

**Nepal SREP Revised Investment Plan:  
Queries from Switzerland and Responses**

Query	Response
<p>1. The main reason invoked for abandoning the project is that financing for small hydropower plants has become easier in Nepal since 2013. However, this does not explain why the project was unsuccessful, i.e. why no disbursements could be made from the allocation until now. Please provide an explanation.</p>	<p>As noted in paragraph 12, the conditions justifying SREP intervention changed considerably after Subcommittee approval in early 2013. As IFC and ADB-PSOD pursued development of the financing program, the need for concessional finance declined, and by mid-late 2014, IFC and ADB-PSOD determined that the small hydropower (SHP) financing program as envisioned would not be the best use of SREP funds and thus the project could not be processed further for MDB approval. While some larger hydropower projects under development could benefit from concessional funds, SREP funds are limited to installations not exceeding 10 MW per plant.</p> <p>Also in mid-late 2014, the Government of Nepal requested support from ADB for on-grid solar power development; this ultimately led GoN and ADB to propose using SREP for solar development rather than SHP. IFC and ADB-PSOD at present do not have viable concepts for solar development and decided to relinquish the \$20 million allocation.</p>
<p>2. We noticed that the shift from SHP to utility scale solar photovoltaics results in considerably lower expected outcomes in terms of aggregate RE capacity (down by 2/3 from 90 MW to 30 MW) and RE output (down 77% from 335 GWh/y to 82 GWh/y). What are the upsides that could compensate these lower outcomes?</p>	<p>Nepal's technical solar potential is 3900 MW (2100 MW PV and 1800 MW concentrating solar; see Appendix 1, paragraph 2 and footnote 6), which is untapped with respect to on-grid installations. As noted in the original SREP IP, the pipeline for SHP development is only 100 MW, with no clear expansion targets. In the SREP IP context, the upside potential for solar is much greater than that for SHP.</p> <p>The technological simplicity of solar PV relative to SHP bodes well for future scale-up, but the solar market needs a financing push to complement the Government's request to support 100 MW of new grid-connected solar capacity.</p>
<p>3. Besides the ADB loan (USD 50 million), other co-financing of USD 20 million is foreseen. From what sources are these USD 20 million?</p>	<p>The European Union has unofficially expressed interest in contributing US\$20 million in grant funding as cofinancing with ADB for solar power development.</p>
<p>4. How is the statement "leveraging of SREP funds is expected to increase compared to the original IP" justified? The comparison of the financing plan in tables 5</p>	<p>As noted above, the upside for solar development is actually much larger than for small hydropower. The technological simplicity of solar PV relative to SHP bodes well for future scale-up, but the solar market needs a financing "push" to complement the</p>

Query	Response
<p>(original IP) and 6 (revised IP) shows that both private sector equity and overall co-financing will be significantly lower in the revised IP.</p>	<p>Government's request to support 100 MW of new solar capacity (which comprises an unofficial advanced market commitment).</p> <p>It is important to note that solar PV system costs have declined rapidly since the IP was endorsed in November 2011, while SHP system costs have not. Further, solar is downward and upward scale-able and can be tailored to end-user needs in the form of distributed generation (including rooftop installations), while SHP is "as-is, where-is" in nature. Ultimately, SREP funds are expected to achieve greater leverage with respect to long-term market development than SHP, as the upside potential is larger and more energy service companies and independent power producers participate in the market.</p>
<p>5. We are surprised to see that the reallocation concerns the whole USD 20 million SREP contribution. Does that mean that the grant portions of USD 500'000 each for the ADB and IFC part will be returned unused?</p>	<p>The grant portions were proposed for project implementation and supervision services. As the SHP programs of IFC and ADB-PSOD did not proceed to respective MDB Board approvals, these funds were not utilized and the entire \$20 million will be reallocated for the solar program.</p>
<p>6. The project was approved with a 95% capital contribution. Will this proportion be maintained in the on-grid solar program? How will the capital be channeled to the developers and how and by whom will the flow-backs be managed?</p>	<p>The Government of Nepal is requesting the \$20 million be made available as grant funds.</p> <p>As noted in Appendix 1 paragraph 3, for captive generation, SREP funds will be utilized to take out up-front development risks; for installations selling power to the grid, SREP funds could cover part of the cost difference between solar output and NEA's average cost of supply. The detailed mechanics of funds flow will be determined during project preparation, in accordance with SREP and ADB guidance; the funds flow mechanics will be subject to loan covenants to be agreed between ADB and the Government.</p>
<p>7. A key challenge of solar photovoltaics is the cleaning and maintenance of the solar panels, particularly in a dusty and/or corrosive environment. Is the solar sector in Nepal developed enough to assure such maintenance?</p>	<p>Yes. Experience with off-grid solar development, solar street lighting, and feedback received during stakeholder consultation (see Appendix 2) indicate that there is sufficient technical expertise for operations and maintenance.</p>
<p>8. What measures is the GoN going to take to improve the policy and regulatory framework to allow utility scale solar photovoltaic plants to be promoted by private developers?</p>	<p>As noted in Appendix 1 paragraph 3, the SREP funds will cofinance a program loan from ADB, so that the physical investments are synergistic with energy sector reforms. The SREP funds will be deployed as output-based or results based aid, i.e.,</p>

Query	Response
	disbursed based on achievement of solar development milestones. A learning-by-doing approach will be adopted. Disbursement conditions and other details will be elucidated during project preparation.
9. Have specific sites for the first utility scale solar photovoltaic power plants already been identified? How far are they from the main grid? Have interested private sector developers been identified?	As noted in Appendix 1, paragraph 3, The project will support installations which can be constructed and commissioned as fast as possible to address the chronic power deficit: candidate sites are industrial estates, Nepal Electricity Authority (NEA) sites with available land, telecommunications towers, and other sites with sufficient land area such as airports (active and abandoned). Large-scale rooftop installations will also be considered, e.g., at industrial facilities, hotels, and office buildings (both private and public buildings).

**Nepal SREP Revised Investment Plan:  
Queries from the UK and Responses**

Query	Response
1. We would like to see some more information and analysis underpinning the core assumption that the flow of credit to the SHP sector is now not a barrier and that SREP has no further role to play in the SHP sector. Our impression would have been that the small hydro sector remains a potentially high return, low unit cost renewable option which remains a high risk area for investment and needs new/different ways of working.	<p>As noted in paragraph 12, the conditions justifying SREP intervention changed considerably after Sub-committee approval in early 2013. As IFC and ADB-PSOD pursued development of the financing program the need for concessional finance declined, and by mid-late 2014, IFC and ADB-PSOD determined that the small hydropower (SHP) financing program as envisioned would not be the best use of SREP funds. While some larger hydropower projects under development could benefit from concessional funds, SREP funds are limited to installations not exceeding 10 MW per plant.</p> <p>Also in mid-late 2014, the Government of Nepal requested support from ADB for on-grid solar power development; this ultimately led GoN and ADB to propose using SREP for solar development rather than SHP. IFC and ADB-PSOD at present do not have viable concepts for solar development and decided to relinquish the \$20 million allocation.</p>
2. The IP states that grid-connected solar does not exist in Nepal however we would appreciate more consideration of the existing activities in the area of solar, including	Grid-connected utility scale solar > 1 MW per plant does not yet exist in Nepal. The ongoing activities supported by Denmark, Norway, and the UK – along with institutional solar development funded by an ongoing ADB loan -- will be taken into consideration

Query	Response
institutional solar systems (schools, street lights, police posts, health centres) which Denmark, Norway and the UK are also supporting.	during project preparation, and will be presented in the funding proposal when the proposed project reaches the appraisal stage.
3. We have some concerns that the project will be using a parallel fund flow mechanism alongside CREF (footnote on page 2). If so, it would be good to know how the revised project will build the capacity of CREF (even if they are not using it), or else, the SREP investment needs to have a sustainability plan of the component.	The CREF is still in early operational stages and as such is not considered an appropriate vehicle to finance new utility-scale grid-connected solar. Rather, GoN and ADB agreed that a different funding mechanism should be piloted to jump-start utility-scale solar development. The SREP funds will be utilized as part of an ADB policy-based loan (program loan) that will address capacity building needs as noted.
4. The actual use of the proposed funds is not clear, even in outline. What percentage of project funds will be used for grant/subsidy and/or credit? How will this revised investment plan will work towards reducing subsidy dependence in the sector? How will the IP avoid excessive grant proportions going to captive generation projects with more limited wider benefits?	<p>The details requested on grant vs. credit will be addressed during project preparation. The principle of minimum concessionality will be applied to the proposed project design.</p> <p>As noted in Appendix 1 paragraph 3, for captive generation, SREP funds will be utilized to take out up-front development risks; for installations selling power to the grid, SREP funds could cover part of the cost difference between solar output and NEA's average cost of supply. The detailed mechanics of funds flow will be determined during project preparation, in accordance with SREP and ADB guidance; the funds flow mechanics will be subject to loan covenants to be agreed between ADB and the Government.</p> <p>The SREP funds will be deployed as output-based or results based aid, i.e., disbursed based on achievement of solar development milestones. A learning-by-doing approach will be adopted. Disbursement conditions and other details will be elucidated during project preparation.</p>
5. The renewable shares for Nepal stated in para 15 seem very low, are these not including hydropower? If not why not?	GoN does not normally include grid-connected capacity larger than "small" hydropower (25 MW is the GoN threshold) in the definition of renewable energy.
6. Table 7 and the Table 8 results 1 and 2 indicate significant reduction in planned RE capacity and energy produced as well as energy access for the same SREP investment compared with the original IP and the baseline (are these the same?). Could you also clarify why the on-grid solar	Table 7 notes capacity (MW) and energy output (GWh) <u>directly</u> supported by SREP funds. Table 8 refers to all of the SREP-supported investments. Note "c" of Table 8 indicates MW and GWh <u>with</u> scale up and replication. Nepal's technical solar potential is 3900 MW (2100 MW PV and 1800 MW concentrating solar; see Appendix 1, paragraph 2 and footnote 6), which is untapped with respected to

Query	Response
<p>capacity related results target are different in Table 8 and Table A1.1 (32.85 vs. 36.5 Gwh/y?)</p>	<p>on-grid installations. As noted in the original SREP IP, the pipeline for SHP development is only 100 MW, with no clear expansion targets. In the SREP IP context, the upside potential for solar is much greater than that for SHP.</p> <p>The technological simplicity of solar PV relative to SHP bodes well for future scale-up, but the solar market needs a financing push to complement the Government's request to support 100 MW of new grid-connected solar capacity.</p> <p>While in computing the design output targets for on-grid solar, Tables 8 and A1.1 used different assumptions (15% output vs. 4 hours/day). For Table 8, note "g", the assumption is 25 MW solar at 15% output: <math>25 \text{ MW} \times 8760 \text{ hours/year} \times 0.15 = 32.85 \text{ GWh/year}</math>.</p> <p>For Table A1.1., the assumption is 4 hours of rated output per day every day: <math>25 \text{ MW} \times 4 \text{ hours/day} \times 365 \text{ days/year} = 36.5 \text{ GWh/y}</math></p> <p>Table A1.1, however, has a typo error and should use the target 32.85 GWh/y instead of 36.5 GWh/y. We will note this change.</p>
<p>7. Assuming that the answer to the above relates to wet season versus dry season capacity, can the importance of the additional capacity in the dry season provided by solar be better quantified to better explain why this reduction in power and access expectation is not a negative outcome for SREP? Linked to this, will higher dry season feed-in prices offset the typically higher unit costs of solar compared with SHP so as to enable viability?</p>	<p>The answer to point 6 above is not related to wet vs. dry season.</p> <p>The project is intended in part to facilitate price discovery for utility-scale grid-connected solar (as is the case with the World Bank's on-grid solar project), and as such there is no assumption about feed-in prices being made.</p>
<p>8. We would appreciate more consideration of the gender and poverty alleviation dimensions (this adds to the question in point 4 about capture of subsidies).</p>	<p>This is well noted and will be an important consideration during the detailed project design. More details will be made available during project preparation and will be included in the funding proposal when the proposed project reaches the appraisal stage.</p>
<p>9. The Medium/Low risk rating regarding the lack of policy with respect to the new solar component seems potentially optimistic. Can the</p>	<p>As noted in Appendix 1 paragraph 3, at least three types of installations will be piloted: (i) captive generation at industrial estates, reducing diesel-based generation; (ii) semi-captive generation, with</p>

Query	Response
<p>GoN provide clearer indications of their intentions in this regard?</p>	<p>surplus power delivered to the grid; and, (iii) conventional installations delivering power directly to the grid. For captive generation, SREP funds would be utilized to take out up-front development risks; for installations selling power to the grid, SREP funds could cover part of the cost difference between solar output and NEA's average cost of supply.</p> <p>Based on the stakeholder consultations conducted during the Joint Mission in January 2015, this approach and sequencing will minimize risks.</p>
<p>10. Private financing of \$50m is expected in the results table A1.1 while only \$5m is included in the financing plan below. In general, the financing plan (and especially the public proportion) presented on pg 12. looks out of proportion compared to the project size of 25MW utility scale solar. Please clarify, and provide the basis for the \$5m and \$50m estimates, as well as indications of how such private investment will be maximised (especially in the captive cases).</p>	<p>Table A1.1 notes that \$50 million of private sector investment is expected by 2018, while the financing table below that assumes initial private sector investment of only \$5 million. The actual private sector investments remain to be discovered, and the proposed project will be designed to maximize private investment.</p> <p>As noted in Appendix 1 paragraph 4, <u>the project will include parallel investments in transmission and distribution system loss reductions and efficiency improvements</u> which are to be supported by the \$50 Million loan from ADB. The installed solar PV system cost is assumed to be on the order of \$2.5/Watt (or less) which is consistent with the recently-approved World Bank project.</p>