

Scientific and Technical Advisory Panel

The Scientific and Technical Advisory Panel, administered by UNEP, advises the Global Environment Facility
(Version 5)

STAP Scientific and Technical screening of the Project Identification Form (PIF)

Date of screening: May 07, 2016
Screener: Thomas Hammond
Panel member validation by: Ralph E. Sims
Consultant(s):

I. PIF Information *(Copied from the PIF)*

FULL SIZE PROJECT	GEF TRUST FUND
GEF PROJECT ID:	9393
PROJECT DURATION:	3
COUNTRIES:	Togo
PROJECT TITLE:	Project of Hybridization of Diesel Engines of Multifunctional Platforms with Solar Systems
GEF AGENCIES:	BOAD
OTHER EXECUTING PARTNERS:	<ul style="list-style-type: none">- Ministry of environment and forest resources- Ministry of Grassroots Development- Support Program to Grassroots Development- Ministry in charge of energy- Togo Electricity Company
GEF FOCAL AREA:	Climate Change

II. STAP Advisory Response *(see table below for explanation)*

Based on this PIF screening, STAP's advisory response to the GEF Secretariat and GEF Agency(ies):
Concur

III. Further guidance from STAP

1. The aim is to encourage deployment of solar electricity systems to displace diesel engine electricity generation systems that many rural communities depend on and also enables great energy access for those off-grid communities. Solar being a variable resource and energy storage being expensive, hybrid solar/diesel systems make good sense at this stage of development and rural electrification. Financing and knowledge dissemination are a key.
2. The project appears to be in broad support of Togo's INDC (http://www4.unfccc.int/submissions/INDC/Published%20Documents/Togo/1/INDC%20Togo_english%20version.pdf) although diesel generation and rural electrification are not specifically mentioned. The comment on page 19 relates but is not specific. Section 3.2 of the INDC states: "Emphasis will also be placed on the introduction of solar equipment in households and on capacity-building for the various actors concerned". This is commendable but does not relate to 10-15 kVA diesel/solar systems being discussed here as these are usually at the small community scale.
3. It is not clear exactly what is meant by PTMF "multi-functional platforms" which should be specifically defined. Does it imply a diesel/solar electricity generation plant?
4. The perceived costs of solar PV by the electricity industry are described as "exorbitant" (page 8) but capital costs have declined drastically in recent years so they can compete in rural areas where the cost of delivering diesel fuel can be very high. Exempting the balance of plant components from import duty is recommended and could be explored. A cost benefit analysis with and without duties imposed would have been useful to develop at the PPG stage.
5. The other barriers listed are sound and this project serves to help overcome them. But how will the technology suppliers be selected? Will there be warranties and a period of maintenance included in the

contract? Will installers be needed in addition to the equipment suppliers? Who is to undertake the capacity building of local community members to ensure the plant is adequately maintained?

6. An emission factor of 1300 g CO₂/kWh is quoted based on "UNFCCC, EB 39 Report Annex 7, page 8". Footnote 19 gives further details but it is not easy to find the source. Please review the reference and reassess calculations as the emission factor is higher than one would expect for a small diesel/generation set. Furthermore, presenting emissions to the nearest kg (tonnes to 3 decimal points) is not practical given the wide range of variations and uncertainties.

The assumptions used to assess emissions are obscured by no value being provided for the projected annual diesel fuel displacement by the solar PV. It is stated in section 5 that solar PV will substitute for 8 hours diesel use per day. So does this assume the diesel generation set will be off during this period? What about cloudy days when less solar electricity is generated? Is the solar system to be integrated in with the diesel generation set in a way that they work together to meet variable electricity demand? Will battery storage be a part and if not, why not? No details are provided of electricity demand profiles, how they might match with solar inputs received during the daylight hours, or solar radiation input variations throughout the year. Thus the volume quoted for CO₂ emissions over the life of the project avoided is very tenuous.

Without full analysis it will not be possible to monitor the future GHG emissions avoided. GEF guidelines should be used to come up with final numbers at the CEO endorsement stage:

<https://www.thegef.org/gef/ghg-accounting>.

<i>STAP advisory response</i>	<i>Brief explanation of advisory response and action proposed</i>
1. Concur	In cases where STAP is satisfied with the scientific and technical quality of the proposal, a simple "Concur" response will be provided; the STAP may flag specific issues that should be pursued rigorously as the proposal is developed into a full project document. At any time during the development of the project, the proponent is invited to approach STAP to consult on the design prior to submission for CEO endorsement.
2. Minor issues to be considered during project design	<p>STAP has identified specific scientific /technical suggestions or opportunities that should be discussed with the project proponent as early as possible during development of the project brief. The proponent may wish to:</p> <p>(i) Open a dialogue with STAP regarding the technical and/or scientific issues raised.</p> <p>(ii) Set a review point at an early stage during project development, and possibly agreeing to terms of reference for an independent expert to be appointed to conduct this review.</p> <p>The proponent should provide a report of the action agreed and taken, at the time of submission of the full project brief for CEO endorsement.</p>
3. Major issues to be considered during project design	<p>STAP proposes significant improvements or has concerns on the grounds of specified major scientific/technical methodological issues, barriers, or omissions in the project concept. If STAP provides this advisory response, a full explanation would also be provided. The proponent is strongly encouraged to:</p> <p>(i) Open a dialogue with STAP regarding the technical and/or scientific issues raised; (ii) Set a review point at an early stage during project development including an independent expert as required.</p> <p>The GEF Secretariat may, based on this screening outcome, delay the proposal and refer the proposal back to the proponents with STAP's concerns.</p> <p>The proponent should provide a report of the action agreed and taken, at the time of submission of the full project brief for CEO endorsement.</p>