

Reducing Energy Use in Buildings through Energy Efficient Appliances

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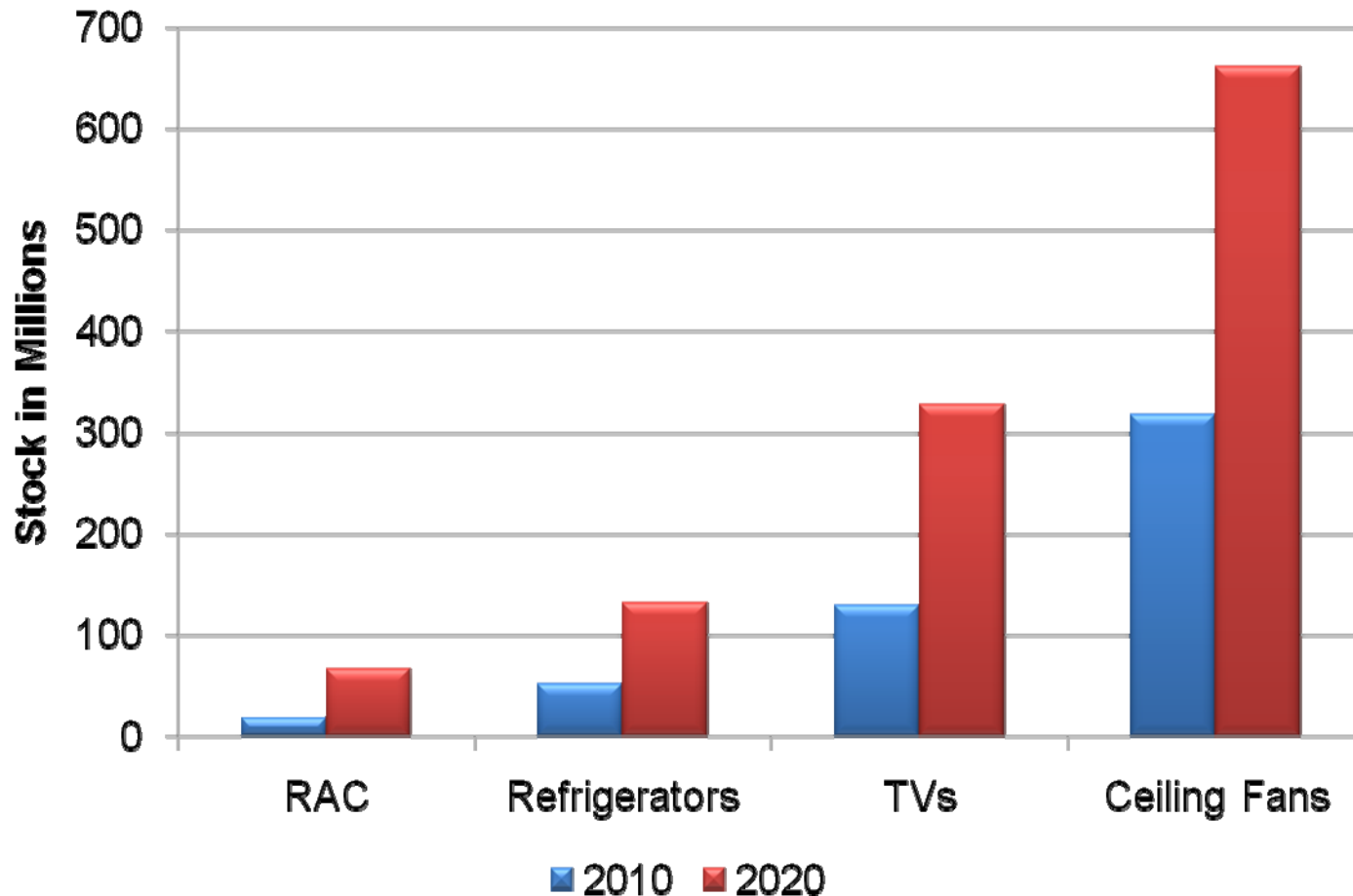
National Transport Development Policy Committee (NTDPC)

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Overview

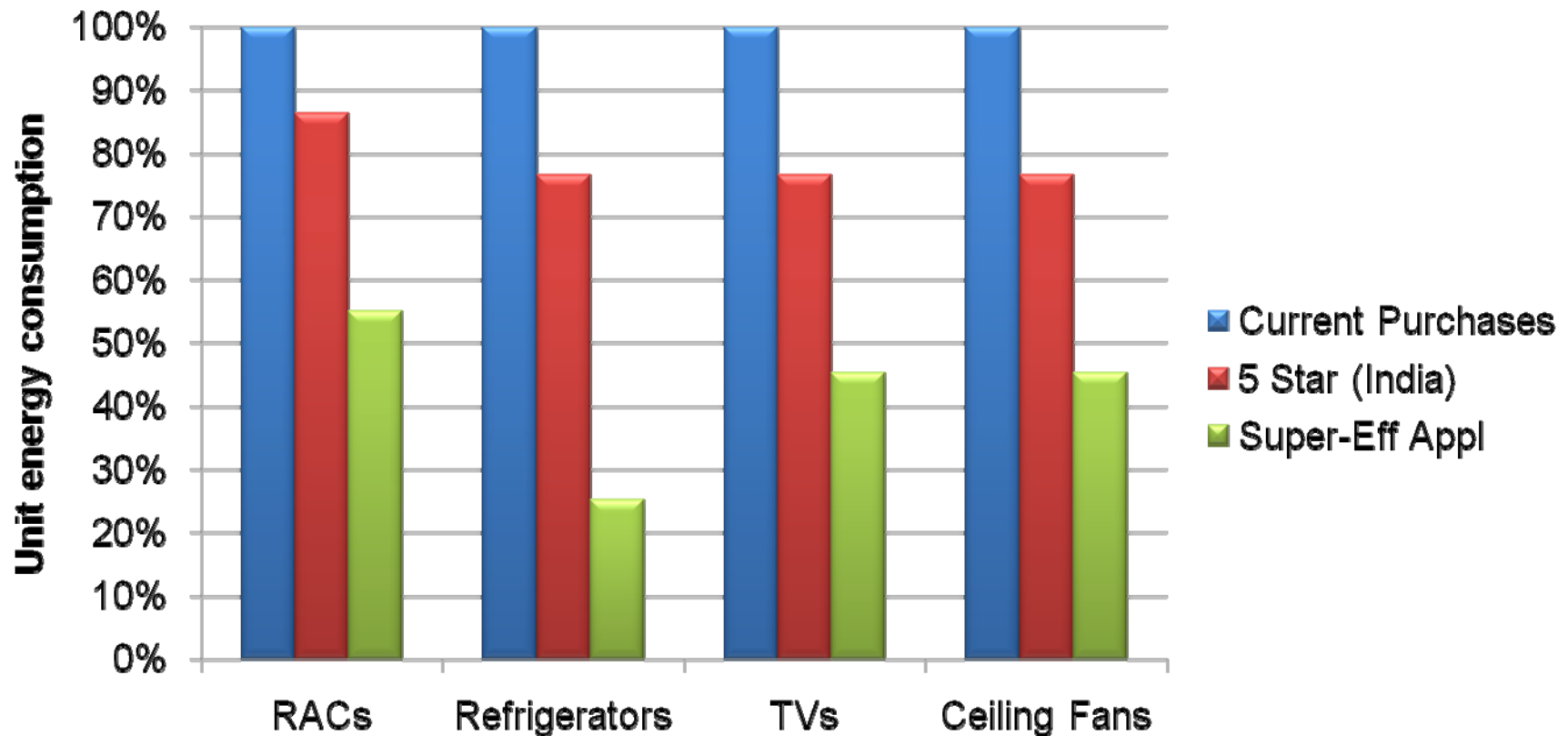
- Importance of energy efficiency (EE) of appliances
- Current efforts to improve EE of appliances
 - BEE's labeling program
 - Customer rebate programs
- Super-efficient equipment program (SEEP)

Ownership of Appliances in India Growing Rapidly



By 2020, more than 70% of the stock of appliances will have been added just after 2010. Urgent need to improve efficiency to avoid being stuck with inefficient stock

Comparison of Consumption of Current Purchases and Highest Rated in India with Best World-Wide



Large gap between average current purchase and highest rated model (5-Star), and even larger gap between highest rated and best commercially available world-wide.

Current Efforts to Improve Appliance Efficiency

- Standards and Labels (S&L) program by Bureau of Energy Efficiency (BEE) based on star rating system (1-5 Stars)
- Utility DSM programs with customer rebates for 5-Star appliances.

BEE Labeling Program

- To provide information about energy consumption to facilitate intelligent purchase decisions
- 1 to 5 Stars with 5 Star most efficient
- Market based approach to labeling:
 - Labels voluntary until about 50% of market uses labels. Then mandatory.
 - With mandatory labels, One Star becomes minimum energy performance standard (MEPS).
- Currently labeling for four products is mandatory: frost free refrigerators, room ACs, tube lights and distribution transformers. Others to be added.

Tightening Thresholds

- Energy thresholds for labels are to be made more stringent every 2-3 years
- Delay in tightening of thresholds
- But recent tightening of thresholds for ACs and refrigerators.
 - 5 Star became 4 Star, 4 Star became 3 Star,.....
 - Process to be repeated after two years

Impacts

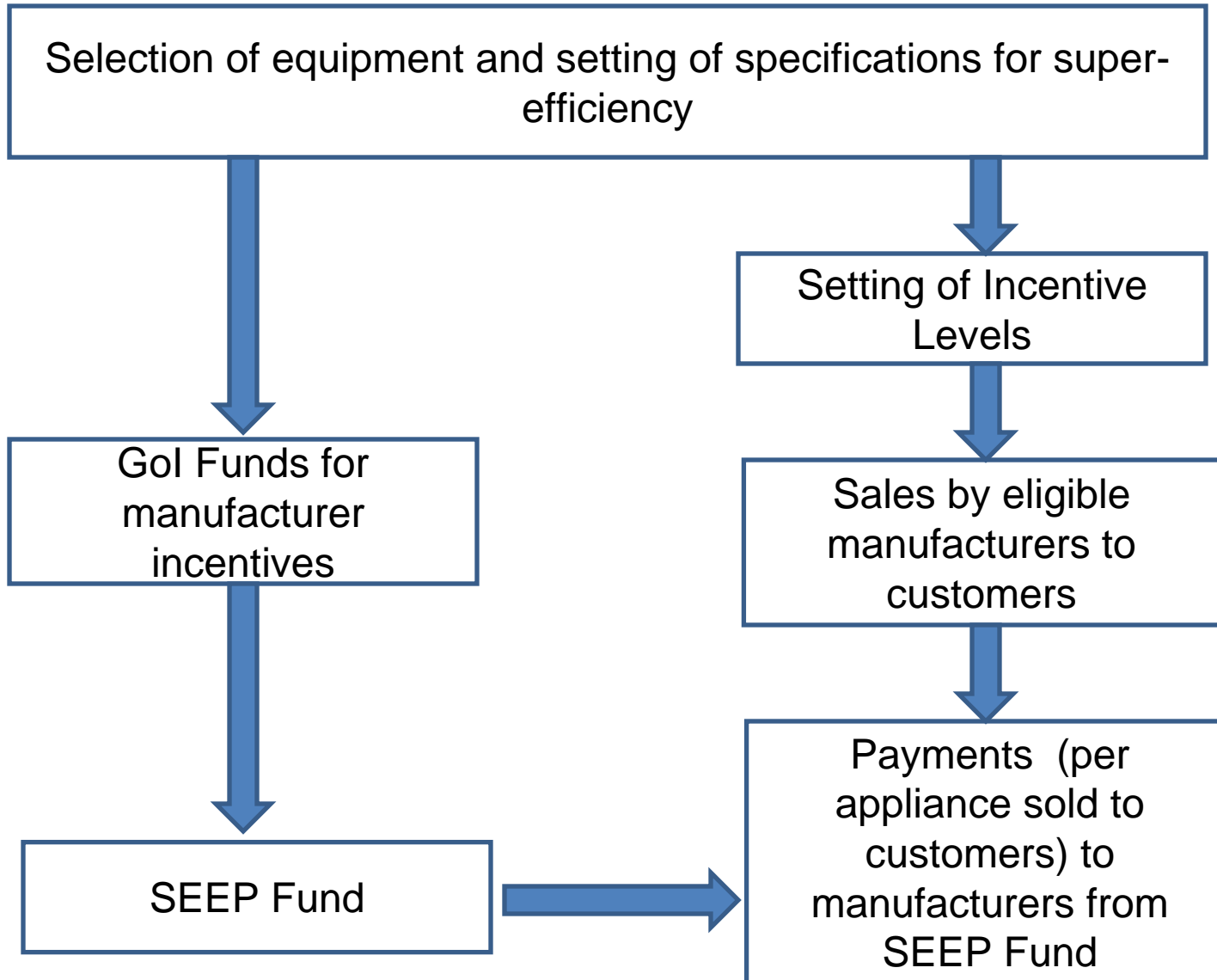
- For some appliances, encouraging shift to more efficient models.
 - In 2009-10 and 2010-11, 85-90% of labeled frost free refrigerators were 4 or 5 Star
- But for room ACs, only 15-20% are 4 or 5 Star, although increasing over time.
- For some appliances where labeling not mandatory, large fraction are unlabeled.
 - For ceiling fans, only about 2% of fans are labeled.

Efficiency of appliances is improving but slowly

Customer Rebate Programs

- Administered by the electricity distribution companies
- Customer rebates for 5-Star appliances.
 - Only in small number of states
 - Mostly pilot programs
 - Progress slow because of limitations of resources and experience

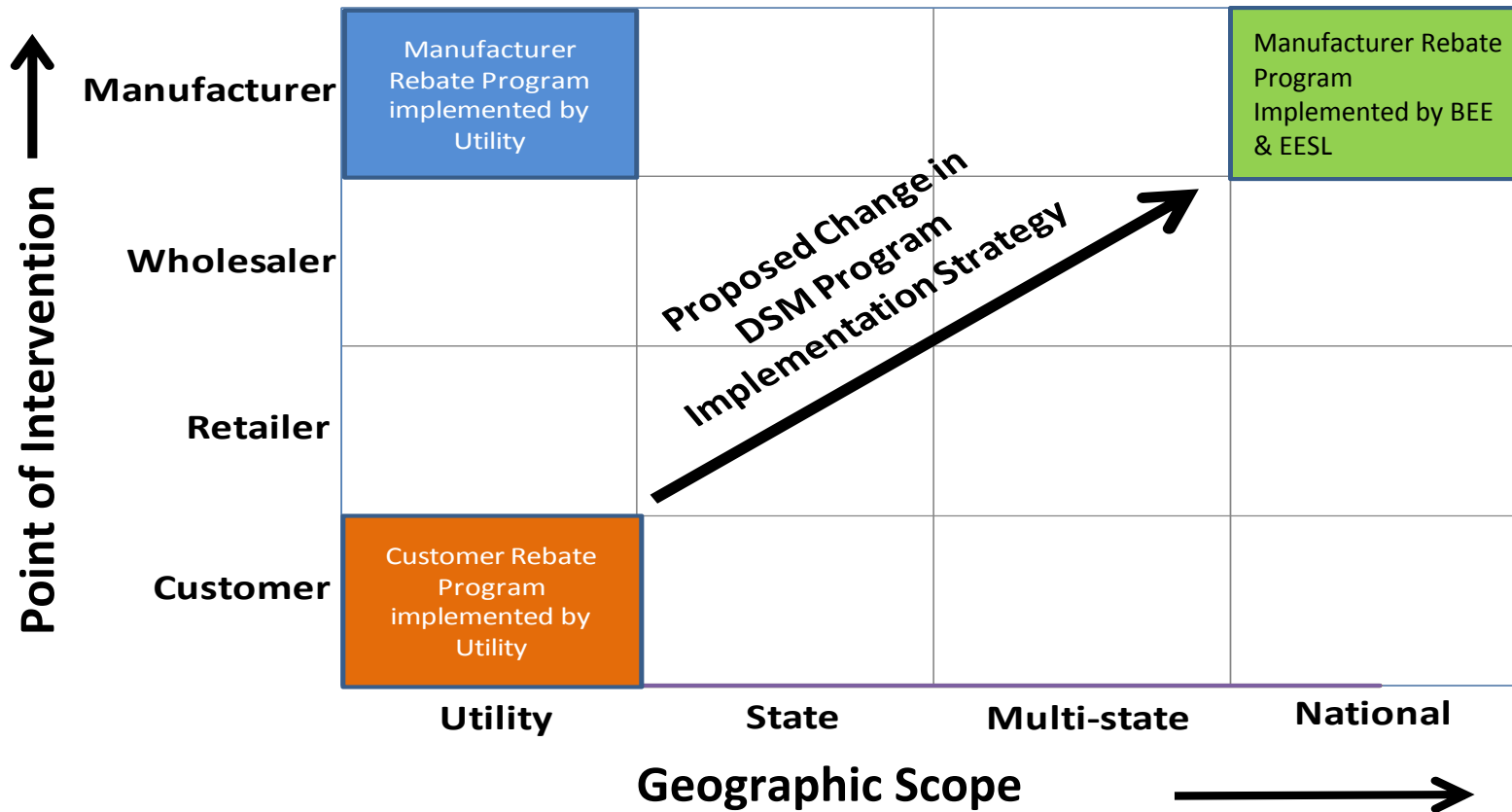
Basic Features of SEEP



Benefits of SEEP

- **Bypass problems with utility programs.** Reduce burden on state regulators and utilities.
- **Reduce subsidy requirement for super-efficient appliances (SEAs).** (1) Giving incentives upstream avoids wholesale and retail mark-ups and taxes; (2) Larger market size facilitates changes by manufacturers.
- **Reduce transaction costs** - interaction is with manufacturers versus millions of customers.
- **Monitoring and verification is made easier.** Focus is only on shipments/sales data instead of surveying millions of customers
- **Facilitate introduction of SEAs better suited to Indian conditions.** Consolidation of large national market makes the production of appropriately designed appliances economically feasible.
- **Facilitates rapid ratcheting-up of labeling thresholds**

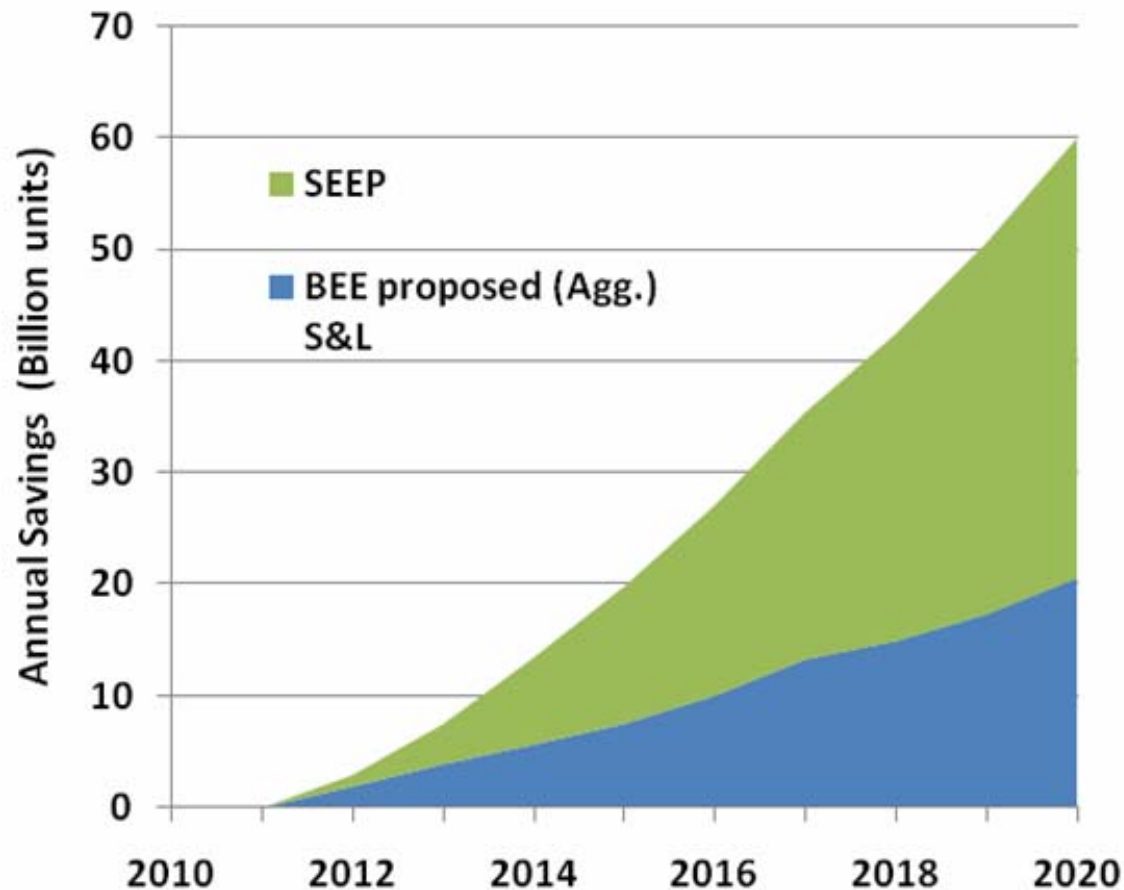
SEEP Compared with Utility-Administered Program



By expanding geographic scope of program and giving incentives upstream, SEEP will rapidly accelerate the shift to more efficient appliances.

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Potential Savings from SEEP Relative to Moderate S&L



If 60% of stock for only 4 appliances (RACs, Refrig, Fans, TVs) in 2020 is super-efficient, we can save **60 billion kWh** and avoid peak capacity of **20,000 MW** over a moderate S&L scenario.

Status of SEEP

- Gol has approved program
- BEE will shortly be rolling out program for ceiling fans
- Plan to extend to other appliances and equipment such as refrigerators and LED lights. Climate Finance may help extend it to ACs etc.

Related Prayas Papers

1. *Strategic Actions for Rapid Implementation of Energy Efficiency, June 2011*
2. *Potential Savings from Selected Super-Efficient Electric Appliances in India, June 2011*
3. *Using National Energy Efficiency Programs with Upstream Incentives to Accelerate Market Transformation for Super-Efficient Appliances in India, June 2011*

Available at www.prayaspune.org/peg/publications.



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attention!*