



Background

- China has implemented mandatory MEPS program for major appliances since 1989.
- By 2021, a total of 75 MEPS has been issued and currently under implementation. However, 46 have not been revised.
- Policies to ensure proper execution, evaluation and updates of MEPS lack of clear, feasible guidance.

Purpose of Study

- To propose an index system for evaluating the implementation effectiveness of MEPS and identifying MEPS revision triggers.
- To conduct pilot evaluations to prioritize MEPS that need to be revised in future 2-3 years.
- To put forward policy recommendations on MEPS upgrade and revision regulations and procedure.

Approach and Methodology

- In-depth literature review and analysis of MEPS evaluation and upgrade procedures in five countries, as well as insights from both international and Chinese experiences.
- CLASP’s MEPSY tool, which calculates product energy use according to a bottom-up accounting approach.

Key Findings of International Comparison Study

- Many countries and regions (EU) have set clear revision frequency and triggers, such as the presence of specific regulations/criteria or market-responsive threshold to start a revision process.
- A transparent consultation process with stakeholders at all stages of MEPS upgrade is essential.
- A comprehensive evaluation should be conducted as a preparatory study to research the technical, economic, environmental and social aspects for each MEPS.

Proposed Evaluation Index System

- Based on international practices and lessons learned from Chinese MEPS policies, a new index system was introduced in this study to evaluate MEPS. The new system evaluates MEPS from three perspectives and uses 22 indicators:
 - ✧ Economic, environmental and social impact of MEPS implementation.
 - ✧ Effectiveness on market regulations, such as product registration, government procurement, etc.
 - ✧ Technical excellence, which is to assess whether a MEPS is technically feasible, internationally competitive and market responsive.

- This system is targeted for MEPS policy makers and research institutes that support standards development.
- As an umbrella system, this system allows users to select needed indicators and assign proper weights based on energy consumption of each product.

Key Findings of Pilot evaluations

This study also runs pilot evaluations on the environmental impact (as defined in the proposed index system) of MEPS implementation.

- Using CLASP’s MEPSY Tool as methodology
- Energy savings and CO2 emission reductions as key parameters
- The predictive models of energy saving potential and carbon emissions reduction potential by 2060 provide insight into product prioritization for MEPS revision by identifying product groups that have largest potential.
- The modelling data helped determine revision triggers for MEPS of prioritized products.
- The evaluation results suggest that revision of MEPS for washing machines, water heaters, permanent magnet synchronous motors, and heat-pump heating products should be put on agenda.

product	Business-As-Usual Scenario		Best-Available-Technology Scenario	
	Energy Saving (TWh)	CO ² Emission Reduction (MT)	Energy Saving (TWh)	CO ² Emission Reduction (MT)
Washing machines & dryers	1,046.3	400.2	1,713.3	694.7
Water heaters	3,396	820	9,949	2,250
Space heating Products	10,783	2,959	22,852	5,959
Total	15,225.3	4,179.2	34,514.3	8,903.7

Policy Recommendations

- Making MEPS evaluation a mandatory task for responsible authorities with clear guidance on evaluation procedures.
- Improving working mechanism on data collection, analysis, and reporting of MEPS implementation.
- Developing a tool library for MEPS implementation impact assessment.
- Setting up clear and definite MEPS revision triggers.
- Using MEPS revision and upgrade to guide technological advancement and market evolution.
- Initiating MEPS revision process for washing machines, water heaters, permanent magnet synchronous motors, and heat-pump heating products.