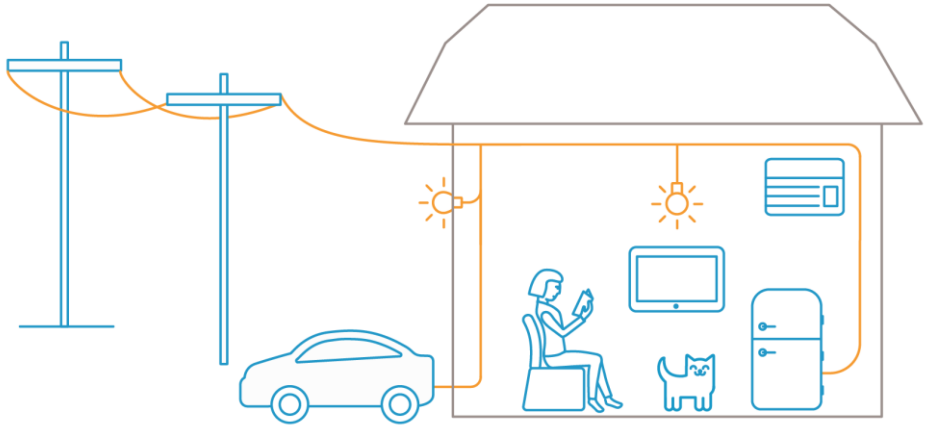
Challenges and Solutions for Promoting Cooling Efficiency in Brazil, India, and Thailand

Christine Egan, Chief Executive Officer
December 13, 2019



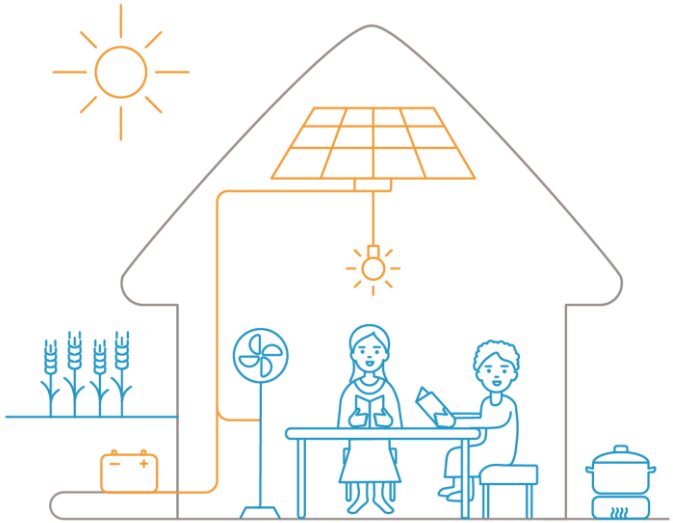
CLASP's Mission

On-grid



- Save Money
- Reduce Energy Demand
- Mitigate Climate Change

Off-grid & Weak-grid



- Reduce Energy Supply Cost
- Increase Energy Access
- Improve Quality of Life

Our Cooling Program

CLASP supports the development and implementation of standards and labeling policies for cooling products

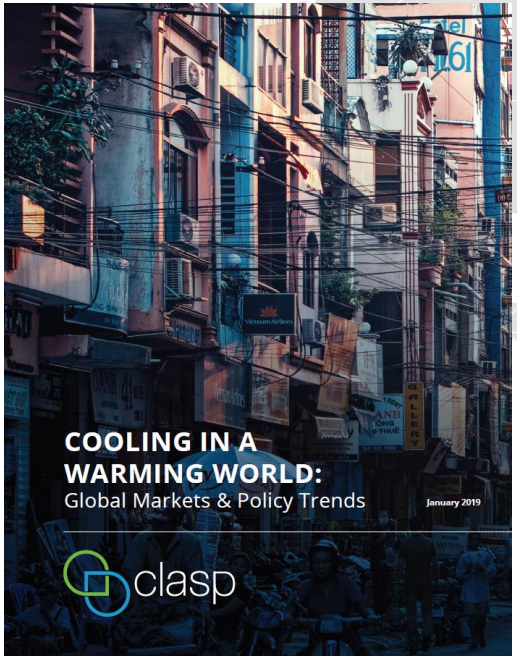
Policy Development

Label Design

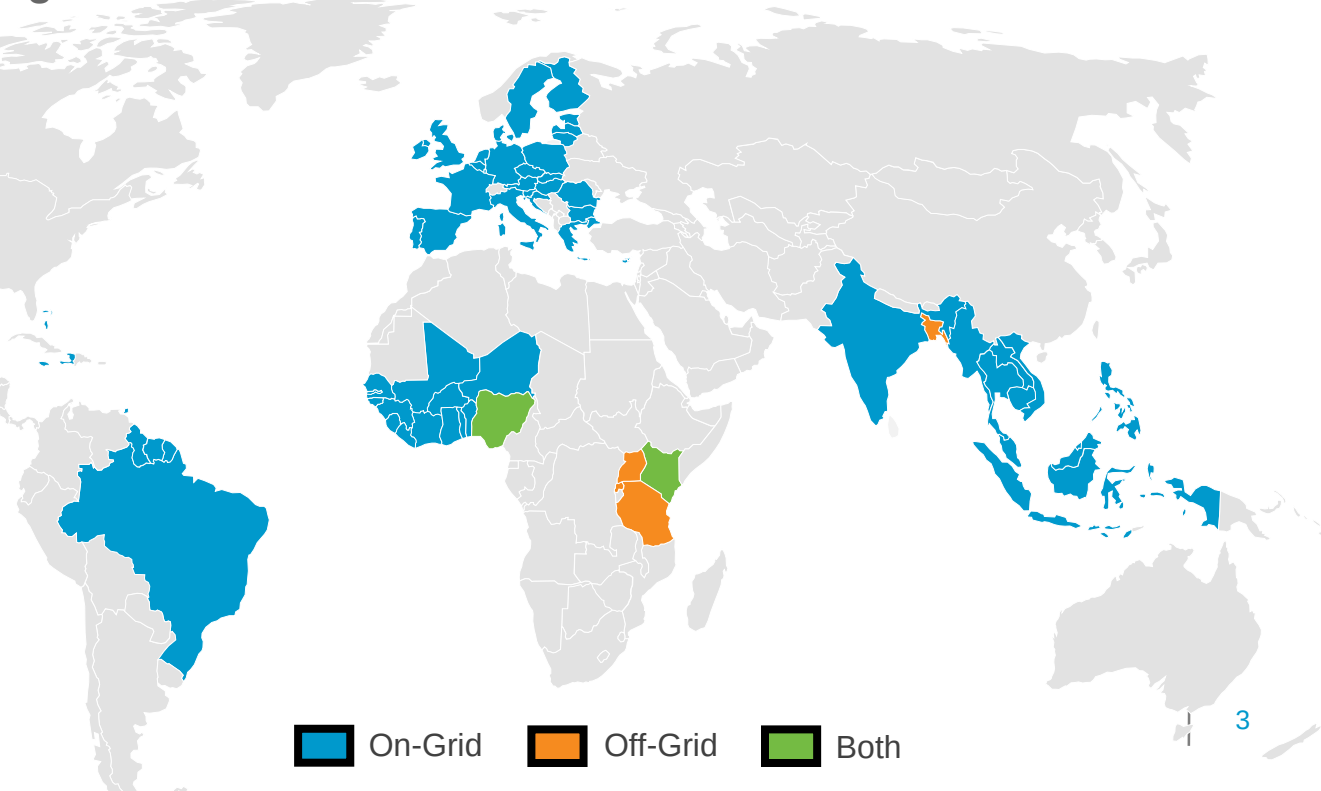
Market Transformation

Compliance Frameworks

Knowledge Sharing



Published: January 2019



Common Challenge for Improving Cooling Efficiency

Ensuring policy continues to move the market to higher efficiency without harming local industry or dramatically raising prices



Shared Solutions to this Common Challenge



- Giving manufacturers policy visibility ahead of implementation



- Ensuring that trade and industrial policy complement efficiency policy



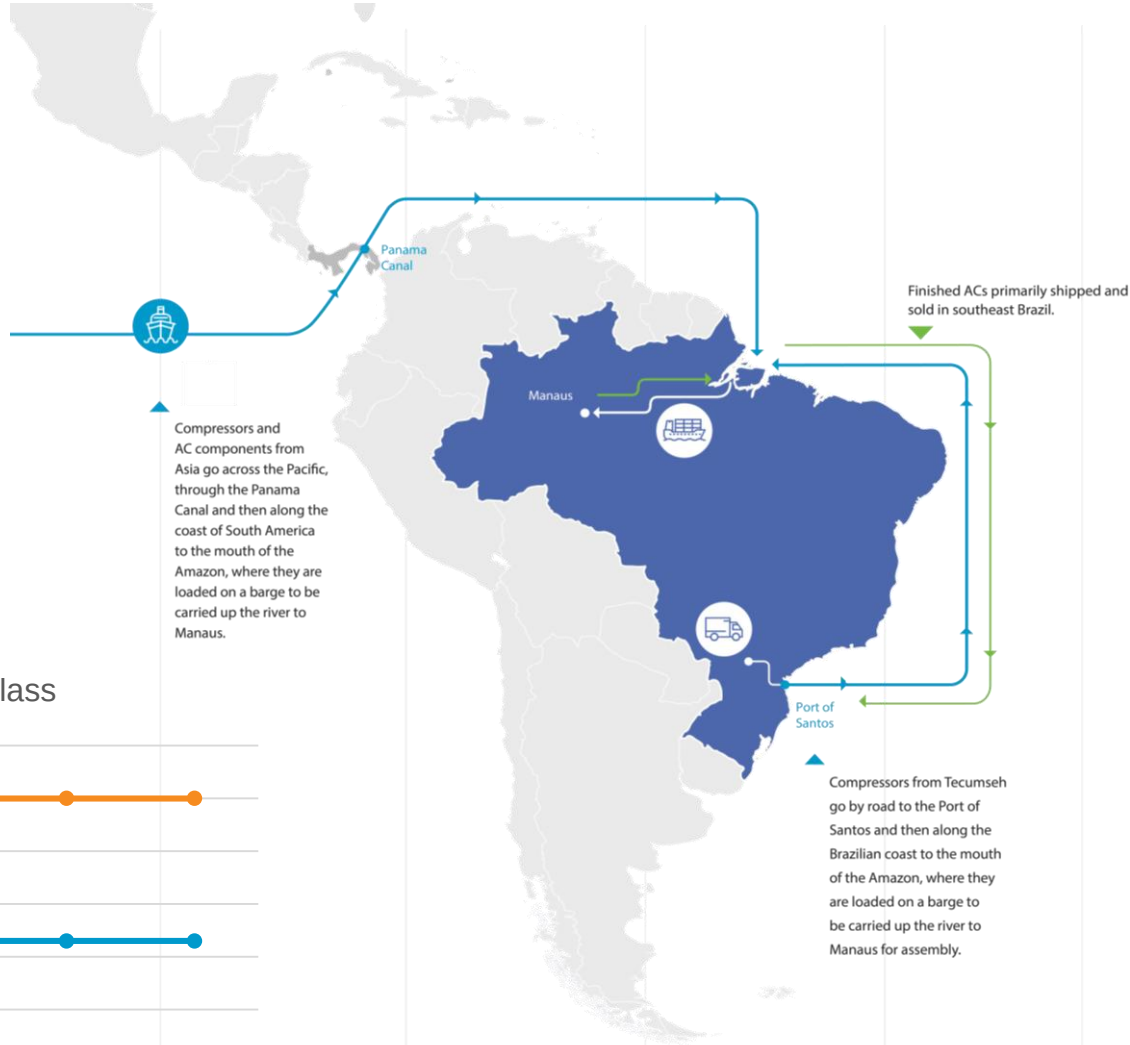
- Continuously revising MEPS levels and labeling requirements

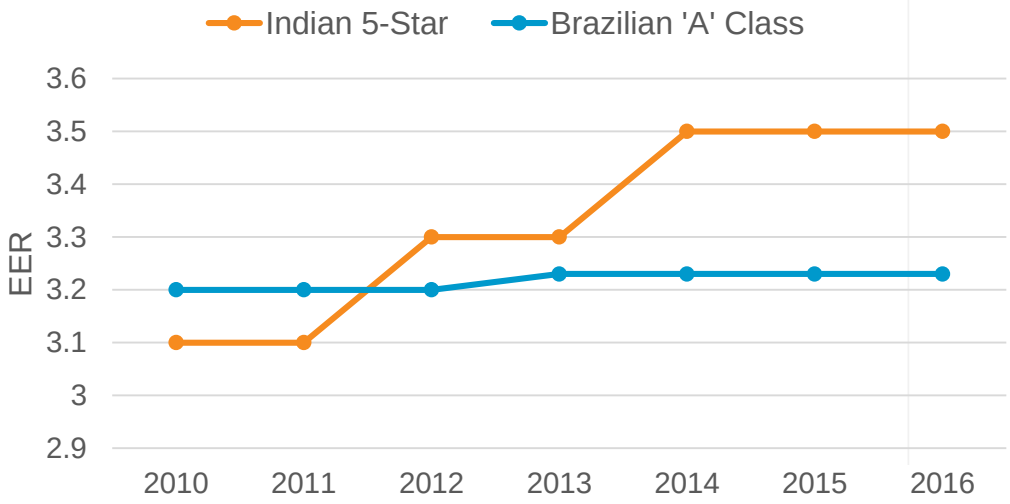


- Moving to technology-neutral policies & seasonal performance metrics

Brazil Challenges: Complex Trade Rules and Static Policy

- High AC unit cost due to
  - Trade policy
  - Logistical challenges
  - “Basic Production Process”
- Slow Improvement in Efficiency





Brazil: Emerging Solutions

- Making the “Basic Production Process” more flexible
- Phasing in a seasonal energy efficiency metric that captures inverter benefits
- Revising the labeling requirements
  - Using the new seasonal metric
  - Establishing criteria for revision
- Revising the MEPS



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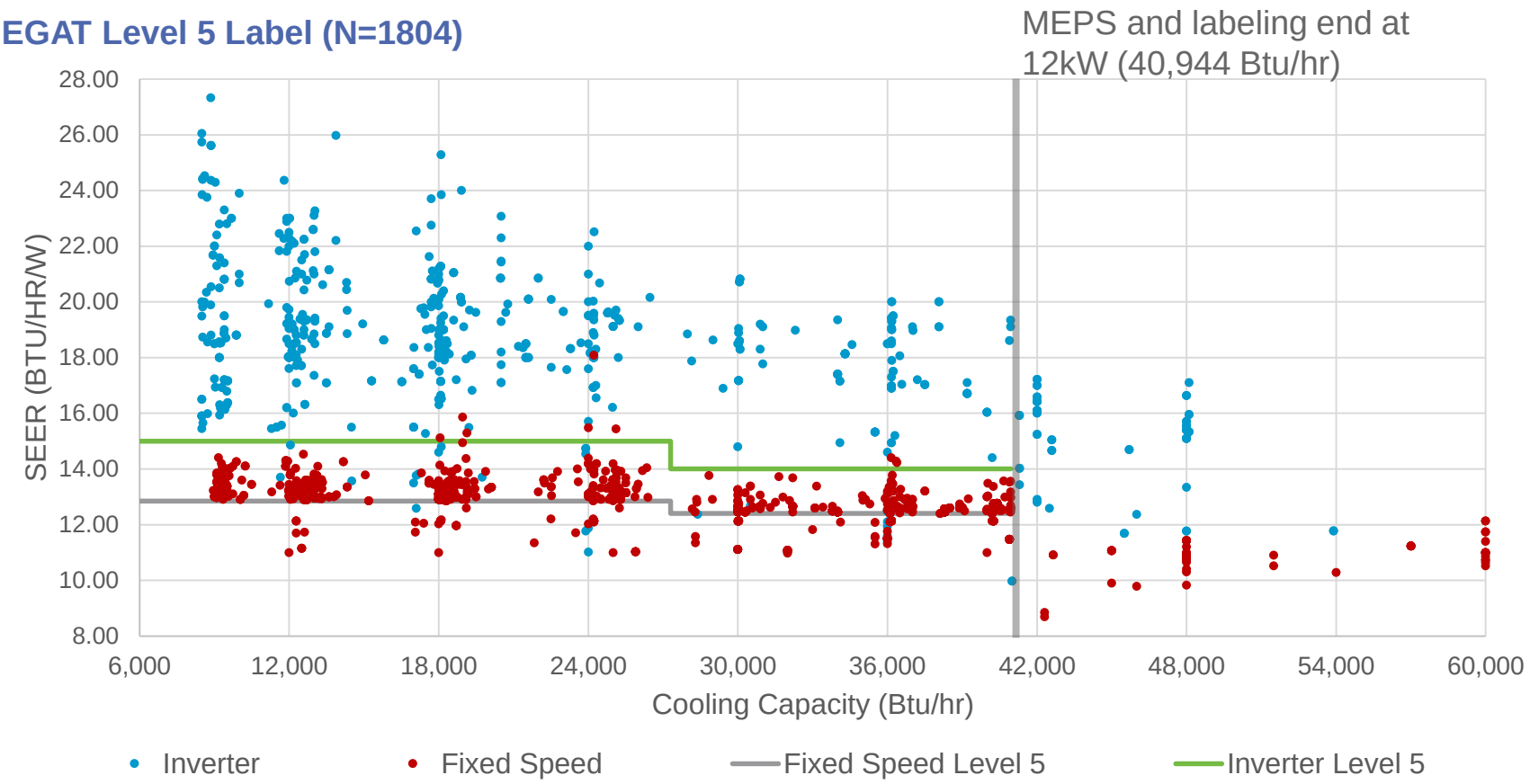
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ENERGIA ELÉTRICA

Thailand Challenges: Technology-Specific Policy and Manufacturing Difficulty

- Relatively low inverter market share (30%-40%), with policy not pushing shift to inverters
- Some Thai-owned manufacturers having difficulty making inverter units

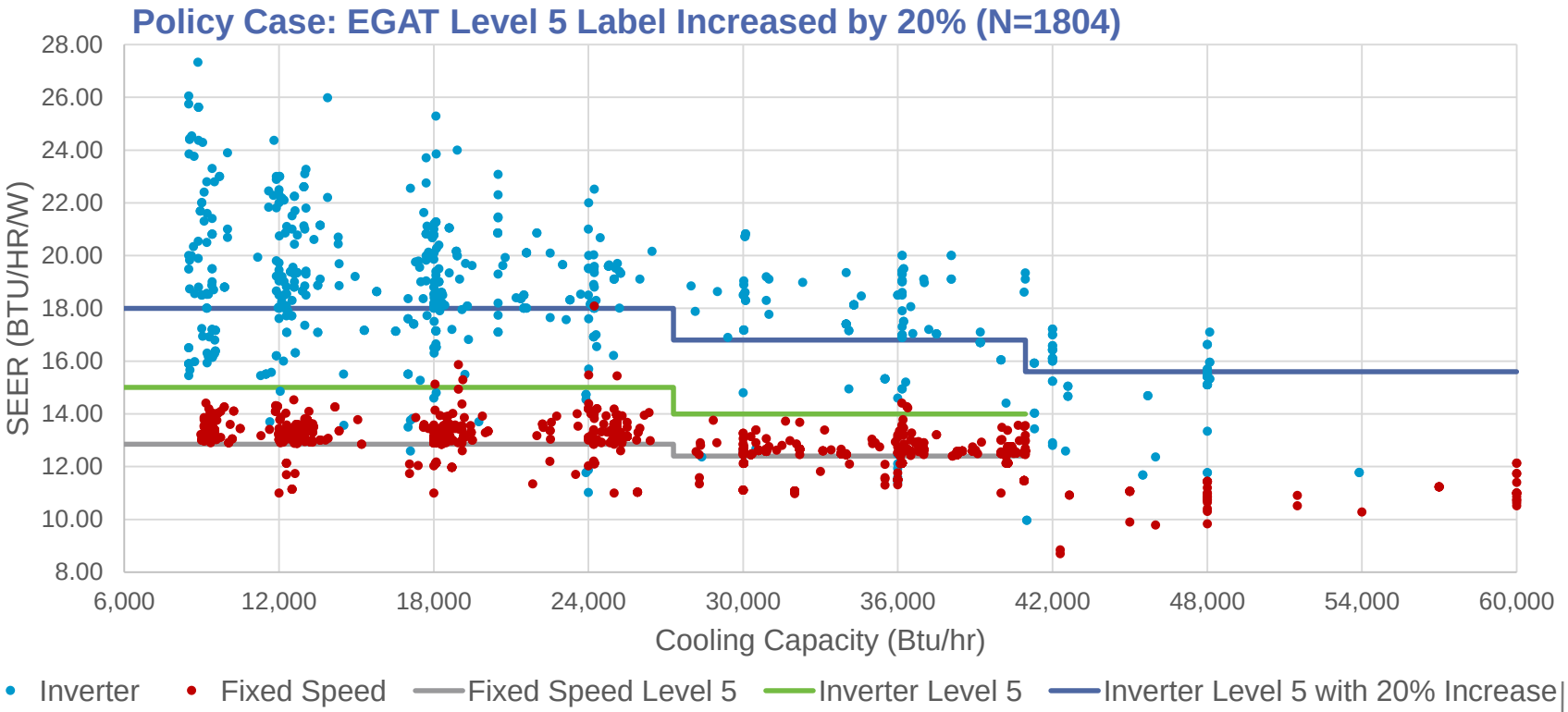
EGAT Level 5 Label (N=1804)



Source: CLASP Research

Thailand: Emerging Solutions

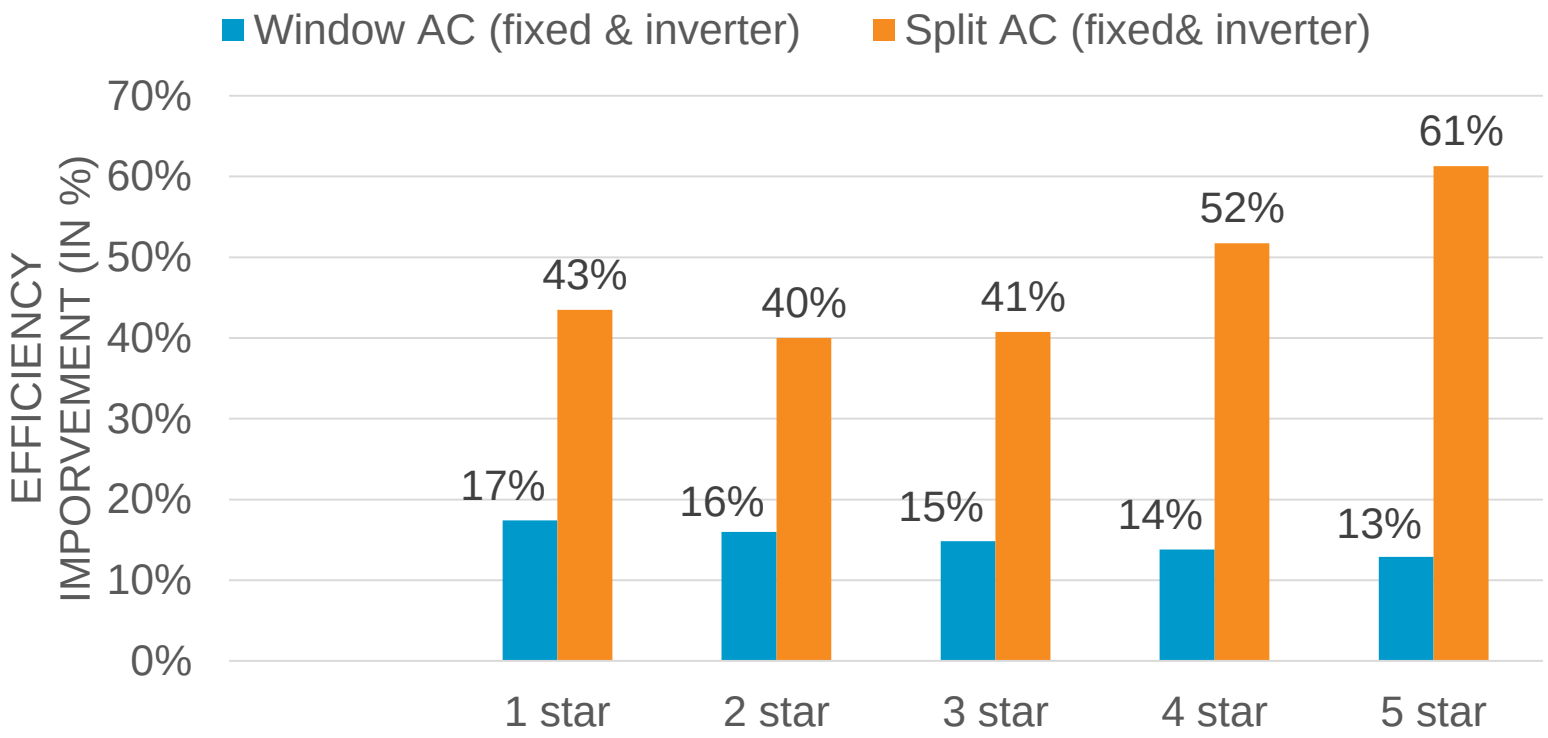
- The World Bank leading technology transfer program for local manufacturers
- Recommending revising MEPS and EGAT No. 5 label to have a single set of criteria for all ACs, based on SEER
- This would reduce emissions by 6 MT of CO_2 in 2030, with consumer paybacks under 3 years



Source: CLASP Research

India: RAC Market Transformation

- Rapidly growing market driving rapid growth in electricity demand
- Low inverter market share (<1%) in 2015, increased to >50% in 2019
- Since 2007, efficiency of Split AC of 1 Star has been improved by 43% and 5 Star by 61%



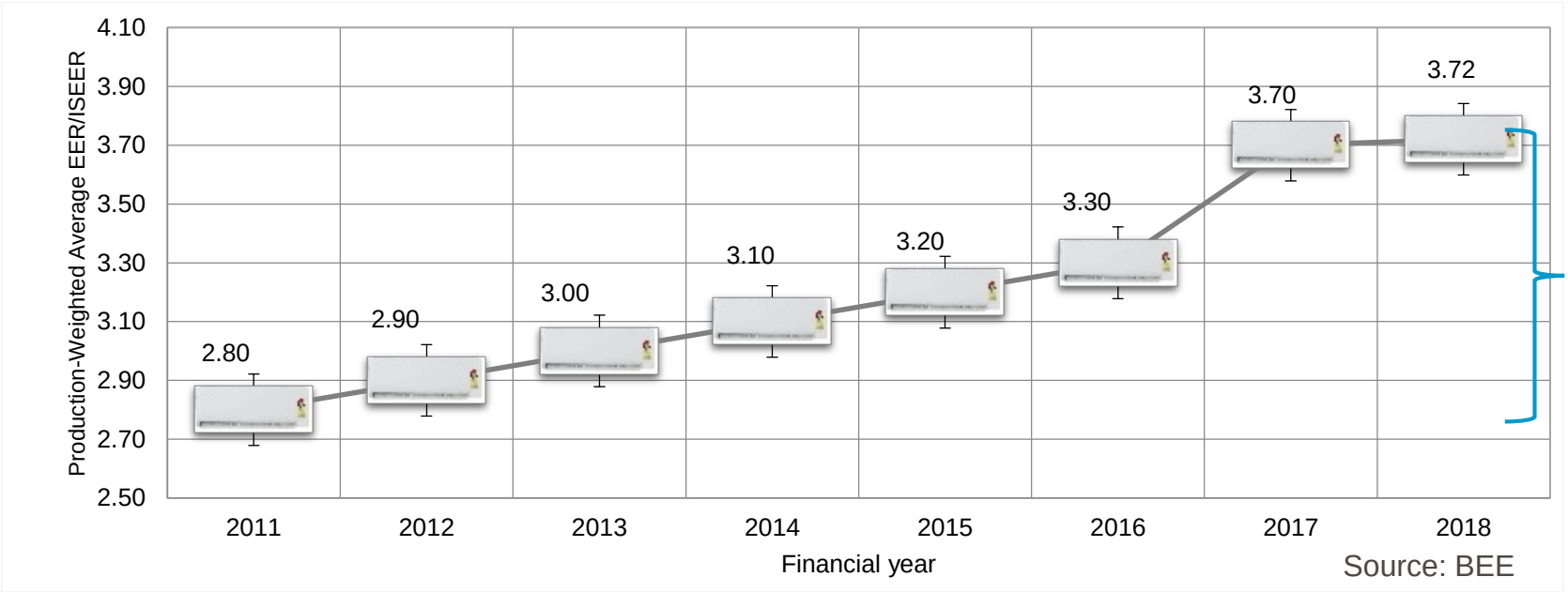
Source: BEE

India: The Power of a Policy Roadmap

Revision in Star Rating Plan for Split type RAC (fixed and inverter)

Star level (EER/ISEER)	Jan 2009-Dec 2011	Jan 2012-Dec 2013	Jan 2014-Dec 2017	Jan 2018-Dec 2020	Jan 2021-Dec 2023
1 star	2.3	2.5	2.7	3.1	3.3
2 star	2.5	2.7	2.9	3.3	3.5
3 star	2.7	2.9	3.1	3.5	3.8
4 star	2.9	3.1	3.3	4.0	4.4
5 star	3.1	3.3	3.5	4.5	5.0

Average Efficiency Improvement in the Indian Market



Source: BEE

Conclusions

- Continuous policy revisions stimulate continuous innovation in efficiency
- Signaling policy revisions with sufficient prior notice gives manufacturers time to innovate and adapt
- Technology-neutral policies promote the most efficient technologies
- An integrated approach to energy efficiency, trade, and industrial policy helps to improve efficiency without adverse economic consequences




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