Taiwan Energy Information Pack

Government and Infrastructure Advisory

December 2017
## Taiwan Renewable Energy Development Target

Renewable energy targeted at 20% of total energy output of Taiwan by 2025

<table>
<thead>
<tr>
<th>BOE Renewable Energy Target</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacity (MW)</td>
<td>Electricity Generation (100m kwh)</td>
<td>Capacity (MW)</td>
</tr>
<tr>
<td>Solar</td>
<td>842</td>
<td>11</td>
<td>8,776</td>
</tr>
<tr>
<td>Onshore Wind</td>
<td>647</td>
<td>16</td>
<td>1,200</td>
</tr>
<tr>
<td>Offshore Wind</td>
<td>0</td>
<td>0</td>
<td>520</td>
</tr>
<tr>
<td>Geothermal</td>
<td>0</td>
<td>0</td>
<td>150</td>
</tr>
<tr>
<td>Biomass</td>
<td>741</td>
<td>54</td>
<td>768</td>
</tr>
<tr>
<td>Water</td>
<td>2,089</td>
<td>46</td>
<td>2,100</td>
</tr>
<tr>
<td>Fuel Cell</td>
<td>0</td>
<td>0</td>
<td>22.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,319</strong></td>
<td><strong>127</strong></td>
<td><strong>13,537</strong></td>
</tr>
</tbody>
</table>

Source: BOE

Target for renewable energy output doubled as new government runs office.

Installation for the first 5 years increased 10 folds.
Feed in Tariff 2017

**PV Solar**

<table>
<thead>
<tr>
<th>Category</th>
<th>Capacity</th>
<th>Phase I &amp; II rate limit (NTD/kwh)</th>
<th>6% rate increase for high performance module (NTD/kwh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof Top</td>
<td></td>
<td>1~20kw</td>
<td>6.1033</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20~100kw (&lt;100kw)</td>
<td>4.9772</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100~500kw (&lt;500kw)</td>
<td>4.5388</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;500kw</td>
<td>4.4098</td>
</tr>
<tr>
<td>Ground Mounted</td>
<td></td>
<td>&gt;1kw</td>
<td>4.5467</td>
</tr>
<tr>
<td>Floating</td>
<td></td>
<td>&gt;1kw</td>
<td>4.9403</td>
</tr>
</tbody>
</table>

Taiwan implemented the power purchase policy in 2010, and since then the purchase rate has been dropping consistently.

Compared to last year, the FiT for PV producers **dropped 3-6%**, while wind on the other hand, **rose 2-5%**.

Floating system was added as a new category. High performance module increase the FiT rate up to **6%**, of those installed in specified regions of northern Taiwan, the high performance module rate increase can go up to **15%**.

*The developer can choose between signing a fixed or a step-down FiT rate contract*

**Wind**

<table>
<thead>
<tr>
<th>RE Type</th>
<th>Category</th>
<th>Capacity</th>
<th>Feed-in-Tariff (NTD/kwh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onshore</td>
<td>1~20kw (&lt;20kw)</td>
<td>8.9716</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;20kw</td>
<td>2.8776</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LVRT installed</td>
<td>2.8395</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LVRT not installed</td>
<td>2.8395</td>
<td></td>
</tr>
<tr>
<td>Offshore*</td>
<td>N/A</td>
<td>6.0437</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 years fix rate</td>
<td>6.0437</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Step-down rate</td>
<td>7.4034</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1st 10 years</td>
<td>7.4034</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2nd 10 years</td>
<td>3.5948</td>
<td></td>
</tr>
</tbody>
</table>

**ROR**

<table>
<thead>
<tr>
<th>Category</th>
<th>Capacity</th>
<th>Feed-in-Tariff (NTD/kwh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroelectricity</td>
<td>N/A</td>
<td>2.9512</td>
</tr>
<tr>
<td>Geothermal</td>
<td>N/A</td>
<td>4.9428</td>
</tr>
</tbody>
</table>

**Biomass**

<table>
<thead>
<tr>
<th>Category</th>
<th>Capacity</th>
<th>Feed-in-Tariff (NTD/kwh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Anaerobic digestion equipment</td>
<td>N/A</td>
<td>2.6000</td>
</tr>
<tr>
<td>Without Anaerobic digestion equipment</td>
<td>N/A</td>
<td>5.0087</td>
</tr>
<tr>
<td>Waste</td>
<td>N/A</td>
<td>3.9839</td>
</tr>
<tr>
<td>Others</td>
<td>N/A</td>
<td>2.6000</td>
</tr>
</tbody>
</table>

*The developer can choose between signing a fixed or a step-down FiT rate contract*

Source: BOE
Feed in Tariff 2018 (draft) - Solar

Taiwan implemented the power purchase policy in 2010, and since then the purchase rate has been dropping consistently.

Compared to last year, the FiT for PV producers dropped 11.8%-13.5%.

Incentive for high performance module and northern Taiwan development remains. Incentives for high performance module marks up the FiT by 6%, of those installed in specified regions of northern Taiwan, the high performance module incentive can go up to 15%.

Installations in offshore islands are incentivized with an increase on the FiT rate of 15% before the sea cables are connected, and 4% after the sea cables are connected.

For 10MW+ ground mounted or floating PV systems, 2018 FiT rate is applied to whichever projects completed by 2019 / 6 / 30.

<table>
<thead>
<tr>
<th>RE type – PV Solar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
</tr>
<tr>
<td>First half of 2018</td>
</tr>
<tr>
<td>Roof Top</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Ground Mounted</td>
</tr>
<tr>
<td>Floating</td>
</tr>
<tr>
<td>Later half of 2018</td>
</tr>
<tr>
<td>Roof Top</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Ground Mounted</td>
</tr>
<tr>
<td>Floating</td>
</tr>
</tbody>
</table>

Source: BOE
Feed in Tariff 2018 (draft) - Other REs

All of the RE technology, except geothermal, receives a FiT drop.

Increase the capacity range of onshore wind to 30kw from 20kw.

Offshore wind FiT is to utilize auction method.

Adjust Geothermal FiT to 2 options (20 yrs fixed or a step down rate).

Installation in offshore islands is incentivized with an increase on the FiT rate of 15% before the submarine cables are connected, and 4% after the submarine cables are connected.

*The developer can choose between signing a fixed or a step-down FiT rate contract

Source: BOE

<table>
<thead>
<tr>
<th>RE Type</th>
<th>Category</th>
<th>Capacity</th>
<th>Feed-in-Tariff (NTD/kwh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind Onshore</td>
<td>≥ 30kw</td>
<td>LVRT installed</td>
<td>2.7669</td>
</tr>
<tr>
<td>Wind Onshore</td>
<td>≥ 30kw</td>
<td>LVRT not installed</td>
<td>2.7315</td>
</tr>
<tr>
<td>Wind Offshore*</td>
<td>≥ 1</td>
<td>20 years fix rate</td>
<td>5.8141</td>
</tr>
<tr>
<td>Wind Offshore*</td>
<td></td>
<td>step-down rate</td>
<td></td>
</tr>
<tr>
<td>Wind Offshore*</td>
<td></td>
<td>1st 10 years</td>
<td>7.0622</td>
</tr>
<tr>
<td>Wind Offshore*</td>
<td></td>
<td>2nd 10 years</td>
<td>3.5685</td>
</tr>
<tr>
<td>ROR Hydroelectricity</td>
<td>N/A</td>
<td>≥ 1</td>
<td>2.7988</td>
</tr>
<tr>
<td>Geothermal*</td>
<td>N/A</td>
<td>20 years fix rate</td>
<td>5.1956</td>
</tr>
<tr>
<td>Geothermal*</td>
<td></td>
<td>step-down rate</td>
<td></td>
</tr>
<tr>
<td>Geothermal*</td>
<td></td>
<td>1st 10 years</td>
<td>5.6447</td>
</tr>
<tr>
<td>Geothermal*</td>
<td></td>
<td>2nd 10 years</td>
<td>4.4465</td>
</tr>
<tr>
<td>Biomass</td>
<td>With</td>
<td>≥ 1</td>
<td>2.5765</td>
</tr>
<tr>
<td>Biomass</td>
<td>Without</td>
<td>Anaerobic digestion equipment</td>
<td>5.0161</td>
</tr>
<tr>
<td>Waste</td>
<td>N/A</td>
<td>≥ 1</td>
<td>3.8945</td>
</tr>
<tr>
<td>Others</td>
<td>N/A</td>
<td>≥ 1</td>
<td>2.3226</td>
</tr>
</tbody>
</table>
Solar Policy Briefing & Market Dynamics
Policy Promotion

Solar 2-year Expansion Plan

<table>
<thead>
<tr>
<th>Type</th>
<th>~ 2017 / 6 Installation Target (MW)</th>
<th>~2018 / 6 Installation Target (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof-top</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Sectors</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Industrial Parks / Factories</td>
<td>60</td>
<td>100</td>
</tr>
<tr>
<td>Agricultural Facility</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>Others</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Subtotal</td>
<td>410</td>
<td>500</td>
</tr>
</tbody>
</table>

Ground-mounted

<table>
<thead>
<tr>
<th>Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Salt Bay Area</td>
<td>100</td>
</tr>
<tr>
<td>Severely Subsidence Area</td>
<td>80</td>
</tr>
<tr>
<td>Reservoirs, Flood Detention Pools, Ponds</td>
<td>50</td>
</tr>
<tr>
<td>Landfills</td>
<td>10</td>
</tr>
<tr>
<td>Subtotal</td>
<td>240</td>
</tr>
</tbody>
</table>

Total

| Total | 650                | 870                | 1,520               |

Medium to Long-termed Target

- 2016 1.34GW
- 2020 6.5GW
- 2025 20GW

Tai Power plan to initiate “Renewable energy transmission and distribution construction plan”, aiming to improve current grid system in response to insufficient electrical load.

The Amendment of Electricity Act aims to liberalize renewable energy power generation and retails just finished first reading.

Source: BOE
Rooftop PV System Installation Target

Solar 2-year Expansion Plan

- **Agricultural Facilities**: 1671 MW (363 MW current, +450 MW target to increase)
- **Industry Parks & Factories**: 624 MW (151 MW current, +160 MW target to increase)
- **Public Sectors Building**: 31 MW (60 MW current, +60 MW target to increase)
- **Others**: 200 MW (NA, +240 MW target to increase)

**Total Projects**: 31 MW target to increase

**Current Installation**: 745 MW

**Target to increase**: 910 MW

Source: BOE
Rooftop PV System Installation Target

Solar 2-year Expansion Plan

Target to increase +610 MW

Estimated land area for PV installation 8,677 ha. in total

Potential Installation capacity 5,783 MW in total

Source: BOE
Wind Power Policy Briefing & Market Dynamics
Taiwan’s wind power development policy

**OVERVIEW**

**Short-term Goal** 2016

- Demo-Incentive Program (2012/7/3)
  - 4 Demonstration turbines

- Zonal Development (End of 2017)
  - Zonal development

**Mid-term Goal** 2020

- Potential site planning application (2015/7/2)
  - 3 Demonstration wind farms + Potential site development

- 1,200 MW

- Onshore
  - Develop prime wind farms first
  - Develop secondary wind farms after

- Offshore
  - Develop shallow water than deeper water
  - Demonstration, potential then zonal

**Long-term goal** 2025

- 3,000 MW

- 1,200 MW

- 1,000 MW

- 2,000 MW

- 3,000 MW
Onshore wind development status

Miao-li County

Miaoli Wind Co.
- 25 Turbines
- 2006 COD

Qiwei Wind Power Co.
- 3 Turbines
- 2011 COD

LungWei Wind Power Co.
- 16 Turbines
- 2013 COD

TungWei Wind Power Co.
- 10 Turbines
- 2014 COD

Luwei Wind Power Co.
- 42 Turbines
- 2007 / 2009 COD

Taou-yan County

Guanwei Wind Power Co.
- 19 Turbines
- 2010 / 2012 / 2013 COD

Taowei Wind Power Co.
- 2 Turbines
- 2011 COD

Hsin-chu County

Fengwei Wind Power Co.
- 5 Turbines
- 2012 COD

Taichung County

Chungwei Wind Power Co.
- 34 Turbines
- 2009 / 2012 / 2013 / 2014 COD

Installed 682.1 MWs
Target 1200 MWs

Consent Authorized 9.2 MWs
Consent Submitted 97 MWs
EIA In Process 96 MWs

Capacity under development 202.2 MWs
Development plan for offshore wind in Taiwan

Off-Shore Wind Development Plan (Developers & Government)

- **Pilot Project**
  - 4 demonstration turbines
  - Public sector (Tai-power) demonstration wind farms 108 MW

- **Zonal Development**
  - Potential wind farm planning
  - Potential Site Planning Application
  - EIA and cross department coordination
  - Zonal development announcement 4G

Infrastructure Development Plan (Government)

- **Construction Vessels**
  - ICP including vessel design
  - Utilize existing fleet for construction
  - 1st construction fleet
  - 2nd construction fleet

- **Construction Port / Harbor**
  - Reinforce current harbor
  - Plan and construct 3 - 4 heavy loading harbor
  - Reconstruct / Construct 1 - 2 heavy loading harbor

**Demonstration Turbines**
- 2017

**Demonstration Wind Farms**
- 2018
- 2019
- 2020
- …
- 2030
Current development of offshore wind market

**Offshore Wind Power Demonstration Incentive Program**

To kick-start Taiwan offshore wind power development, an incentive program was launched in 2012 to offer government subsidy of 250 million NTD per demonstration project. Three awarded developers were selected to build 4 demonstration turbines (Phase I) by 2015 and 3 demonstration farms (Phase II) by 2020.

<table>
<thead>
<tr>
<th>Company</th>
<th>Shareholders</th>
<th>Location</th>
<th>Capacity (MW)</th>
<th>Turbines</th>
<th>COD Date</th>
<th>Investment Amount (NTD)</th>
<th>Development Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formosa Wind Power Co., Ltd</td>
<td>Swancor Industry Co., Ltd, Dong Energy, Macquire Capital</td>
<td>Zhunan Township, Miaoli</td>
<td>129.6</td>
<td>34</td>
<td>• Phase I (2 pilot turbines, 8MW) Dec 2016</td>
<td>$20 - 22 Billion</td>
<td>• 2 turbines for phase I development COD date Dec 2016</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Phase II (30 pilot turbines, 120MW) Est. Dec 2019</td>
<td></td>
<td>• Phase II obtained Environmental Impact Assessment approval</td>
</tr>
<tr>
<td>Fuhai Wind Farm Corp., Ltd</td>
<td>Taiwan Generations Corporation, CSBC Corp, Century Iron Steel Industrial Co., Ltd, CIP</td>
<td>Fangyuan Township, Changhua</td>
<td>108</td>
<td>30</td>
<td>• Phase I (2 pilot turbines) Dec 2017</td>
<td>$15 -16 Billion</td>
<td>• Under going permitting process for construction permit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Phase II Dec 2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taiwan Power Company</td>
<td>Government</td>
<td>Fangyuan Township, Changhua</td>
<td>108</td>
<td>22 - 36</td>
<td>• June 2020</td>
<td>$19.5 Billion</td>
<td>• EIA passed in April, 2015. Extended to start pilot project in 2019</td>
</tr>
</tbody>
</table>

© 2017 KPMG Deal Advisory Limited, a Taiwan company limited by shares and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved. Printed in Taiwan.
Offshore wind potential site areas

- **Hsinchu**: Bamboo Wind | 1, WPD | 1
  - 2 Sites

- **Miaoli**: Swancor | 2
  - 2 Sites
  - 8 MWs installed

- **Chunghua**: Dong | 4, TPC | 3, Swancor | 3, TGC | 2, HaiLong | 2, CSC | 1
  - 21 Sites

- **Taichung**: No Developers
  - 2 Sites

- **Yunlin**: TPC | 1
  - 2 Sites

- **New Taipei**: Equis | 1
  - 1 Site

- **Tainan**: No Developers
  - 1 Site

- **Kaohsiung**: No Developers
  - 2 Sites

- **Pingdong**: No Developers
  - 1 Site

**Total Potential Sites**: 36

**Potential site area**: 22 EIAs on going

**Installed MWs**: 8
Off-shore wind power transmission and distribution

Before 2020
- Developers are responsible to connecting the grid to the existing onshore substations.
- Current grid connection capacity is 758 MW, which is sufficient to meet the 520 MW connection demand of 2020.

Short Term (~ 2020)
Taiwan Power Company (TPC) will review and approve the grid connection applications, while the developers are responsible for connecting to the onshore substations.

- 2021
  - Construct Zhang Yi Switching Station and 161kV Zhang Yi (A) – Zhang Guang~ Zheng Bing two circuit line
  - Able to provide 1 GW grid connection capacity for the offshore wind farm around Changhua Area.
- 2023
  - Construct 161 kV Zhang Yi (B) – Zhong Gang one circuit line, which can provide 0.5 GW grid connection capacity.
- 2024
  - Construct 161 kV Zhang Yi (B) – Zhong Gang one circuit line, providing 1 GW grid connection capacity.

Mid Term (~2025)
Construct Zhang Gong (4.5 GW) and Yong Xing (2 GW) power grid, and provide a total of 6.5 GW grid connection capacity by 2025.

- Construct Zhang Gong booster station and 345kV Zhang Gong~Zhang Zhang Bing two circuit line, providing 2 GW grid connection capacity.
- Construct Yong Xing Switching Station, 161 kV Yong Xing~ Zhang Pi 8 circuit lines, Zhang Pi switching station and Zhang Pi~ Zhang Lin 5 circuit line, providing 2 GW capacity.
- A total of 6.5 GW accumulated grid connection capacity by 2025.

Long Term (2026~)
3.5 GW additional grid connection capacity will be connected to Sixth naphtha cracker complex, accumulated grid capacity for off-shore wind connection will reach 10 GW.

- An additional 3.5 GW grid connection capacity will be connected to Sixth Naphtha Cracker Complex.
- Accumulated total grid connection capacity will reach 10 GW.
Two stage Process (1/2)


2. Objective: To allocate the available grid capacity and to guarantee provision of the infrastructure facility.

- Develop local supply chain with actual market participation
- Develop off-shore wind market in align with the national infrastructure facility development timeline
- Effectively develop and manage the projects with precise construction and operation timeline
- Two stage allocation process will involve 3GW Selection, followed by 2.5 GW Bidding.

**Notes**
The main criteria for the first 3 GW selection will be the localization. The later 2.5 GW is decided only by bidding (Selected process is not required.) This distribution is to ensure minimum electricity price shock and the expectation of 800MW installation per year.
## Two stage Process (2/2)

### Selection Stage - 3 GW

**Developers who receive and maintain the validity of EIA approval**

- Developers should receive EIA approval or conditional approval decision from the preliminary review team before Dec 31, 2017.
- If more than one developer applied for the same zone, only the one that receives the approval or conditional approval by EIA Review Commission first is qualified.

**Application Requirement**

  
  (Ratings will not be based on development zones. The one with the highest rating would be the first preferred. If there are 2 developers in the same rating, the one with the highest scoring on Local Supply Chain item will be selected as the priority.)

- The one with higher ratings could apply for the grid connection capacity first based on the proposed COD year.

- The one who promises to reach COD before 2020 could receive priority in grid capacity allocation regardless of ratings.

- If the annual grid connection capacity is not enough to meet the demand, developers with later priority will need to segment the grid connection amount to the next year (Grid connection amount less than 100MW can be exempted).

**Required Documents**

- Proposal and TPC’s connecting agreement
- Provide information on the COD between 2020 and 2025. And express willingness for zone segmentation.

### Bidding Stage - 2.5 GW

**Developers not selected shall participate in the bidding stage**

- Developers participated in 3 GW selection stage but not selected.
- Developers already selected in the first stage can not participate in the bidding stage.

**Selection Order**

- Bidding form and Notice of failure of Selection Stage
- Provide information on the COD between 2020 and 2025. And express willingness for zone segmentation.

- Distribute the remaining grid connection capacity after the first 3 GW selection stage
  
  (If there are no remaining capacity after 3GW selection in that year, there will be no bidding stage.)

- Scoring will be based on the lower price
  
  (Ratings will not be based on development zones. The lowest price would be the first preferred bid. If there are 2 developers offering the same price, the order would be decided by drawing lots.)

- Developer with the lowest price can apply for the grid connection capacity first.

- If the annual grid connection capacity is not enough to meet the demand, developers with later priority will need to segment the grid connection amount to the next year (Grid connection amount less than 100MW can be exempted).

**Resource**

- Bureau of Energy Ministry of Economic Affairs, 2017

---

© 2017 KPMG Deal Advisory Limited, a Taiwan company limited by shares and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (“KPMG International”), a Swiss entity. All rights reserved. Printed in Taiwan.
## Selection Stage Criteria

- Local Supply Chain Development
- Technical Capability
- Social and Environmental Integrity
- Financial Capacity

### Sub-criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbine</td>
<td>15%</td>
</tr>
<tr>
<td>Marine Engineering</td>
<td>10%</td>
</tr>
<tr>
<td>Subsea Foundation</td>
<td>8%</td>
</tr>
<tr>
<td>Local Industry Development</td>
<td>7%</td>
</tr>
<tr>
<td>Construction</td>
<td>12%</td>
</tr>
<tr>
<td>Engineering and Design</td>
<td>8%</td>
</tr>
<tr>
<td>Operation and Maintenance</td>
<td>10%</td>
</tr>
<tr>
<td>Environmental Integrity</td>
<td>10%</td>
</tr>
<tr>
<td>Corporate Social Responsibility</td>
<td>5%</td>
</tr>
<tr>
<td>Financial Solidness</td>
<td>8%</td>
</tr>
<tr>
<td>Local Financial Institution Involvement</td>
<td>7%</td>
</tr>
</tbody>
</table>
# Current issues in offshore wind development in Taiwan

## Critical obstacles faced by developers in Taiwan

<table>
<thead>
<tr>
<th>Lack of local resource integration increases both project cost and contingency;</th>
</tr>
</thead>
<tbody>
<tr>
<td>• There are currently no unloading harbors for turbines and foundation. Developers rented dock from CSBC for this purpose.</td>
</tr>
<tr>
<td>• No available vessels in the region. With political considerations developers are prohibited to hire Chinese vessels and can only opt to hire European vessels which reflects in high cost for construction.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lack of confidence and experience in the local financial sector to support project development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex permitting process and inefficient communication with authorities</td>
</tr>
<tr>
<td>Harsh marine environment for construction with a half-year construction window</td>
</tr>
</tbody>
</table>

| Lack of experience in marine engineering reflects in increase contingency for the project development |

---

© 2017 KPMG Deal Advisory Limited, a Taiwan company limited by shares and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved. Printed in Taiwan.
**KPMG Government and Infrastructure Advisory**

Government and Infrastructure Advisory can provide you with advisory, tax, audit, accounting and compliance related assistance through the life of your infrastructure projects and programs, or as a fundamental part of your business. Our professionals can bring you the benefits of their extensive local and global experience advising government organizations, infrastructure contractors, operators and investors.

### Audit & Assurance
- Financial Information Audit and Assurance
- IPO and Listing Services
- Assurance and Attestation

### Tax & Investment
- Tax Agent for the Foreign Institutional Investors (FINIs)
- Financial Industry Tax Advisory
- Family Tax Office and Individual Tax Advisory
- Global Mobility
- Investment and Registration
- Accounting Tax & Payroll Outsourcing
- Corporate Tax Advisory
- Tax Controversy Resolution
- Corporate Tax Certification
- Global Transfer Pricing and Base Erosions and Profit Shifting
- International Tax

### Advisory

#### Risk Consulting
- Internal Audit, Risk and Compliance Services
- Accounting Advisory Services
- Forensic
- Financial Risk Management
- Climate Change and Sustainability

#### Management Consulting
- Strategy & Operation
- Financial Management
- People & Change
- Tech Enable – Oracle
- IRM
- Cybersecurity
- CIO Advisory
- Mobile Commerce

#### Industry Specific Consulting
- Government & Infrastructure Advisory
- Healthcare Advisory
- TMT Advisory
- FS Advisory: D&A, Digital Transformation, FS Regulatory

#### Deal Advisory
- Deal Advisory
- Financial Restructuring
KPMG Government and Infrastructure Advisory

Government and Infrastructure Advisory can provide you with advisory, tax, audit, accounting and compliance related assistance through the life of your infrastructure projects and programs, or as a fundamental part of your business.

Our professionals can bring you the benefits of their extensive local and global experience advising government organizations, infrastructure contractors, operators and investors.
KPMG - A trusted financial advisor in the renewable energy space

KPMG has end-to-end capabilities in delivering solutions that help our clients address their needs and challenges across the renewable energy value chain and throughout the project lifecycle.

**Strategy & Planning**
- Feasibility study
- Procurement strategy
- Tariff analysis
- M&A and JV / Partnership Strategy

**Pre-feasibility**

**Structuring & Financing**
- Project structuring
- Financing
- Tender process / Bid advisory
- PPP advisory
- Financial modelling

**Procurement & Construction**
- Contract management
- Project monitoring & control
- Dispute & claims
- Procurement execution

**Operations**
- Hedging strategy
- Power contract management
- Operating model
- Tax optimization
- Accounting & reporting

**On-going Value Creation**
- Exit strategy & asset divestment
- Valuations
- IPO advisory
- Restructuring and refinancing

**Strategic & Transaction Advisory**

**Project Execution & Management**

**Organizational Readiness**
- Commercial framework analysis
- Risk management
- Regulatory management
- HR / IT capabilities

**Divestment and cash cycle**

© 2017 KPMG Deal Advisory Limited, a Taiwan company limited by shares and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (“KPMG International”), a Swiss entity. All rights reserved. Printed in Taiwan.
KPMG - A trusted financial advisor in the renewable energy space

We have a strong network with major solar players worldwide
Selected recent government and private sector clients in the energy sector
KPMG Taiwan Power & Utilities Credentials

Challenger MBK Fund Management Pte Limited

KPMG Deal Advisory
assisted Challenger Emerging Market Infrastructure Fund Pte Ltd (EMIF) in connection with its acquisition of 100% interest in Miaoli Wind from Macquarie International Infrastructure Fund Limited (MIIF)
USD 0.07 million
January 2013

China-based Venture Capital

KPMG Deal Advisory
acted as financial adviser to the management team on their investment of a Taiwan-based solar cell manufacturer
Value not disclosed
November 2008

Marubeni Corporation

KPMG Deal Advisory
assisted Marubeni, the listed Japan-based trading conglomerate, in connection with its acquisition of 21% stake in Taiwan-based power plant operator Hsin Tao Power
USD 77 million
October 2008

Merrill Lynch (Asia Pacific) Ltd.

KPMG Deal Advisory
acted as financial adviser to the management team on their investment of Gintech Energy Corporation
Value not disclosed
December 2006

US listed company

KPMG Deal Advisory
acted as financial adviser to the management team on their investment of a Taiwan-based solar cell manufacturer
Value not disclosed
November 2002

A HK based electric company

KPMG Deal Advisory
assisted the Hong Kong based electronic company in its proposed acquisition of a Taiwan-based power plant operator
Deal not completed
August 2000

A Singapore power company

KPMG Deal Advisory
assisted the Singapore power company in its proposed acquisition of a Taiwan-based power cogeneration plant operator
Deal not completed
May 2002
KPMG Taiwan Power & Utilities Credentials

**Titan Solar Limited**
KPMG Advisory Services
Financial, Tax and Investment Structure Advisory Services for Investment in the Philippines
Value not disclosed
October 2015

**SAS Sunrise Inc.**
KPMG Advisory Services
Financial, Tax and Investment Structure Advisory Services for Investment in the Philippines
Value not disclosed
August 2015

**ITRI**
KPMG Advisory Services
Assisted ITRI in establishing international co-operation platform for solar power investment and financing and relative issues
Value not disclosed
April 2015

**Marubeni Corp**
KPMG Corporate Finance
Engaged by Marubeni to perform fair value estimates on Hsin Tao Power Corporation for impairment test purposes.
March 2013

**Marubeni Corp**
KPMG Corporate Finance
Engaged by Marubeni to perform pricing analysis on Taiwan Top Power AXIA Taiwan Holdings Co., Ltd.
April 2012

**Kyushu Electric Power Co., Ltd.**
KPMG Corporate Finance
Engaged by Kyushu to perform purchase price allocation exercise pursuant to ROC GAAP SFAS 25 and 37 following Kyuden Hsin Tao Power Holdings Co. Ltd’s acquisition of Hsin Tao Power.
July 2011

**Marubeni Corp**
KPMG Corporate Finance
Engaged by Marubeni to perform purchase price allocation exercise pursuant to US GAAP SFAS 141R following Taiwan Top Power’s acquisition of Hsin Tao Power.
December 2010
Taxes and Incentives for Renewable Energy is designed to help energy companies, investors and other entities stay current with government policies and programs that support renewable energy from wind, solar, biomass, geothermal and hydropower.

Compiled by KPMG’s Global Energy & Natural Resources tax practice, the 2015 edition provides updates on renewable energy promotion policies for 31 countries. It also includes information on adoption trends for renewables, the growing prominence of emerging markets, new solar and wind initiatives, and key investments in renewable energy around the world.

The 2015 edition provides updates on renewable energy promotion policies for 31 countries.

KPMG Conference series

- Global Power & Utilities Conference
- Global Energy Conference
- Latin America Energy & Natural Resources Conference
- ENRich Energy Conference

Report download >
Leadership and industry insight

- A new era in energy
  Emerging global trends

- Taxes and incentives for renewable energy

- Global Construction Survey

Webcast series

- Cyber defense for Power and Utilities
- When one crisis meets another: Focusing on talent for the long term (4 regional webcasts)
- The Agile Utility: The Future state industry model
- Unlocking the supply chain for LNG project success
- Supplier risk management
- Withstanding prudence challenges in public utility commission proceedings
- Energy sustainability and alternative project development (series)
- Corporate responsibility reporting: Global trends

To attend upcoming GEI webcasts or view OnDemand webcasts, register today at kpmg.com/energy.
Thank you

Steven Chen
Partner
Government and Infrastructure Advisory

Direct +886-2-8758-9782
Fax +886-2-8101-6667 ext. 02819
stevenchen@kpmg.com.tw

Mickey Lin
Associate Director
Government and Infrastructure Advisory

Direct +886-2-8101-6666 ext. 08511
Fax +886-2-8101-6667 ext. 08511
mickeylin@kpmg.com.tw

KPMG Advisory Services Co., Ltd.
68F, Taipei 101 Tower, No. 7, Sec. 5, Xinyi Road, Taipei, 11049, Taiwan, R.O.C.