India’s cooking energy transition: What will it take?

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CSE Webinar: Challenges to adoption of eCooking in rural & urban India
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Impacting sustainable development at scale with **data, integrated analysis, and strategic outreach**

<table>
<thead>
<tr>
<th><strong>TRANSFORMATIONS</strong></th>
<th><strong>QUALITY OF LIFE</strong></th>
<th><strong>ENABLERS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-carbon Economy</td>
<td>Clean Air</td>
<td>Sustainable Finance</td>
</tr>
<tr>
<td>Energy Transitions</td>
<td>Sustainable Water</td>
<td>Technology Futures</td>
</tr>
<tr>
<td>Power Markets</td>
<td>Sustainable Food Systems</td>
<td>Circular Economy</td>
</tr>
<tr>
<td>Industrial Sustainability</td>
<td>Sustainable Cooling</td>
<td>Climate Resilience</td>
</tr>
<tr>
<td>Sustainable Livelihoods</td>
<td>Sustainable Mobility</td>
<td>International Cooperation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>SPECIAL INITIATIVES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CEEW Centre for Energy Finance</td>
</tr>
<tr>
<td>Powering Livelihoods</td>
</tr>
<tr>
<td>Emerging Economies</td>
</tr>
<tr>
<td>UP State Office</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th><strong>200+</strong></th>
<th>Multidisciplinary team</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>320+</strong></td>
<td>Peer-reviewed publications</td>
</tr>
<tr>
<td><strong>160+</strong></td>
<td>Instances of increased data transparency</td>
</tr>
<tr>
<td><strong>460+</strong></td>
<td>Roundtables &amp; conferences</td>
</tr>
<tr>
<td><strong>22</strong></td>
<td>Indian states engaged</td>
</tr>
<tr>
<td><strong>110+</strong></td>
<td>Bilateral &amp; multilateral initiatives promoted</td>
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</tbody>
</table>
Independently tracking evolution of clean cooking landscape to inform policies
India Residential Energy Survey (IRES) 2020
Most comprehensive database on energy access and use in India

Covered 152 districts from 21 most populous states of India

14,850

Multi-stage stratified sampling

21 STATES covering 97% population
152 DISTRICTS
1210 VILLAGES & 614 URBANwards
14,850 HOUSEHOLDs
Cluster sampling
Cluster sampling
8 from each village/ward
Use of LPG as primary cooking fuel more than doubled in the last decade

Source: CEEW (2021) State of Clean Cooking Energy Access in India
Near universal access to LPG connection, but 41% of Indian HHs primarily rely on solid fuels

- 10% of urban and 57% of rural Indian HHs primarily rely on solid fuels (NFHS-5, 2019-21).

Image source: Sunil Mani, CEEW
Eastern states have the highest level of solid fuel use and stacking

- Odisha, Jharkhand & Bihar: >50% HHs use solid fuels as primary cooking fuel

Source: CEEW (2021) State of Clean Cooking Energy Access in India
High cost of using LPG is the major reason behind fuel stacking

- Taste preferences and timely availability of refills are also important factors

Source: CEEW (2021) State of Clean Cooking Energy Access in India
Price of LPG refills for domestic consumers has almost tripled over past eight years

![Graph showing LPG refill price trends]

Note: Since this graph is borrowed from CEEW’s Clean Cooking Energy Access report (2021), it only shows prices b/w 2015-2021. However, the prices continued to increase even after 2021 and in 2023, it is ~INR 1,100 per 14.2 kg refill, as compared to ~INR 400 in 2015.

Need to move beyond LPG:

- **LPG is import dependent**
  Little control over its price; Significant amount of forex reserves spent; Does not align with *Atmanirbhar Bharat* vision

- **LPG is a fossil fuel**

Source: CEEW (2021) State of Clean Cooking Energy Access in India
Electric cooking is cost-effective but its use is largely concentrated among wealthier households in India

- At current LPG price (INR 1,100 for 14.2 kg LPG refills), eCooking will be cheaper than LPG for HHs paying < INR 9/unit
- Upfront investment of purchasing eCooking devices + utensils (~INR 4000) – a significant barrier for many poorer HHs
- 85% of all the eCooking users belong to the top-5 wealth deciles (mostly living in urban India).
- Lower power tariffs also play a critical role in determining the transition to eCooking (Delhi & Tamil Nadu)

Source: CEEW (2021) Are India homes ready for eCooking?
Transitioning to Clean Cooking Fuels in India: What will it take?

• **Approaching eCooking in a phased manner: Start with urban India first and then move to rural India later**
  - New solutions may continue to emerge - GoI has incurred significant costs on expanding LPG access in rural India under PMUY

• **Govt. should encourage and incentivise higher income urban households to transition to eCooking in the short run**
  - eCooking is cheaper, its expansion won’t need subsidies - Increased eCooking adoption will reduce resources going into domestic LPG
  - Urban India has more reliable power supply (lesser power cuts & lower frequency of voltage fluctuations) – big barrier in rural India
  - Simultaneous transition towards smart metering in urban India will help in planning the grid infrastructure upgrade

• **Promote LPG consumption in rural India in the short run by reinstating higher subsidies and making it affordable**
  - Freed up resources from urban India (that go into keeping LPG refills cheaper) can be used to provide higher subsidies for rural HHs
  - At net LPG refill cost of INR 450/14.2 kg cylinder, most Indian HHs can use LPG exclusively without significant additional burden

• **Promoting the transition to eCooking in urban India in short run will make it a more sustainable solution in long run**
  - Adoption of eCooking devices in urban India will help in achieving economies of scale and eventually making it affordable
  - Mass consumer feedback will give time to design more adaptable solution for rural India and piloting them in different geographies
  - Transition from one clean cooking solution (LPG) to another clean cooking solution (eCooking) will be relatively easier for rural HHs
  - Will give enough time to expand the grid infrastructure and making it reliable, cleaner and greener
Thank you

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