INTRODUCTORY REMARKS: 2050 PATHWAYS

Shweta Srinivasan and Amit Kanudia

2050 Pathways Platform Annual Meeting 2018
24/04/2018
• Context for Climate Policy in India
• India’s Development Context
• Study: Energy Pathways for Desired Quality of Life in India
• Points for Discussion
Context for Climate Policy in India

Paris Agreement

- Limit global temperature increase to 1.5 – 2 °C over pre-industrial levels
- Capacity building & financial flows
- Common But Differentiated Responsibility (CBDR)
- Developing Country Context in Article 4, 9, 10, 13 & 19

India NDC (2030)

- 40% fossil-free installed capacity
- Reduce emission intensity of GDP by 33%–35% from 2005 levels
- Additional carbon sinks of 2.5 to 3 billion tonnes of CO₂e

CSTEP’s Work

- Expert Committee on Low Carbon Inclusive Growth Strategies (2012)
- Transition Towards a Green Economy in Karnataka (2014)
- Sustainable Development Framework for India’s Climate Policy (2015)
- GHG Platform: Time-series national and state level inventories (2015–till date)
India’s Development Context

• Examples of development challenges-
  • 300 million people lack electricity;
  • 500 million rely on biomass for cooking
  • 63 million houses needed
  • Largest working population by 2050
India’s Development Context

Emission Intensity

kg CO2/USD (2010)


- China
- India
- United States
Can India adopt a growth pathway by minimising environmental penalty?
What are the materials, energy & emission implications for India to achieve the desired standard of living for all?

Are there choices that put us on lower emission pathways? Are there some that are compatible with a Global 1.5°C to 2°C pathway?
Current Study’s Conceptual Framework

- Quantify Goals / Aspirations
  - Desired Living Standards
  - GDP Growth Projections
  - Sensitivity analysis to evaluate economic aspirations

- Estimate Energy Demand
  - Major Material Needs
  - Electrical & Thermal Energy
  - Energy Efficiency Interventions
  - Role of Breakthrough Technology and Policy Options

- Assess Supply Options
  - Aggregate Energy
  - Spatial & seasonal/hourly profiles
  - Clean Energy Options

SDG is the lowest threshold
Approach for Pathways Analysis – Demand estimation

Development Goals
New and existing infrastructure needs

Housing
Food
Healthcare
Education
Sanitation
Transport
Water
Power

OPTIONS

Sectors
Industry
Commercial
Agriculture
Residential
Transport

Demands
• Energy Services
• Materials
Approach for Pathways Analysis - modeling to explore different system configurations that meet demands

- Policy Objectives or Policy Measures
- Resource Availability and Constraints
- Demand for Energy Services and Materials
- TIMES Model
- Supply and end-use Technologies
- Fuel Mix Emissions
Visualisation of Analysis

**Goal Definition**

**Goal Wise Needs**

**Sector Wise Needs**

**Supply Options**

**Insights**

**Decision Analysis for Research and Planning**
Unique Aspects of the Study

• Addressing “inclusive growth” explicitly
  – Quantifying developmental aspirations & ‘Desired Living Standards’
  – Bottom–up assessment of material and energy needs, considering various interlinkages and options.

• Dissemination and stakeholder engagement is an integral part of the design
  – Scenarios explored using an interactive computational, visualisation platform – DARPAN

• Modular framework
  – Our vision is for it to be readily applicable to state and district levels. Goals and options will be different by region.
1. Current processes to account for existing & projected socio-economic priorities

2. Mobilisation of the administration, civil society and private sector in LTS discussions

3. Trade-offs to be addressed
THANK YOU