KCEP readiness manufacturing initiative
Findings from the AC market assessments in Thailand, Vietnam and the Philippines

A presentation to the International Conference On Sustainable Cooling
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CLASP’s Southeast Asia Cooling Program Scope

National PSPs

- Thailand
- Vietnam
- Philippines

ASEAN regional compliance program

- Accreditation support
- Generation of MRAs
- Regional network for compliance authorities
AC market assessments

- Market Size
- AC types
- Brands
- Labeling
- Policy Analysis

Based on national statistics, Euromonitor, JARN.

Based on retail store visits & manufacturer interviews:
- Vietnam: 1,773 data points
- Philippines: 3,900 data points
- Thailand: 2,146 data points
Vietnam market findings
The Market for ACs is Growing in Vietnam

**AC Market Size in Vietnam**

<table>
<thead>
<tr>
<th>Year</th>
<th>Market Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>1,300,000</td>
</tr>
<tr>
<td>2014</td>
<td>1,800,000</td>
</tr>
<tr>
<td>2016</td>
<td>2,500,000</td>
</tr>
<tr>
<td>2017</td>
<td>3,000,000</td>
</tr>
</tbody>
</table>

**Estimated Ratios of New & Second-Hand ACs in the Market**

- New: 89%
- Second-Hand: 11%

*Estimates provided by manufacturers*

**2017 Market Size Estimates**

- ~ 3 million ACs (EEI)
- ~ 2.4 million ACs (Euromonitor)
- ~ 1.7 million ACs (JARN)

*Market Size is calculated as: (Imports + Manufacturing) - Exports*
AC Types in Vietnam

RAC Types (N=1773)
- Single split: 91.1%
- Floor standing: 5.1%
- Cassette: 3.2%
- Portable: 0.6%

Compressor Types (N=1773)
- Fixed: 35%
- Inverter: 65%

Refrigerant Types (N=1773)
- R-410A: 50%
- R-32: 42%
- R-22: 8%

Cooling Capacities (N=1773)
- 24,000 ≤ CC < 36,000: 6%
- 18,000 ≤ CC < 24,000: 16%
- 12,000 ≤ CC < 18,000: 27%
- 9,000 ≤ CC < 12,000: 40%
- CC = 9,000: 8%
- CC = 36,000: 3%

Cooling & Heating Function (N=1773)
- Cooling Only: 86%
- Cooling & Heating: 14%
Inverter AC Market Transformation in Vietnam

Compressor Types in 2013
- Fixed: 66%
- Inverter: 34%

Compressor Types in 2018
- Fixed: 35%
- Inverter: 65%

- Inverter models market share has nearly double in 5 years
AC Labeling State of Play 2018 in Vietnam

- 99.8% of the models bore certified labels
- 62.8% of models on the market bear ratings of 4-5 stars

Energy Star Ratings (N=584)
Impacts of potential MEPS scenarios in Vietnam

Vietnamese market is prime to an increase in the MEPS level of ambition:

• A 20% increase to current MEPS will remove 22% of AC models from the market (78.1% of models on the market already meet or exceed this efficiency level)
Philippines market findings
The market for ACs is growing in the Philippines

AC Market Size in the Philippines*

*Euromonitor data
AC types in the Philippines

RAC Types (N=3932)

Window 70.2%
Split 27.6%
Portable 2.2%

WINDOW

Compressor Types (N=2762)
Non-Inverter 87%
Inverter 13%

Refrigerant Types (N=2586)
R410A 50%
R32 8%
R22 42%

SPLIT

Compressor Types (N=1085)
Inverter 78%
Non-Inverter 22%

Refrigerant Types (N=899)
R410A 86%
R32 7%
R22 7%
Cooling Capacity vs. Efficiency – ASEAN MEPS

Cooling Capacity vs. Efficiency by Compressor Type* (N=2999)

- Fixed
- Inverter
- Philippine companies
- Current MEPS
- ASEAN MEPS

*Models manufactured by Philippine companies (Concepcion-Carrier and Koppel Inc.) are shown separately
National level benefits - emissions savings

The Philippines Emissions Savings

MT CO$_2$e

2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

1.61 MT CO$_2$e

Base Case ASEAN MEPS 20% above ASEAN MEPS BAT
Thailand market findings
Thailand – Gathering Evidence of Market Transformation

Market Share by Compressor Type

<table>
<thead>
<tr>
<th>Year</th>
<th>Fixed Speed</th>
<th>Inverter</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>87%</td>
<td>13%</td>
</tr>
<tr>
<td>2013</td>
<td>83%</td>
<td>17%</td>
</tr>
<tr>
<td>2014</td>
<td>81%</td>
<td>19%</td>
</tr>
<tr>
<td>2015</td>
<td>78%</td>
<td>22%</td>
</tr>
<tr>
<td>2016</td>
<td>71%</td>
<td>29%</td>
</tr>
<tr>
<td>2017</td>
<td>57%</td>
<td>43%</td>
</tr>
</tbody>
</table>
The Market for ACs is Growing in Thailand

2017 Market Size Estimates
- ~ 1.6-1.7 million ACs (EEI)
- ~ 1.6 million ACs (Euromonitor)
- ~ 1.4 million ACs (JARN)
AC Labeling State of Play 2018 in Thailand

- 83.5% of the models bore certified labels
- All certified labels were number 5 labels

Energy Labels in Thailand (N=1135)

- 83.2% EGAT #5 Label
- 16.8% No Label
AC Types in Thailand

RAC Types (N=1135)
- Wall: 74.0%
- Cassette: 5.9%
- Concealed/Duct: 7.5%
- Floor/Ceiling: 12.1%
- Standing: 0.5%

Refrigerants (N=1135)
- R410A: 41.0%
- R32: 56.3%
- R22: 2.6%
- R407C: 0.1%

Cooling Capacities (N=1135)
- 15000<CC<20000: 33%
- 20000<CC<25000: 19%
- 8000<CC<11000: 19%
- 11000<CC<15000: 29%

Fixed Speed vs. Inverter Units (N=1135)
- Inverter: 41%
- Fixed Speed: 59%
Impacts of potential label revisions scenarios in Thailand

**Policy Case: EGAT Level 5 Label Increased by 20%**

Thai market is prime for an increase in the EGAT Level 5 label level:

- A 20% increase in the Level 5 Label will decrease the market share of Level 5 labels to 27.2%, with only one fixed speed model at Level 5.
The most frequently cited factor for choosing an AC unit was energy efficiency.

Energy efficiency is also a top factor in government procurement, where the EGAT #5 label is often a requirement.
Any questions?