

## Type of Review: Annual Review

**Project Title: IND Solar Power Generation Guarantee Facility**

**Review date: January 2013**

Location: India

Project timing: October 2011 – March 2015

Reporting period: October 2011 – January 2013

Funding: ICF funding

Description	Scale
Outputs substantially exceeded expectation	A++
Outputs moderately exceeded expectation	A+
Outputs met expectation	A
Outputs moderately did not meet expectation	B
Outputs substantially did not meet expectation	C

### Introduction and Context

#### What support is the UK providing?

The UK will provide £6 million<sup>1</sup> over 4 years 2011–2014, in complementary grant financing alongside the Asian Development Bank (ADB) for risk mitigation operations designed to catalyse private sector investment in clean energy projects, both directly and more widely through demonstration effects.

In the first instance, International Climate Fund (ICF) resources will be used to establish a UK-ADB Private Sector Guarantee partnership. From this, £6m will be used to leverage uptake of ADB risk guarantee facilities for solar power plants in India. This will be achieved by buying down the cost of the guarantees, a critical constraint to demand for these facilities; ICF funds will be used to meet an agreed portion of the fees that would otherwise be charged to participating commercial lending institutions.

On 24 October 2011, a Memorandum of Understanding was signed by DECC and ADB with respect to the grant contribution of £6 million to buy down a portion of the guarantee fees for guarantees provided by ADB under this facility.

The remaining funds may be allocated for similar initiatives that seek to deliver a transformational impact on incentives for private investment in clean energy in other ADB developing member countries. Specific allocations will be made according to eligibility criteria outlined in the Business Case, and subject to approval by both ADB and Department of Energy and Climate Change (DECC).

#### What are the expected results?

Our current estimate is that the £6 million ICF grant will catalyse an estimated £265 million private sector investment in clean energy generation, corresponding to approximately 130 MW of solar power capacity and 4.9m tonnes of CO<sub>2</sub>e avoided over 25 years (assuming full attribution of emission savings to the UK ICF and full additionality). This estimate will be re-evaluated before the next six monthly

<sup>1</sup> This project could be expanded to up to £15 million if this is deemed suitable.

review. By playing a critical role in the successful financing of the first wave of solar power projects in India, the facility will transform overall market risk perceptions and induce other banks to lend to the sector. Over the medium term this will help develop local capacity and enable long-term cost reductions for solar power, including for off-grid consumers who are often by-passed.

Results from other uses of the partnership cannot be quantified here yet, but will also be reported in terms of (i) private investment leveraged, (ii) energy saved or clean energy capacity installed, (iii) CO<sub>2</sub>e saved, and (iv) wider demonstration effects in terms of technology adoption or availability of commercial finance.

Poverty impacts will be largely long-term and indirect through promotion of a more sustainable growth path which helps countries to contribute to global climate change mitigation goals in a manner consistent with domestic growth and poverty reduction objectives.

## **What is the context in which UK support is provided and why is UK support required?**

The growth of demand for energy in developing Asia will be one of the key drivers of global greenhouse gas (GHG) emissions in the next few decades, as well as a critical enabler of economic growth and poverty reduction. The International Energy Agency (IEA) estimates that non-OECD Asia will account for two thirds of the increase in global energy demand by 2020. Increases both in the share of clean energy, and in energy efficiency, will be necessary for countries such as China and India to meet their carbon intensity targets without compromising future growth. Technological innovation will be required, but considerable potential exists to increase clean energy provision and energy efficiency through large-scale adoption of proven technologies.

Supportive policy and regulatory frameworks will be essential, and are being developed in major Asian countries to achieve economic growth, climate change and energy security objectives. There is also a need to engage more directly with the private sector to develop appropriate risk mitigation instruments and build capacity, since private investment in clean energy is deterred by a range of risks including technology and commercial (both actual and perceived) as well as policy and regulatory risks. ADB is playing a leading role in pioneering the sort of interventions that seek to bring together public and private money to catalyse clean energy investment on a much larger scale, for example through technical assistance, policy dialogue, knowledge dissemination and risk mitigation/credit enhancement through private sector operations. The partial credit guarantee facilities for solar power generation projects in India fall into the latter category, i.e. risk mitigation and credit enhancement.

There is a clear rationale for donor grant financing to help leverage and complement ADB's activities in this arena, by providing the degree of concessionality that may be required to overcome market failures which inhibit private sector uptake of ADB risk mitigation instruments. Experience has shown this to be the case for the partial risk guarantee facilities being developed for India and future programmes, where there is a gap between the pricing of guarantees required by ADB's internal risk management policy (for private sector operations) and the fee rates private sector developers and banks are willing to bear. The additive value of the ICF grant therefore is that, without it, uptake of the ADB facilities will be very limited. ICF grant resources will improve the terms on which commercial banks can access the ADB guarantee facilities, and the terms on which project borrowers can access bank financing, thus also improving the financial viability of projects and reducing costs. In this way, judicious deployment of grant financing alongside multilateral instruments can achieve substantially greater catalytic impact and value-for-money than separate, parallel initiatives.

The ICF grant provides excellent value for money alongside a trusted development partner which received one of the highest ratings in the recent Department for International Development (DFID) Multilateral Aid Review which provided a comprehensive comparative assessment of all multilateral development institutions. ADB will conduct detailed appraisal and due diligence for all activities, as well as managing, administering and reporting on the projects.

DECC has also identified ADB as a key strategic partner on private investment in clean technology,

notably in the context of the Climate Public Private Partnership (or “CP3”), which aims to leverage increased equity investment from institutional investors into cleantech investment in large Asian countries, including India and China. The UK-ADB partnership will complement CP3 as it focuses on catalysing commercial lending rather than equity. There is also an opportunity to link up with, and support the objectives of the DECC-led Capital Markets Climate Initiative (CMCI) through the learning and piloting that will emerge from the projects.

## Section A: Detailed Output Scoring

### Output 1: Private sector finance leveraged

#### Output 1 score and performance description: B

While no sub projects have been signed under the Solar Power Generation Guarantee Facility, significant preparatory work has been undertaken by the ADB during the first year. Substantial progress has been achieved in identifying and selecting partner commercial banks (PCBs) under the guarantee facility, and at the time of this review the ADB is in the final stages of negotiating the guarantee agreement with the borrowers.

For the two projects already approved by ADB to be covered under the guarantee facility, the total private sector investment mobilised is Rs 4,744 million (\$85 million) – against the logframe’s 1<sup>st</sup> milestone of \$231m by March 2013. This includes Rs 3,390 million (\$61 million) of debt capital and Rs 1,354 million (\$24 million) of equity capital.

#### Progress against expected results:

ADB has approved Nord/LB and L&T Infrastructure Finance Company Limited (L&TIF) as PCBs under the guarantee facility. L&TIF proposed two solar photovoltaic (PV) projects to be covered under the guarantee facility. ADB has approved these projects and is currently negotiating guarantee agreements with L&TIF. Leverage ratio will be calculated once the guarantee agreements are signed and effective. Guarantee agreements for these two projects are expected to be signed by 31st March 2013. The delays in guarantee approvals were partially a result of missing the financial close and commissioning deadlines, i.e., the DECC grant was not operational in time for guarantees to be negotiated and written when projects first needed to reach financial close and commissioning. At the same time, drafting of guarantee agreements has been slightly delayed due to the fact that the facility is the first of its kind in the country. All agreements are being subjected to detailed scrutiny by both ADB and the PCBs. However, once guarantee agreements are finalised for the initial two projects, negotiations for guarantee agreements for the subsequent projects are expected to be completed in a much shorter time frame.

If all the guarantees in this pipeline are agreed and signed, this will make use of approximately £2 million of DECC funds. ADB therefore need to develop additional project ideas with the two PCBs they’ve already approved, or approve further lenders and develop projects with them to create opportunities to allocate the remaining £4 million of DECC funding. ADB is currently in negotiations with two other financial institutions (one international lender, two local lenders) for inclusion as new PCBs under the guarantee facility. Once approved as PCBs, these financial institutions will propose projects to be covered under the guarantee facility, which are intended to be guaranteed by the remaining DECC funding. In order to develop a pipeline of projects and to sign contracts on these, ADB will need to complete the same process that they are currently going through with the approved PCBs. There remains considerable uncertainty over whether guarantee contracts can be finalised with these lenders; future negotiations with other lenders will benefit from learning gained through this process so far, but will still need to surmount similar obstacles.

The two final outstanding legal issues that are being discussed between the ADB and the PCB include the following:

i) ADB views its role as both guarantor and lender, (as this is a comprehensive guarantee, ADB will step in as a lender in the event that the guarantee is called). The PCB views the ADB's role as 'insurer' only; which would require the ADB to rely on the PCB's warranties in the loan documents.

ii) The second issue is the reluctance of the PCB to include the ultimate Borrower (i.e. the project company) in the agreement between the ADB and the PCB. The PCB's reluctance is that the Borrower may ask for a reduction in the pricing of the loan (due to the guarantee). ADB documentation requires the end borrower to acknowledge that the PCB is receiving a guarantee from ADB and also to remove any discrepancies between the loan agreement and the guarantee agreement. In case of a guarantee being called, the provisions of the guarantee agreement need to supersede those of the loan agreement and the end borrower needs to agree to that. The PCB has been reluctant to this and wants the transaction to be limited to ADB and the PCB.

**Recommendations:** i) It will be important to capture lessons. These two emerging issues, and the underlying concerns, which have delayed the agreement between the ADB and PCB offer significant learning for the development of future agreements in India and elsewhere. The ADB is developing a lessons learnt paper. ii) Given the innovative and challenging nature of the project, we assess the approval of two PCBs and the negotiations on contract agreements so far as a good indication of progress. But still, no agreements have been completed; progress on these will be kept under review and future disbursements (from DECC to the ADB) adjusted as appropriate. Project team to take stock of progress at the next six monthly review and reconsider the options for advancing the project.

**Impact Weighting (%): 35%**  
**Revised since last Review? NA**

**Risk: Low**  
**Revised since last Review? NA**

## Output 2: Increase in clean energy projects financed and implemented

**Output 2 score and performance description: B**

### **Progress against expected results:**

Two projects have been approved by ADB to be covered under the guarantee facility (against the logframe milestone of 5-8 by March 2013). These are currently under negotiation with the PCB (hence information not publicly available at this stage).

The combined capacity of these two projects is 35 MW (against the logframe milestone of 70MW by March 2013). A further 53MW of capacity could come on stream if the remaining projects in the pipeline are also guaranteed. However, so far no guarantees have been completed and no additional capacity brought online, and there appear to be significant legal obstacles still to overcome before they can be.

**Recommendations:** Once projects have been approved, it will be important to track how quickly these come on stream; and to assess lessons from different approaches / models adopted by the projects (e.g. Solar Parks, construction models etc). Project team to take stock of progress at the next six monthly review and reconsider the options for advancing the project.

**Impact Weighting (%): 35%**  
**Revised since last Review? NA**

**Risk: Low**  
**Revised since last Review? NA**

## Output 3: Increased capacity of banks in appraisal and due diligence of clean energy projects

### Output 3 score and performance description: A

#### Progress against expected results:

A parallel technical assistance (TA) grant has also been put in place by ADB to build capacity and provide technical support to the partner banks during the due diligence of private sector solar power projects. This has been funded by £1.25 million of ADB funding, and is not provided for under the UK grant funding. ADB has engaged an international engineering consultant (SgurrEnergy) to provide expertise and hands-on support to partner banks as they conduct due diligence on individual projects. As part of this TA, solar training programs conducted by consultants from the National Renewable Energy Laboratory, part of the US Department of Energy, and resource persons from Ministry of New and Renewable Energy (MNRE) and NVVN were held in Mumbai (March 2011), Delhi (June 2011), Ahmedabad, Bangalore and Kolkata (May 2012) in the last 12 months. These training programs were well received by the local banking industry and to date approximately 250 finance professionals working in the solar sector have attended these training programs.

**Recommendations:** The M&E approach should track and test how increased capacity and technical support has translated into strengthening due diligence and value for money in the medium to long term.

**Impact Weighting (%): 30%**

**Revised since last Review? NA**

**Risk: Low**

**Revised since last Review? NA**

## Section B: Results and Value for Money.

### 1. Progress and results

**1.1 Has the logframe been updated since last review?** No. Given the delays in reaching agreement with PCBs, it has been too early to revise the logframe. We will consider emerging lessons and revisit the logframe indicators and targets before the next six monthly review, and adjust these accordingly. The theory of change will also be updated before the next 6 monthly review.

#### **1.2 Overall Output Score and Description: B (moderately not met expectations)**

While substantial progress has been achieved in identifying and selecting PCBs under the Solar Power Generation Guarantee Facility, no deals have been signed so far. ADB feel that progress in the early stages of a potentially transformational project like this is likely to be slow, and expect more rapid progress in the coming period. This should translate into subprojects being identified and proposed to be covered under the guarantee facility in 2012-2013. There is a risk that progress does not speed up – so far no guarantee deals have been finalised. If no further progress on guarantee agreements has been made by the next six month review, the project team will take stock and re-evaluate the options for progress. The DECC disbursement schedule has been updated to reflect the slippage in disbursement so that money is not paid in advance of need.

As the framework of guarantee agreement is innovative in India (few previous models exist), there have been some delays in firming up the legal arrangements with the key Partner Commercial Banks. However, the ADB anticipates that once the framework template is in place, it will simplify the process and timing for reaching agreement for future lending.

**1.3 Direct feedback from beneficiaries (where appropriate in 6 monthly reviews; required in annual reviews):** Because no guarantees have been signed, there are not yet any beneficiaries to get feedback from.

#### **1.4 Summary of overall progress**

Two financial institutions (Nord/LB and L&TIF) have been approved as PCBs under the guarantee facility. Two additional financial institutions are currently being evaluated for approval as PCBs. Two solar PV projects proposed by L&TIF have been approved by ADB to be covered under the facility. An additional project is under final credit review. ADB is currently negotiating guarantee agreements with the PCBs in connection with the three projects, and expect the first set of agreements to be signed by March 2013. However, no guarantee agreements have yet been signed. Disbursement of DECC funding is therefore behind schedule; no funds have yet been disbursed.

#### **1.5 Key challenges**

1. Legal complexities in setting up the guarantees have resulted in significant delays. It will be necessary to apply learning from this process to the development of future agreements in order to reduce delays.
2. Delay in execution of concession agreements for the projects under the Phase I Batch 2 of the National Solar Mission (NSM) could result in delay in roll out of the guarantee facility.
3. The PCBs already have a significant exposure to the power sector through their financing of thermal power projects. Given the increase in global coal prices and the poor financial health of the state utilities who are the off-takers to these projects, the PCBs may decide to limit their exposure to the power sector which could impact lending to new solar power projects.

#### **1.6 Annual Outcome Assessment**

The guarantee facility is expected to leverage private financing for solar power projects in India. Delays resulting from complex legal work relating to setting up guarantees has meant that no agreements have yet been executed. Actual leveraging effect can be quantified only after guarantee agreements have been executed for specific sub projects.

## **2. Costs and timescale**

**2.1 Is the project on-track against financial forecasts:** The project has encountered delays and is not on-track. As a result the project disbursement schedule has been re-negotiated to take account of the time required to complete complex legal work while setting up guarantees. The first instalment of the grant from DECC amounting to US\$3,107,520.02 (£2 million) was credited to ADB's Grant Account on 15 December 2011. No disbursements from the Grant Account have yet taken place. The DECC disbursement schedule for subsequent payments has been updated to reflect this so that money is not paid in advance of need.

The ADB expects to draw 50% of the guarantee fee (about £1 million) at the date of signing of the first 2 projects (this date is uncertain, but could be by March 2013). The actual amounts will depend on the exchange rates (converted to Indian Rupees) at the time of draw down. The ADB expect to call on the next tranche of funds during 2013. We expect project disbursement rates to increase because future guarantee deals will be able to draw on the legal work that has already been completed. We will continue to track progress .

**2.2 Key cost drivers:** NA

**2.3 Is the project on-track against original timescale:** The project has fallen behind logframe

targets and has been reprofiled, and DECC/DFID will revise the logframe and financial targets in discussion with the ADB. If there is further slippage in the project at the point of the next six monthly review we will reconsider options for progress with the project..

### 3. Evidence and Evaluation

**3.1 Assess any changes in evidence and implications for the project:** All efforts have been focused on setting up the legal frameworks with PCBs – an innovative model in India. There are two key lessons emerging from this painstaking process. Firstly, Indian banks do not see the guarantor at the same level as a lender and are very reluctant to share information on the underlying loan with the guarantor. Secondly, the pricing benefit is not intended to be passed on to the Borrower (in terms of lower margins). The main benefit of availing of the guarantee appears to be that the bank will be able to do more lending to solar projects if it offloads some of its exposure to the ADB.

**3.2 Quality of monitoring and reporting:** Evidence received so far in relation to this project is judged to be reliable, as it comes from the ADB who are a well-known and respected institution.

**3.3 Where an evaluation is planned what progress has been made?:** A monitoring and evaluation plan will be developed for this project by the next 6 monthly review.

### 4. Risk

**4.1 Output Risk Rating:** Medium

#### 4.2 Assessment of the risk level

Given that two PCBs have already been approved and selected by ADB, but that legal complexity has caused delays, the risk of not issuing guarantees within the term of the project is medium. The project has been reprofiled. ADB has already approved two sub projects for inclusion under the guarantee facility and is in advanced negotiations over the guarantee agreements. We expect future guarantees to be signed more rapidly. However, there is a risk that the ADB fails to reach agreement with the PCBs and therefore that guarantees cannot be signed during the period of the project. This risk will be reconsidered at the next six monthly review, particularly if no funds have been disbursed at that point.

**4.3 Risk of funds not being used as intended:** Low

**4.4 Risk of slow disbursement rate by ADB:** Disbursement has been slower than was first predicted. However, the Business Case has already identified the slow uptake / implementation of the ADB guarantee facilities as a risk (Section E). We recognise that the project is at an early stage of delivery (12 months into implementation). Critical project start-up activities can often be time intensive, and lower in spend value, and may therefore not be fully reflected in disbursement rates alone. DECC, DFID and ADB will continue to closely monitor progress against this during six-monthly and annual reviews and track disbursement rates.

### 5. Value for Money

#### 5.1 Performance on VfM measures

Performance on VfM measures will be calculated once guarantee agreements have been executed for the sub-projects.

**5.2 Commercial Improvement and Value for Money:** NA

### 5.3 Role of project partners

Based on a detailed due-diligence, ADB will select and approve financial institutions to work as PCBs under the guarantee facility. ADB will screen projects proposed by the PCBs to determine their eligibility to be covered under the guarantee facility. ADB will negotiate guarantee documents with the PCBs for approved sub projects and issue guarantees for these sub projects.

**5.4 Does the project still represent Value for Money :** Yes

**5.5 If not, what action will you take?:** We are continuing to monitor this project through the 6 monthly and annual reviews, to track disbursement of spend.

## 6. Project partnerships, sustainability and transformation

### 6.1 Partnerships

ADB are the delivery partner for this project. They have been working in country to implement the project, and to negotiate guarantee agreements with national banks.

DFID play an in-country oversight and management role, as defined by a letter of agreement between DFID and DECC (15 March 2012).

### 6.2 Transformation

It is too early to judge the transformational effect of this project on the evidence so far gathered, and so the current rating for the project in this regard is 1 – no evidence yet available. It is clear that the legal and contracting difficulties that have been encountered so far in developing the project will need to be addressed in order to streamline and speed up the development of guarantees. However until some guarantees have been seen through to completion it is difficult to make a firmer statement on this issue.

1	No evidence yet available - too soon to revise assessment in business case
2	Transformation judged unlikely
3	Tentative evidence points to likely change
4	Clear indication of change - transformation judged likely

## 7. Conditionality

**7.1 Update on specific conditions:** NA

## 8. Lessons learned, conclusions and actions

Further substantial ground work in signing up partner commercial banks and conducting technical due diligence training has been completed. This is expected to lay the foundation for signing up project specific guarantee agreements in the next 12 months under the solar guarantee facility. DECC and DFID will continue to closely monitor progress through regular discussions with the ADB, and through monitoring visits.

### Actions:

- Review the project logframe and theory of change by the next six monthly review.
- Review project expenditure schedule at the next six monthly review.
- Keep under review disbursement progress, particularly if no funds have been disbursed by the next

six monthly review.

## 9. Review Process

This first annual review draws largely on the ADB's own internal assessment and reporting of progress; and includes discussions between ADB-DECC-DFID on key progress and challenges faced during start-up. In addition, DFID will undertake a monitoring field visit to include broader consultation meetings, followed by discussions at senior levels in the ADB (in March) to discuss annual work plans, progress, risks and evaluation approaches (as outlined in the Business Case).

*Sources used: ADB internal reporting and assessment; discussions between ADB-DECC-DfID.*

**Annex 1: Project expenditure (actual vs planned expenditure, including the delivery rate (%))**

	<b>Forecast</b>	<b>Actual</b>	<b>Comments</b>
October 2011	£2m	£2m	DECC disbursed to the ADB on signing of the MoU
1 <sup>st</sup> September 2012	£2m		Not yet disbursed due to slow project start up.  Next disbursement scheduled for 1 <sup>st</sup> September 2013
1 <sup>st</sup> September 2013	£2m		Not yet disbursed due to slow project start up.  Next disbursement scheduled for 1 <sup>st</sup> September 2014
<b>Total</b>	<b>£6m</b>		

## Appendix – Update on the National Solar Mission

The NSM, launched in January 2010, is an initiative of the central and state governments to promote ecologically and economically sustainable growth in solar power generation by creating an enabling policy and regulatory framework. The objective of the NSM is to establish India as a global leader in solar energy by creating the policy conditions for its diffusion across the country as quickly as possible. The immediate aim of the mission is to focus on setting up an enabling environment for penetration of solar technology in the country both at centralized (utility-scale, grid-connected) and decentralized (off-grid, rural electricity supply) levels. The mission will adopt a three-phase approach, spanning the remaining period of the Eleventh Five Year Plan (2007-2012) and the first year of the 12<sup>th</sup> plan (up to 2012-13) as phase 1, the remaining 4 years of the 12<sup>th</sup> plan (2013-2017) as phase 2, and the 13<sup>th</sup> plan (2014-2022) as phase 3.

The progress the NSM has made thus far:

- A total of 1154MW capacity of solar grid power has been allocated. This includes 1054MW capacity of large solar power projects connected to 33kV and above and 100MW capacity of smaller projects connected to less than 33kV.
- Large projects include 84MW (54MW PV + 30MW ST) under migration, 620MW (150MW PV + 470 MW ST) as new projects under Batch-I and 350MW PV projects under Bath-II of NSM. These projects are selected through international competitive bidding and discounting to CERC based tariff for solar, thermal and photovoltaic technologies. This has led to heavy discounts being offered by developers bringing down solar tariff substantially.
- Eleven projects of 50.5MW capacity (48MW PV + 2.5MW ST) under migration and 26 projects of 130MW capacity under Batch-I have been commissioned. In addition, 68 projects totalling 87.8MW of smaller capacity solar power projects have been commissioned.
- Solar thermal projects under Batch-I and solar PV projects under Batch-II have time for completion till February and May 2013, respectively.
- The total capacity installed in the country has reached 1040MW. As per the information available, state-wise details of this capacity are given in Table 1.

**Table 1. State-wise details of 1040MW capacity projects**

State	Capacity (MW)
Andhra Pradesh	21.8
Chharrisgarh	4
Delhi	2.5
Gujarat	690
Haryana	7.8
Jharkhand	16
Karnataka	14
Madhya Pradesh	7.4
Maharashtra	20
Odisha	13
Punjab	9.3
Rajasthan	198.7
Tamil Nadu	15.1
Uttar Pradesh	12.4
Uttarakhand	5.1
West Bengal	2.1
Andaman & Nicobar	0.1
Lakshadweep	0.8
<b>Total</b>	<b>1040.1</b>

- In order to set up more solar thermal energy installations, 5.57 million sqm of solar thermal collector are has been acquired so far. The progress of implementation of off-grid PV applications under the NSM is given in Table 2.

**Table 2. Progress of implementation of off-grid PV application (MW)**

<b>Year</b>	<b>Target</b>	<b>Project Sanctioned</b>	<b>Projects Installed</b>
Till March 2010			59.00
2010-11	32	40.65	10.79
2011-12	58	77.40	20.20
2012-13	100	-	-