Promoting higher efficient air conditioners in the ASEAN region to reduce energy consumption

The project is targeting a reduction of energy consumption by 5,373 GWh per year and greenhouse gas emissions by 2.7 million tonnes per year.
The Challenge

The energy efficiency ratio (EER) determines the quantity of electricity consumed by an air conditioning unit as it cools the surrounding air. Currently, the market share of higher efficient air conditioners (ACs) with an EER at or above 3.2 is around 25% in the ASEAN. Assuming all ASEAN countries adopt a minimum energy performance standard (MEPS) of 3.2, residential sector electricity consumption would be reduced by 5,373 GWh per annum, corresponding to an annual reduction of 2.7 million tonnes of CO2 emissions.

Objective

The Efficient Air Conditioners (SHINE) project seeks to progressively phase out inefficient ACs and increase the market share of higher efficient ACs that will lead to a reduction in electricity consumption and greenhouse gas (GHG) emissions, and an enhanced regional market integration in the ASEAN region through harmonised standards.

The specific objectives include:
- Harmonising standards for testing methods;
- Developing a regional policy roadmap;
- Developing national policy and regulatory roadmaps for increase of minimum energy performance standards;
- Building capacity of testing laboratories;
- Building capacity of local AC manufacturers (SMEs);
- Changing consumer purchasing attitudes in favour of higher efficient ACs.

Activities / Strategy

Establishing ASEAN-Level Roadmap for MEPS
The first key hurdle being addressed by the project is the harmonisation of standards for testing methods. In order to work towards harmonisation of minimum energy performance standards (MEPS) in ASEAN, a regional roadmap will be prepared under the steering of ASEAN Ministries of Energy (EE&C-SSN). The roadmap development will be led by the Policy Working Group, incorporating the views of a large spectrum of stakeholders. After the approval of the regional roadmap by the EE&C-SSN, national roadmaps for the progressive increase of MEPS will be developed for each ASEAN country. Appropriate mechanisms will simultaneously be elaborated for promotion to and engagement with different stakeholders at the national level. The development of the national roadmaps will be effected through national stakeholders’ consultation, national policy working groups and expert technical assistance from project partners.

Building Capacity on New Harmonised Standards
In parallel, the project works to build the capacity of SME manufacturers, testing laboratories, sales personnel and consumers on the new harmonised standards. Tailored training programmes are prepared and experts in the field are mobilised. Testing laboratories are equipped to test ACs against the new standards and support the labelling programmes. Domestic AC manufacturers are required to improve their AC design to meet higher efficiency standards. The harmonised standards will ultimately realise market transformation by removing non-tariff barriers to trade and providing policy frameworks.

Creating Market Demand
The project conducts consumer awareness campaigns by engaging consumer organisations and media to advertise the economic benefits of higher efficient ACs. To boost the market demand, trainings of 800 sales personnel are conducted on, among others, total ownership cost (TOC). A package of AC selection software and sales kit are distributed to at least 5,000 sales personnel in retail chains. In turn, consumers are encouraged to use the AC selection software that will be available online.

TARGET GROUPS

- National standard-making bodies
- Ministries in charge of energy (involved as project associates)
- 3 national public laboratories (two are project partners, one is project associate) and 6 private laboratories
- 20 small- and medium-sized AC manufacturers
- 800 sales persons
- 3-4 consumer organisations in each of ASEAN countries

Training for AC testing laboratories
Scaling-up Strategy

Creating Country Chapters
The cornerstone of the extension and scaling-up mechanisms is the EU-ASEAN Energy Efficiency Standards Harmonisation Initiative. It is organised regionally with country chapters assembling all strategic stakeholders in each of eight targeted ASEAN countries. It will remain in place beyond the project’s life, ensuring its long-term sustainability strategy.

Conducting Awareness Campaign
The project conducts consumer awareness campaigns which will continue beyond the project’s life under the umbrella of the EU-ASEAN Energy Efficiency Standards Harmonisation Initiative. Through the involvement of governments and private sector (AC manufacturers, retail chains), financial sustainability can be secured to keep the awareness campaigns going. About 800 sales personnel are trained and familiarised with the economic benefits of higher efficient ACs, i.e. total ownership cost (TOC). The TOC shows a longer lifetime and reduced maintenance cost due to better quality, and most importantly electricity savings due to higher efficiency. In this regard, the project prepares an easy-to-use sales kit, that is a set of materials to explain the benefits of higher efficient ACs, and develops a TOC software (installed on computers in the stores) that sales personnel can use to visually show the advantage of higher efficient ACs compared to the lower efficient ACs.

Expanding to Other Household Appliances
The project will continue the work of harmonising energy efficiency standards for other household appliances, as agreed upon and described in the “Strategic framework for the harmonisation of energy efficiency standards for household appliances in ASEAN”, for which air conditioner constitutes the first phase. It is anticipated that this work for other appliances will start towards the end of the project period.

Creating the Right Conditions
Technical capability is required to continue this work, including policymaking, harmonisation of standards, and capacity enhancement of testing laboratories. Equally important, the stakeholders are defined in country chapters of the EU-ASEAN Energy Efficiency Standards Harmonisation Initiative, which will ensure a smooth transition to harmonise standards for other electrical appliances.

The project approach

<table>
<thead>
<tr>
<th>Market Pull Mechanism</th>
<th>Market Push Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing regional policy roadmap</td>
<td>Harmonising ASEAN standards for testing methods</td>
</tr>
<tr>
<td>Developing national policy roadmaps</td>
<td>Building the capacity of testing labs</td>
</tr>
<tr>
<td>Conducting consumer awareness campaigns</td>
<td>Building the capacity of AC manufacturers</td>
</tr>
<tr>
<td>Increased demand for higher efficient ACs</td>
<td>Increased supply of higher efficient ACs on the market</td>
</tr>
</tbody>
</table>

Increased market share of higher efficient ACs
Harmonised Standard for All ASEAN Countries

After one year of implementation, ASEAN countries have already agreed on adopting a single harmonised standard for the testing method related to the energy performance of ACs. The new quality level is based on the international standard ISO 5151. This achievement is an important milestone not only for the project, but also for the ASEAN Market Integration. Once in effect, the new harmonised standard will remove technical barriers to trade and build the foundations for ASEAN countries to have a coordinated approach to promoting more highly efficient air conditioners.

Establishment of a Regional Policy Roadmap

Under the leadership of the project team, ASEAN policy makers are now working together to develop a regional policy roadmap for the promotion of more highly efficient air conditioners. This regional policy roadmap will set aspirational goals for the region and serve as a basis to develop harmonised policies in ASEAN countries, sharing experience and best practice.

The Efficient Air Conditioners (SHINE) project is setting a milestone in the efforts of ASEAN governments to remove non-tariff barriers to trade through the harmonisation of standards, thus supporting the ASEAN Vision 2020. By bringing governments together, the project demonstrates the advantages of regional cooperation in advancing energy efficiency in household appliances. Within one year of implementation, the project has already helped ASEAN governments agree on harmonising their standards for the testing methods related to the energy performance of ACs, and is now working on developing a regional policy roadmap that will guide ASEAN countries in adopting pro-active measures to promote higher efficient ACs.

Mr. Kittisak Sukvivatn,
Project Manager
International Copper Association Southeast Asia (Thailand)
Impact in Numbers

**Economic Impact**
- A successful harmonisation of energy efficiency standards across the region has positive effects in boosting the regional trade by as much as 4.55% and save a potential USD 716 million (ca. EUR 571 million) in energy costs (at electricity tariff of 4 Baht per kWh).
- Manufacturers will benefit from technical assistance to improve their AC design resulting in a higher energy performance. In addition, manufacturers will get a wider access to market as energy ratings would no longer be a constraint to trade.
- “Greener” products are introduced to the market.

**Social Impact**
- Consumers enjoyed benefits from the harmonisation, as it will clear the confusion regarding different labelling in the region.

**Climate Benefits**
- Achieved energy reduction of 5,373 GWh/year
- Reduced GHG emissions by 2.7 million tonnes/year
- Higher efficient air conditioners consume less electricity for the same output (cooling). A lower electricity consumption directly reduces fossil fuel consumption for power generation, thereby reducing emissions not only of CO2, but also CO, NOx, and SOx.

**Target group Engagement**
- Engaged 13 local AC manufacturers in consultation process
- Industry associations, media, government, standard making bodies, testing laboratories, and AC manufacturers were involved in stakeholder consultation workshops, steering committee and technical working groups.
- Six stakeholder consultation workshops were conducted and country chapters were established in Thailand and the Philippines, each involving around 20 participants from each target group.

**Policy Development**
- Three consultation workshops and two steering committee meetings were conducted with ASEAN policymakers.
- Created harmonised standards for testing methods and labelling programme for more efficient air conditioners; an ASEAN-level and national level policy & regulatory roadmaps for an increase of minimum energy performance standards (MEPS).
OBJECTIVES

The project aims to increase the market share of higher efficient air conditioners (ACs) in ASEAN region through harmonisation of test methods and energy efficiency standards, adoption of common minimum energy performance standards (MEPS), and changing consumer purchasing attitudes in favour of energy-efficient ACs.

DURATION

PROJECT TOTAL BUDGET

EUR 2 186 374 (EU contribution: 80%)

PARTNERS

European Chopper Institute, Belgium
UNEP – Division of Technology, Industry and Economics (DTIE), Energy Branch
International Copper Association Southeast Asia (ICASEA)

SIRIM QAS International, Malaysia

Integrated Institute of Electrical Engineers (IIEE), Philippines
Research Center for Energy and Environment, Vietnam

PROJECT CONTACT

Mr. Kittisak Sukvivatn
International Copper Association Southeast Asia
United Business Center II Building, 12th Floor, 591 Sukhumvit Road, Bangkok 10110, Thailand

Telephone: +66 662 3465
Email: kittisak.sukvivatn@copperalliance.asia
www.aseanshine.org