

**Implementation Status & Results**  
**Morocco**  
**INTEGRATED SOLAR COMBINED CYCLE POWER PROJECT (P041396)**

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Operation Name: INTEGRATED SOLAR COMBINED CYCLE POWER PROJECT (P041396)      Project Stage: Implementation      Seq.No: 6      Status: ARCHIVED      Archive Date: 25-Sep-2012

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Country: Morocco      Approval FY: 2007  
 Product Line: Global Environment Project      Region: MIDDLE EAST AND NORTH AFRICA      Lending Instrument: Specific Investment Loan  
 Implementing Agency(ies): Office National de l Electricite

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**Key Dates**

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|                     |             |                       |             |                              |             |                        |             |
|---------------------|-------------|-----------------------|-------------|------------------------------|-------------|------------------------|-------------|
| Board Approval Date | 19-Apr-2007 | Original Closing Date | 31-Dec-2012 | Planned Mid Term Review Date | 10-Apr-2010 | Last Archived ISR Date | 29-Sep-2009 |
| Effectiveness Date  | 20-Apr-2007 | Revised Closing Date  | 31-Dec-2012 | Actual Mid Term Review Date  |             |                        |             |

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**Global Environmental Objectives**

Global Environmental Objective (from Project Appraisal Document)

**The global development objective of the project is to reduce greenhouse gas emissions from anthropogenic sources by increasing the market share of low greenhouse gas emitting technologies. The project will also test the viability of solar thermal technology and contribute to replication of integrated solar combined cycle (ISCC) power generation technology in Morocco and elsewhere. It is one of a number of similar projects in the world to be supported by GEF as part of a program to accelerate cost reduction and commercial adoption of large-scale low greenhouse emitting generation technologies. The main global benefits of the project are: (a) contribution to the demonstration of operational viability of hybrid solar thermal power generation in Morocco; (b) contribution to accelerated market penetration of large-scale backstop power generation technologies; and (c) reduction of greenhouse gas emissions from power generation.**

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

Yes       No

**Component(s)**

| Component Name   | Component Cost |
|--|----------------|
| Component 1 - Design, Construction and Operation of an Integrated Solar Combined Cycle Power Plant - US\$519.27 million (including US \$43.2 million from GEF) | 519.27         |
| Component 2 - Construction of 225 kV and 60 kV power lines - US\$ 17.84 million (US\$ 15.5 million financed by the AfDB, and US\$ 2.34 million by ONEE)        | 17.84          |
| Component 3 - Construction of a 225 kV substation - US\$ 9.04 million (US\$ 7.15 million AfDB and US \$ 1.89 million ONEE)                                     | 9.04           |
| Component 4 - Construction of an access road - US\$ 3.8 million (ONEE)   | 3.80           |
| Component 5 - Boreholes - US\$ 0.35 million (ONEE)   | 0.35           |
| Component 6 - Land acquisition - US\$ 0.87 million (ONEE)  | 0.87           |
| Component 7 - Gas pipeline - US\$ 9.22 million (ONEE)  | 9.22           |
| Component 8 - Environmental and Social Development and Management - US\$ 2.31 million (ONEE)   | 2.31           |
| Component 9 - Consulting services for project management and supervision - US\$ 5.09 million (US\$ 4.55 million AfDB and US\$ 0.54 million ONEE)               | 5.09           |

**Overall Ratings**

|                                      | Previous Rating | Current Rating |
|--------------------------------------|-----------------|----------------|
| Progress towards achievement of GEO  | Satisfactory    | Satisfactory   |
| Overall Implementation Progress (IP) | Satisfactory    | Satisfactory   |
| Overall Risk Rating                  |                 |                |

**Implementation Status Overview**

The construction of the solar field and the combined cycle plant is completed. The Integrated Solar Combined Cycle (ISCC) power plant was commissioned on October 19, 2010. The plant operated at a lower capacity for over a year because of insufficient gas available from the Maghreb-Europe gas pipeline. In November 2011, the Government of Morocco negotiated successfully a gas-supply contract with Algeria. Since then, the plant has been operating satisfactorily at the expected capacity.

**Locations**

| Country | First Administrative Division | Location              | Planned | Actual |
|---------|-------------------------------|-----------------------|---------|--------|
| Morocco | Region de l' Oriental         | Region de l' Oriental |         | ✓      |

**Results**

**Global Environmental Objective Indicators**

| Indicator Name  | Core                     | Unit of Measure |          | Baseline    | Current     | End Target  |
|---|--------------------------|-----------------|----------|-------------|-------------|-------------|
| Reductions in main air pollutants emissions: CO2  | <input type="checkbox"/> | Tones/year      | Value    | 0.00        | 17600.00    | 24300.00    |
|   |                          |                 | Date     | 20-Apr-2007 | 06-Aug-2012 | 31-Dec-2012 |
|   |                          |                 | Comments |             |             |             |
| Solar thermal power plant costs (US\$ cents/kWh)  | <input type="checkbox"/> | Text            | Value    | 0           | n/a         | 17.4        |
|   |                          |                 | Date     | 20-Apr-2007 | 06-Aug-2012 | 31-Dec-2012 |
|   |                          |                 | Comments |             |             |             |
| Dissemination 1 - Number of visitors to and information requests about the plant  | <input type="checkbox"/> | Text            | Value    | 0           | n/a         | n/a         |
|   |                          |                 | Date     | 20-Apr-2007 | 06-Aug-2012 | 31-Dec-2012 |
|   |                          |                 | Comments |             |             |             |
| Dissemination 2 - Number of workshops and conferences in which the experiences about the construction and operation of the plant is presented | <input type="checkbox"/> | Text            | Value    | 0           | n/a         | n/a         |
|   |                          |                 | Date     | 20-Apr-2007 | 06-Aug-2012 | 31-Dec-2012 |
|   |                          |                 | Comments |             |             |             |
| Dissemination 3 - Information about the plant posted on ONEE's external web site  | <input type="checkbox"/> | Yes/No          | Value    | No          | No          | Yes         |
|   |                          |                 | Date     | 20-Apr-2007 | 06-Aug-2012 | 31-Dec-2012 |
|   |                          |                 | Comments |             |             |             |

**Intermediate Results Indicators**

| Indicator Name  | Core                     | Unit of Measure     |          | Baseline    | Current  | End Target  |
|---|--------------------------|---------------------|----------|-------------|--|-------------|
| ISCC's yearly production of electricity                                       | <input type="checkbox"/> | Gigawatt-hour (GWh) | Value    | 0.00        | 2599.00  | 3538.00     |
|   |                          |                     | Date     | 20-Apr-2007 | 06-Aug-2012                                    | 31-Dec-2012 |
|   |                          |                     | Comments |             | Available data only from May 2011 to May 2012. |             |
| ISCC's yearly generation of solar electricity                                 | <input type="checkbox"/> | Gigawatt-hour (GWh) | Value    | 0.00        | 29.00  | 40.00       |
|   |                          |                     | Date     | 20-Apr-2007 | 06-Aug-2012                                    | 31-Dec-2012 |
|   |                          |                     | Comments |             | Available data only from May 2011 to May 2012. |             |
| ONEE staff trained in various aspects of ISCC power technology                | <input type="checkbox"/> | Text                | Value    | 0           | 28   | 20          |
|   |                          |                     | Date     | 20-Apr-2007 | 06-Aug-2012                                    | 31-Dec-2012 |
|   |                          |                     | Comments |             |  |             |
| Solar output as a percentage of total energy produced by the ISCC power plant | <input type="checkbox"/> | Percentage          | Value    | 0.00        | 1.03   | 1.13        |
|   |                          |                     | Date     | 20-Apr-2007 | 06-Aug-2012                                    | 31-Dec-2012 |
|   |                          |                     | Comments |             |  |             |

|   |                          |            |          |             |             |             |
|---|--------------------------|------------|----------|-------------|-------------|-------------|
| Share of ISCC energy in total energy production | <input type="checkbox"/> | Percentage | Value    | 0.00        | 11.90       | 16.80       |
|   |                          |            | Date     | 20-Apr-2007 | 06-Aug-2012 | 31-Dec-2012 |
|   |                          |            | Comments |             |             |             |

**Data on Financial Performance (as of 22-May-2009)**

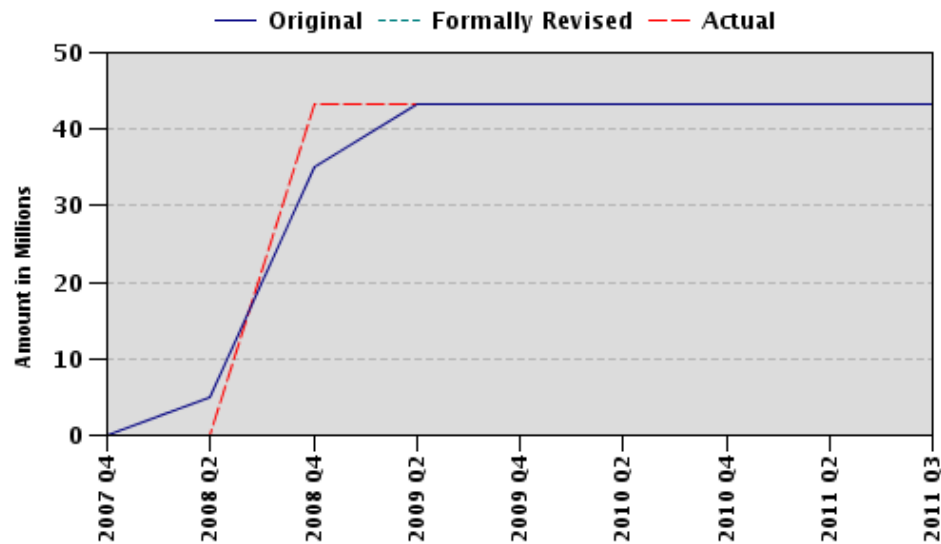
**Financial Agreement(s) Key Dates**

| Project | Ln/Cr/Tf | Status    | Approval Date | Signing Date | Effectiveness Date | Original Closing Date | Revised Closing Date |
|---------|----------|-----------|---------------|--------------|--------------------|-----------------------|----------------------|
| P041396 | TF-58314 | Effective | 20-Apr-2007   | 20-Apr-2007  | 20-Apr-2007        | 31-Dec-2012           | 31-Dec-2012          |

**Disbursements (in Millions)**

| Project | Ln/Cr/Tf | Status    | Currency | Original | Revised | Cancelled | Disbursed | Undisbursed | % Disbursed |
|---------|----------|-----------|----------|----------|---------|-----------|-----------|-------------|-------------|
| P041396 | TF-58314 | Effective | USD      | 43.20    | 43.20   | 0.00      | 43.20     | 0.00        | 100.00      |

**Disbursement Graph**



**Key Decisions Regarding Implementation**

The project provides for useful lessons of experience for the implementation of future Concentrated Solar Power (CSP) projects worldwide. Against this background it would be useful if further dissemination of these lessons to policy-makers and solar practitioners at both national and international events could be undertaken.

**Restructuring History**

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There has been no restructuring to date.

### **Related Projects**

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There are no related projects.