ENERGY EFFICIENCY STANDARD AND LABELING POLICY IN INDONESIA

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Presentation Outline

- Indonesia Energy Outlook
- National Energy Policy
- Energy Efficiency Standard and Labeling Policy
- Implementation of Energy Efficiency Standard and Labeling
Indonesia Energy Outlook
National Final Energy Consumption

Final Energy Consumption Per Sector

Average growth of energy consumption (last 5 years)

- Industry: 6.3%
- Household: 0.32%
- Commercial: 5.67%
- Transportation: 3.59%

Source: Data and Information Center-MEMR (2008)
Energy intensity tends to decrease in recent 5 years

World Economic Outlook Database (IMF, 2007)
### Indonesia Energy Outlook

#### Energy Intensity per Sector

<table>
<thead>
<tr>
<th>Year</th>
<th>Industry</th>
<th>Household</th>
<th>Commercial</th>
<th>Transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>0.139</td>
<td>0.063</td>
<td>0.014</td>
<td>0.100</td>
</tr>
<tr>
<td>2001</td>
<td>0.137</td>
<td>0.062</td>
<td>0.014</td>
<td>0.103</td>
</tr>
<tr>
<td>2002</td>
<td>0.128</td>
<td>0.057</td>
<td>0.013</td>
<td>0.101</td>
</tr>
<tr>
<td>2003</td>
<td>0.108</td>
<td>0.056</td>
<td>0.013</td>
<td>0.099</td>
</tr>
<tr>
<td>2004</td>
<td>0.117</td>
<td>0.055</td>
<td>0.013</td>
<td>0.108</td>
</tr>
<tr>
<td>2005</td>
<td>0.125</td>
<td>0.051</td>
<td>0.014</td>
<td>0.102</td>
</tr>
<tr>
<td>2006</td>
<td>0.126</td>
<td>0.046</td>
<td>0.014</td>
<td>0.092</td>
</tr>
<tr>
<td>2007</td>
<td>0.132</td>
<td>0.045</td>
<td>0.013</td>
<td>0.091</td>
</tr>
</tbody>
</table>
Indonesia Energy Outlook
Electricity Consumption and Electrification Ratio

Population: 238 million
Installed Capacity: 24,900 MW (0.10 kW/cap) Peak
Electric Demand: 21,300 MW
Annual Electricity Consumption: 121,250 GWh (509.4 kWh/cap)

(Source, DGEEU 2007)

(Source, PLN 2004)
Target in 2025:

1. Optimal Energy Mix
2. Energy Elasticity < 1
National Energy Policy
Energy Conservation Policy and Regulation

2005
National Master Plan of Energy Conservation (RIKEN)
- To decrease energy intensity at least 1% per year until 2025

2006
- To achieve energy elasticity less than 1 in 2025

2007
Law No 30/2007 on Energy
- Government, energy producers and energy consumer are responsible for the implementation of energy conservation
- Energy conservation is required from up-stream to down-stream activities
- Government will provide incentive and disincentive for energy efficiency and conservation implementation

2008
Presidential Instruction No 2/2008 on Energy and Water Saving
- Instruction to governments offices:
  - to increase efficiency for energy and water consumption
  - To establish task force to monitor the implementation

2009 (??)
Government Regulation on Energy efficiency (draft)
- Obligation for large energy consumer to conduct energy audit and designate energy manager
- Application of energy efficiency labeling for home appliances
National Energy Policy
Energy Conservation Policy

Green Energy Policy

Energy Conservation

A Information
- Campaign
- Consultation
- Training
- Education
- Awards
- DSM

B Incentif/Disincentif
- Tax Reduction
- Import Tax Reduction
- Low Rate Investment

C Regulation
- Energy Management
- Energy Audit
- Energy Consumption
- Report and Monitoring
- Energy Intensity Target
- Energy Efficient Design
- National Standardization
- Clean and Lean Transportation Initiative (CALTI)
- Labeling of Home Appliances

D Price
- Economic Energy Pricing
- Automatic Electricity Pricing

POLICY
INSTRUMENT
PROGRAM

DGEEU (2005)
National Energy Policy
Energy Conservation Strategy

ENERGY CONSERVATION STRATEGY

ENERGY SUPPLIER

Increasing Added Value by Implementing EE&C Program

ENERGY EQUIPMENT PRODUCERS

• Labeling
• Standardization

CONSUMERS OR ENERGY USERS

Electricity
Fuel Oil
Demand Side Management

ENERGY SAVING AND ENVIRONMENT PROTECTION
Implementation
Regulation on Energy Efficiency Labeling

SNI 04-6958-2003 (Standard of Energy Saving Level Label for Electrical Household Appliances and it Kinds)

- To identify energy saving level for electrical household appliances and it kinds
- The standard includes:
  - form, size, color and symbol significance of the energy saving level label,
  - Location for the energy saving level label,
  - criteria of energy saving level,
  - energy saving level score and amount of star
- Reference:
  - Australia Standard AS 2575.1-1989
  - New Zealand Standard NZS 6205.1-1989

Director General EEU Decree No. 238-12/47/600.5/2003
on the Procedure for Attachment of Energy Efficiency Label

Director General EEU Decree No. 94-14/47/600.4/2006
on the Appointment of Product Certification Body (LSPro) and Testing Laboratory for the Attachment of Energy Efficiency Label in Electricity Used Equipments
Implementation
Flow Diagram of Energy Efficiency Labeling in Indonesia

<table>
<thead>
<tr>
<th>Manufacturers/ Distributors</th>
<th>Product Certification Body</th>
<th>Testing Laboratory</th>
<th>Ministry of Energy and Mineral Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>Certification Body</td>
<td>report</td>
<td>Director General of Electricity and Energy Utilization</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Verification OK?</td>
<td>Testing</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Result Analysis</td>
<td>Testing Result</td>
<td></td>
</tr>
<tr>
<td>Pass the Criteria?</td>
<td>Certificate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get Certified</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Product Certification Body: PT TUV Nord Indonesia, PT EMI, PT Sucofindo
Testing Laboratory: P3TKEBT-DESDM, B2TE-BPPT, PT Sucofindo
Implementation
Typical Electric Power Consumption in Residential Users

More than 50% of electric power consumption in Residential users is for Refrigerator, Television, AC and Lighting

JICA Study (2008)
Most of electricity is consumed in air-conditioner and lighting.

JICA Study (2008)
# Implementation

## Road Map of the Labeling Program

<table>
<thead>
<tr>
<th>Label application</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFL</td>
<td>V</td>
<td>V</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>TV and Refrigerator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC and Fan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ballast and Washing machine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor and Rice cooker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mandatory or Voluntary</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>V</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>
Implementation
Annual Sales of Home Appliances

ANNUAL SALES OF TELEVISION
(Thousand Units)

- LCD
- TV Plasma
- CRT Curve
- CRT Flat

ANNUAL SALES OF AC
(Thousand Units)

- Projection

ANNUAL SALES OF REFRIGERATORS
(Thousand Units)

- Forced Circulation
- Natural Convection

ANNUAL SALES OF LAMPS
(Thousand Units)

For the years 2003 to 2012, the sales data is presented alongside projections for future years.
## Implementation
Energy Efficiency Labeling for CFL

<table>
<thead>
<tr>
<th>Object</th>
<th>Compact Fluorescence Lamps (CFL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Reference</td>
<td>IEC 60969 : 1988, <em>(Self-ballasted lamps for general lighting service – Performance requirements)</em></td>
</tr>
<tr>
<td>Testing</td>
<td>Life Cycle, Power Factor, Excess Voltage, Effication</td>
</tr>
<tr>
<td>Energy Efficiency Index</td>
<td>Lumen/Watt</td>
</tr>
<tr>
<td>Energy Efficiency Rating</td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>★★★★★</td>
</tr>
<tr>
<td></td>
<td>★★★★</td>
</tr>
<tr>
<td></td>
<td>★★★</td>
</tr>
<tr>
<td></td>
<td>★★</td>
</tr>
</tbody>
</table>
Implementation
Energy Efficiency Labeling for Refrigerators

<table>
<thead>
<tr>
<th>Object</th>
<th>Natural/Forced Circulation Refrigerators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Reference</td>
<td>SNI 04-6710-2002, SNI 04-6711-2002,</td>
</tr>
<tr>
<td></td>
<td>SNI 04-6958-2003</td>
</tr>
<tr>
<td>Testing</td>
<td>Volume Determination, Temperature Rise,</td>
</tr>
<tr>
<td></td>
<td>Energy Consumption</td>
</tr>
<tr>
<td>Energy Efficiency Index</td>
<td>kWh/year</td>
</tr>
<tr>
<td>Energy Efficiency Rating</td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>Class</td>
</tr>
<tr>
<td></td>
<td>Natural Circulation</td>
</tr>
<tr>
<td>Rating</td>
<td>Forced Circulation</td>
</tr>
<tr>
<td></td>
<td>Volume ??</td>
</tr>
<tr>
<td></td>
<td>Volume ??</td>
</tr>
<tr>
<td>★★★★</td>
<td>Under consideration</td>
</tr>
<tr>
<td>★★★</td>
<td>Under consideration</td>
</tr>
<tr>
<td>★★</td>
<td>Under consideration</td>
</tr>
<tr>
<td>★</td>
<td>Under consideration</td>
</tr>
</tbody>
</table>
# Implementation

## Energy Efficiency Labeling for TV

<table>
<thead>
<tr>
<th>Object</th>
<th>CRT, LCD TV, Plasma TV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard Reference</strong></td>
<td><strong>JIS C 6101-1</strong></td>
</tr>
<tr>
<td></td>
<td><strong>IEC 60107-1</strong></td>
</tr>
<tr>
<td><strong>Testing</strong></td>
<td>Standby Power, Operational Power, Energy Saving Mode</td>
</tr>
<tr>
<td><strong>Energy Efficiency Index</strong></td>
<td>kWh/year</td>
</tr>
<tr>
<td><strong>Energy Efficiency Rating</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Rating</strong></td>
<td><strong>Class</strong></td>
</tr>
<tr>
<td></td>
<td>CRT &lt;21” &gt;21” LCDD/Plasma TV &lt;27” 32” 37” 42” 46”</td>
</tr>
<tr>
<td>★★★★★</td>
<td><strong>Under consideration</strong></td>
</tr>
<tr>
<td>★★★</td>
<td><strong>Under consideration</strong></td>
</tr>
<tr>
<td>★★</td>
<td><strong>Under consideration</strong></td>
</tr>
<tr>
<td>★</td>
<td><strong>Under consideration</strong></td>
</tr>
</tbody>
</table>
# Implementation of Energy Efficiency Labeling for AC

**Object**: Room AC (Non Ducting Type)

**Standard Reference**
- ISO 5151:1994
- JIS C 9612

**Testing**
- Power Consumption, Cooling Capacity (Calorimeter Method)

**Energy Efficiency Index**: COP

**Energy Efficiency Rating**

<table>
<thead>
<tr>
<th>Class</th>
<th>Cooling Capacity (BTU)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5000 7000 9000 12000 18000 25000</td>
</tr>
</tbody>
</table>

- ★★★★★: Under consideration
- ★★★: Under consideration
- ★★: Under consideration
- ★: Under consideration
# Implementation

## Energy Efficiency Labeling for Air Circulating Fan

<table>
<thead>
<tr>
<th>Object</th>
<th>Standing type, Hanging Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard Reference</strong></td>
<td>IEC 879 (1986)</td>
</tr>
<tr>
<td><strong>Testing</strong></td>
<td>Power Consumption, Air Velocity, Air Flow, Rotation Speed</td>
</tr>
<tr>
<td><strong>Energy Efficiency Index</strong></td>
<td>(Air Flow)/(Power Consumption)</td>
</tr>
</tbody>
</table>

### Energy Efficiency Rating

<table>
<thead>
<tr>
<th>Rating</th>
<th>Class</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>⭐⭐⭐⭐</td>
<td><em>Under consideration</em></td>
<td></td>
</tr>
<tr>
<td>⭐⭐⭐</td>
<td><em>Under consideration</em></td>
<td></td>
</tr>
<tr>
<td>⭐⭐</td>
<td><em>Under consideration</em></td>
<td></td>
</tr>
<tr>
<td>⭐</td>
<td><em>Under consideration</em></td>
<td></td>
</tr>
</tbody>
</table>
Thank You

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Ministry of Energy and Mineral Resources
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Jakarta 12950 Indonesia
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E-mail: hilmi0374@yahoo.com
References

- National Master Plan of Energy Conservation (RIKEN, 2005)
- Presidential Decree No 5/2006 (National Energy Policy)
- Law No 30/2007 (Energy Law)
- President Instruction No 2/2008 (Energy and Water Saving)
- Indonesian Electricity Current Status (PLN, 2007)

Testing Standard References
- SNI 04-6710-2002
- SNI 04-6711-2002
- SNI 04-6958-2003
- JIS B 8615-1
- JIS C 9612
- JIS C 6101-1
- IEC 879 (1986)
- IEC 60107-1
- ISO 5151-1994