MA- Noor Ouarzazate Concentrated Solar Power Project (P131256)

Key Dates

**Key Project Dates**

- Bank Approval Date: 30-Sep-2014
- Effectiveness Date: 05-May-2015
- Planned Mid Term Review Date: 30-Sep-2019
- Actual Mid-Term Review Date: --
- Original Closing Date: 30-Jun-2020
- Revised Closing Date: 30-Jun-2020

Project Development Objectives

Project Development Objective (from Project Appraisal Document)

The PDO is to increase (a) installed capacity (megawatt) and (b) electricity output (megawatt-hour), especially during peak hours, of the Noor-Ouarzazate Solar Complex.

Has the Project Development Objective been changed since Board Approval of the Project Objective?

No

Components

- **Component 1-** Financing for the Initial Investment: (Cost $2377.00 M)
- **Component 2-** Cost Mitigation Mechanism: (Cost $299.00 M)

Overall Ratings

<table>
<thead>
<tr>
<th>Name</th>
<th>Previous Rating</th>
<th>Current Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progress towards achievement of PDO</td>
<td>Satisfactory</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>Overall Implementation Progress (IP)</td>
<td>Satisfactory</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>Overall Risk Rating</td>
<td>Substantial</td>
<td>Substantial</td>
</tr>
</tbody>
</table>

Implementation Status and Key Decisions
The project is progressing satisfactorily towards project development objectives and implementation progress.

**NOORo I:** Project implementation progress at the end of December 2017 indicates that the plant’s performance has been improving in 2017 (generation of 414 GWh in 2017 vs. 400 GWh in 2016). Despite normal initial issues and relatively low resource during the summer, the actual production vs. annual declaration has reached 94% in 2017 (vs. 84% in 2016). Manpower is at around 70 people. The ramp up curve for NOORo I has been very good in comparison to other Concentrated Solar Power projects.

**NOORo II:** At the end of December 2017, the progress of NOOR II construction was 98.7% (vs 90.5% six months earlier). An optimization plan was designed by the EPC and MASEN to avoid additional delay. There are currently 1787 workers on site, 1235 of which are Moroccan and 29 of them are women. The industrial integration rate is around 34.7% so far in terms of committed expenses (to be compared with 25.7% six months before). The initial commercial operations date, initially scheduled in end March 2018, was delayed due to detection of heat transfer fluid in the thermal storage during commissioning tests. Inspections on the three heat exchangers are currently ongoing, and the team asked MASEN to keep the Bank informed on the inspections progress and reparation works.

**NOORo III:** Construction has advanced to 95.9% by end December 2017 (vs 89.9% six months earlier). As discussed in previous ISR, Noor III remains well behind schedule, and the total delay is currently of twelve months. The main reasons for these delays are related to (i) tower construction, (ii) the fatality occurred in May 2016, and (iii) site delivery delays, primarily the main transformer, and (iv) quality issues related to the metallic structure of the receiver. The initial commercial operations date is scheduled for December 18th, 2018.

### Risks

#### Systematic Operations Risk-rating Tool

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Rating at Approval</th>
<th>Previous Rating</th>
<th>Current Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political and Governance</td>
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<td>● Moderate</td>
<td>● Moderate</td>
</tr>
<tr>
<td>Macroeconomic</td>
<td>--</td>
<td>● Moderate</td>
<td>● Moderate</td>
</tr>
<tr>
<td>Sector Strategies and Policies</td>
<td>--</td>
<td>● Substantial</td>
<td>● Substantial</td>
</tr>
<tr>
<td>Technical Design of Project or Program</td>
<td>--</td>
<td>● Substantial</td>
<td>● Substantial</td>
</tr>
<tr>
<td>Institutional Capacity for Implementation and Sustainability</td>
<td>--</td>
<td>● Moderate</td>
<td>● Moderate</td>
</tr>
<tr>
<td>Fiduciary</td>
<td>--</td>
<td>● Moderate</td>
<td>● Moderate</td>
</tr>
<tr>
<td>Environment and Social</td>
<td>--</td>
<td>● Moderate</td>
<td>● Moderate</td>
</tr>
<tr>
<td>Stakeholders</td>
<td>--</td>
<td>● Moderate</td>
<td>● Moderate</td>
</tr>
<tr>
<td>Other</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Overall</td>
<td>--</td>
<td>● Substantial</td>
<td>● Substantial</td>
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</tbody>
</table>

### Results

**Project Development Objective Indicators**
### Generation Capacity of Renewable Energy (other than hydropower) constructed (Megawatt, Custom)

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Actual (Previous)</th>
<th>Actual (Current)</th>
<th>End Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>250.00</td>
</tr>
<tr>
<td>Date</td>
<td>30-Jun-2014</td>
<td>30-Dec-2016</td>
<td>29-Dec-2017</td>
<td>30-Jun-2019</td>
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</tbody>
</table>

**Comments**

NOORo I is not included in this indicator

### Generation Capacity of Renewable Energy constructed-Solar (Megawatt, Custom Breakdown)

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<th>Baseline</th>
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<th>Actual (Current)</th>
<th>End Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>250.00</td>
</tr>
<tr>
<td>Date</td>
<td>30-Jun-2014</td>
<td>30-Dec-2016</td>
<td>29-Dec-2017</td>
<td>30-Jun-2019</td>
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</tbody>
</table>

### Progress of construction of Noor II (Percentage, Custom Supplement)

<table>
<thead>
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<th>Baseline</th>
<th>Actual (Previous)</th>
<th>Actual (Current)</th>
<th>End Target</th>
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<tbody>
<tr>
<td>Value</td>
<td>0.00</td>
<td>76.00</td>
<td>98.70</td>
<td>100.00</td>
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</table>

### Progress of construction of Noor III (Percentage, Custom Supplement)

<table>
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<th>Actual (Current)</th>
<th>End Target</th>
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</thead>
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<tr>
<td>Value</td>
<td>0.00</td>
<td>73.70</td>
<td>95.90</td>
<td>100.00</td>
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</tbody>
</table>
### Noor-Ouarzazate Complex electricity sales (Gigawatt-hour (GWh), Custom)

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Actual (Previous)</th>
<th>Actual (Current)</th>
<th>End Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>0.00</td>
<td>400.00</td>
<td>414.00</td>
<td>1,300.00</td>
</tr>
<tr>
<td>Date</td>
<td>30-Jun-2014</td>
<td>30-Dec-2016</td>
<td>29-Dec-2017</td>
<td>30-Jun-2019</td>
</tr>
</tbody>
</table>

### Noor-Ouarzazate Complex electricity sales during peak hours (Gigawatt-hour (GWh), Custom)

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Actual (Previous)</th>
<th>Actual (Current)</th>
<th>End Target</th>
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</thead>
<tbody>
<tr>
<td>Value</td>
<td>0.00</td>
<td>84.00</td>
<td>79.00</td>
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<tr>
<td>Date</td>
<td>30-Jun-2014</td>
<td>30-Dec-2016</td>
<td>29-Dec-2017</td>
<td>30-Jun-2019</td>
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</tbody>
</table>

### Avoided global GHG pollution (Tones/year, Custom)

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
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<th>Actual (Current)</th>
<th>End Target</th>
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</thead>
<tbody>
<tr>
<td>Value</td>
<td>0.00</td>
<td>209,174.00</td>
<td>217,191.00</td>
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<td>30-Dec-2016</td>
<td>29-Dec-2017</td>
<td>30-Jun-2019</td>
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</tbody>
</table>

### Direct project beneficiaries (Number, Custom)

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<th>Actual (Previous)</th>
<th>Actual (Current)</th>
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<tbody>
<tr>
<td>Value</td>
<td>0.00</td>
<td>347,782.00</td>
<td>359,954.00</td>
<td>1,100,000.00</td>
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<td>29-Dec-2017</td>
<td>30-Jun-2019</td>
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</table>

### Female beneficiaries (Percentage, Custom Supplement)

<table>
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<th>End Target</th>
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<tbody>
<tr>
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<td>50.30</td>
<td>50.30</td>
<td>50.30</td>
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### Overall Comments

### Intermediate Results Indicators

#### Transaction financial close (Yes/No, Custom)

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<th>Baseline</th>
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<th>Actual (Current)</th>
<th>End Target</th>
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<tbody>
<tr>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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<table>
<thead>
<tr>
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<th>Baseline</th>
<th>Actual (Previous)</th>
<th>Actual (Current)</th>
<th>End Target</th>
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</table>

#### Private Capital Mobilized (Amount(USD), Custom)

<table>
<thead>
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<th>Value</th>
<th>Baseline</th>
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<th>End Target</th>
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<td>75,000,000.00</td>
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<td>200,000,000.00</td>
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<th>Actual (Previous)</th>
<th>Actual (Current)</th>
<th>End Target</th>
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</table>

#### Beginning construction of the plant (Yes/No, Custom)

<table>
<thead>
<tr>
<th>Value</th>
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<th>Actual (Current)</th>
<th>End Target</th>
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<tr>
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<td>Y</td>
<td>Y</td>
<td>Y</td>
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<table>
<thead>
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<th>Actual (Current)</th>
<th>End Target</th>
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</table>
Commissioning of the plant (Yes/No, Custom)

<table>
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<th>End Target</th>
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<td>N</td>
<td>N</td>
<td>Y</td>
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<table>
<thead>
<tr>
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<th>Actual (Current)</th>
<th>End Target</th>
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</table>

Overall Comments

Data on Financial Performance

Disbursements (by loan)

<table>
<thead>
<tr>
<th>Project</th>
<th>Loan/Credit/TF</th>
<th>Status</th>
<th>Currency</th>
<th>Original</th>
<th>Revised</th>
<th>Cancelled</th>
<th>Disbursed</th>
<th>Undisbursed</th>
<th>Disbursed</th>
</tr>
</thead>
<tbody>
<tr>
<td>P131256</td>
<td>IBRD-84400</td>
<td>Effective</td>
<td>USD</td>
<td>400.00</td>
<td>400.00</td>
<td>0.00</td>
<td>113.23</td>
<td>268.46</td>
<td>30%</td>
</tr>
<tr>
<td>P131256</td>
<td>TF-17509</td>
<td>Effective</td>
<td>USD</td>
<td>119.00</td>
<td>119.00</td>
<td>0.00</td>
<td>119.00</td>
<td>0.00</td>
<td>100%</td>
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</table>

Key Dates (by loan)

<table>
<thead>
<tr>
<th>Project</th>
<th>Loan/Credit/TF</th>
<th>Status</th>
<th>Approval Date</th>
<th>Signing Date</th>
<th>Effectiveness Date</th>
<th>Orig. Closing Date</th>
<th>Rev. Closing Date</th>
</tr>
</thead>
</table>

Cumulative Disbursements
Restructuring History

Level 2 Approved on 11-Aug-2015, Level 2 Approved on 24-Jun-2016

Related Project(s)

P164288-Morocco - Noor Solar Power Project Additional Financing