Synchronizing Targets: Malaysian Government and MPIA

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Content

1. Malaysian Government target
2. Malaysian PV Industry target
3. Way forward
Government RE Target 2025
Malaysian Government target

Key developments in Malaysian energy scenario:

1980:
Energy security
Four-fuel policy:
Oil; Gas; Coal
Large hydro

1984:
Electricity Supply Act

1995:
1995-2000:
Rural Electrification Phase 1 – use PV technology

1999:
1999:
Fifth-fuel policy:
RE and EE

2006-2010:
MBiPV project:
Suria1000; ISPQ cert; Demo; MPIA 2007

2005:
2005-2010:
Rural Electrification Phase 2 – use PV technology

2011:
2011:
RE Act and SEDA Act;
FiT;

2012:
2012-2017:
Rural Electrification Phase 3 – use PV technology

2016:
2016:
RE Act and SEDA Act;
FiT;

2017:
2017:
First LSS commissioned

2018:
2018:
New Government;
RE Target 2025

2016:
NEM & LSS launched

2017:
First LSS commissioned

2018:
New Government;
RE Target 2025

2016:
NEM & LSS launched

Key developments in Malaysian energy scenario:
Malaysian Government target

### 20% RE Target by 2025

In meeting the set target of 20% RE capacity mix, 3,991 MW RE is required in the Peninsula system. The target is divided into various categories:

- **More LSS?**
- **Solar Leasing?**
- **New NEM scheme?**
- **Large hydro as RE?**
- **Pricing of biomass?**
- **Limitation of solar integration into the grid system?**

#### RE Capacity (MW) for Peninsular Malaysia

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid waste</td>
<td>9 MW</td>
</tr>
<tr>
<td>Small hydro</td>
<td>24 MW</td>
</tr>
<tr>
<td>Biomass</td>
<td>32 MW</td>
</tr>
<tr>
<td>Biogas</td>
<td>51 MW</td>
</tr>
<tr>
<td>Solar PV</td>
<td>337 MW</td>
</tr>
<tr>
<td>LSS &amp; NEM</td>
<td>38 MW</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>490</strong></td>
</tr>
</tbody>
</table>

**Operational RE Capacity**

- (FIT, NEM, LSS1) (as of Jun 2018)

**Off-grid RE Cogen (Self-consumption)**

- RE Self Gen, 12 MW
- RE Cogen, 359 MW

**Commitment of RE Projects**

- (Awarded) (FIT, LSS1, LSS2) (up to 2020)
- New RE Capacity Required (up to 2025)
- Total RE Capacity (in 2025)

<table>
<thead>
<tr>
<th>RE Type</th>
<th>Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid waste</td>
<td>30 MW</td>
</tr>
<tr>
<td>Small hydro</td>
<td>287 MW</td>
</tr>
<tr>
<td>Biomass</td>
<td>64 MW</td>
</tr>
<tr>
<td>Biogas</td>
<td>74 MW</td>
</tr>
<tr>
<td>Solar PV</td>
<td>5 MW</td>
</tr>
<tr>
<td>LSS</td>
<td>1,058 MW</td>
</tr>
</tbody>
</table>

**Notes:**

1. "Operational RE Capacity" is based on FIT, NEM & LSS (source: SEDA)
2. "Committed RE Projects" is based on awarded FIT, LSS 1 & LSS 2 up to 2020 (source: SEDA & ST)
3. "New RE Capacity Required" is the RE capacity to be developed to meet 20% RE Capacity Target by 2025
4. "Total RE Capacity" in 2025 is the RE Capacity target in MW to meet the 20% RE Target (without large hydro)

Source:
MPIA PV Industry Target - 2030
Solar PV Pricing Trend

Average System Cost (RM/kWp)

- Installed Capacity (MWp)
- Cumulative Capacity (MWp)
Malaysian PV Industry target
MPIA’s PV Installation Target 2030 - (11.4% of Energy Mix)

Forecast Cumulative Solar PV Installation (2016-2030)

Cumulative PV (MWp)

- 2016: 150
- 2017: 345
- 2018: 599
- 2019: 928
- 2020: 1,356
- 2021: 1,913
- 2022: 2,637
- 2023: 3,579
- 2024: 4,802
- 2025: 6,393
- 2026: 8,143
- 2027: 10,06
- 2028: 12,18
- 2029: 14,51
- 2030: 17,07

% Vs Generation

- 2016: 0.08%
- 2017: 0.26%
- 2018: 0.46%
- 2019: 0.71%
- 2020: 1.03%
- 2021: 1.42%
- 2022: 1.92%
- 2023: 2.59%
- 2024: 3.37%
- 2025: 4.41%
- 2026: 5.62%
- 2027: 6.91%
- 2028: 8.30%
- 2029: 9.79%
- 2030: 11.40%

Base on PR of 80%
= 5114MW
Vs
RE Target 2025
6371MW
Simulate The Impact of Solar PV Generation on Daily Maximum Demand Curve (2020)
Typical Daily Load Pattern Aug 2019

Source: GSO
Simulate The Impact of Solar PV Generation on Daily Load Profile (2020) Vs Typical Daily Load Pattern Aug 2019
Simulate The Impact of Solar PV Generation on Daily Maximum Demand Curve (2025)
Simulate The Impact of Solar PV Generation on Daily Maximum Demand Curve (2030)
Government RE Target 2025 vs MPIA Target 2030
## Way forward

<table>
<thead>
<tr>
<th>Government’s motivation</th>
<th>MPIA’s motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political KPI</td>
<td>Members KPI</td>
</tr>
<tr>
<td>Capacity mix</td>
<td>Energy mix</td>
</tr>
<tr>
<td>Social responsibility</td>
<td>Business responsibility</td>
</tr>
<tr>
<td>Economic responsibility</td>
<td>Business needs</td>
</tr>
<tr>
<td>Nation building</td>
<td>Industry building</td>
</tr>
</tbody>
</table>
How can we synchronize them?
Way forward

1) Identify characteristics of sustainable agenda:
   a) Clear and practical policy
   b) Conducive economic infrastructure
   c) Efficient implementation mechanism
   d) High quality and comprehensive capacity programme

Balanced distribution of solar installation to different category

Must be cost effective that benefit the entire society

Stable and Workable Policies Programs
Way forward

2) Study needs, market and technology patterns
   a) Get overall picture

*Figure 4-1: Future Trajectory of Solar PV Industry in Malaysia until 2030*

Source: MIGHT
Way forward

2) Study needs, market and technology patterns
   b) Identify issues, challenges and opportunities
Way forward

2) Study needs, market and technology patterns
   b) Identify issues, challenges and opportunities

LSS 1: RM0.39 – RM0.48 (30MW-50MW)
LSS 2: RM0.3398 – RM 0.50 (10MW – 30 MW)
Way forward

2) Study needs, market and technology patterns
   b) Identify issues, challenges and opportunities
Way forward

2) Study needs, market and technology patterns
   c) Formulate solution, devise plan and strategy of execution

Institutional:  
- Policy  
- Standards  
- Enforcement

Market:  
- Infrastructure  
- Mechanism  
- Business

Education:  
- Training  
- Seminars  
- Workshops

Technical:  
- Procedures  
- Installations  
- Quality

Simple, transparent and efficient process

Synergy between all stakeholders
## Way forward

2) Study needs, market and technology patterns
   
   c) Formulate solution, devise plan and strategy of execution

### SOLAR PV INVESTORS (NEM)

<table>
<thead>
<tr>
<th>Foreign Company</th>
<th>Local Company</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solar PV projects of above 250kW only</strong></td>
<td><strong>Solar PV projects of all Capacity</strong></td>
</tr>
<tr>
<td>• Companies must be incorporated in Malaysia;</td>
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</tr>
<tr>
<td>• Companies must have minimum paid-up capital of at least <strong>RM10 million</strong>;</td>
<td>• Companies must have minimum paid-up capital of at least <strong>RM1 million</strong>;</td>
</tr>
<tr>
<td>• A minimum of 80% local employment is required. To submit company’s organization chart reflecting the min 80% of local employment;</td>
<td>• Project EPC can be carried out by themselves or awarded to the Registered PV Service Provider with SEDA;</td>
</tr>
<tr>
<td>• Companies are required to have 100% local Engineering, Procurement and Construction (EPC) by engaging Registered PV Service Providers with SEDA;</td>
<td>• Leasing company can be a Registered PV Service Provider with SEDA;</td>
</tr>
<tr>
<td>• Leasing company is not allow to register as a PV Service Provider;</td>
<td>• Must be a Registered Solar PV Investor with SEDA.</td>
</tr>
<tr>
<td>• Must be a Registered Solar PV Investor with SEDA.</td>
<td></td>
</tr>
</tbody>
</table>
Way forward

2) Study needs, market and technology patterns
   c) Formulate solution, devise plan and strategy of execution

Suruhanjaya Tenaga
Request For Proposal – Large Scale Solar

<table>
<thead>
<tr>
<th>of Supporting Bank / Financial Institution</th>
<th>attached in Appendix F of this RFP; and</th>
</tr>
</thead>
<tbody>
<tr>
<td>(b) Demonstrate with documental proof that the Bidder is able to finance the Project with sufficient equity and secure the remaining portion of the financing from a local bank or financial institution with firm commitment and accompanied with detailed term sheet.</td>
<td></td>
</tr>
</tbody>
</table>

5.4 Local Interests and Participation

The Bidder must provide information on effective local interest as required in Form F6 - Effective Local Interest Computation attached in Appendix F of this RFP.

The Bidder is also reminded to promote local participation and the use of local products, contractors, service providers, suppliers and labour for the Project. The Bidder shall provide information in the Bid Submission, identifying the extent to which the Bidder plans to use local products and employ local contractors, suppliers and labour.

The Engineering, Procurement, Construction and Commissioning (EPCC) contractor/main contractor must be a local contractor registered with CIDB as civil contractor/building contractor/electrical contractor or other relevant categories of contractors with registration grades appropriate for the financial values of the works.
Way forward

2) Study needs, market and technology patterns
   c) Formulate solution, devise plan and strategy of execution

MPIA’s simulation and projection of skilled workforce

Estimated Job Creation in PV Industry

Engineers, Technicians and Skills Workers
Way forward

3) Continuous and sustainable policy framework
Stay relevant by being dynamic and innovative
Way forward

3) Continuous and sustainable policy framework
Stay relevant by being dynamic and innovative

Target – hub of PV systems service provider in ASEAN
A journey of a thousand miles starts with the first few steps…

Thank you!