



Aide-Mémoire

ISA/M.05/WD.02
05th -09th August, 2019

Niamey, Niger
(Confidential)

Aide-Mémoire for Expert Level Visit to Niger for Pre-Feasibility Study of Solar Pumps, Rooftop and Mini-Grid Projects by International Solar Alliance Secretariat held from 05-09 August, 2019.

Venue: Niamey, Niger

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Aide-Mémoire

Expert Level Visit for Pre-Feasibility Study of Solar Pumps, Rooftop and Mini-Grid Projects by International Solar Alliance Secretariat

August 05th, 2019 to August 09th, 2019

A. Background/ Introduction of the Mission

During 05th August, 2019 to 09th August, 2019, ISA led Expert team visited Republic of Niger, hereafter referred to as the Host Country, for pre-feasibility study of demand submitted to ISA Secretariat for Solar Pumping Systems under the call for Expression of Interest (Eoi) from ISA vide number No. 23/61/2017/NFP/R&D. This Aide-Memoire (AM) summarizes the outcome of stakeholders' meetings with the expert team (as detailed in the Annex-1 to this document) as well as agreements reached therein. The AM was discussed in the wrap-up meeting on 09th August, 2019, chaired by As agreed, this AM shall be a point of reference for future planning as well as implementation of the programme.

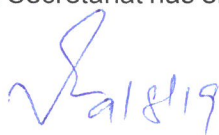
B. Overall Status of the Programmes

1. Programme for Solar Water Pumping Systems

The Host Country has submitted a demand for 15,000 Solar Pumping Systems against the call for Expression of Interest from ISA. In response to the demand aggregation submitted by the Government of the Host Country, ISA Secretariat has engaged consultants from KPMG India for feasibility study of the projected demand as well as analysis of institutional capacity of stakeholders in the project and division of responsibility thereof. Country templates have been prepared by the consultants, surveying the institutional and policy framework in the Host Country as well as potential deployment of solar energy-based applications in agriculture and electricity sectors. The Country Templates have been shared with the National Focal Point and the Embassy of the Host Country in India with the expectation that it would provide the Government of Host Country, an opportunity to plan relevant meetings with various stakeholders during the visit as well as gather the requisite data in the pre-visit to enable a pre-feasibility study. Additionally, ISA is conducting a price discovery bids through Energy Efficiency Services Ltd for 272,579 Solar Pumping Systems based on aggregated demand from 22 Member Countries as of December 31st, 2018. It is expected that there shall be a significant reduction of price through demand aggregation. A brief overview of the tender document is annexed below in Annexure 4.

2. Programme for Solar Mini-Grids

The host country is prioritising solar water pumping systems and structure of solar water pumps and after the implementation of these systems the host country will join the ISA's programme on solar mini grid. This has not been shared considering the preference of the country for solar water pump systems. To discuss various business models of solar mini grid projects, ISA Secretariat has engaged consultants from PwC for the possibility of solar





mini grid projects as well as analysis of institutional capacity of stakeholders in the project and division of responsibility thereof. Data collection templates have been prepared by the consultants to aggregate the demand, the institutional and policy framework in the Host Country as well as potential deployment of solar mini-grids for access to electricity. The Country templates have been shared with the National Focal Point. ISA expects NFP to gather the required information to estimate the demand of mini grid and also coordinate with the rural electrification agency for the required policy and regulatory framework in the country for implementation of such projects.

3. Programme for Solar Rooftop

The host country is prioritising solar water pumping systems and structure of solar water pumps and after the implementation of these systems the host country will join the ISA's solar rooftop programme. To discuss various business models in rooftop solar projects, ISA Secretariat has engaged consultants from PwC to discuss the possibility of the rooftop projects under the present scenario of electricity as well as the analysis of institutional capacity of stakeholders. Country templates have been prepared by the consultants for collating the demand of solar rooftop electricity generation and required policy framework in the Host Country. Demand of the solar rooftops for off-grid applications, access to electricity and home lighting systems is also need to be aggregated. The Country Templates have been shared with the National Focal Point and the Embassy of the Host Country in India. ISA expects NFP to gather the required information to estimate the demand of Solar rooftop and also coordinate with the concerned departments as well as with the rural electrification agency for the required policy and regulatory framework in the country for implementation of such projects.

4. Programme for E-mobility and storage

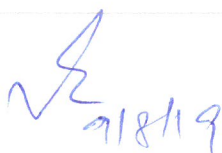
The host country is prioritising solar water pumping systems and structure of solar water pumps and after the implementation of these systems the host country will join the ISA's storage and E-mobility programme. Delegation from ISA Secretariat discusses briefly the various ongoing programmes in the area of storage and E-mobility and possible areas where Niger can engage with the members of ISA. Discussions were undertaken on the importance of storage with regard to off-grid electrification and how suitable interventions may be undertaken going forward.

C. Key Discussions

1. Ministerial Consultations (05th August to 07th August)

ISA Expert team met with Stakeholder Ministries/Regulatory bodies (List of Ministerial/Regulatory Consultations provided in Annex 2 to the AM document) for assessment of institutional capacity, division of responsibility and coordination for successful implementation of the project as well as exploring implementation models and financing avenues to be deployed for the project.

i. Consultation with the officials of the Ministry of Energy

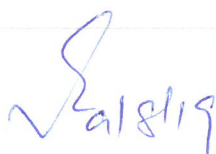




- a) Current status of Power Generation capacity, Actual Electricity generation, Transmission and Distribution infrastructure- To be provided by NFP and Ministry of Energy
- b) Current status of Grid-Connected as well as off-Grid Solar and Renewable Energy installations – To be provided by NFP and Ministry of Energy
- c) Various Business Model of solar applications, which exist and also in pipeline, if any: To be provided by NFP and Ministry of Energy
- d) Details of Current Solar Programme/Projects: Ongoing/In pipeline:
 - i. Mini Grid Program supported by World Bank (Details to be provided by ANPER)
 - ii. Proposed Solar Plant installations with capacities 30, 10 and 20 MW respectively
 - iii. Electrification of 1000 villages with the help of multilateral banks
- e) Benchmark costs (based on current programme) for solar pumps/rooftops/ min-grids: To be provided by NFP and Ministry of Energy
- f) Projected demand for programmes other than those for which demand has been submitted against the call for EoI: Solar pump demand for 15,000 has been submitted.
- g) Policy support for Solar and Renewable Energy: Renewable Energy Policy exists, No separate policy for Solar
- h) Regulatory and Financial Support to Solar Energy: Regulatory framework not developed for solar energy, financial support through subsidies, tax exemptions, varies between projects
- i) Nomination of Technical institutions for Capacity Building: ANERSOL proposed as iSTAR C

ii. Consultations with Ministry of Planning

- a) Finance for Solar PV systems: Benchmark cost (Based on Current programmes) prevailing in the country for Solar: To be provided by NFP and Ministry of Planning
- b) Water irrigation budget: To be provided by NFP and Ministry of Planning
- c) Project pipeline for Finance: To be provided by NFP and Ministry of Planning
- d) Multilateral and bilateral policies: To be provided by NFP and Ministry of Planning
- e) Number of Multilateral and bilateral agreements supporting solar: To be provided by NFP and Ministry of Planning
- f) Current budget provisions for solar: To be provided by NFP and Ministry of Planning
- g) Is there any budgetary allocation for NDC: To be provided by NFP and Ministry of Planning
- h) Is there any policy for private investments: There is a unit within the cabinet of the Prime Minister, which is focused on promoting Public Private Partnerships (PPPs)






- i) Nomination of Technical institutions for Capacity building: Capacity building will be at various levels like technicians, engineers, farmers.
 - i. If MDBs, bilaterals provide soft loans, is government willing to take?: Information to be provided by NFP and Ministry of Planning
 - j) Nodal officer for:
 - I. Multilateral: To be provided by NFP and Ministry of Planning
 - II. Bilateral: To be provided by NFP and Ministry of Planning
 - III. International organisations: To be provided by NFP and Ministry of Planning
- iii. **Consultations with Ministry of Agriculture**
 - a) Details of the demand submitted by the host country:
 - (i) Project location and capacities of the pumps: To be provided by NFP and Ministry of Agriculture
 - (ii) Logistics and costs for transportation: To be provided by NFP and Ministry of Agriculture
 - (iii) Proposed timeline for implementation of individual projects: Demand submitted till 2025
 - (iv) Agriculture Budget of last three years: To be provided by NFP and Ministry of Agriculture
 - (v) Potential for off-grid DC pumps: To be provided by NFP and Ministry of Agriculture
 - b) Irrigation area covered/Type of Irrigation system/Crops Irrigated/ Budget for Irrigation/ Average plot size: There are approximately 10 million hectares of land available for agriculture with less than 3000 hectares under irrigation.
 - c) Nomination of Technical institutions for Capacity Building: Capacity building will be at various levels like technicians, engineers, farmers and bankers.
 - d) Current schemes, subsidies offered in solar, other projects. To be provided by NFP and Ministry of Agriculture
 - e) What is portion of money farmers, small, marginal and large would be willing to pay out of the total capital cost of pumps? To be provided by NFP and Ministry of Agriculture
 - f) How many farmers are there? Small , Marginal and big: To be provided by NFP and Ministry of Agriculture
 - g) Details of pumping industry. How many companies in Niger can carry out O&M? To be provided by NFP and Ministry of Agriculture

iv. Consultations with Ministry of Hydraulique (Water)

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- a) Total Water resources (surface and ground) and their distribution: Average water table in the country is around 10-40 m. This varies depending on the season and region of the country. More information to be provided by NFP and Ministry of Hydraulique
 - b) Is there any budgetary allocation for NDC: To be provided by NFP and Ministry of Hydraulique
 - c) Details of the demand submitted by the host country
 - ii. Project location and capacities of the pumps: 5000 pumps for drinking Capacities of 2,5,4, 6 kW
 - iii. Logistics and costs for transportation: To be provided by NFP and Ministry of Hydraulique
 - iv. Proposed timeline for implementation of individual projects: Demand submitted till 2020
 - v. Current solar and other pumps installed in the country- business/financial model, details about the capacity and cost of the pumps, name of suppliers, depth at which pump is installed: The country has approximately 1500 to 1700 pump installations out of which 50% are solar powered. Subsidies, tax exemptions offered for solar installations.
 - d) Plan for providing drinking water, scheme and targets: To be provided by NFP and Ministry of Hydraulique
 - e) Budget: To be provided by NFP and Ministry of Hydraulique
 - f) Nomination of Technical Institutions for Capacity Building: To be provided by NFP and Ministry of Hydraulique
 - g) Constitution of Country Task Force for ISA programme: To be provided by NFP and Ministry of Hydraulique
 - h) Nomination of Technical Institutions for Capacity Building: Capacity building will be at various levels like technicians, engineers and farmers.
- v. Consultations with Office National des Amenagements Hydro Agricoles (ONAHA) (Irrigation)**
- a) Irrigation area covered/Type of Irrigation system/Crops Irrigated/ Budget for Irrigation/ Average plot size: Few types of irrigation projects are:
 - vi. Pumping station near river, with water pumped through a canal.
 - vii. Underground pumping via drilling up-to a depth of 300 m in the North of the country.
 - viii. Irrigation through barrage in the Eastern and Central part of the country.

There are 2 cropping seasons in a year with rice grown near the river and vegetables such as tomato grown in the central parts of the country. Water requirement for rice is 3 litre per second per hectare
 - b) Existing pumps and their types and capacities: There are approximately 200 submersible, 125 surface electric pumps in the country and 25 diesel pumps in

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Niger. The capacities for submersible pumps range between 3 to 60 kW (discharge 18-600 litres per second per pump) while those for surface pumps range between 5 to 11 kW. It is perceived that switching to solar pumps would be profitable for the users.

- c) Water table: Average water table in the country is around 10-40 m. This varies depending on the season and region of the country.
- d) Subsidies for irrigation: No subsidies. Government invests in the infrastructure of agricultural land and beneficiaries pay 4000 CFA per season per hectare. Water user Associations are formed to maintain the infrastructure.

vi. Consultation with Regulatory authorities, relevant government departments

- a) Regulatory framework in the Electricity Sector: Institutions in the power sector: NIGELEC holds responsibility of distribution in urban as well as rural area of Niger and also has responsibility of power generation and transmission. Autorite de Regulation du Secteur de l'Energie (ARSE) is Electricity Regulatory Authority of Niger.
- b) Tariff structure:
 - i. In 2017, a new tariff structure was established to reflect the cost of supply of electricity better. Government approved Tariff chart was provided by NFP. Attached as Annexure.
 - ii. There are separate tariffs for street lights as well as for social sector. These categories are cross-subsidized from higher income users (users with connected load 12-30 kW are charged 30% higher than normal tariffs)
- c) Procedures/Timelines for setting up of Solar Projects: Worldwide the time frame for power project depends on availability of capital for the project and availability of land.
- d) Details of PPA agreements: To be provided by NFP and ARSE
- e) Any National Plan for Electricity: To be provided by NFP and ARSE

vii. Consultation with Agence Nigerienne pour la Promotion de l'Electrification en milieu Rural (ANPER)

- a) Details of Electricity Access Expansion Project: To be provided by NFP and ANPER
- b) Business/ Financial Model for World Bank mini grid project: To be provided by NFP and ANPER
- c) Other projects and their business/ finance models: To be provided by NFP and ANPER
- d) Rural electrification plan: To be provided by NFP and ANPER
- e) Rural Electrification Budget: To be provided by NFP and ANPER






viii. **Outcome of the Meeting(s)**

Items on Agenda Discussed	Findings/ Observations	Recommendations	Official/ Agency responsible
Ministry of Energy			
Solar rooftop	There are no formal guidelines and regulations for grid connected solar rooftops. Off-Grid solar rooftops is being explored for specific industrial buildings.	Guidelines and Regulations for Solar Rooftops to be issued. Projects should be developed for specific industries such as solar rooftops for hospitals. Storage systems should be included in the schemes for better utilisation.	Ministry of Energy/ ARSE
ISA Star Center	A proposed ISA Star Center is Agence Nationale d’Energie Solaire (ANERSOL)	ANERSOL has the basic requirements to become an ISA Star Center. Capacity of the institute can be further developed by training members through the I-Tech program of ISA. Explore possibility of MoU with NISE, India for which copy of draft MoU will be shared with NFP/ GoN.	Ministry of Energy
National Policy on Solar Energy	There is a National Policy on Renewable Energy(RE) already present in Niger. Different forms of RE would be developed based on the need and feasibility in	Case studies on solar projects in India may be studied in order to develop a dedicated solar program in the future.	Ministry of Energy

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Items on Agenda Discussed	Findings/ Observations	Recommendations	Official/ Agency responsible
	different parts of the country. No separate solar policy is envisaged.		
Taskforce for increasing solar applications across industries.	Task Force can be formed, post approval of the Prime Minister, for co-ordination and discussions between different Ministries. However, concerned Ministries would be responsible for different programmes in solar energy.	Expedite formation of task force.	Ministry of Energy/ Concerned Ministries
Ministry of Planning			
Financing for solar projects.	Income levels in the country is low. Hence, priority is given to mobilization of grants, followed by soft loans and PPPs.	Grants are not a sustainable solution and should not be given highest priority.	Ministry of Planning
Partnerships with multilateral agencies for solar programmes.	Names of multilateral agencies, which are supporting to electrify villages, has been received.	None	Ministry of Planning
Ministry of Agriculture			
Basis for demand estimation of 15,000 pumps.	Basis has been shared.	None	Ministry of Agriculture

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Items on Agenda Discussed	Findings/ Observations	Recommendations	Official/ Agency responsible
Data regarding the cropping, irrigation and requirement of solar pumps.	Required data has been shared.	None	Ministry of Agriculture
Financing of projects	Grants and soft loans form an important part of financing of most projects. In some projects, government provides subsidies to farmers	Project financing through soft loans and PPPs should be promoted ahead of grant based projects.	Ministry of Agriculture
Ministry of Hydraulique (Water)			
Data on solar pumps required for drinking purpose	Required data has been shared	Solar pumps to be promoted on drinking water stations, farmer cooperatives and water users associations.	Ministry of Hydraulique (Water)
Office National des Amenagements Hydro Agricoles (ONAHA) (Irrigation)			
Data on existing agricultural pumps, irrigation projects, water table, cropping pattern	Data has been shared	None	ONAHA
Regulatory authorities, relevant government departments			
Data on Tariff structure, Regulatory Framework, Electricity Plans	Data on tariff structure shared. Electricity plans are formulated by the Ministry of Energy, Regulator implements. Regulations at a nascent stage, lack of a robust framework	Develop robust regulatory framework, with best global practices, so that usage of solar energy will scale up in Niger, which will, in turn, double farmer income and boost the economy of Niger.	ARSE

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Items on Agenda Discussed	Findings/ Observations	Recommendations	Official/ Agency responsible
Agence Nigérienne pour la Promotion de l'Electrification en milieu Rural (ANPER)			
Solar Mini Grid Projects	A pilot project is planned for Solar Mini Grid installation through a partnership between ANPER and World Bank (through International Development Association). After the pilot phase, ANPER would study and select villages for further mini grid projects and competitive bidding process would be used to assign developers.	Similar Mini Grid initiatives may be explored in remote areas incorporating learnings from the pilot.	ANPER

2. Site Visit to proposed iSTAR C (6th Aug, 2019)

The ISA team visited Agence Nationale d'Énergie Solaire (ANERSOL) to understand the several projects it was undertaking and to study the innovative solar applications, which the center had developed.

Findings:

- a) The institute had been established in 1965, making Niger a pioneer in solar application development. Some of the projects undertaken by ANSEROL are:
 - I. Electrification of strategic buildings
 - II. Creation of solar equipment assembly plant
 - III. Construction of concentrated solar plants

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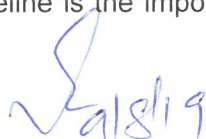
- IV. Food safety and development of agricultural services using solar including solar pumps, solar drying etc.
- V. Solar technologies for food product processing.
- b) Few technologies in solar applications present in the institute are:
 - I. Solar system for energy needs of one house
 - II. Solar pump for gardening
 - III. Solar lighting system including street lights with storage
 - IV. Solar drier for food
 - V. Solar heater
 - VI. Solar Cooker
- c) There is institutional support needed by ANSEROL to address the following issues:
 - I. Poor quality of available solar equipment
 - II. Failures in installation and bad maintenance practices
 - III. Lack of reliable measurement data

3. Meeting with Association des Professionnel de l'Energie Solaire (APE Solaire) (7th August, 2019)

The ISA team visited the office of APE Solaire and held a meeting with the President, Mr. Altine Bello and Secretary (Public Relations), Mr. Bachir Altine. A presentation on the objectives, membership and activities of APE Solaire was delivered to the expert team, followed by discussions.

Findings:

- a) Important objectives of the Association are to:
 - I. Contribute towards promotion of solar applications in Niger
 - II. Promote partnerships and develop networks between all industry players in solar energy
 - III. Promote Public Private Partnerships (PPPs)
- b) Members of the Association consist of corporates, Non- Governmental Organisations (NGO), Micro-Finance Institutes (MFI) and other solar industry players. There are currently 15 members with work experience ranging from 3 to 30 years.
- c) There are moral guidelines which the members have to strictly adhere to. One key guideline is the importance of maintaining quality in supply of equipment. In the





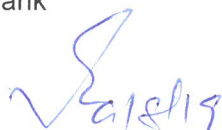
absence of National standards on quality, the Association maintains quality by relying on brand names and the judgment of trained technicians.

- d) The Association gives importance to training and capacity building. 2 members received training on solar equipment in India and disseminated the knowledge locally, in 2018. The Association is interested in sending its members to attend the I-Tech program, conducted by ISA.
- e) In 2013, the Association had received 1600 solar kits, funded by SNV (Netherlands). 2 corporates of the Association were selected to promote the kits in remote locations. The Ministry of Finance provided tax exemptions for the solar kits. Cost of 3 types of solar kits being promoted by the Association: 7500 CFA, 15000 CFA and 19000 CFA.
- f) The Association can leverage the ISA platform in a number of ways, which is acceptable for them:
 - i. Participate in the international competitive bidding for solar pumps. Bid documents for the same has been shared by the NFP with the Secretary General of the Association.
 - ii. Upload their details on the Infopedia platform including videos of success stories.
 - iii. Send members for training to the I-Tech program.
 - iv. Participate in international conferences, RE invest, Delhi and Sun World, Peru
 - v. Join Task Force on International committee of chambers of industry and business (ICCIB)
- g) There are a variety of products available with the Association, which indicates that there is demand for solar applications. However, capacities of corporates and standards for good quality need to be developed to create a healthy ecosystem.
- h) ISA is only treaty based organization which works closely with the private sector.
- i) Association supports robust policy for private sector participation in solar projects and applications.

4. Consultations with Multilateral Development Banks/Development Financial Institutions/ Bilateral Institutions

Findings:

- a) The following MDBs, DFIs and BIs have a presence in Niger:
 - i. AfDB
 - ii. AFD
 - iii. BOAD (West African Development Bank)
 - iv. Islamic Bank





- v. Abu Dhabi Bank (10 million USD)
 - vi. The World Bank
 - vii. EXIM Bank of India
 - viii. GIZ
 - ix. KfW
- b) A pilot project comprising 11 villages and 7 mini grids in 5 clusters is planned, with World Bank (ADA) for Solar Mini Grid installation and pre-qualification of developers for installation of the Solar Mini Grid, for Tariff based bidding, would be launched soon.
- c) AfDB has prepared a country strategic paper had been developed with a 5 year plan for the period 2018-2022. Approximately, 17 projects had been planned in this period with energy sector and particularly, renewable energy having a high priority. Few projects planned include rural electrification, interconnection of international grid between Benin, Burkina Faso, Niger and Nigeria, desert to power solar project, mini grids, solar home lighting etc.

Agenda of the Meetings

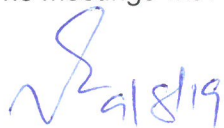
- a) Financial infrastructure and Modalities:
- b) Project(s) in Progress and their implementation model(s)
- c) Institutional Framework for implementation of Externally funded projects
 - (i) Institutions to Engage
 - (ii) Challenges faced/Ease of Doing Business

The information mentioned in the agenda above still has to be gathered while connect has to be established with other MDBs, DFIs and BIs.

5. Consultations with Inter-Governmental Institution

Findings

- a) The following Inter-Governmental Institutions have a presence in Niger:
 - i. UNDP
 - ii. ECREEE
 - iii. AREI
 - iv. IRENA
- b) One project supported by UNDP: Development of a multi-task platform: pilot project implemented in 350 villages since 2003, supported by UNDP and the Luxembourg cooperation. Multitask platform is operated by community to provide services of oil extraction from Neem, Jatropha etc. as well as grinding machine. They have also installed 100 Solar Pumps in these villages. Now they propose to replace these DG Sets with Solar Power Plants. They propose to replace DG Sets with Solar Power Plants in 40 villages and need ISA intervention. ISA Team requested them to share the details of the proposal and funding pattern provided for installation of Multi Task Platform. The concept notes of each project is available with the NFP.
- c) The meetings with other institutions have to be undertaken in future visits.






Agenda of the Meetings

- a) Role of these institutions in the host country and projects underway
- b) Institutional support provided by them to externally funded projects

The information mentioned in the agenda above still has to be gathered while connect has to be established with other Inter-Governmental Institutions.

6. Site visit to hospitals for pre-feasibility of installing solar plants/rooftops

The ISA team visited the National Hospital and Maternity Hospital, Niamey to study the feasibility of installing solar plants/ rooftops.

Findings:

- a) There are frequent power cuts, due to which the mandatory loads are operated on DG Sets. They propose to install Solar Plants to replace these DG Sets. The electrical load of the Hospital has also increased in due course of time due to which the DG Set capacity is also not sufficient.
- b) The ISA Team found the Roof Space available in the both hospitals suitable for installation of Solar Power Plant. Options of all types of Solar Power Plants were explained to the Cabinet Director and Hospital Officials. ISA Team conveyed that a set of questionnaire would be sent to the NFP so as to assess the optimum capacity of Solar Power Plant, suitable for the National Hospital.

D. Components of Action

1. Implementation agencies involved

- i. Ministry of Energy, Government of Niger
- ii. Ministry of Planning, Government of Niger
- iii. Ministry of Agriculture, Government of Niger
- iv. Ministry of Hydraulique (Water), Government of Niger
- v. Office National des Amenagements Hydro Agricoles (ONAHA) (Irrigation), Government of Niger
- vi. Ministry of Foreign Affairs (MoFA), Government of Niger

2. Role of Implementation agencies

No.	Name of agency	Role
1.	Ministry of Energy	<ul style="list-style-type: none"> • Policy making body for solar energy • Nodal ministry for coordination and implementation of solar related projects.
2.	Ministry of Planning	<ul style="list-style-type: none"> • Plans and budgetary allocation for solar projects • Mobilise and approve the financing for solar related projects in Niger
3.	Ministry of Agriculture	Assess the requirements for solar pumps in agriculture and monitor the implementation of the projects.






No.	Name of agency	Role
4.	Ministry of Hydraulique (Water)	Assess the requirements for solar pumps for drinking purpose and monitor the implementation of the projects.
5.	Office National des Amenagements Hydro Agricoles (ONAHA) (Irrigation)	Coordination with Water Users' Associations, Cooperatives for implementation of large irrigation projects.
6.	Agence Nilgerienne pour la Promotion de l'Electrification en milieu Rural (ANPER)	Implementation of Electrification projects in Rural Niger.
7.	Ministry of Foreign Affairs (MoFA)	Coordination between the Government of Niger, private sector and ISA.

3. Financing of Projects

- i. Implementation Model may be adopted
 - a) Government Funded
 - b) PPP
 - (i) Private Sector Participation
 - (ii) Cooperative institutions
 - c) OPEX
 - d) CAPEX
 - e) Entrepreneurship based
- ii. Financing Options
 - a) Grant Based
 - b) Grant-Debt Hybrid
 - c) Debt Based


The above suggested options have already been discussed with NFP/ Government of Niger. They shall deliberate further for the appropriate model and modalities. For any further information required in the model, ISA shall support Government of Niger and NFP. ISA will also facilitate the structuring of the model with the financial partners basis the requirement and decision by Government of Niger.

4. Skill Development/Capacity building of implementing agencies, local system integrators, consumers (Farmers for Solar Pumping Systems)

i. Consultations with Ministries

- a) Capacity building is required for technicians, bankers and academicians in the area of solar based applications.
- b) Awareness amongst farmers with regard to solar applications and business models is also required for the uptake of these appliances.
- c) ISA may support the capacity building programmes and awareness creation initiatives for solar applications through iSTAR-Cs and ISA partner.

ii. Consultations with academic institutions






- a) The ISA team visited Agence Nationale d’Energie Solaire (ANERSOL), a proposed iSTAR Center, to understand the several projects it was undertaking and to study the innovative solar applications, which the center had developed.
- b) Expectations of ISA from iSTAR-Cs’ and possible support to iSTAR-Cs was shared.
- c) ISA shall support capacity building of ANERSOL by training its personnel, nominated by the NFP, through the iTech program.
- d) Mobilisation support shall be done from foundations, multilateral banks and ISA partners such as AfDB, UNDP etc. for iSTAR-Cs.

iii. Consultation with Local Industrial Associations

- a) The ISA team visited the office of Association des Professionnel de l’Energie Solaire (APE Solaire) and held a meeting with the Director General, Mr. Bachir Altine.
- b) Members of the Association consist of corporates, Non- Governmental Organisations (NGO), Micro-Finance Institutes (MFI) and other solar industry players. There are currently 15 members with work experience ranging from 3 to 30 years.
- c) The Association gives importance to training and capacity building. 2 members received training on solar equipment in India and disseminated the knowledge locally, in 2018. The Association is interested in sending its members to attend the I-Tech program, conducted by ISA.
- d) The Association was invited to participate in the international competitive bidding for solar pumps, conducted by ISA and bid documents were shared through the NFP.

iv. Consultations with MDBs/DFIs and inter-governmental organisations

- a) No issues of capacity building discussed with UNDP
- b) Meetings with other organisations to be held in future visits.

5. Site Visits

i. Visit to Hospitals

- a) Solar Power Plants can replace DG Sets to provide reliable source of electricity for emergency services.
- b) Data for pre-feasibility study of solar plants will be shared by National Hospital and Maternity Hospital with ISA through NFP

6. Information to be provided by the host country to ISA Secretariat

Information Needed	Agency responsible	Status
Current status of Power Generation capacity	Ministry of Energy	Data required
Details of Current Solar Programme/Projects/ Costs	Ministry of Energy	Data required
National Electricity Plan	Ministry of Energy	Data required

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Information Needed	Agency responsible	Status
Water irrigation budget	Ministry of Agriculture	Data required
Capacities and number of pumps required through ISA	Ministry of Agriculture	Data required
Current schemes, subsidies in Agriculture	Ministry of Agriculture	Data required
Plan for drinking water	Ministry of Hydraulique	Data required
Rural Electrification Plan and Budget	ANPER	Data required
Electricity Access Expansion Plan	ANPER	Data required
Business/ Financial Model for mini grid World Bank project	ANPER	Data required
PPA Agreements	ARSE	Data required
Project pipeline for Finance	Ministry of Planning	Data required
Multilateral and bilateral policies	Ministry of Planning	Data required
Number of Multilateral and bilateral agreements supporting solar	Ministry of Planning	Data required
Current budget provisions for solar	Ministry of Planning	Data required
NDC budget	Ministry of Planning	Data required

7. Compliance Norms

- i. Environmental and Social Norms
 - a) Environmental Impact Assessment (EIA)
 - b) Social Impact Assessment (SIA)(where applicable)
- ii. Technical Standards
- iii. Grievance Redressal Mechanisms
 The current scope of the mission does not cover the above mentioned norms and the same may be covered during future visits.

8. Details and Agenda of next Review Visit

This will be mutually discussed between Government of Niger and ISA Secretariat and accordingly finalised.

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9. Summary of Agreed Actions

No.	Agreed Action	Organisation/ Institution Responsible	Estimated Timeframe	Budgetary provision
1.	Participation and consent of Government of Niger to participate in all five programmes of ISA and nominate a country representative for each of the five ISA programmes.	Government of Niger (GoN)	1 month	No financial requirement.
2.	<p>a) Creation of National Task Force for Solar (NTFS) with Hon'ble Minister of Energy or any representative nominated by Hon'ble Minister as Chair & NFP as Convener under Article 2 and Article 3 of the Framework Agreement. For other ministerial departments, general/ permanent secretary or any other representative may be members of task force.</p> <p>b) ISA to share office memorandum and ToR</p>	Government of Niger	<p>a. 3 months</p> <p>b. 1 month</p>	GoN will allocate the necessary budgetary provisions, if required. ISA will also explore technical assistance/ grant from multilaterals/ bilaterals and other partners of ISA, if required.
3.	<p>Solar roadmap for Niger:</p> <p>a. Sharing of format for solar roadmap.</p> <p>b. National solar roadmap shall developed by the GoN.</p> <p>c. Completion of draft solar roadmap by involving different agencies such as energy department, ANPER, ARSE, agricultural department,</p>	<p>a. ISA</p> <p>b. Government of Niger</p> <p>c. Government of Niger</p>	<p>a. 1 month</p> <p>b. 6 months</p> <p>c. 6 months</p>	<p>a. No financial requirement</p> <p>b and c. GoN will allocate the necessary budgetary provisions. Alternatively GoN may explore</p>






No.	Agreed Action	Organisation/ Institution Responsible	Estimated Timeframe	Budgetary provision
	water department, academic institutions (ANERSOL), Co-operatives, Associations and other relevant stakeholders and referring to implementation plans, economic plan, national electricity plan, strategic plan and other relevant plans.			technical assistance (TA) from Multilaterals/ Bilaterals / Inter-governmental organisations present in Niger such as AfDB, GiZ, World Bank, UNDP etc.
4.	Government of Niger will share the investment policy to attract investments in solar energy and this may also be integrated in the solar roadmap which is being developed.	Government of Niger	1 month	No financial requirement.
5.	Development of new solar schemes in association with other government departments like health, education, irrigation, sanitation, agriculture, rural development, local bodies, cooperatives and others and industry associations.	Government of Niger	Ongoing basis	GoN will allocate the necessary budgetary provisions, if required. ISA will also explore technical assistance/ grant from multilaterals/ bilaterals and other partners of ISA, if required.
6.	To explore the sources for financing of 15,000 solar pumps either through: a. Government of Niger's funds.	Government of Niger and ISA	Ongoing basis	GoN with various options suggested.

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No.	Agreed Action	Organisation/ Institution Responsible	Estimated Timeframe	Budgetary provision
	<ul style="list-style-type: none"> b. Through soft loans from bilaterals like EXIM bank, AfD/GIZ/ UNDP c. Multilateral soft loans/technical assistance from multilateral such as AfDB, World Bank d. Grant from UN agencies and private investors through CAPEX/ RESCO mode. e. Combination of debt and equity. Eg. 40% grant, 10% farmers, 50 % loan 			
7.	Post price discovery of 15,000 solar pumps and finalising modalities of financing as above, facilitate through EESL the deployment of pumps in Niger in coordination with NFP in Niger.	Government of Niger and ISA	6 months	GoN with various options suggested.
8.	Preparation of pre-feasibility report for deployment of solar pumps in Niger.	Government of Niger and ISA	2 months	Technical assistance provided by ISA and local logistic support by GoN.
9.	<ul style="list-style-type: none"> a. Sharing of iSTAR-Cs' concept note and consent form. b. Identified iSTAR-C will be explored by ISA for granting center for excellence status c. Mobilise support from foundations, multilateral banks and ISA partners such as AfDB for iSTAR-Cs. 	<ul style="list-style-type: none"> a. ISA b. ISA and Government of Niger c. Government of Niger and ISA 	<ul style="list-style-type: none"> a. 1 week b. 1 month c. 1 year 	<ul style="list-style-type: none"> a. No financial requirement. b. GoN for basic infrastructure requirement. c. Mobilisation of support from foundations, multilateral banks and ISA

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No.	Agreed Action	Organisation/ Institution Responsible	Estimated Timeframe	Budgetary provision
				partners such as AfDB/ UN agencies by GoN and ISA.
10.	<p>Infopedia:</p> <p>a. Structure for country profile for infopedia to be provided to NFP.</p> <p>b. Country profile for uploading on infopedia.</p> <p>c. Sharing of best practices and videos on solar energy in Niger to be uploaded on infopedia.</p>	<p>a. ISA</p> <p>b. Government of Niger</p> <p>c. Government of Niger</p>	<p>a. 4 months</p> <p>b. Ongoing basis</p> <p>c. Ongoing basis</p>	<p>a. No financial requirement.</p> <p>b. No financial requirement.</p> <p>c. No financial requirement.</p>
12.	Mobilise best practices from ISA member countries including industrial delegation to Niger in rolling out projects on PPA models based on success of member countries example Indian Projects	ISA	3 months	Member country and industrial delegation will bear their own cost. Local logistic support will be provided by GoN.
13.	<p>a. Office memorandum with ToRs on Task Force on International committee of chambers of industry and business (ICCIB) to be shared with GoN.</p> <p>b. Nomination and letter of consent of business/ industry association such as APE Solaire to be member of the task force.</p>	<p>a. ISA</p> <p>b. Government of Niger</p>	<p>a. 1 month</p> <p>b. 3 months</p>	<p>a. No financial requirement.</p> <p>b. No financial requirement.</p>
14.	a. Identification of foundations that will strengthen the NFPs by building their capacities	a. ISA	a. 3 months	a. No financial requirement.

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No.	Agreed Action	Organisation/ Institution Responsible	Estimated Timeframe	Budgetary provision
	to deliver their role vis- as vis ISA. b. Identification of foundations in Niger to support in developing solar projects/ community based projects and also build the capacity of NFP	b. Government of Niger and ISA	b. To be filled	b. No financial requirement.
15.	Financial assistance to NFP for better coordination of ISA programme and activities.	ISA	3 months	To be decided.
16.	NFP to provide list of solar projects in last 3 years which will include total project cost, duration, financial model, capacity etc.	Government of Niger	1 month	No financial requirement.
17.	Expedite their confirmation to government of India for: i. Electrification of villages in Niger through solar energy- US\$ 169.96 Mn ii. Solar electrification of strategy and sensible buildings, hospitals, maternities, blood transfusion centers- US\$16 Mn iii. Development of solar cookers and driers- US\$ 12.77 Mn	Ministry of Energy, Ministry of Foreign Affairs, Ministry of Planning, Embassy of India in Niger, ISA	2 months	No financial implication as of now and may be decided in future, if required.

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No.	Agreed Action	Organisation/ Institution Responsible	Estimated Timeframe	Budgetary provision
18.	Pre-feasibility of solar rooftop for hospitals submitted by ISA.	ISA, Ministry of Health and Ministry of Energy	3 months	Request of grant to Government of India
19.	Proposal for 15,000 solar pumps to be submitted to ISA through NFP	Agriculture, Hydraulic Ministry, ONAHAR	5 months	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by GoN and ISA.
20.	Share best practices in solar from India	ISA	3 months	No financial requirement
21.	Proposal for Water lifting stations along the river which are currently run on electricity to be solarised by installing solar power plants through PPA along water channels. Power injected to be injected into the grid.	Ministry of Energy, Agriculture, ONAHAR and ARSE	1 year	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by GoN and ISA.
22.	Make Niamey Solar City by installing solar rooftops over hospitals, educational institutes, government buildings such as parliament, secretariat, prime minister's office etc. on RESCO/PPA mode	Ministry of Energy, Planning, ARSE	1 year	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by GoN and ISA.
23.	Develop a proposal to establish mini grid in 350 villages where UNDP has created multi task	Ministry of Energy, Planning, ARSE	1 year	Mobilisation of support from foundations, multilateral

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No.	Agreed Action	Organisation/ Institution Responsible	Estimated Timeframe	Budgetary provision
	platforms and communities have been mobilised for income generating activities			banks and ISA partners such as AfDB/ UN agencies by GoN and ISA.
24.	Develop a policy for PPAs so as to develop solar parks and mini grids and make Niger energy exporter through the regional grid being developed with Nigeria	Ministry of Energy, Planning, ARSE	1 year	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by GoN and ISA
25.	Private Players from APE Solaire to submit projects in ROGEP and SRMI initiatives. ISA to provide support in development of proposals	ISA and APE Solaire	4 months	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by GoN and ISA
26.	ISA to provide assistance to Ministry of Energy to develop proposals for submission to Green Climate Fund	ISA and Ministry of Energy	4 months	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by GoN and ISA, if required.
27.	Explore possibility of MoU with NISE, India for which copy of draft MoU will be shared with NFP/ GoN.	ISA, NISE, NFP, GoN	4 months	No financial requirement

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No.	Agreed Action	Organisation/ Institution Responsible	Estimated Timeframe	Budgetary provision
28.	<p>Participation in Assembly/ outreach event/ capacity building programmes:</p> <p>a. Invitation for participation in the ISA Assembly (Delhi NCR, 30th October to 2nd November 2019), RE- Invest (Delhi NCR, 30th October to 2nd November 2019), and SunWorld (Peru, Lima, 12-14 November 2019).</p> <p>b. Invitation for participation in other outreach events such as COP-25 and World Future Energy Summit 2020.</p> <p>c. Invitation for training under Master Trainers Programme, ISA fellowship for Master's Degree and other relevant programmes.</p>	ISA	<p>a. 2 months</p> <p>b. Ongoing basis</p> <p>c. Ongoing basis</p>	<p>a. To be decided on case to case basis.</p> <p>b. To be decided on case to case basis.</p> <p>c. To be decided on case to case basis.</p>

Place: Niamey, Niger
Date: 09th August, 2019



09/08/2019
Rajeev Gyani

Additional Director, NFP Coordinator, ISA



Idrissa Mahamadou Soumana

National Focal Point of ISA for Niger



Annexure 1

Expert Team

S.No.	Name	Organisation	Designation
1	H E Mr. Ado Leko	Embassy of the Republic of Niger in India	Ambassador
2	Mr. Rajeev Gyani	ISA	Additional Director (RE), NFP Coordinator
3	Mr. Shishir Seth	ISA	Additional Director, Partnerships, Program Support and Home Country Coordinator
4	Mr. P C Sharma	ISA	Deputy Director (RE)
5	Mr. Idrissa Mahamadou Soumana	Ministry of Energy, Government of Niger	National Focal Point of ISA for Niger
6	Ms. Aissatou D. Sonko	ISA	Consultant, International Relation
7	Mr. Zeeshan Hyder Farooqui	KPMG India on behalf of ISA	Senior Consultant

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Annexure 2

Ministerial Consultation Agenda

List of Ministerial Consultations	Date of Meeting	Agenda Discussed	Role of Ministry/Agency in the implementation of projects	Future Course of Action
Ministry of Foreign Affairs	05 th August	To follow up on the projects announced under LoC during the founding conference in March 2018	The mandate of the Ministry is to build relations with other countries for mutual development.	To support Government of Niger in various relevant activities as mentioned above.
Ministry of Energy	05 th August	Various activities and arrangements for implementation of ISA programmes.	The mandate of the Ministry of to Establish, Promote the Development, Strategically Manage and Safeguard the Rational and Sustainable Exploitation and Utilization of Energy for Social and Economic Development.	To support Government of Niger in various relevant activities as mentioned above.
Agence Nigerienne pour la Promotion de l'Electrification en milieu Rural (ANPER)	05 th August	Discuss Solar Mini Grid initiatives for increasing penetration of solar energy in the country	Has the responsibility to develop rural electrification in Niger.	To support Government of Niger in various relevant activities as mentioned above.
Ministry of Planning	06 th August	The budgetary provisions for solar and irrigation projects in Niger and possible financing options for the projects under ISA's programme.	Formulation of economic and fiscal policies, and mobilize resources for the implementation of government programs.	To support Government of Niger in various relevant activities as mentioned above.

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List of Ministerial Consultations	Date of Meeting	Agenda Discussed	Role of Ministry/Agency in the implementation of projects	Future Course of Action
Ministry of Agriculture	06 th August	Details of agriculture and basis of estimation of 15,000 solar pumps.	The Ministry is the overseer of the Agricultural sector where it formulates, reviews and implement national policies, plans, strategies, regulations and standards and enforce laws, regulations and standards along the value chain of crops, livestock and fisheries.	To support Government of Niger in various relevant activities as mentioned above.
Ministry of Hydraulique (Water)	07 th August	Details on demand for solar pumps for drinking water purpose.	Has the overall responsibility of the development, managing, and regulating water resources in Niger.	To support Government of Niger in various relevant activities as mentioned above.
Autorite de Regulation du Secteur de l'Energie (ARSE)	07 th August	Discuss the role of Regulatory Authority in scaling up Solar Applications in Niger	Has the responsibility to implement/assist policies made by Energy Ministry and define Regulations for the Electricity Sector.	To support Government of Niger in various relevant activities as mentioned above.
Office National des Amenagements Hydro Agricoles (ONAHA)	07 th August	Discus the role of Irrigation Authority in increasing adoption of solar pumps	The Authority is responsible for implementation of large irrigation projects in the country.	To support Government of Niger in various relevant activities as mentioned above.

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Annexure 3

Agenda of Consultations with MDBs/DFIs/UNDP/Regional Intergovernmental organisations

List of Consultations	Date of Meeting	Agenda Discussed	Role of Ministry/Agency in the implementation of projects	Future Course of Action
UNDP	08 th August, 2019	Solar related projects being funded in Niger.	Funding agency	<ul style="list-style-type: none"> a. Discussion on information and details on possible programmes as mentioned above. b. Create synergies between the activities of UNDP and ISA programme in Niger.
AfDB	08 th August, 2019	Solar related projects being financed in Niger	Funding agency	<ul style="list-style-type: none"> a. Discussion on information and details on possible programmes as mentioned above. b. Create synergies between the activities of AfDB and ISA programme in Niger.

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Annexure 4

Agenda of Consultations with Solar Industrial Association

List of Consultations	Date of Meeting	Agenda Discussed	Role of Ministry/Agency in the implementation of projects	Future Course of Action
APE Solaire	07 th August, 2019	Role of Solar Association in scaling up Solar Applications in Niger	Association for collaboration between various developers, NGOs and other players in solar industry.	Engage with ISA on capacity building programs for solar industry players and solar market development

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Annexure 5

International Competitive Bid for Solar PV Water Pumping Systems – Summary

1. Overview

ISA is facilitating an International Competitive Bid for the aggregate demand submitted by the member countries through Energy Efficiency Services Limited (EESL) for price discovery. The bid encompasses installation of SPV pumping systems in consonance with global performance and design standards and competitive prices in the member countries along with opportunity for extended comprehensive maintenance contracts with the suppliers. EESL has been mandated with the management and implementation of the bidding process spanning preparing bid documentation, opening and evaluation of the bids. Moreover, EESL would also be providing project management consultancy (PMC) services to the buyer through structuring of the programme, provisioning of best practices handbooks etc.

2. Structure of the Bid

The bid document establishing clear division of responsibility among different stakeholders, that is – EESL, the implementing agency; Member country, the buyer; Bidder, the supplier.

Scope of Work

The Bid provides a choice to the host country between two service options –

- (i) Service 1, which encompasses supply, installation and commissioning of complete system at buyer’s site with a warranty of 5 years
- (ii) Service 2, which encompasses the entire scope of service 1 and additionally requires the supplier to provide the comprehensive maintenance service for 5 years, which shall be operationalised through remote monitoring as well as biannual visits by vendors to the project site as well as service centres in the host country.

The bidder has been assigned full responsibility for packaging, forwarding, transportation, supply and any breakage/losses under both the service options. Further, bidder is to be held liable for any manufacturing defect and any cost and time overruns.

3. Responsibility division

Responsibility division among bidder and buyer is presented in Table below.

Responsibility	Part A	Part B	Part C	Part D
Packing	Bidder	Bidder	Bidder	Bidder






Loading on Truck (Carrier) with Insurance	Bidder	Bidder	Bidder	Bidder
Export-Custom Clearance	MC	Bidder	Bidder	Bidder
Carriage to Port of Export	MC	Bidder	Bidder	Bidder
Unloading of Truck in Port of Export	MC	Bidder	Bidder	Bidder
Loading Charges in Port of Export	MC	Bidder	Bidder	Bidder
Carriage to Port of Import	MC	Bidder	Bidder	Bidder
Unloading Charges in Port of Import	MC	MC	Bidder	Bidder
Loading on Truck (Carrier) in Port of Import	MC	MC	Bidder	Bidder
Carriage to place of destination	MC	MC	Bidder	Bidder
Insurance	MC	MC	Bidder	Bidder
Imports Custom Clearance	MC	MC	Bidder	Bidder
Import Taxes	MC	MC	Bidder	Bidder
Transport from destination port to site	MC	MC	Bidder	Bidder
Installation & Commissioning	MC	MC	Bidder	Bidder
Repair and Maintenance for 5 years	MC	MC	MC	Bidder
MC=Member Country				

Wherein, Part A, B, C, D denote different price packages according to services provided by the bidder.

4. Conditions of Contract

- (i) International suppliers have been held liable for all taxes, stamp duties, license fees outside purchaser's country




- (ii) All supplied goods are insured in freely convertible currency against loss or damage incidental to manufacture/acquisition, transportation, storage, delivery.
- (iii) Buyers are allowed to buy from open market at bidder's expense, in the contingency that product delivered is damaged. Warranty shall continue to be applicable from manufacturer.
- (iv) Member countries have been provided a 20 % leeway on the bill of quantity (BoQ) as well as change in target location, whether within the state or across states with additional burden of transportation charge for change in location.
- (v) Timeline of 120 days has been set for delivery of equipment to destination country's port from date of issuance of Letter of Award (LoA) with installation and commissioning within 180 days. A penalty of 0.5 % of the value of delayed equipment installation up to 10 % of total has been set for every week's delay. Moreover, in the event of delay, country may order the delayed quantity from another bidder who has matched the price for delayed supply.

5. Price Bid evaluation

Price quote for all the, above, mentioned packages will be invited and techno-commercially suitable bidders with lowest price, L1 for a particular pump size shall be determined based on the aggregate price of all relevant packages within the chosen service. That is, for service one price of package A, B, C will be aggregated and for Service two price of all packages will be aggregated.

The implementing agency, EESL, has retained the right to split the total order among multiple bidders other than L1 based on price bid hierarchy, provided non-L1 bidders match L1 price. Thus, the member country can be assured of L1 price from every vendor.

6. Technical Bid Evaluation

The bid document has set qualifying standards for the bidders based on their financial strength, experience in solar PV and Solar Pumping System industries (both quantity of supply and installations considered). Moreover, the bid document includes IEC standards and requirement of certification to be produced by the bidders to establish their technical bona fides to participate in the bidding process.

7. Additional Responsibility of the Bidder

The bidder has been mandated to establish a project office/regional office/depot store within the country within four weeks of issue of Letter of Award (LoA). The office shall ensure adequate human resources for logistical support, service coordination. Further, the bidder has been held responsible for ensuring end-of-life management of supplied equipment either directly or indirectly. Bidder shall also submit a sim monthly performance report to the buyer along with a yearly report to EESL/ISA.



REPUBLIQUE DU NIGER

Fraternité-Travail-Progrès

PRESIDENCE DE LA REPUBLIQUE

MINISTERE DE L'ENERGIE

DECRET N° **2017-796**/PRN/ME

du 06 octobre 2017

portant approbation de la Méthodologie Tarifaire et de la Structure des tarifs applicables aux usagers finaux du service public de l'énergie électrique fournie par la Société Nigérienne d'Electricité (NIGELEC).

LE PRESIDENT DE LA REPUBLIQUE,

- Vu la Constitution du 25 novembre 2010 ;
- Vu la loi n° 2015-58 du 02 décembre 2015, portant création, missions et fonctionnement d'une Autorité de Régulation du Secteur de l'Energie (ARSE) ;
- Vu la loi n° 2016-05 du 17 mai 2016, portant code de l'électricité ;
- Vu le décret n° 2016-161/PRN du 02 avril 2016, portant nomination du Premier Ministre, Chef du Gouvernement ;
- Vu le décret n° 2016-511/PRN/ME/P du 16 septembre 2016, portant attribution, organisation et fonctionnement de l'Autorité de Régulation du Secteur de l'Energie (ARSE) ;
- Vu le décret n° 2016-513/PRN/ME/P du 16 septembre 2016, déterminant les règles tarifaires applicables au sous-secteur de l'électricité ;
- Vu le décret n° 2016-572/PRN du 19 octobre 2016, portant remaniement des membres du Gouvernement, modifié par le décret n° 2016-622/PRN du 14 novembre 2016 et le décret n° 2017-289/PRN du 18 avril 2017 ;
- Vu le décret n° 2016-623/PRN du 14 novembre 2016, portant organisation du Gouvernement et fixant les attributions des Ministres d'Etat, des Ministres et des Ministres Délégués ;
- Vu le décret n° 2016-624/PM du 14 novembre 2016, précisant les attributions des membres du Gouvernement ;

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Vu le décret n° 2017-101/PRN/ME du 17 février 2017, portant organisation du Ministère de l'Energie ;

Sur rapport de la Ministre de l'Energie ;

Le Conseil des Ministres entendu ;

DECRETE :

Article premier : Sont approuvées, telles qu'annexées au présent décret, la méthodologie tarifaire et la structure des tarifs applicables aux usagers finaux du service public de l'énergie électrique fournie par la Société Nigérienne d'Electricité (NIGELEC).

Article 2 : La période tarifaire pour la méthodologie et la structure ainsi approuvées est de cinq (05) ans avec deux phases d'ajustement : 2018-2020 et 2021-2022.

Article 3 : La méthodologie tarifaire et la structure des tarifs sont applicables à compter du 1^{er} janvier 2018.

Article 4 : Sont abrogées toutes dispositions antérieures contraires au présent décret, notamment celles du décret n°2012-246 /PRN/ME/P du 30 mai 2012, portant révision des tarifs d'électricité de la Société Nigérienne d'Electricité (NIGELEC).

Article 5 : La Ministre de l'Energie est chargée de l'application du présent décret qui sera publié au Journal Officiel de la République du Niger.

Fait à Niamey, le 06 octobre 2017

Signé : Le Président de la République

Le Premier Ministre

BRIGI RAFINI

ISSOUFOU MAHAMADOU

La Ministre de l'Energie

MADAME AMINA MOUMOUNI

Pour ampliation :
Le Secrétaire Général
du Gouvernement


ABDOU DANGALADIMA

Annexe au Décret n° 2017-796/PRN/ME du 06 octobre 2017 portant approbation de la Méthodologie tarifaire et la Structure des tarifs applicables aux usagers finaux du service public de l'énergie électrique fournie par la Société Nigérienne d'Electricité (NIGEELEC)

Structure des tarifs Janvier 2018 – Décembre 2020

BASSE TENSION (BT)

TARIF SOCIAL

BT - Social		
Charge Fixe	FCFA/Abonné/Mois	250,00
Prix de l'Energie		
0-50 kWh	FCFA/kWh	59,45

BT – GENERAL

BT - Général 3 kW		
Charge Fixe	FCFA/Abonné/Mois	1 278
Prix de l'Energie		
0-150 kWh	FCFA/kWh	68,37
151-300 kWh	FCFA/kWh	89,82
> 300 kWh	FCFA/kWh	127,27
BT - Général 6kW		
Charge Fixe	FCFA/Abonné/Mois	2 557
Prix de l'Energie		
0-150 kWh	FCFA/kWh	68,37
151-300 kWh	FCFA/kWh	89,82
> 300 kWh	FCFA/kWh	127,27
BT - Général 12kW		
Charge Fixe	FCFA/Abonné/Mois	5 113
Prix de l'Energie		
0-500 kWh	FCFA/kWh	96,38
> 500 kWh	FCFA/kWh	136,58
BT - Général 18 kW		
Charge Fixe	FCFA/Abonné/Mois	7 670
Prix de l'Energie		
0-500 kWh	FCFA/kWh	96,38
> 500 kWh	FCFA/kWh	136,58
BT - Général 30 kW		
Charge Fixe	FCFA/Abonné/Mois	12 784
Prix de l'Energie		
0-500 kWh	FCFA/kWh	96,38
> 500 kWh	FCFA/kWh	136,58

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ECLAIRAGE PUBLIC

BT - Eclairage Public		
Prime de Puissance	FCFA/kW/Mois	0,0
Prix de l'Energie	FCFA/kWh	59,2

MOYENNE TENSION (MT)

	Unité	
MT - General		
Charge Fixe	F/kW/Mois	6 151
Prix de l'Energie		
Heures de Pointe	F/kWh	89,19
Heures Hors Pointe	F/kWh	56,12

AMENAGEMENTS HYDROAGRIQUES

MT - Aménagements Hydro-agricoles		
Charge Fixe	FCFA/kW/Mois	500
Prix de l'Energie		
Heures de Pointe	FCFA/kWh	65,59
Heures Hors Pointe	FCFA/kWh	50,61



Minutes of Meeting
ISA/M.05/WD.01
05-09 August, 2019
Niamey, Niger

(Confidential)

Minutes of Meeting for Expert Level Visit to Niger for Pre-Feasibility Study of Solar Pumps, Rooftop and Mini-Grid Projects by International Solar Alliance Secretariat held from 05-09 August, 2019.

Venue: Niamey, Niger

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Minutes of the meetings

Expert Level Visit for Pre-Feasibility Study of Solar Pumps, Rooftop and Mini-Grid Projects by International Solar Alliance Secretariat

August 05th, 2019 to August 09th, 2019

A. Background

The International Solar Alliance (hereinafter referred to as "ISA") is a treaty based inter-governmental organization which was launched on 30 November 2015, in Paris, France, with Headquarters in India (UN Registration No. 54949). ISA is established to collectively address key common challenges to the scaling up of solar energy in its Member Countries. Niger is one of the founding members of ISA. ISA has been framing various Programmes in order to implement various solar application in the Member Countries. All the Programmes of ISA are member driven. Currently there are 5 ISA programme viz. 1) Scaling Solar Applications for Agricultural use 2) Affordable Finance at Scale 3) Scaling Solar Mini Grids 4) Scaling Rooftop Solar and 5) Scaling Solar E-mobility and Storage.

Team under ISA Secretariat visited Niger from 05th August 2019 to 09th August 2019. The team consisted of members from ISA and KPMG (details provided in Annexure I).

The objectives of the Mission were:

- 1) To create awareness of ISA Programme and its activities among all the important Ministries/ Departments and other stakeholders in Niger under the guidance of Mr. Idrissa Mahamadou Soumana, the National Focal Point (NFP) of ISA in Niger
- 2) To compile the required information and interact with officials to carry out pre-feasibility studies for implementation of demand of 15,000 number of Solar Water Pumping Systems, expressed by Niger against the call for Expression of Interest issued by the Secretariat of ISA.
- 3) To discuss and understand the possibilities of solar rooftop and mini-grid projects in Niger.
- 4) Discuss regarding iSTAR center & capacity building of officials & agencies in Niger on various Solar Applications.

Apart from the above main objectives, the ISA mission wanted to understand and gather information on the existing energy scenario of Niger including renewable energy activities, agriculture/ irrigation infrastructure and various policies/ regulations in the country, which will help ISA to assist Niger in developing country programme to scale up solar applications.

NFP had prepared the schedule of the meetings with concerned Ministers, officials and dignitaries of various ministries of the Government of Niger. Date wise meeting details are as following

B. Date of the meeting – 05th August 2019

Agenda – Debriefing the Hon'ble Minister of Foreign Affairs Cooperation, Africa Integration and Niger Citizen Aboard on the objectives of the visit

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Venue – Ministry of Foreign Affairs, Niamey

The ISA team started the Mission by visiting the office of Ministry of Foreign Affairs, Niger. At the Ministry, the team, accompanied by H E Mr. Ado Leko, the Ambassador of Niger in India and Mr Idrissa Mahamadou Soumana, the National Focal Point (NFP) of ISA in Niger met the Permanent Secretary of Ministry of Foreign Affairs followed by a meeting with the Hon'ble Minister of Foreign Affairs. The ISA team requested the Ministry to expedite the process of ratification of the Amended Framework Agreement of ISA so that the same could be submitted to Depository before the Second Assembly of ISA, to be held on 30-31 October, 2019. Furthermore, a request was also made for the Ministry to arrange a joint meeting with multilateral/bilateral & international organisations, active in the country, so that they could be engaged in finding financing solutions for scaling up solar applications in the country. Discussions were also held on how Niger can effectively leverage the ISA platform to fulfill its requirements. Hon'ble Minister, further, mentioned the following during the discussions:

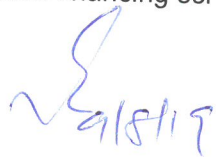
1. Niger is willing to increase the share of solar energy in its energy mix and has target to become a major exporter of energy using solar and uranium.
2. ISA should work closely with Energy Ministry and national players in the solar space to provide impetus to the expansion of solar energy usage.
3. Niger wishes to enhance co-operation with India on increasing solar applications in the country. He is planning to visit India in September/ December 2019 and wishes to visit the headquarters of the ISA.

Agenda – Debriefing the Hon'ble Minister of Energy on the objectives of the visit and discuss policy level initiatives for increasing penetration of solar energy in the country

Venue – Ministry of Energy, Niamey

Following the visit to the Foreign Affairs Ministry, the ISA team visited the Ministry of Energy and held meetings with the Secretary General, Energy and Hon'ble Minister of Energy. The ISA team proposed the following initiatives to the Hon'ble Minister:

1. Formation of a Task Force, under the Hon'able Minister of Energy, consisting of representatives of different ministries/ departments.
2. Establishment of a Solar Policy for the country which includes the following elements:
 - a) ISA programs: Solar Agricultural Pumps, Solar Rooftops, Solar Mini Grids.
 - b) Strengthening of regulations including issue of guidelines for determining different types of tariff: gross metering, net metering, feed-in, general (through reverse auctions), in context to Solar Rooftop Programme, Solar Pumping Programme and other Solar Grid Connected Projects.
 - c) A well defined roadmap for development of Solar Energy based projects in the country with clear milestones and targets in the short, medium and long term.
 - d) Overarching plan across ministries for the penetration of solar energy in the country.
3. Identification of local banks for refinancing and their capacity building. Issuance of Solar Bonds and innovative financial instruments.
4. Innovations in financing:
 - a) Developing innovative financing schemes.



- b) Lowering cost of finance through demand aggregation, subsidies and other innovative mechanisms.
 - c) New schemes in Solar Policy by each concerned ministry. Eg. Adoption of solar pumps by agriculture/irrigation/hydraulic ministry, solarisation of schools by Education Ministry, solarization of hospitals by Health Ministry etc.
 - d) Following replicable models from India, Bangladesh for which ISA can provide technical assistance.
5. Hon'able Minister of Niger had requested to the President, ISA to explore the possibility of installation of solar power plant for maternity wards of hospitals on grant basis. ISA team proposed to visit hospitals to prepare pre-feasibility report on the same.

The Hon'ble Minister of Energy made the following remarks, in response:

1. Task Force can be formed, post approval of the Prime Minister, for co-ordination and discussions between different Ministries. However, concerned Ministries would be responsible for implementation for different programmes in solar energy.
2. There is a National Policy on Renewable Energy(RE) already existing in Niger. Different forms of RE would be developed based on the need and feasibility in different parts of the country. No separate solar policy is envisaged. However, there is a dedicated center for solar energy, ANERSOL, which works closely with solar energy stakeholders.
3. It is too early for Niger to develop a solar policy. However, there are tax exemptions in place for solar developers and Niger wishes to study best practices from India to prepare for the future.
4. There are three solar grid connected projects with cumulative capacity of 60 MW in the pipeline, for which many bidders are from India.
5. Sustainability of projects is very important. There have been cases in Niger such as a 2 Billion CFA street light project, funded by group of Multilateral organisations, where equipments have malfunctioned in a few years. Niger would seek ISA support to frame schemes with embedded warranty and O&M contracts to ensure sustainability and quality.
6. One program supported by the World Bank was mentioned as NESAP. It is based on the national strategy for electricity access in Niger.
7. The Hon'able Minister requested ISA to provide assistance in developing proposals for submission to Green Climate Fund.

Additional comments made by Secretary General of Energy are:

1. Capacity building programs fit in well with the strategy of the government.
2. Solar Rooftop is a viable solution for electrification. There are frequent power cuts and projects should be developed for specific industries such as solar rooftops for hospitals. Storage systems should be included in the schemes for better utilisation.
3. Mini grids are important for rural Niger, without access to the electricity grid. There is a current project being undertaken by the World Bank for mini grids under the umbrella of the National Electricity Expansion project.
4. Niger is willing to bring funding agencies together to develop sustainable and affordable solar solutions. It is suggested that Niger will make ISA to be part of the group.

Agenda – Visit of the proposed I-STAR C

Venue – Agence Nationale d' Energie Solaire (ANSEROL)





The team met the Director General of ANSEROL, Dr. Sido Pabyam Mariama and her team and briefed her on the initiatives taken by ISA since its inception. The team explained to her that ISA is an action oriented organization, which formulated programs as per needs of different countries and put emphasis on building their capacities. The team also highlighted that, as part of capacity building of a country, I-Star C centers hold National relevance. The Director General thanked the team for the briefing and invited the team the next day for a tour of the facility.

Agenda – Discuss Solar Mini Grid initiatives for increasing penetration of solar energy in the country

Venue – Agence Nigerienne pour la Promotion de l'Electrification en milieu Rural (ANPER)

The visit to ANPER comprised of a joint meeting with Director (Engineering) Dr. Ing Mai Moussa Mourima and representatives of various departments of the organization, along with a representative of World Bank, Mr. Isahac Esteve. Dr. Mourima started the meeting by enquiring about the status of electrification of 250 villages, being undertaken through LoC by the Government of India. The team informed him that ISA would coordinate with the Indian Embassy to provide an update of the same. This was followed by the ISA team giving a presentation on the mini grid program of the Alliance and a request was made for Niger to join the initiative. The features of capacity building programs, ITech and Surya Mitra, were explained and ANPER was requested to submit nominations for the same. Mr. Esteve provided a brief on the World Bank project, National Electricity Expansion Project. Key features of the same are:

1. A pilot project comprising 11 villages and 7 mini grids in 5 clusters is planned for Solar Mini Grid installation and pre-qualification of developers for installation of the Solar Mini Grid, for Tariff based bidding, would be launched soon.
2. Each bidder would be allowed to post different tariffs to reflect real cost of the project. This tariff may be higher than the prevalent tariffs of Nigerien Electricity Company (NIGELEC) which are subsidized. Energy service, instead of electricity service, would be used for commercializing the mini grids to avoid tariff comparisons by end users with the prevalent NIGELEC tariffs.
3. As per the scheme, 80% of the capital cost would be borne by the government and 20 % by developers to make the tariffs affordable. Build Operate Own Model (BOOM) being used taking into account users' willingness to pay.
4. If the mini grids are eventually connected, the developers would need to be compensated because they would have made commitments for 15 years.
5. International Development Association (IDA), under World Bank, is providing loan for 40 years, to ANPER for the project.
6. After the pilot phase, ANPER would study and select villages for further mini grid projects and competitive bidding process would be used to assign developers.

C. Date of the meeting – 06th August 2019

Agenda – Discuss scaling up of solar applications in the projects under the Ministry of Hydraulique





Venue – Ministère de l'Hydraulique et de l'Assainissement (Ministry of Water)

The visit to the Ministry of Hydraulique (Water) constituted of a joint meeting with a number of officials from the concerned ministry chaired by the Director, Mr. Niandou Mounkaila. The ISA team delivered a general presentation on ISA, followed by one on the ISA program of Scale Solar Applications for Agricultural Use, to the participants. During the presentations, the ISA team also explained the bidding process associated with demand aggregation of solar pumps and requested the Ministry to reach out to local developers to participate in the online bidding. The presentations were followed by discussions with the participants. Key takeaways from the discussions are as follows:

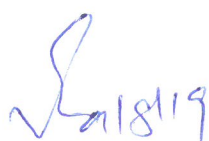
1. The Ministry has a mandate to provide portable water to the population and it views solar energy as a viable, clean solution for providing the same in rural areas.
2. The demand of 15000 solar pumps submitted by Niger to ISA includes pumps for portable water, as well. They have expressed the need for 5000 solar pumps for drinking water purpose. The country has approximately 1500 to 1700 pump installations out of which 50% are solar powered.
3. Data is required by the ISA team to prepare pre-feasibility reports for the demand submitted by Niger. The same would be shared by the Ministry through the NFP, Niger.
4. Capacity of portable pumps would be higher than those of agricultural pumps and specific details would be shared.
5. There are project specific business models currently prevalent in Niger. Financing for them constitute a mixture of loans, grants and PPPs.
6. The Director recommended that the ISA Team meet the Association of Solar Operators in Niger, which comprise of the pioneers in the energy sector in Niger. A meeting is already scheduled in the Agenda prepared by the NFP.

Agenda – Discuss scaling up of solar applications in the projects under the Ministry of Agriculture

Venue – Ministère agriculture et élevage (Ministry of Agriculture)

The ISA team met the General Director of Rural Development, Mr. Moussa Amadou and his team. Presentations were delivered by the team on the overall initiatives taken by ISA and the program on solar agricultural pumps. Following this, discussions were held. Important points of discussion are as follows:

1. Issues related to poor quality of equipment is prevalent in Niger and a viable method to address the same could be the international competitive bidding being conducted by ISA. The clauses of 5-year warranty and option for Comprehensive Maintenance Contract, in addition to compliance to strict technical and performance standards by developers would assist in procurement of good quality of supplies. There is also option of training 5 technicians per 100 Solar Pumps apart from training the owners of the Solar Pumps, by the successful bidder.
2. There is a need for innovative financing schemes to cater to growing demand for agricultural pumps in the country. Partnerships with multilateral banks for soft loans and grants along with capacity building of local banks would make project financing viable.





3. Business models from India, Bangladesh and other relevant countries could be replicated in Niger to provide affordable and sustainable solutions.
4. There are approximately 10 million hectares of land available for agriculture with less than 3000 hectares under irrigation.
5. In 2015, 20 solar pumps had been received from UNDP in the form of donations. As on 2019, 19 of the pumps were still functional. Furthermore, demand for 10000 pumps had been submitted to China and another demand for 15000 pumps submitted to ISA.
6. The year-wise breakup of demand for solar pumps, submitted to ISA, is as follows:
 - a. 2017: 1148
 - b. 2018: 1750
 - c. 2020: 3557
 - d. 2025: 8120

These numbers were arrived at by assuming an annual growth of 3% in the land available for irrigation. The target of 15000 Nos. of Solar Pumps shall be intact irrespective of the targets set for 2017 & 2018 being not part of the target of 15000 submitted to ISA. The Ministry submitted the proposal to Ministry of Planning to provide budget for the same.

7. Grants and soft loans form an important part of financing of most projects. In some projects, government provides subsidies to farmers. For certain wind projects, financing consists of a combination of subsidy, loan and upfront farmer contribution.

Agenda – Discuss the planning and financing of projects in Niger with emphasis on solar projects

Venue – Ministère du Plan (Ministry of Planning)

At the Ministry of Planning, the ISA team met the Planning Director General, Mr. Yakoubou Mahaman Sani and his team. The team was joined by Mr. S M Joshi, Head of Chancery, Embassy of India in Niger. Mr. Joshi started the meeting by providing an update on the projects under Line of Credit (LoC) extended to Niger. Following this, the ISA team provided an overview of the Alliance and its objectives. This was followed by discussions, key takeaways of which are as follows:

1. The objective of the expert level visit would have been better met if a conference/ workshop of different stakeholders (representatives from ministries, multilateral agencies, local players etc.) had been arranged at the onset.
2. It was important for the team to collect certain documents from the Energy Ministry and Electricity Regulatory Authority to understand the policies, planning and eco system of investments in energy sector in the country. These documents include:
 - a. Economic Development Plan
 - b. Strategic Development Plan

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- c. National Plan for Electricity
3. Many partners are supporting them to electrify 2000 villages :
 - a. AfDB
 - b. AFD
 - c. BOAD (West African Development Bank)
 - d. Islamic Bank
 - e. Abu Dhabi Bank (10 million USD)
 - f. The World Bank
4. Income levels in the country is low. Hence, priority is given to mobilization of grants, followed by soft loans and PPPs.
5. NIGELEC holds a monopoly in distribution sector and developers can undertake projects by signing Power Purchase Agreements (PPAs) with NIGELEC. Currently the electricity tariff is the same throughout the country.
6. Further information regarding policies and plans in Niger would be made available through the NFP.

Agenda – Site visit of prospective I-STAR C

Venue – Agence Nationale d’Energie Solaire (ANERSOL)

The ISA team visited ANERSOL for the second time to understand the several projects it was undertaking and to study the innovative solar applications, which the center had developed. Key findings of the visit are:

1. The institute had been established in 1965, making Niger a pioneer in solar application development. Some of the projects undertaken by ANSEROL are:
 - a. Electrification of strategic buildings
 - b. Creation of solar equipment assembly plant
 - c. Construction of concentrated solar plants
 - d. Food safety and development of agricultural services using solar including solar pumps, solar drying etc.
 - e. Solar technologies for food product processing.
2. Few technologies in solar applications present in the institute are:
 - a. Solar system for energy needs of one house
 - b. Solar pump for gardening
 - c. Solar lighting system including street lights with storage
 - d. Solar drier for food

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- e. Solar heater
 - f. Solar Cooker
3. There is institutional support needed by ANSEROL to address the following issues:
- a. Poor quality of available solar equipment
 - b. Failures in installation and bad maintenance practices
 - c. Lack of reliable measurement data

D. Date of the meeting – 07th August 2019

Agenda – Discuss the role of Electricity Regulatory Authority in increasing adoption of solar pumps, solar rooftops and solar powered mini grids

Venue – Autorite de Regulation du Secteur de l’Energie (ARSE)

The ISA team met the Director (Electricity), Mr. Saidou Abdoul Karim and the chief of the legal department, Ms. Mme Boubacar Amina Sekou Ba, at ARSE. The NFP, Niger briefed the representatives from ARSE on the objectives of the expert mission and the importance of the Regulatory Authority in increasing the adoption of solar applications was also highlighted. Important takeaways from the discussion that followed are:

1. The Ministry of Energy is responsible for policies and planning in the Electricity Sector while the Regulatory Authority implements those policies.
2. The objectives of ARSE include protection of interest of consumers. Consequently, tariffs are determined, keeping in mind, the balance between economics and welfare.
3. Consumers pay 2 CFA per kW consumed towards a corpus. 60% of the amount is earmarked for rural electrification. Another corpus is planned for promotion of RE and Energy monitoring. However, it is not operational yet.
4. Currently, ANPER is working with World Bank on a mini grid pilot project. The regulations for the same are being determined by ANPER. However, these need to be reviewed and brought under purview of ARSE.
5. As per current strategic plan, there is a target to connect the electricity grid to 85% of the country while electrification of the remaining 15%, areas which are extremely remote, is targeted through Mini Grids and solar kits.
6. There is a unit within the cabinet of the Prime Minister, which is focused on promoting Public Private Partnerships (PPPs). Few examples of PPPs:
 - a. One agreement with an IPP to develop 53 MW installation in Niamey and 23 MW in Zinder.
 - b. Proposed Solar Plant installations with capacities 30, 10 and 20 MW respectively
 - c. Partnership with World Bank to scale up solar applications.
7. New power plants upcoming: Details available with Ministry of Energy.
8. In 2017, a new tariff structure was established to reflect the cost of supply of electricity. Government approved tariff chart was provided by NFP. Attached as Annexure.
9. There are separate tariffs for street lights as well as for social sector. These categories are cross-subsidized from higher income users (users with connected load 12-30 kW are charged 30% higher than normal tariffs)

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10. 46 % of the electricity demand of Niger is procured from other countries, mainly Nigeria.
11. There are grid interconnections being developed between Benin, Burkina Faso and Niger, which will develop a regional electricity market.
12. There is a code in the Electricity Act, which deals with injection of power into grid for an IPP. This code needs to be further developed to introduce guidelines and norms for grid connected solar rooftops. However, technology and capacity for solar rooftops is not developed in the country.
13. Any technology which is reliable and in consumer interests is welcome by ARSE and they have a lot of faith in the partnership with ISA for concrete actions.
14. The Director requested ISA to help them develop robust regulatory framework, with best global practices, so that usage of solar energy will scale up in Niger, which will, in turn, double farmer income and boost the economy of Niger.

Agenda – Discuss the role of Irrigation Authority in increasing adoption of solar pumps

Venue – Office National des Amenagements Hydro Agricoles (ONAHA)

At the office of ONAHA, the ISA team met the Director of infrastructure, Mr. Insitak Ibrahim and his team to understand the role of the Authority and to understand the demand for 15000 agricultural pumps submitted by Niger. Key points of discussion are as follows:

1. The demand for 15000 solar pumps was formulated by a taskforce comprising of representatives from Energy, ANPER, Agriculture, Hydraulique, i3N (initiative 3 N) and ONAHA Departments. This was coordinated by the Energy Ministry.
2. ONAHA was established in 1978 to achieve the primary objectives of food security and drought resistance.
3. The structure of ONAHA Headquarter comprises of a Director General with 4 Central Directors, one each for economic analysis, infrastructure, finance and HR. Further, there are 6 Regional Directors and 5 offices, apart from the Headquarters. Each regional office has the same structure as the Headquarters.
4. License is required for holders of land to avoid conflicts. Furthermore, compensation has to be paid to license holders if the land is acquired by the Government for public utility.
5. Government invests in the infrastructure of agricultural land and beneficiaries pay 1000 CFA per season per hectare. Water user Associations are formed to maintain the infrastructure.
6. A group of land owners form a cooperative to hold joint ownership of agriculture pumps. There are different roles for the members of the cooperative, in-charge of finance, responsible for maintenance etc. The cooperative pays the electricity bill for consumption by the members to NIGELEC. These cooperatives are autonomous bodies and have their own board members.
7. One director is assigned per perimeter of irrigated land (total 80 perimeters in Niger). He is in-charge of coordination amongst the members of the Association of water users. There are no Government representatives in the Associations.





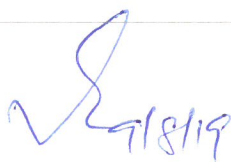

8. ONAHA is responsible for large irrigation projects, covering several villages. There is no demand from ONAHA from the demand of 15000 pumps placed by Niger.
9. Few types of irrigation projects are:
 - a. Pumping station near river, with water pumped through a canal.
 - b. Underground pumping via drilling up-to a depth of 300 m in the North of the country.
 - c. Irrigation through barrage in the Eastern and Central part of the country.
10. Average water table in the country is around 10-40 m. This varies depending on the season and region of the country.
11. There are approximately 200 submersible, 125 surface electric pumps and 25 diesel pumps in Niger. The capacities for submersible pumps range between 3 to 60 kW (discharge 18-600 litres per second per pump) while those for surface pumps range between 5 to 11 kW. It is perceived that switching to solar pumps would be profitable for the users.
12. There are 2 cropping seasons in a year with rice grown near the river and vegetables such as tomato grown in the central parts of the country. Water requirement for irrigation is 3 litre per hectare per second for 10-12 hours per day.
13. ISA can support in replacing the existing pumps with solar pumps.

Agenda – To understand the current capacities of solar application developers in Niger and discuss methods to develop their capabilities, leveraging the ISA platform

Venue – Association des Professionnel de l'Energie Solaire (APE Solaire)

The ISA team visited the office of APE Solaire and held a meeting with the Director General, Mr. Bachir Altine. A presentation on the objectives, membership and activities of APE Solaire was delivered to the expert team, followed by discussions. Important notes from the discussion:

1. Important objectives of the Association are to:
 - a. Contribute towards promotion of solar applications in Niger
 - b. Promote partnerships and develop networks between all industry players in solar energy
 - c. Promote Public Private Partnerships (PPPs)
2. Members of the Association consist of corporates, Non- Governmental Organisations (NGO), Micro-Finance Institutes (MFI) and other solar industry players. There are currently 15 members with work experience ranging from 3 to 30 years.
3. There are moral guidelines which the members have to strictly adhere to. One key guideline is the importance of maintaining quality in supply of equipment.





4. The Association gives importance to training and capacity building. 2 members received training on solar equipment in India and disseminated the knowledge locally, in 2018. The Association is interested in sending its members to attend the I-Tech program, conducted by ISA.
5. In 2013, the Association had received 1600 solar kits, funded by SNV (Netherlands). 2 corporates of the Association were selected to promote the kits in remote locations. The Ministry of Finance provided tax exemptions for the solar kits. Cost of 3 types of solar kits being promoted by the Association: 7500 CFA, 15000 CFA and 19000 CFA.
6. The Association can leverage the ISA platform in a number of ways, which was acceptable to them:
 - a. Participate in the international competitive bidding for solar pumps. Bid documents for the same has been shared by the NFP with the Secretary General of the Association.
 - b. Upload details of association and members on the Infopedia platform.
 - c. Upload videos of success stories.
 - d. Send members for training to the I-Tech program.
 - e. Participate in international conferences, RE-Invest, India and Sun World, Peru
 - f. Join Task Force on International committee of chambers of industry and business (ICCIB)
7. ISA is only treaty based organization which works closely with the private sector.
8. Association supports robust policy for private sector participation in solar projects and applications.
9. Association may develop projects and submit the same under rogep and srmi initiatives. ISA may provide assistance in development of proposals.
10. There are a variety of products available with the Association, which indicates that there is demand for solar applications. However, capacities of corporates and standards for good quality need to be developed to create a healthy ecosystem.

E. Date of the meeting – 08th August 2019

Agenda – To understand the role of African Development Bank in the development of solar projects in Niger

Venue – African Development Bank (AfDB)

The ISA team met Mr. Nouridine Kane Dia, Resident Representative, AfDB to discuss the role of the multilateral bank in Niger and to explore opportunities for collaboration with ISA. Key points of discussion:

1. The AfDB office in Niger was established a year ago and currently had a staff strength of 6. The organization was in the process of developing a partnership with the government of Niger.


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2. A country strategic paper had been developed with a 5 year plan for the period 2018-2022. Approximately, 17 projects had been planned in this period with energy sector and particularly, renewable energy having a high priority.
3. Few projects planned include rural electrification, interconnection of international grid between Benin, Burkina Faso, Niger and Nigeria, Desert to Power initiative, mini grids, solar home lighting etc.
4. Niger has a high potential for solar energy investments. However, capacity building needs to be done for all the stakeholders.
5. Sustainable solutions, in lieu of grants, is needed to develop a solar market in Niger.
6. AfDB has a planned investment of approximately \$300 Mn towards private sector. However, it is difficult to find sustainable, bankable projects in Niger.

Agenda – To understand the feasibility of installing solar rooftops on National Hospital, Niamey.

Venue – National Hospital, Niger

The ISA team met the Cabinet Director of Health and accompanied him to the National Hospital, Niamey, where they were provided a tour of the site by Mr. Daouda Zoumbey, Chief of Service Maintenance. The findings of the visit are as follows:

1. Established in 1922, it is the most frequented hospital, at the center of Niamey. The structure comprises:
 - 56 buildings
 - 6 departments
 - 45 services
 - 1200 officers
 - 900 beds
2. DG Sets of total capacity of 1400KVA have been installed. There are 4 DG sets, out of which one DG set is stand by. There are frequent power cuts, due to which the mandatory loads are operated on DG Sets. They propose to install Solar Power Plants to replace these DG Sets. The electrical load of the Hospital has also increased in due course of time due to which the DG Set capacity is also not sufficient. It was informed that if Solar power plant is installed initially for children ward, adults ward and emergencies and they are satisfied with the solar plant, more solar plants can be installed in the hospital to meet the demand. It was informed that they have done study regarding the power utilization of hospital. They were requested to share the study with ISA
3. The ISA Team found the Roof Space available in the Hospital Campus suitable for installation of Solar Power Plant. Options of all types of Solar Power Plants were explained to the Cabinet Director and Hospital Officials. ISA Team conveyed that a set of questionnaire would be sent to the NFP so as to assess the optimum capacity of Solar Power Plant, suitable for the National Hospital.

Agenda – To understand the feasibility of installing solar rooftops on Maternity Hospital, Niamey.




Venue – Maternity Hospital, Niger

ISA team had a meeting with Director General of the Hospital and his officials in the presence of the Director Cabinet of Health Ministry. It was informed that they are facing problem of power cuts due to which they are unable to properly operate lifesaving equipment. ISA Team conveyed the context of the visit that Hon'ble Energy Minister during her visit to India had requested the President of ISA Assembly to support Niger in installation of Solar Power Plants on the Maternity Hospital/Wards to support lifesaving systems of New Mothers and their new born Babies. Hence to prepare a pre-feasibility report of the proposal, ISA Team was visiting the hospital. Key findings:

1. There are three DG Sets in the Hospital, two DG Sets of 250KVA each and one of 200KVA. Out of these, one DG Set of 250KVA was not operational. During Power Cuts these DG Sets need 17 interventions to start them, which are, at times, also not sufficient. Hence, further back up options are needed to keep critical electrical gadgets operational
2. ISA Team also explained the possible option of installing Solar Power Plant. The site survey indicated that Rooftops are suitable for installation of Solar power plants. ISA Team shall forward a questionnaire to NFP. The information sought will help in preparing a Pre-feasibility for assessing the optimum capacity of Solar Power Plant.
3. ISA team also requested the hospital DG to install energy efficient AC and other electrical gadgets.
4. The maternity consists of: 173 beds, 23 cradles at the neonatal center and 683 officers: 17 gynecologists, 98 midwives, 5 pediatricians, 1 radiologist, 5 technicians for maintenance etc.

Agenda – To understand the role of UNDP in the development of solar projects in Niger

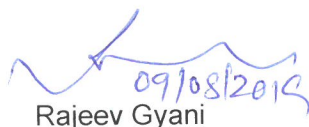
Venue – UNDP

The project team met the co-ordinator of UNDP projects in Niger, Mr. Ibrahim Hassane to understand the role of the multilateral organization in the development of solar projects in the country. Key takeaways are as follows:

1. One project supported by UNDP: Development of a multi-task platform: pilot project implemented in 350 villages since 2003, supported by UNDP and the Luxembourg cooperation. Multitask platform is operated by community to provide services of oil extraction from Neem, Jatropha etc. as well as grinding machine. They have also installed 100 Solar Pumps in these villages. Now they propose to replace these DG Sets with Solar Power Plants. They propose to replace DG Sets with Solar Power Plants in 40 villages and need ISA intervention. ISA Team requested them to share the details of the proposal and funding pattern provided for installation of Multi Task Platform. The concept notes of each project is available with the NFP.


Place: Niamey, Niger

Date: 09th August, 2019



Rajeev Gyani

Additional Director, NFP Coordinator, ISA



Idrissa Mahamadou Soumana

National Focal Point of ISA for Niger

Annexure 1

Expert Team

S.No.	Name	Organisation	Designation
1	H E Mr. Ado Leko	Embassy of the Republic of Niger in India	Ambassador
2	Mr. Rajeev Gyani	ISA	Additional Director (RE), NFP Coordinator
3	Mr. Shishir Seth	ISA	Additional Director, Partnerships, Program Support and Home Country Coordinator
4	Mr. P C Sharma	ISA	Deputy Director (RE)
5	Mr. Idrissa Mahamadou Soumana	Ministry of Energy, Government of Niger	National Focal Point of ISA for Niger
6	Ms. Aissatou D. Sonko	ISA	Consultant, International Relation
7	Mr. Zeeshan Hyder Farooqui	KPMG India on behalf of ISA	Senior Consultant

