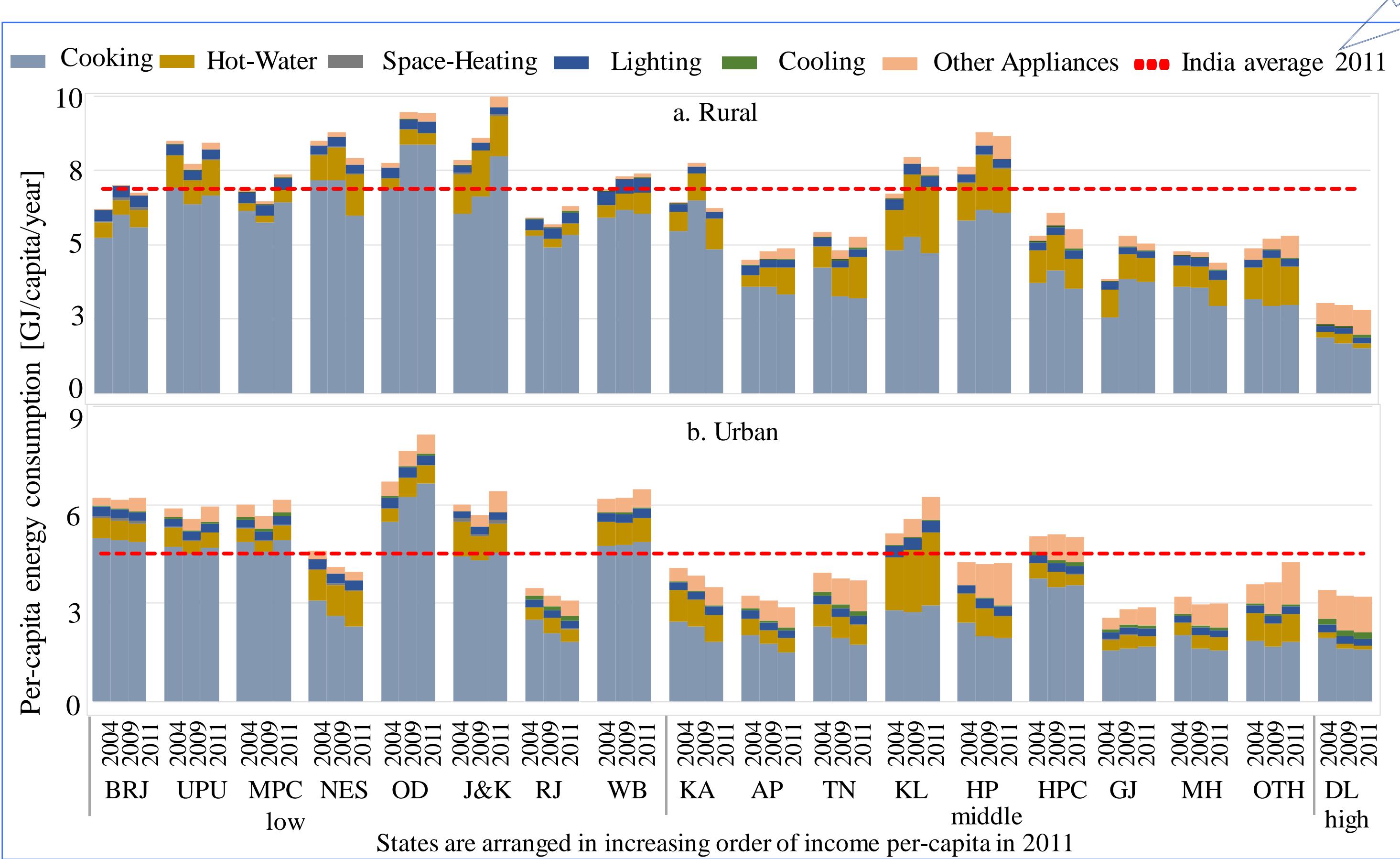
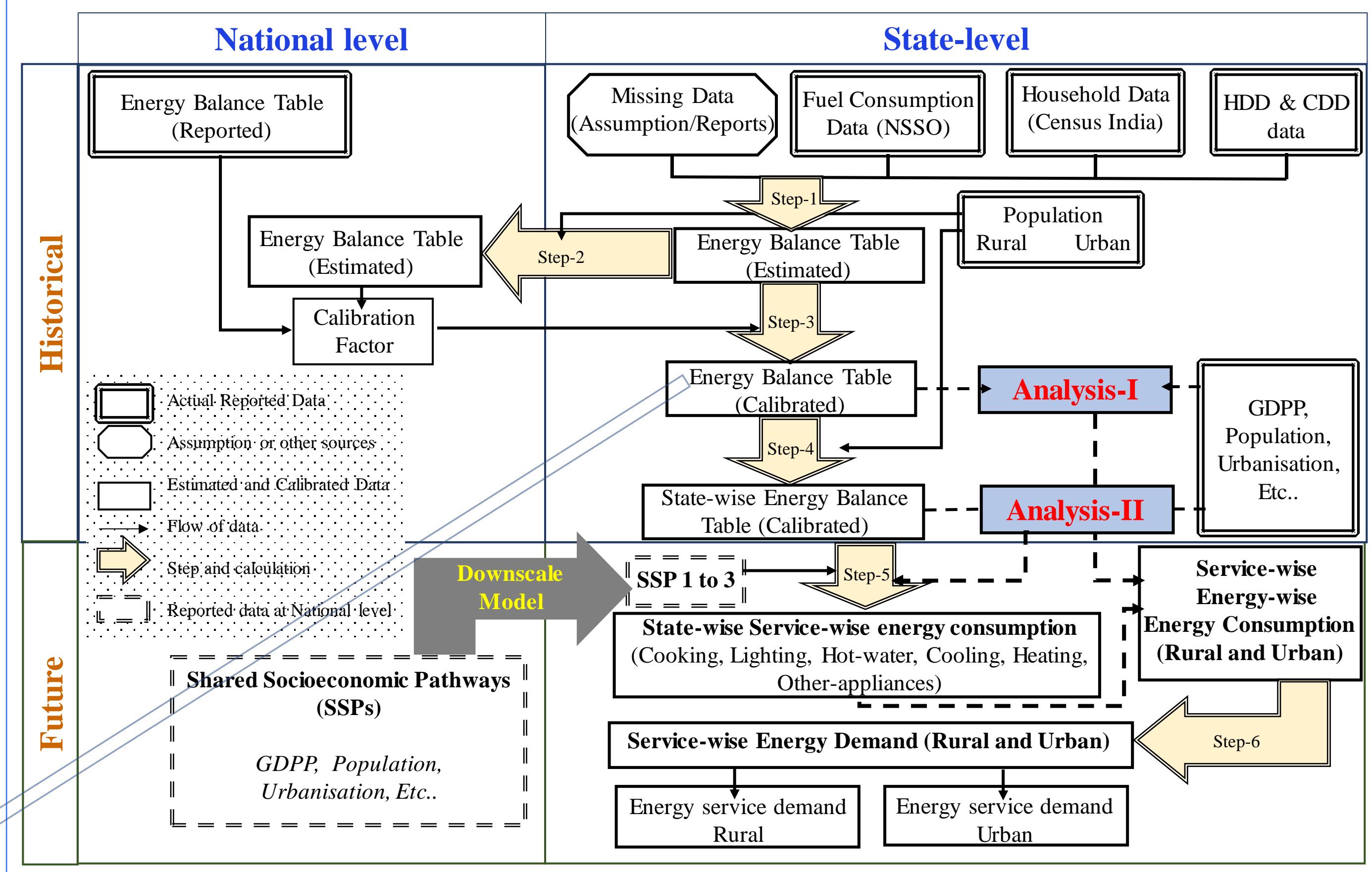
Energy type	Service type						Total
	CK	HW	HT	LT	CL	OA	
BMS	DA	NO					DA
DNC	DA	NO					DA
COL	DA	NO					DA
CHK	DA	NO					DA
OLK	DA	NO					DA
OLL	DA	NO					DA
ELYR	DA	NO					DA
Total	NE	NE	NE	NE	NE	NE	NE

Energy type	Service type						Total
	CK	HW	HT	LT	CL	OA	
BMS	DA	NO					DA
DNC	DA	NO					DA
COL	DA	NO					DA
CHK	DA	NO					DA
OLK	DA	NO					DA
OLL	DA	NO					DA
ELYR	DA	NO					DA
Total	NE	NE	NE	NE	NE	NE	NE

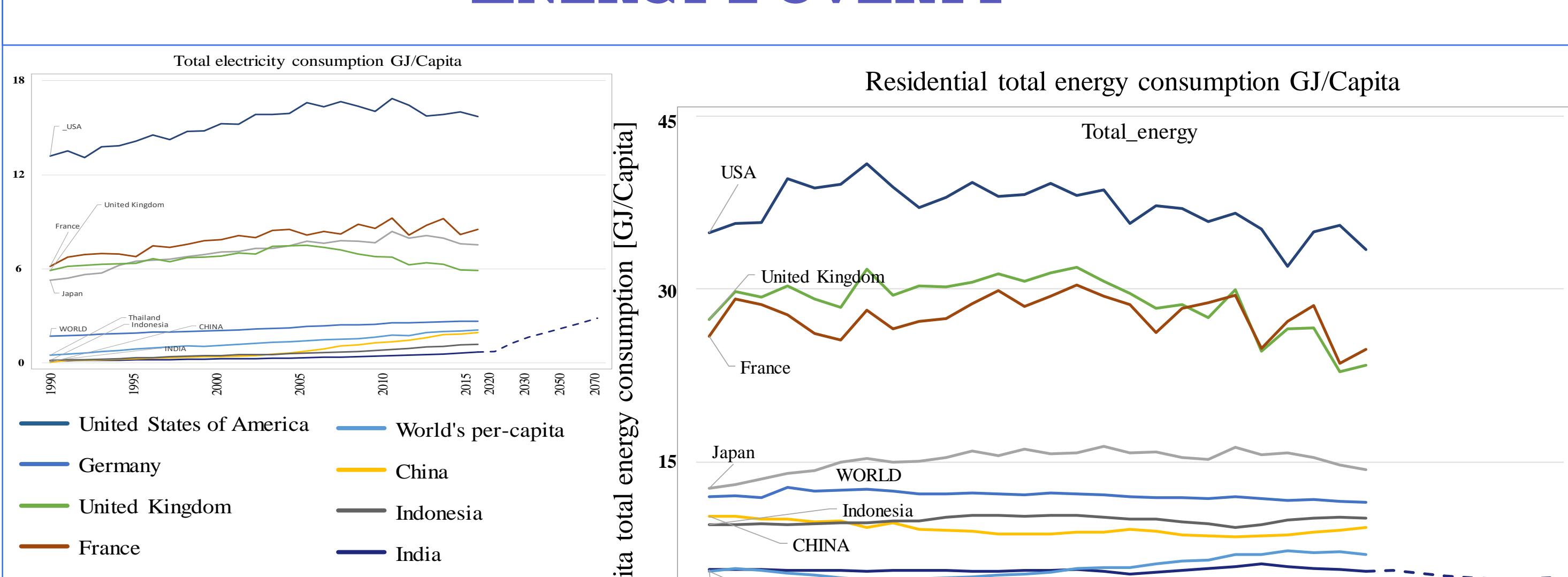
Energy type	Service type						Total
	CK	HW	HT	LT	CL	OA	
BMS	DA	NO					DA
DNC	DA	NO					DA
COL	DA	NO					DA
CHK	DA	NO					DA
OLK	DA	NO					DA
OLL	DA	NO					DA
ELYR	DA	NO					DA
Total	NE	NE	NE	NE	NE	NE	NE



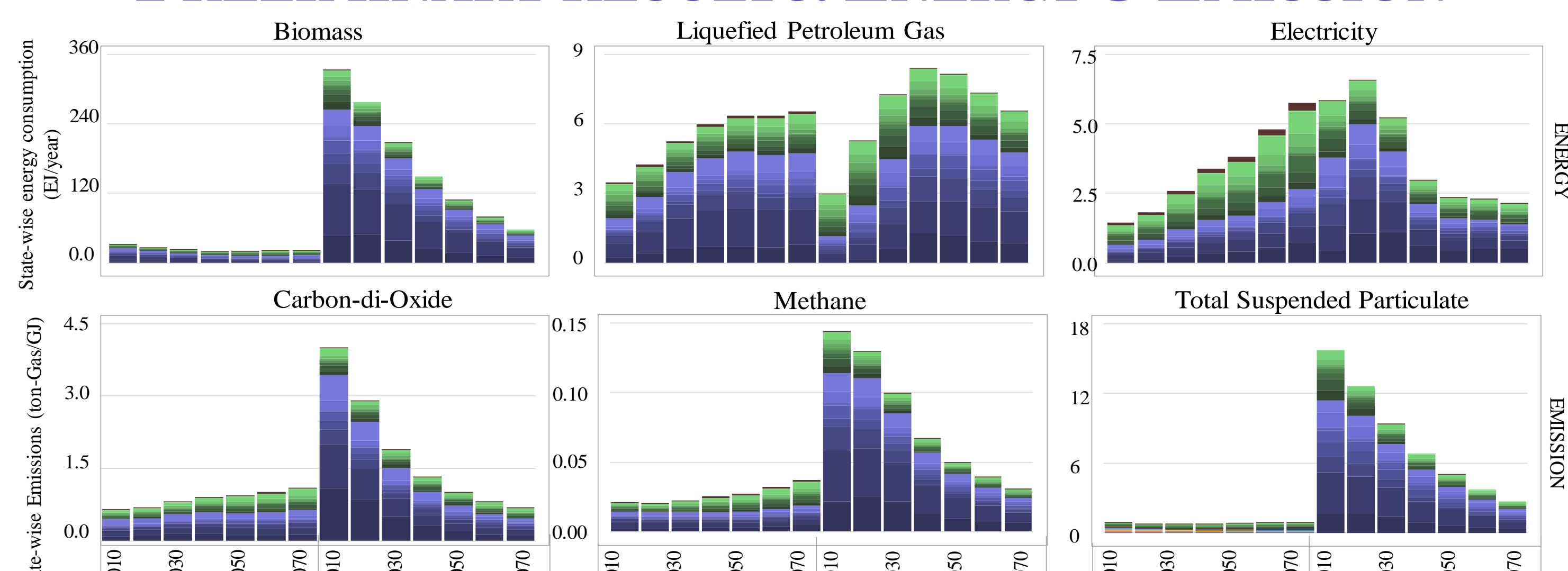
### METHODOLOGY



### ENERGY POVERTY



### PRELIMINARY RESULTS: ENERGY & EMISSION



### CONCLUSION

- Energy transition in Indian household can be clearly depicted with increase in consumption of advance energy in developed states. The energy transition in urban area is fast than rural.
- Although the energy related emissions are decreasing in rural household, but to meet with 2 target, strong policy to promote advance and renewable energy sources is compulsory.
- Though total per-capita energy consumption decreases, but per-capita electricity consumption would reach to the current level of world's per-capita electricity consumption in 2065.