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USAID / DRC POWER SECTOR REFORM PROJECT

FINAL REPORT

May 16, 2016 – June 30, 2019

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Final Report

May 16, 2016 – June 30, 2019

TASK ORDER NO. AID-660-TO-16-00003

June 2019

AUTHORITY

Prepared for USAID under the Clean Energy Indefinite Delivery Indefinite Quantity Contract (IDIQ) Task Order No. AID-660-TO-16-00003, awarded May 11, 2016, entitled “DRC Power Sector Reform (PSR) Project.”

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ACRONYMS

Although an effort was made to reduce the number of acronyms used in this document, many are commonly used and are included here – specifically for names of donors, government institutions and commonly used technical terms. Whenever the acronym or abbreviation appears the first time, it is defined in the text.

AfDB	African Development Bank
ANSER	National Rural Electrification Agency
ARE	Regulatory Authority for Electricity Sector
BP	Business Plan
COR	Contracting Officer's Representative
CPARE	Committee for Preparation of the Electricity Regulatory Authority
CPANSER	Committee for Preparation of the Rural Electrification Agency
DFID	British Department for International Development
DGRAD ¹	Directorate General of State Administrative Revenues
DRC	Democratic Republic of Congo
GDRC	Government of the Democratic Republic of Congo
IFI	International financing institution
LOE	Level of effort
LAW 14/011	Law on Electricity No. 14/011, promulgated on June 17, 2014
MEHR	Ministry of Energy and Hydraulic Resources
MOU	Memorandum of Understanding
PSR	Power Sector Reform
SG	General Secretariat at MEHR
SNEL	National Power Company of the Democratic Republic of Congo
SOW	Statement of Work
STTA	Short-term technical assistance
ToR	Terms of reference
UCM	Unit for Preparation and Management of Projects at MEHR
USAID	United States Agency for International Development
USG	United States Government
WB	World Bank

¹ *Direction générale des recettes administratives domaniales*



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FOREWORD

In compliance with the requirements of the USAID Task Order (TO) contract under the Clean Energy IDIQ, ECODIT hereby provides this final report for the DRC Power Sector Reform Project, which describes its work process and achievements during the entire period of performance from May 16, 2016 through to June 30, 2019.



I. EXECUTIVE SUMMARY

Over the three-year period, commencing on May 2016, the ECODIT LLC Consortium implemented the USAID Power Sector Reform (PSR) project in the Democratic Republic of Congo (DRC) with an aim to guide the power sector reform process in the country, support establishment and operationalization of the regulatory authority and the national rural electrification agency, and improve the overall energy sector performance in the DRC.

The PSR project objectives were to develop a comprehensive framework of legal and regulatory instruments to advance the regulatory reform and increase private sector participation in the energy sector. These objectives were linked to supporting improved power sector operations and creating the enabling environment to increase access to power supply through domestic and foreign investment.

During the period of October 2016 – December 2017, ECODIT developed the legal and regulatory frameworks required for power sector reform in the DRC in a consultative manner with the involvement of major power sector stakeholders through an open participatory process.

The legal framework consists of several decrees, ministerial and inter-ministerial orders, and different regulatory standard documents and tools prepared by the PSR Team.

The PRS project used a participative consultative approach to develop, iterate and validate the newly drafted legal and regulatory texts.

The regulatory framework is composed of statutory acts as well as internal regulations, regulatory operational models, and instruments prepared in order to advance the Regulatory Authority for Electricity Sector's (ARE)² operationalization and expertise.

Overall, more than 150 stakeholder representatives engaged in the validation of the proposed texts during the first phase of the project implementation.

The PSR project team prepared separate PSR reports on the current status of the legal framework³ and that of the regulatory framework development⁴ and submitted them to Government of DRC (GDRC) in May 2019. Key issues and considerations from these two reports are integrated this PSR final report.

During the first 18 months of project operations (May 2016 – December 2017), the PSR Project, prepared and submitted a number of different legal documents to the Ministry of Energy and Hydraulic Resources (MEHR), namely:

- 22 statutory documents related to ARE,
- 19 statutory documents related to the Rural Electrification Agency (ANSER)⁵, and
- 24 legal texts that contain regulatory tools, models and instruments.

13 of the legal documents prepared by as a result of USAID assistance were adopted by the DRC before the end of the PSR Project. The remaining texts drafted by the PSR Project are likely to be adopted by

² *Autorité de Régulation du secteur de l'Electricité*. Please, note that this report adopted French acronyms both for the national regulatory authority (ARE) and the national rural electrification agency (ANSER).

³ Review of regulatory framework in the electricity sector in the DRC. May 2019.

⁴ Current Status of the Regulatory Framework establishment for the DRC power Sector. May 2019.

⁵ *Agence Nationale de l'électrification et des Services Energétiques en milieux Rural et Périurbain*



the GDRC and will complete the new legal regulatory framework, resulting in completion of the organization of the national electricity market, and definition of technical standards and conditions of exercise of the electricity activities.

As a result of these activities, the PSR Project improved the enabling environment in the DRC power sector by establishing comprehensive legal and regulatory frameworks and preparing all institutional and business processes required for the establishment of the regulatory authority and the rural electrification agency.

Despite the fact that neither ARE nor ANSER has become operational by the time the USAID PSR project completed its activities in June 2019, the impact on the power sector institutions, strategies and policies cannot be underestimated.

The PSR project prepared the body of regulatory instruments that are ready to be activated and mobilized when ARE and ANSER are formally established and institutionalized.

In addition, sustained interaction with the DRC power sector stakeholders over 36.5 months contributed to raising awareness regarding the need for the power sector reform to achieve the intended objectives of improved power supply and market conditions for private investors.

The technical assistance activities also provided a capacity building exercise through stakeholder consultations that collectively contributed to the better understanding of key steps to reforming the national power market.

From the viewpoint of the reform process, important measures are still needed to improve access to electricity in the DRC. Among others, they include (a) Preparation and adoption of a policy paper to define a strategy for the power sector development; (b) Development of a transparent tariff-setting regime, and; (c) Facilitating access to power in individual provinces through encouragement of private concessions and investment. Such measures are listed in Section VII of this report.

One of the critical success factors for continued implementation of the power sector reform already in progress is the pending operationalization of the regulatory authority through appointment of five members of its Governing Board and providing operational budget, and completion of the legal and regulatory framework through adoption of the remaining pieces of secondary legislation.

During the period of January 2018 through to June 30, 2019, the PSR project efforts focused fully on identifying, selecting and implementing viable power sector projects and providing assistance to them through transaction advisory services.

With regard to the progress achieved in transaction advisory support, the project team screened:

- 17 candidate project concepts for fast-tracking with potential to demonstrate reasonable progress towards achieving USAID goals before the end of the present project cycle.
- More than 20 power projects in the provinces of Equator, Haut-Katanga, Kasai, Kasai Oriental, Kongo Central, Ituri, Lualaba, North Kivu, South Kivu and in the City of Kinshasa.



- 38 requests from prospective offerors and project developers solicited through a competitive procurement process.

As a result of the candidate projects screening, a two-prong approach was developed to provide:

- (1) Engineering, economic, and regulatory technical assistance to private project developers in support of preparation and implementation of individual projects, applicable to performing (pre-)feasibility studies, providing expert advice and consultations; and,
- (2) Financial support to private project operators to increase new connections.

The technical assistance resulted in 12 power sector studies that present potential opportunities for further sector development, regional power integration, and kick-start individual power projects in the provinces. These studies are listed in Section X under components 1 and 4.

Financial assistance resulted in 2,415 new connections to power supply based on hydro generation and individual solar systems in the Congolese provinces of North Kivu and South Kivu.



Carpenter at work in Mutwanga, North Kivu, thanks to the grid connection realized with USAID assistance.



II. PROJECT BACKGROUND

A. Project Objectives

On May 16, 2016, USAID awarded Task Order (TO) No. AID-660-TO-16-00003 under the Clean Energy IDIQ to a consortium led by ECODIT LLC to implement the DRC PSR Project.

The project was designed to improve power sector operations in the DRC and create the enabling environment to increase access to electricity through domestic and foreign investment. To meet this objective, the project supported the implementation of the Law on Electricity No. 14/011 (Law 14/011), promulgated on June 17, 2014, to establish a blueprint for the national power sector reform.

The scope of work also included transaction support to provide assistance to specific power projects and individual private power operators in order to increase access to modern energy services in the DRC provinces.

The project's initial performance period was May 16, 2016, to May 15, 2019, but was later extended by six weeks until June 30, 2019. Following the project inception and mobilization phase, the implementation activities commenced on October 1, 2016, and continued for 33 months.

B. Contracting Authority

The Contracting Authority for the PSR Project is USAID/DRC and the Task Order was managed by the USAID Contracting Officer's Representative (COR) and the Alternate COR, both based in Kinshasa, DRC.

C. Project Counterparts

The PSR Project was created to support the GDRC in reforming the national power sector. Some coordination effort was done in coordination with the Prime-Minister Office, mostly to facilitate the reform measures.

However, the primary counterpart was the Minister of Energy and Hydraulic Resources (MEHR). Within its complex structure, a number of units acted as counterparts to the PSR Project under their respective mandates.

Within the MEHR, the PSR Project coordinated mostly with the following ministerial units:

- Unit for Preparation and Management of Projects of the MEHR (UCM),
- Committee for Preparation of the Electricity Regulatory Authority (CPARE), and
- Committee for Preparation of the National Rural electrification agency (CPANSER).

Exhibit 1 lists Congolese counterparts involved in the reform implementation and the corresponding areas of cooperation between them and the PSR Project, with the three last ones being direct beneficiaries of the PSR Project.

EXHIBIT 1: GOVERNMENT AGENCIES AND THEIR ROLES IN THE POWER SECTOR REFORM

GDRC INSTITUTION	ACRONYM	MAIN AREAS OF COOPERATION
Office of the Prime Minister	PMO	Adoption of critical legal documents



GDRG INSTITUTION	ACRONYM	MAIN AREAS OF COOPERATION
Office of the Minister of Energy	--	Strategic decision-making and liaising with other GDRG bodies
General Secretariat of the MEHR	SG	Transition from existing energy sector framework to the reformed legal and regulatory framework and assistance to specific power projects.
Unit for Preparation and Management of Projects of the MEHR	UCM	Overall coordination of power sector reform and coordination with other international financial institutions (IFI)s' programs
Committee for Preparation of the Electricity Regulatory Authority	CPARE	Operationalization of ARE and establishment of the new legal and regulatory framework
Committee for Preparation of the Electricity Regulatory Authority	CPANSER	Operationalization of ANSER and establishment of the new legal framework

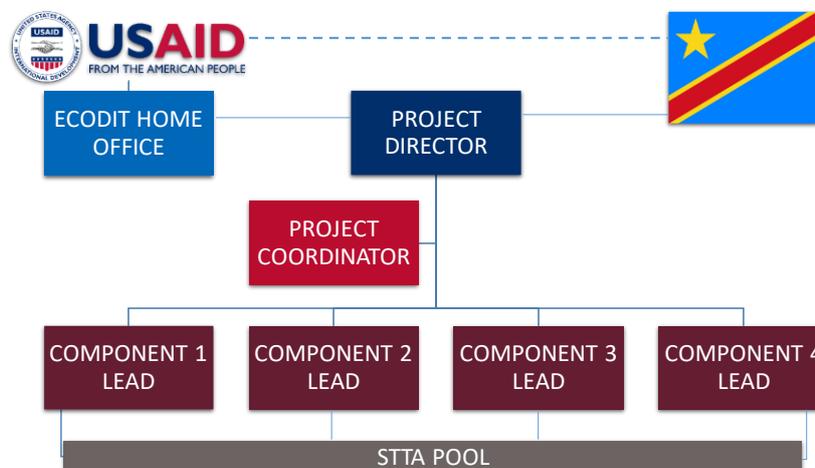
Technical assistance activities in the DRC provinces required coordination with provincial governments of Haut Katanga, Kongo Central, Lualaba, and, more extensively, with North Kivu and South Kivu.

D. Project Management Structure

The DRC PSR project established project operations through a local office in Kinshasa on a full-time basis. The project team included the Project Director (Key Personnel) and one locally hired Project Coordinator. The ECODIT Home Office Project Manager supported the PSR project team.

The Project engaged short-term technical assistance (STTA) experts from an international pool of specialists mobilized worldwide on an intermittent basis to deliver targeted legal, regulatory and technical interventions. The project's management structure is shown in Exhibit 2.

EXHIBIT 2: PROJECT MANAGEMENT CHART





III. STATEMENT OF WORK

The Task Order Statement of Work is organized in four components, as follows:

- Component 1: Strategy and Policy. Revise the power sector strategy and prepare a new policy, along with revising and implementing decrees for creation of ARE and ANSER, as mandated by the Law on Electricity.
- Component 2: Regulatory Authority. Establish, staff, and support ARE.
- Component 3: Rural Electrification Agency. Establish, staff, and support ANSER.
- Component 4: Generation, Transmission and Distribution Concessions. Provide transaction support to the GDRC on generation, transmission, and distribution concessions, as well as the sustainable development of generation, transmission, and distribution projects, including large hydropower projects.

Initially the work effort was fully focused on drafting statutory documents for ARE and ANSER and new pieces of secondary legislation to establish a legal and regulatory framework for the reformed power sector.

Thus, from project mobilization until December 2017, the PSR Project delivered to the GDRC all the statutory elements required for the operationalization of ARE and ANSER, as well as developed a sufficient number of decrees, ministerial and inter-ministerial orders and facilitated their validation by stakeholders to establish a new legal and regulatory framework. However, the GRDC was unable to operationalize the new institutions or to rapidly promulgate the newly prepared acts of secondary legislation.

As a result, in December 2017, the USAID DRC Mission instructed the PSR project to pivot its assistance activities in order to focus exclusively on support to the development and implementation of specific power projects in selected DRC provinces and continue activities related to power sector reform only if they were necessary for the advancement of individual power projects.

Consequently, given the lack of progress in the operationalization of ARE/ANSER and the establishment of the new legal and regulatory framework, as of January 1, 2018, the PSR Project shifted the focus from Component 1, 2, and 3 to delivering activities under Component 4 (Generation, Transmission, and Distribution Concessions).

In this regard, from January 2018 until end June 2019, the PSR project identified, screened and selected a number of specific power projects that were supported through implementation of project-specific technical or legal and institutional studies, provision of technical and financial assistance to increase the number of new connections.



IV. WORK PLANNING AND IMPLEMENTATION PHASES

In accordance with the Task Order contract requirements, the PSR Project planned and implemented its activities within the framework of annual work plans that were aligned with the USG fiscal year (October 1 - September 30), as illustrated in Exhibit 3.

EXHIBIT 3: PROJECT IMPLEMENTATION TIMELINE



The first annual work plan (WP1) was prepared during the inception period, approved by the USAID DRC Mission in September 2016 and fully implemented over the period of October 1, 2016 - September 30, 2017.

The second work plan (WP2) was prepared for implementation over the period of October 1, 2017 – September 30, 2018. However, in December 2017, concurrent with the USAID DRC Mission’s request to pivot to the PSR Project transaction support, the team abandoned WP2 and developed the third work plan (WP3) to cover the remaining performance period.

The three successive work plans are listed in Exhibit 4.

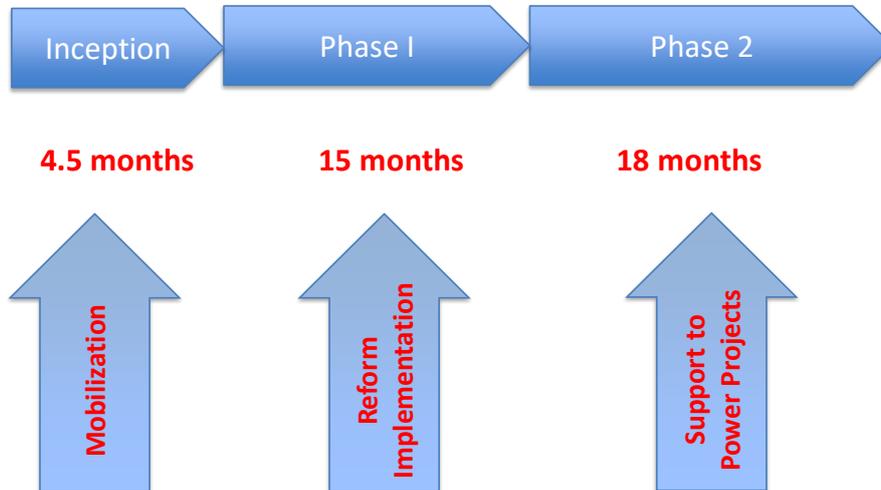
EXHIBIT 4: IMPLEMENTATION OF PSR PROJECT ANNUAL WORK PLANS

Work Plan	BEGINNING	ENDING	IMPLEMENTATION IN MONTHS
WP1	October 1, 2016	September 30, 2017	12
WP2	October 1, 2017	December 30, 2017	3
WP3	January 1, 2018	June 30, 2019	18



Thus, the project's timeline can be split into three phases, as illustrated in Exhibit 5.

EXHIBIT 5: PSR PROJECT IMPLEMENTATION PHASES





V. PROGRESS ACHIEVED IN COMPONENTS 1, 2 AND 3

A. Results and Outcomes for Components 1, 2 and 3

Components 1, 2, and 3 aimed to achieve the following:

- 1) Revise the power sector strategy and prepare a new policy, ...as authorized in the Law on Electricity.
- 2) Establish, staff, and support ARE.
- 3) Establish, staff, and support ANSER.

During the first 18 months of implementation, the project work focused on establishing and operationalizing functional legal and regulatory frameworks for the DRC power sector conformant to the requirements of Law 14/011.

This effort included drafting the new pieces of legislation, developing statutory documents for ARE and ANSER, discussing them with the beneficiaries and validating the final texts by the stakeholder community.

The PRS project used a participative consultative approach to develop, iterate, and validate the newly drafted legal and regulatory texts. Overall, more than 150 stakeholder representatives engaged in the validation of the proposed texts during the first phase of the project implementation.

As a result of these intensive activities, the PSR Project prepared and submitted a significant number of various legal documents:

- 22 statutory documents related to ARE,
- 19 statutory documents related to ANSER, and,
- 24 legal texts that contain regulatory tools, models and instruments.



Stakeholder Coordination Meetings held in 2016-2017 to validate legal and regulatory texts

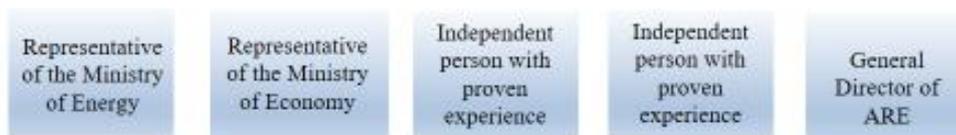
These accomplishments of the PSR Project during the first year and a half of implementation fully paved the way for the GDRC to operationalize both ARE and ANSER, which would include appointing



their respective governing Boards, whose composition is illustrated in Exhibit 6, providing office space and operational budgets for the two institutions, as well as implementing the new legal and regulatory framework through adoption of secondary legislation. Unfortunately, the GDRC was unable to operationalize ARE and ANSER within the project's period of performance, thus stalling further technical assistance to these institutions and precluding the development of regulatory business activities and capacity building.

EXHIBIT 6: COMPOSITION OF ARE AND ANSER GOVERNING BOARDS

Members of the Board of ARE



Members of the Board of ANSER



- Mandate of the Members of the Board is 5 years and can be renewed once
- One of the members is appointed Chairman of the Board

Despite the delay in operationalizing the two new institutions, the MEHR achieved progress in promulgating the secondary legislation – in total 13 new pieces of legislation drafted by the PSR Project were adopted before the end of 2018.

Together with other legal documents that existed previously or were adopted without the PSR project's participation, the legal and regulatory framework of the DRC power sector is now composed of 28 legal documents, of which 20 are already in force and eight have been prepared with USAID assistance and are pending adoption.

Both the adopted legal texts and those that still need to be adopted play an important role in the legal and regulatory framework development. Together, they provide the basis for the following activities:

- Organizing the national power market structure;
- Promoting and financing access to power in rural and suburban areas;
- Price-setting (tariffs, royalties and license fees);
- Establishing technical conditions for the power sector activities; and
- Providing standard contract terms and other legal models.



The adopted PSR texts define the general principles of the power sector set-up, its functions and development, regulate operators' activities and their usage of equipment, as well as their deployment of personnel. Together, they form a new legal and regulatory framework of the DRC power sector.

Some prominent features of the new legal framework are:

- At the national market level, the new framework opens the sector to independent power producers (IPPs), who can operate under a concession agreement, licence or authorization. This excludes the state-owned generation facilities.
- The GDRC maintains responsibility for financial performance of the whole sector and individual concessions and must compensate operators when their revenues are insufficient to cover their operating costs.
- Conditions and criteria for eligible customers are defined in compliance with Law 14/011.⁶ Eligible customers can contract their power directly from generating companies or from import through a transmission or a distribution grid.
- The mechanism and conditions for financing and management of resources by ARE and ANSER are defined.
- The new legal framework removes cross-subsidies between sub-activities in the national electricity supply business. The prices are now proposed by individual operators, subject to approval by the Central government at the ministerial level.
- The framework defines measures related to addressing fraud, imposes a license fee on operators, and offers operators favorable treatment in relation to taxation and customs duties.
- The framework establishes technical conditions for each power sector activity and offers standard contracts and authorizations.

The remaining texts drafted by the PSR Project that need to be adopted by the GDRC will complete the new legal framework and strengthen the regulatory framework. This will result in:

- (i) Completion of the organization of the national electricity market through the establishment of mechanisms for delegation of electricity public service management and the management of related financial flows, and
- (ii) Definition of technical standards and conditions for the power sector activities.

Under Component 2, the PSR Project established a clear and feasible regulatory process to be applied by ARE once it becomes operational. The regulatory process consists of a regulatory framework, tools, and models as shown in Exhibit 7.

⁶ Article 3 of Law 14/011 defines eligible customer as: any consumer, final or not, that meets the conditions set by this law to choose their supplier of electricity.



EXHIBIT 7: REGULATORY PROCESS

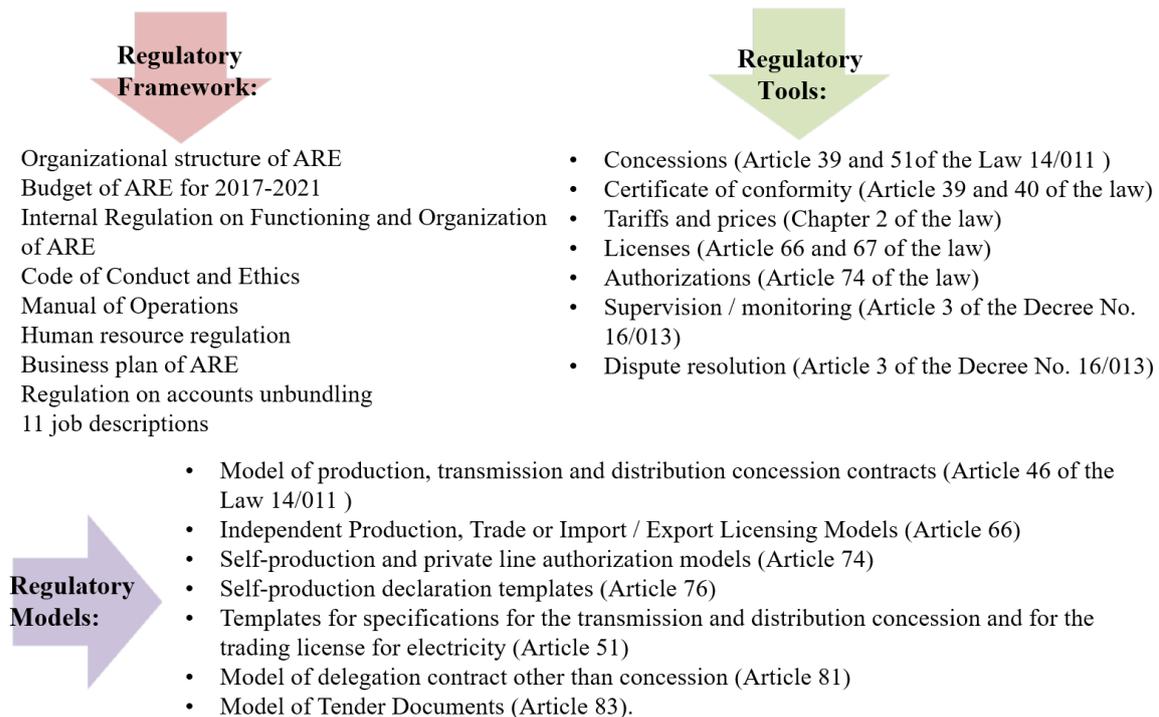


The regulatory framework consists of the internal documents developed by the PSR project to support ARE in performing its functions in an organized, efficient, and transparent manner in compliance with Law 14/011 and related decrees or ministerial and inter-ministerial orders.

Regulatory tools are instruments that enable ARE to perform its regulatory functions. Such instruments are created through the legal framework developed by the PSR project.

Regulatory models consist of various contractual forms developed by the PSR Project to assist ARE in market place oversight and monitoring of performance.

EXHIBIT 8: REGULATORY FRAMEWORK, TOOLS AND MODELS

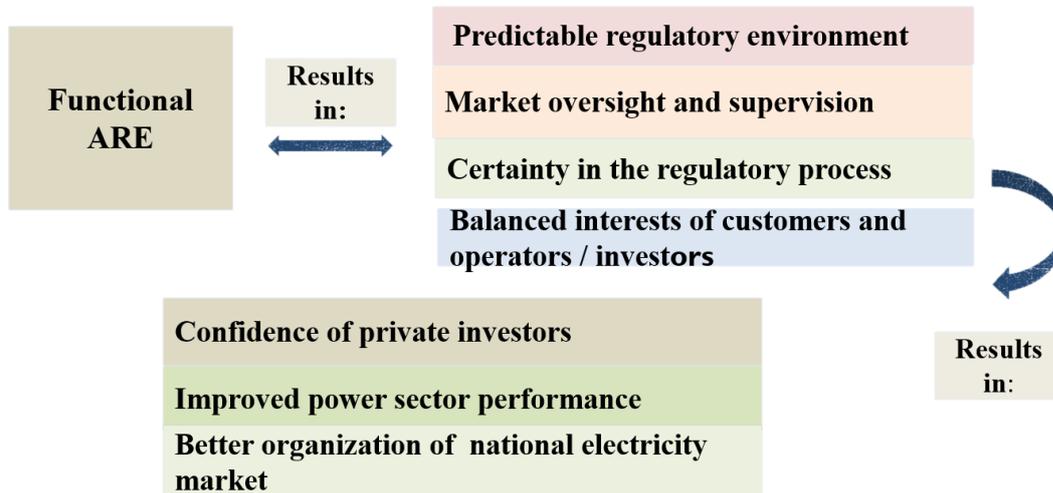


Implementation of the legal and regulatory framework is expected to produce result as shown in Exhibit 9.



EXHIBIT 9: RESULTS EXPECTED FROM THE FRAMEWORK IMPLEMENTATION

The regulatory framework prepared by the PSR project enhances establishment and functionality of ARE. It is one of the main preconditions for the power sector reform in DRC.



1

Under Component 3, the PSR project developed 19 statutory documents to support ANSER in performing its functions in organized and efficient manner, in full compliance with Law 14/011 and Decree No. 16 /014 on the establishment of ANSER.⁷

ANSER is responsible for the promotion and financing of electrification in rural and suburban areas thereby increasing access to electricity services.

In order to assist ANSER in performing its activities, in addition to the statutory documents listed in Section X of this report, the PSR Project developed Decree 18/51 on financial resources of ANSER that establishes a method and means of creation, usage, and management of ANSER`s funds. These funds are dedicated to promoting electrification through technical and financial support to public and private developers as well as to financing and implementing electrification projects. The Decree No. 18/51 was adopted by the GDRC in December 24, 2018.

The other decrees and ministerial and inter-ministerial orders prepared by the PSR Project, especially those related to concessions, technical conditions, and operation of power system, are applicable to ANSER as well, since ANSER is responsible, inter alia, for establishing the tender files and award contracts for concessions in rural electrification area as well as ensuring monitoring and supervision of the operation of facilities used during concessions.

The results achieved in Component 3 are directly related to enhancing functionality of ANSER to allow it to assume its responsibility to increase customers` access to electricity in rural and suburban areas of the DRC.

⁷ Decree No. 16 /014 of 16. April. 2016 concerning Creation, Organization and Functioning of a Public Institution titled National Agency for the Electrification of Rural and Suburban area (ANSER).



B. Component 1: Strategy, Policy, and Decrees

Objectives

Component 1 was originally designed to support drafting the decrees establishing ARE and ANSER. However, the GDRC adopted the decrees establishing ARE and ANSER in April 2016, prior to the PSR Project's actual deployment.

While the term “decrees” in the title of the component refers only to two decrees, in the light of the actual situation on the ground, implementation under Component 1 involved drafting multiple legal texts that needed to be prepared to establish a new legal and regulatory framework.

Implementation

Component 1 included the following activities:

- (i) Performing a gap analysis of the Law on Electricity to reveal any deficiencies or missed considerations in its legal text that would support necessary adjustments to the course of the power sector reform process.
- (ii) Identifying which secondary legal texts are necessary to establish a new legal and regulatory framework for the reformed power sector, then drafting and validating the legal texts by the stakeholders.
- (iii) Elaborating concurrent studies related to the analysis of the institutional and regulatory framework and financial flows as they are established by Law 14/011 to help clarify the *modus operandi* of the reformed power sector.

The team completed the gap analysis of Law 14/011 in November 2016. Its French version was shared with the MEHR via the CPARE to stimulate the discussion on the reform process.

The drafting of secondary legislation mandated by Law 14/011 was also initiated in October-November 2016.

As the drafting process unfolded, it was difficult to define the exact number of the pieces of secondary legislation (decrees, inter-ministerial, ministerial orders and technical documents) that would be required to support the implementation of the Law. This ambiguity was rooted in the absence of a clear high-level sector development strategy and objectives from the GDRC.

Based on the findings of the gap analysis and discussions with the beneficiaries, in the beginning of 2017, the total number of legal texts to draft and adopt was estimated at 35. These legal texts are categorized in Exhibit 10.

The primary DRC counterpart for drafting and validating the legal texts developed under USAID technical assistance was the ministerial unit, CPARE. PSR team engaged dynamically with CPARE experts to prepare and complete the identified documents.

The drafting process was impacted by delays in the operationalization of CPARE and CPANSER that were created in July 2016, but received their personnel only in September 2016. This delay in establishing the two entities shortened significantly the original 12-month transition period, during which they were supposed to operationalize ARE and ANSER.



EXHIBIT 10: ESTIMATED NUMBER OF REQUIRED LEGAL TEXTS SPLIT BY CATEGORY

DESCRIPTION	TOTAL
GRAND TOTAL	35
LEGAL TEXTS IMPOSED BY LAW 14/011	26
Decrees	8
Inter-ministerial Orders	3
Orders of the Minister of Energy and Hydraulic Resources	5
Annexes – Templates – Other Documents	10
ADDITIONAL TEXTS NECESSARY TO COMPLETE REFORM FRAMEWORK	9
Decrees	4
Inter-ministerial Orders	3
Orders of the Minister of Energy and Hydraulic Resources	1
Annexes – Templates – Other Documents	1

The truncated support period created undue pressure to fit a large volume of document drafting work into a much shorter timeline, possibly at the expense of much more thorough process that would have been otherwise dedicated to analyzing carefully all considerations for the power sector reforms. The PSR team dealt with these pressures in a diplomatic manner.

While the beneficiary generally viewed the PSR Project as a sort of external drafting platform providing texts for internal review by the DRC counterparts, the PSR project team also sensed that it was crucial to prepare the full set of legal texts as soon as possible in order to assure their adoption by the time ARE and ANSER were to be established.

By the end of summer 2017, the PSR project drafted and consulted with the power sector stakeholders on 21 legal texts (including four decrees, four inter-ministerial, seven ministerial orders, and five technical documents), which were deemed necessary to modernize the power sector legal and regulatory framework. The team also drafted additional documents before the project reoriented in late 2017, bringing the total number of legal texts to 24.

The MEHR lobbied to make the GDRC adopt the newly drafted and validated legal texts. This resulted in the adoption of 13 legal texts prepared by the PSR Project. These adopted documents are listed chronologically below:

- Two ministerial orders signed by the Minister of MEHR on April 21, 2017;
- One inter-ministerial order countersigned by the Minister of MEHR and the Minister of National Economy on March 15, 2018;
- Five decrees endorsed by the Prime Minister on December 24 and 27, 2018; and



- Five orders signed by the Minister of MEHR on December 27, 2018.

In order to summarize progress achieved in the establishment of a new legal and regulatory framework for the DRC power sector and facilitate the taking ownership of it by the MEHR, the PSR Project assessed the framework development status early in 2019.

The relevant report⁸, submitted to the MEHR in May 2019, provided the following:

- An assessment of USAID PSR technical assistance provided to establish the legal framework for the DRC power sector, facilitating energy activities in accordance with the Law 011/14, and,
- A complete snapshot of the status of the new legal framework development and a clear vision for the next steps to be undertaken by the GDRC to fully complete the framework following the PSR project completion on June 30, 2019.

The assessment report confirmed that by mid-2019, the DRC power sector legal framework will have consisted of 28 adopted texts, with four documents prepared and adopted before USAID PSR project implementation, and 24 prepared and validated by the DRC stakeholders under the PSR technical assistance.

EXHIBIT 11: STATUS OF THE POWER SECTOR LEGAL FRAMEWORK IN JUNE 2019

DOCUMENT CATEGORY	TOTAL	ALREADY ADOPTED	TO BE ADOPTED
DECREE	9	7	2
INTER-MINISTERIAL ORDER	4	1	3
MINISTERIAL ORDER	9	7	2
TECHNICAL DOCUMENT	6	5	1
TOTAL	28	20	8

In total, 20 texts are in force and eight additional texts prepared by the PSR project still need to be promulgated to complete the framework. The eight outstanding texts are categorized as follows:

- Decrees: 2 texts
- Inter-ministerial orders: 3 texts
- Ministerial orders: 2 texts
- Technical Documents: 1 text

The number of remaining legal texts to be adopted is subject to change in future, as it does not include certain texts that are not referenced in Law 14/011 and are premature for the current situation in the

⁸ “Review of regulatory framework in the electricity sector in DRC”. PSR Project, May 9, 2019.



sector (for example, documents to facilitate renewable energy, cogeneration, energy efficiency, and others), but would need to be developed when the sector is ready for them.

With the PSR project completed in June 2019 and the MEHR placed under the new Government in 2019, it might take time for the remaining texts to be adopted. The fully operational ARE can push for adoption in the future.

Concurrent Studies Performed

Preparation and adoption of secondary legislation needed to be accompanied by implementation measures to ensure that the new bylaws are clearly understood and strictly adhered to. To this end, the Project conducted several concurrent activities:

1. An Institutional and Regulatory Study to describe the new organizational set up in the power sector, as established in Law 14/011,
2. The study of financial flows in the sector financial capacity to support the newly created institutions (ARE and ANSER), and
3. The review and recommendations to the draft Law on the Grand Inga project.

These studies revealed ambiguities in the operation of the power sector within the framework of Law 14/011.

The Institutional and Regulatory Study prepared a matrix of desired outcomes of the sector reform for the stakeholders and potential investors.⁹ The team submitted the document to UCM, CPARE, and the Minister of MEHR in June 2017.

EXHIBIT 12: SECTOR INSTITUTIONAL FRAMEWORK AS DEFINED BY LAW 14/011

ACTIVITES	INSTRUCTION-APPROBATION	REGIME-DECISION	CONTRÔLE-SANCTIONS
Production, transport, distribution à partir des ouvrages de l'Etat	D13	Contrat de délégation	ARE: Certificat de conformité
Production, transport, distribution à partir d'ouvrages privés	D1	-Contrat de concession -Licence	Agents assermentés Opérateurs-ARE-MERH; constatations des infractions
Exportation/importation, commercialisation	D1 D12	Licence	-ARE: sanctions pécuniaires -MERH: sanctions administratives -Chambre administrative -Cour Suprême: contestation et contrôle de la légalité des sanctions pécuniaires et administratives -Tribunaux répressifs: sanctions pénales
Autoproduction	D7 Doc4 Doc8	-Autorisation (100-999,99kW) -Déclaration (51-99kW) -Liberté (<50kW)	
Clients éligibles	AM2	Décision ministériel ou provinciale	
Experts indépendants et fournisseurs	AM3	Décision interministériel	
Proposition tarifaire soumises par les opérateurs	Alm6 Alm9		

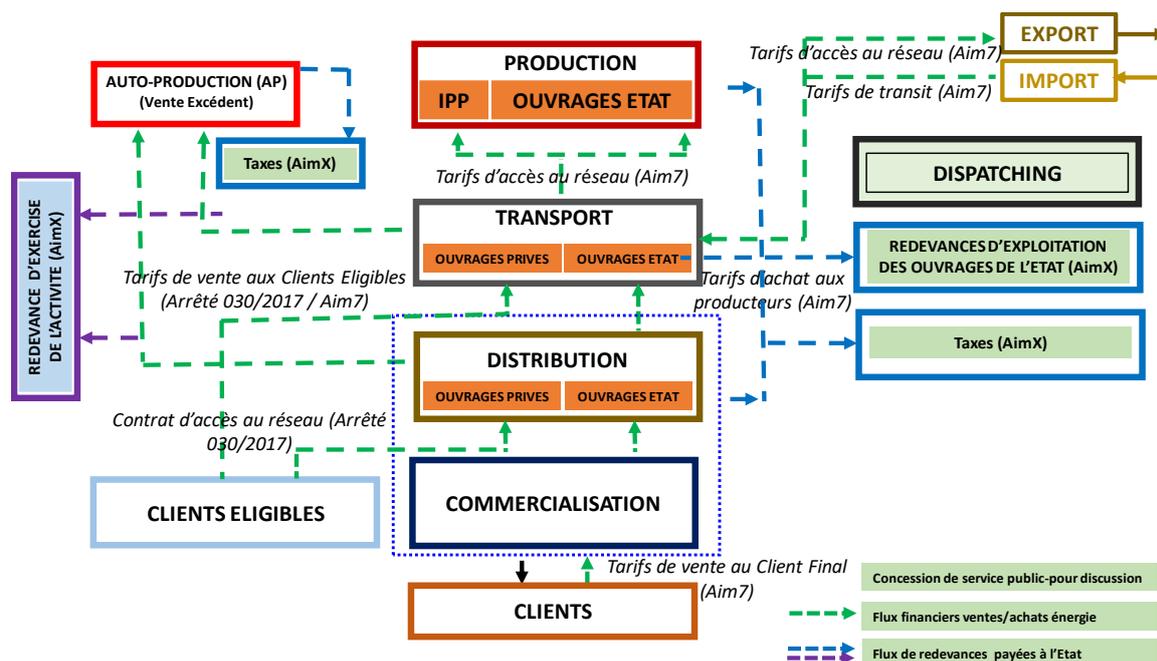
⁹ Schéma institutionnel et réglementaire du secteur de l'électricité en RDC. Projet PSR, juin 2017.



The PSR team completed the Financial Flows Study in July 2017¹⁰ and presented it to the DRC counterparts during the July workshop in Kinshasa. The study recommended a special decree defining the financial flows in the power sector be adopted, as well as a manual of procedures that would instruct the operators what they need to do to comply with the requirements of the decree.

This guidance would provide the needed clarity for financial considerations that should be included in the business plans of utilities and private developers. CPARE concurred with this recommendation, and the draft decree was assigned a working reference (D14). Unfortunately, the decree was never formalized due to the programmatic shift in the PSR project activities.

EXHIBIT 13: SECTOR FINANCIAL FLOWS AS DEFINED BY LAW 14/011



In addition, in March 2017, the PSR team received a request from the MEHR to review and recommend improvements with respect to the draft Law on the Grand Inga project, under discussion in the Government.¹¹ The team analyzed the draft text and submitted to the MEHR its recommendations for improvement.

Concurrent Studies Planned but Not Performed

Joint discussions of the Gap Analysis and the reform objectives between the PSR project and the DRC counterparts revealed various complexities of the reform process with a number of issues still needing to be addressed, namely: incumbent operators' compliance with the new requirements, the role of national operator SNEL in the reformed sector, and others.

The review also concluded that the absence of a clear sector policy and development strategy in the DRC was impeding the establishment of a unified vision for the reform.

¹⁰ Management of financial flows in the electricity sector of the Democratic Republic of Congo, PSR Project. June 2017.

¹¹ Law on general provisions for the promotion and development of « Grand Inga »



In June 2017, the PSR team developed draft terms of reference (ToR) for the update of the DRC Power Sector Policy (PSP), which were discussed with the UCM and enhanced during a stakeholder workshop held in Kinshasa on July 2017.

Further discussions with the counterparts in late 2017 revealed that it would be necessary to perform a comparative study on imposition of operators in the power sectors of other neighboring countries. This is because several DRC system operators have complained about non-transparent taxes imposed unilaterally and opening the process to potential abuse.

However, neither the sector policy nor the comparative study on taxation of sector operators was developed due to the shift in the PSR Project's focus at the end of 2017.



C. Component 2: Power Sector Regulatory Authority

Objectives

All activities performed under Component 2 focused on preparation of the statutory framework (organizational structure, operating budget, internal regulations etc.) required for the establishment of ARE.

Implementation

The PSR team worked on Component 2 in close cooperation with the CPARE, created by Ministerial Order number 41 promulgated in July 2016, although its members actually arrived to their work place a few months later.

Under difficult conditions, CPARE made significant efforts in evaluating and reviewing the ARE draft statutory documents prepared by the PSR project, as well as suggesting valuable proposals to improve the existing legal frameworks and the local business environment.

By late June 2017, all documents justifying the appointment of the members of the Governing Board and General Directorate of ARE and ensuring ARE's operating budget were fully drafted and submitted to CPARE, as the GDRC's representative for the establishment of ARE.

Component 2 deliverables are shown in Exhibit 14 in the order of their development. The full list of deliverables is shown in Section X of this report.

EXHIBIT 14: ARE REGULATORY FRAMEWORK PREPARED BY THE PSR PROJECT

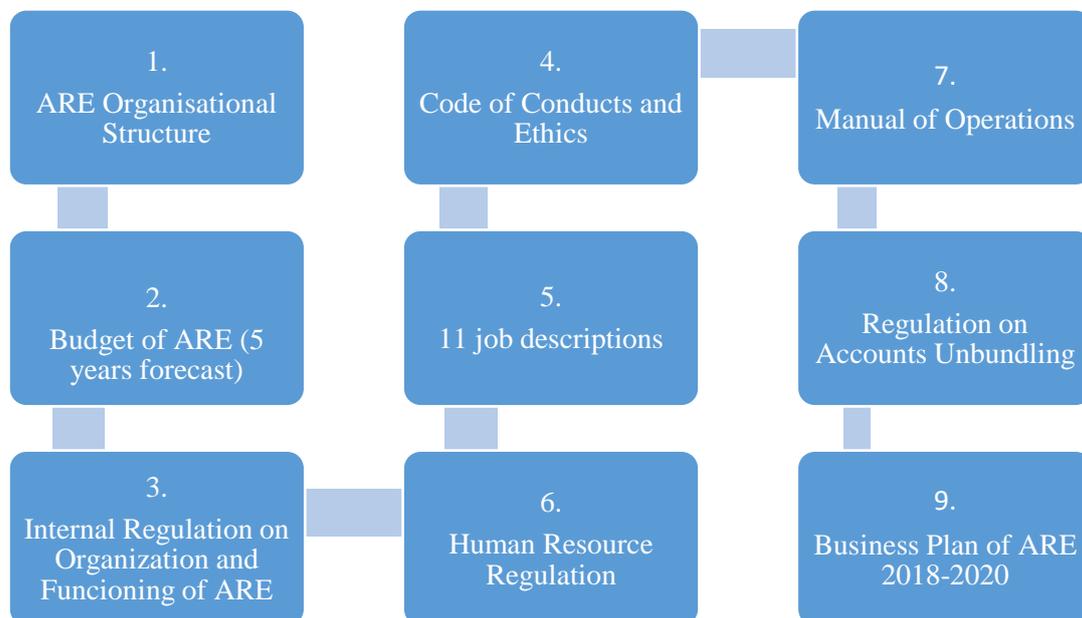
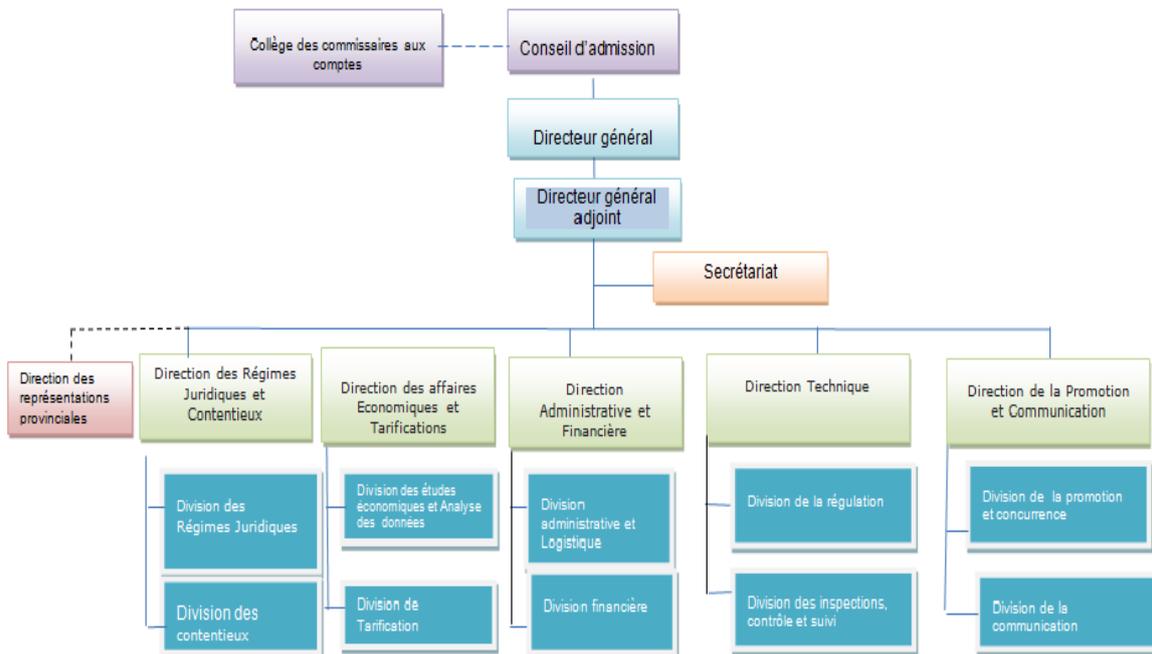


Exhibit 15 shows organizational structure prepared for ARE, one of the deliverables for Component 2.



EXHIBIT 15: ARE ORGANIZATIONAL STRUCTURE



The organizational structure is an important tool for the ARE Board and Management to establish a hierarchical order of authority based on power and responsibilities of each position in organizational chart. The organizational chart enables a clear process of organization, supervision, coordination, and communication lines between the different levels of management and personnel.

After preparing the Organizational structure, the PSR team developed a Budget for ARE containing a five-year forecast and showing a correlation between ARE finances and operational needs. The team also prepared job descriptions for 11 positions in ARE including management and supporting personnel.

The Code of Conduct and Ethics developed by the PSR team will serve as a tool for ARE Board, management, and personnel to preserve the highest ethical values while performing their duties. In addition, the Internal Regulation on Organization and Functioning of ARE, the Human Resource Regulation, and the Manual of Operations developed by the PSR Project will assist ARE to perform effective regulation of the sector.

In order to help the GDRC to establish ARE, the PSR Project prepared the authority's Business Plan for the first three years of its operations. It will also serve as a tool to facilitate ARE's business outreach to the wider donor community to finance various operationalization aspects.

The application of Law 14/011 requires an effective implementation of the unbundling of activities of the operators. Therefore, the PSR project developed the Regulation on accounts unbundling to assist ARE in ensuring that the power sector operators keep separate internal accounts for each of its transmission and distribution activities in order to ensure equal conditions for access to the networks for all production facilities and avoid cross-subsidies in their internal accounting. The Regulation on accounts unbundling contains the legal and regulatory basis for unbundling of accounts, justification for such unbundling, and principles of accounts unbundling.

Another activity with respect to the sector regulation was the preparation of a tariff framework for green field projects (Feed-in tariffs). This framework would include a tariff methodology, a model framework for tariffs presentation to the regulatory authority by the operators, regulatory accounting guidelines



(RAG), and an evaluation framework that ARE experts would use to assess the accuracy of the proposed tariffs.

This activity was important because it offered a tariff-setting tool to the renewable energy projects with private and donor funding, while taking into consideration their requirements for return on investment and simultaneously assuring increased security of supply for the benefits of customers.

The ToR for this activity was submitted to UCM for consideration on June 2, 2017, and finalized in July 2017. Drafting the feed-in tariffs methodology and the corresponding model commenced in October 2017 and was expected to be finalized by May 2018. However, modifications in the PSR project activities orientation, based on USAID DRC instructions issued in December 2017, left the tariff framework development activities unfinished.

By the end of 2017, the PSR project prepared and presented a number of documents to the MEHR, including a data gathering methodology (for feed-in tariffs) and a gap analysis of and the applicable legislation relevant to feed-in tariffs

While conducting the gap analysis for the feed-in tariffs, the PSR project uncovered many issues related to the lack of clear electricity sector policy and strategy in relation to the renewable sector development.

Concurrently with the legal framework assessment, the PSR project designed an activity to evaluate developments related to the establishment of a regulatory function for the power sector. The activity aimed to introduce a more targeted regulatory analysis, lessons learned, and prepare a comprehensive account of the three-year regulatory technical assistance for the DRC beneficiaries and USAID/DRC. Specific activities for this assignment, performed by a team of regulatory experts, include the following:

- Summary of what has been achieved by the PSR project to advance the establishment of the regulatory function in the country;
- Identification of the missing elements necessary to complete the functional regulatory framework;
- Analysis of the impact of the missing regulatory function on the power sector; and
- Develop an action plan for future regulatory development.

A comprehensive regulatory framework report prepared for the PSR beneficiaries in May 2019 includes a detailed analysis of the regulatory support, the lessons learned, and the impact on the DRC institutions. The findings of the report were presented to UCM and other stakeholder in Kinshasa on May 24, 2019, to ensure the successful hand-over of the PSR Project's regulatory legacy to the beneficiaries.

In accordance with the road map for the establishment of ARE, the project elaborated a set of statutory documents for ARE. Together with the draft Decree on financing mechanism for ARE, finalized in Component 1, they constitute the full set of documents necessary to effectively establish the regulatory authority. The USAID Mission can share this success with the donor community in order to advocate for continued support to the regulatory issues¹².

The full set of documents is enclosed in Section X of this report. These documents need to be endorsed by the ARE Governing Board, when it is established.

¹² Current Status of the Regulatory Framework Establishment for the DRC Power Sector. PSR Project, May 2019.



A stakeholder workshop was held in Kinshasa on May 24, 2019 to present the status to date of regulatory framework in the DRC power sector.



D. Component 3: Rural Electrification Agency

Objectives

The activities of Component 3 were fully geared to the establishment and operationalization of ANSER, the rural electrification agency in the DRC.

Law 14/011 and Decree No. 16/014 of 16. April. 2016¹³ on the establishment of ANSER creates the National Rural Electrification Agency responsible for ensuring the promotion of electrification in rural and suburban areas through technical and financial support to public and private initiatives.

Electrification usually begins in major urban sectors and gradually extends to rural areas. This process often faces barriers in the developing countries since expanding national grids is expensive and countries consistently lack the capital to expand their infrastructure.

In the literature on the subject, rural electrification is seen to have substantial benefits, promoting production, better health, education, and communication for households. Another positive effect of rural electrification is the social inclusion¹⁴ of rural communities into the mainstream economy. Additionally, rural electrification has been shown to have a positive correlation with access to infrastructure and productivity, income, and economic growth.

Many rural areas in the DRC are disadvantaged in terms of access to electricity. Moreover, there are numerous barriers to providing access especially in the context of DRC power sector, such as:

- **Lack of policies in the DRC:** Rural electrification is a complex process that deals with energy policy, technological, economic and institutional aspects in order to emphasize various advantages of the concept¹⁵. Lack of power sector policy and strategy in the DRC creates additional difficulty for the country to implement the rural electrification process.
- **The high cost of providing services:** Sparsely populated, remote areas with difficult terrain and low consumption result in rural electricity schemes that are usually more costly to implement than urban schemes.
- **Affordability:** Low rural incomes can lead to problems of affordability. With limited resources, the developing countries face big constraints, and, as such, cost effectiveness and affordability have to be of primary concern¹⁶.
- **Environmental impacts:** New power plants may be built, or existing plants' generation capacity increased to meet the demand of the new rural electricity users. The environment in rural areas will be affected by the location of power plants. In addition, a developer may be inclined to use the cheapest generation source, which may be highly polluting, and locate the power plant next to vulnerable minorities in rural areas. While the use of coal-based power is dangerous to the environment as it releases pollutants, the use of hydro power is much cleaner

¹³ Decree concerning Organization and Functioning of a Public Institution named National Agency for the Electrification of Rural and Suburban Area (“ANSER”).

¹⁴ The Significance of Rural Electrification in Zimbabwe: A Case Study of Mudzi District, Mashonaland East Province, Zimbabwe, August 2016.

¹⁵ Alliance for rural electrification web site: www.ruralelec.org

¹⁶ Rural Electrification: Pros and Cons, Strategies and Policies, National Conference on "Renewable Energy Innovations for Rural Development", 2014, Organized by the "Rural Energy Centre, Gandhigram Rural Institute - Deemed University, Tamilnadu".



with fewer pollutants released into the atmosphere. Therefore, the impact on the rural communities needs to be carefully considered.

- **Management/ Administration:** It is difficult to administrate rural electrification activities as such activities are performed in remote areas. With regard to land use, administrators will need to ensure adequate planning with respect to infrastructure development and land use allocation.
- **Potential conflicts with land owners:** As rural electrification is often land intensive, it requires a larger financial commitment to acquire property and to relocate locals who reside in identified zones.
- **Expensive higher voltage network:** The rural distribution grid that operates at a higher voltage is significantly more expensive than an urban grid. This is because a significant amount of overhead power lines serves very few electric customers.
- **Losses and maintenance:** Power losses in rural distribution are greater (although not significantly) than in urban networks, with a negative impact on the country's overall electric system efficiency. The same applies to equipment maintenance¹⁷.

The Government of DRC, through enacting Law No. 14/011 and Decree No. 16/014 of 16. April. 2016 undertook to establish ANSER.

Implementation

In Component 3, the PSR project worked in regular collaboration with the ministerial Preparatory Committee for operationalization of ANSER (CPANSER). CPANSER employees provided valuable input and suggestions to the proposed contents of the statutory documents in order to make them better adapted to the local specifics.



Interestingly, CPANSER's management believed that CPANSER was already performing the role of ANSER, despite its temporary character and its mandate to establish ANSER. As a result, all of CPANSER's proposals concerning ANSER's budget and human resources management tended to estimate financial and other needs on a higher side than what could be considered as optimal.

Work on the statutory documents was based on a previous study for the establishment of ANSER financed by the European Union (EU) that was generally considered by the Congolese power sector stakeholders as not very well adapted to the DRC conditions. As a result, the PSR project completed benchmark exercises and modified and discussed a number of documents with

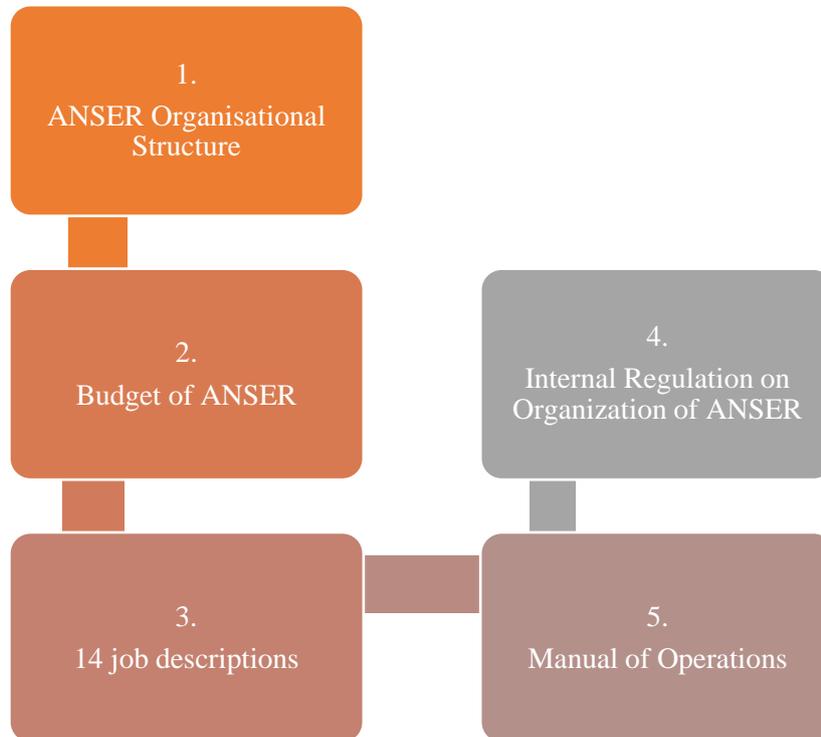
CPANSER that they later presented to stakeholders for validation.

¹⁷ www.ruralelec.org



As in Component 2, the project prepared a Road Map under Component 3 for the establishment of ANSER. The team developed a set statutory documents for the rural electrification agency within the framework of this Road Map, as shown in Exhibit 16 below.

EXHIBIT 16: DELIVERABLES IN COMPONENT 3



The PSR Project developed a Manual of Operations to assist ANSER after becoming operational. The Manual of Operations is a tool to ensure the quality assurance of the work of the Board, Management, and personnel in ANSER.

The PSR team developed the Internal Regulation on Organization in order to enhance ANSER to perform its duties and responsibilities in efficient and effective manner.

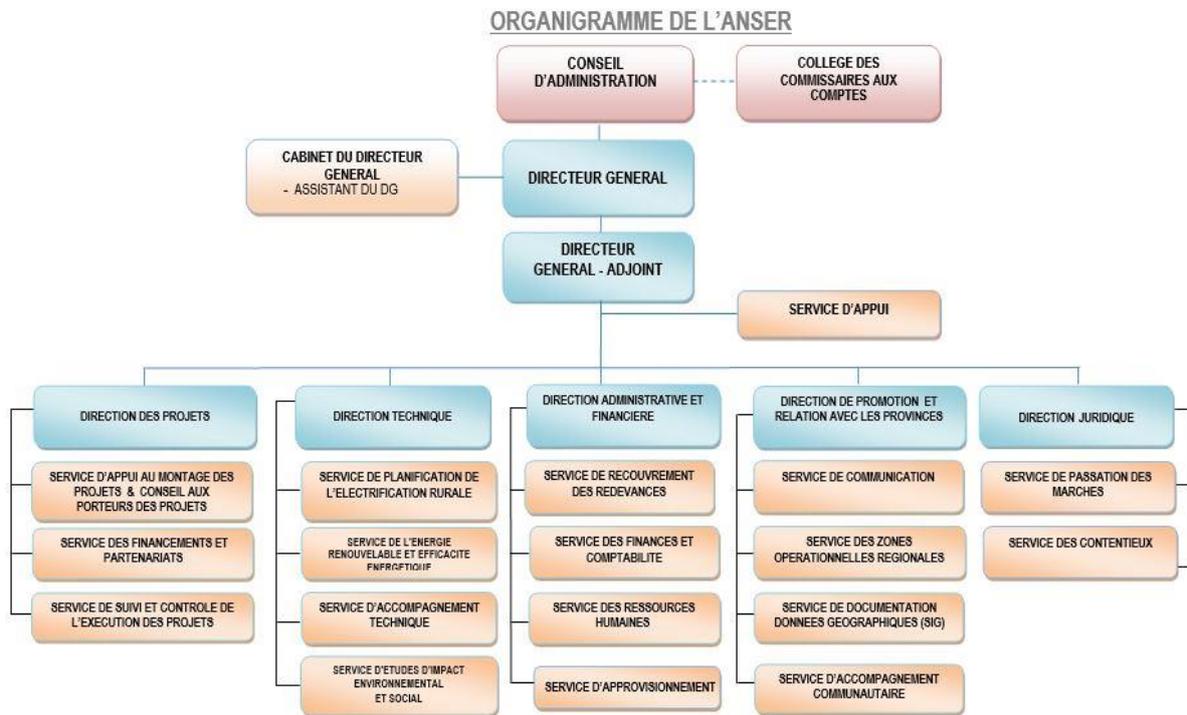
Additionally, the team submitted the organizational structure to ANSER to enhance its establishment, shown in Exhibit 17.

Consequently, as early as summer 2017, the GDRC was fully enabled to appoint the members of the Governing Board and the General Directorate of ANSER. As with ARE, each prepared document needs to be endorsed by the ANSER Governing Board once it is established. The list of deliverables for Component 3 is provided at the end of the current report.

The project was not able to make any further progress under Component 3, because the ANSER was not constituted.



EXHIBIT 17: ANSER ORGANIZATIONAL STRUCTURE





VI. PROGRESS ACHIEVED IN COMPONENT 4

A. Results & Outcomes for Component 4

The provision of assistance to private project developers and operators began in earnest in January 2018, when the PSR project shifted its implementation focus from power sector reform to specific power projects in select provinces. Any further reform and activities were continued only consistent with those requirements under each power project. As explained above, Component 4 activities were based on the implementation of the third annual work plan (WP3)¹⁸ and targeted identifying and establishing new electricity connections or increase in MWs brought to financial close in the DRC through the engagement of the private sector.

The PSR team carried out an assessment of fast track, small-scale business-to-business project opportunities in the DRC and identified the candidate project ideas in select provinces that could be easily replicated. Other screened projects included those recommended by relevant Congolese authorities, USAID, or identified by the PSR project.

In total, the PSR project screened:

- 17 project ideas as candidates for fast-tracking with potential to demonstrate reasonable progress towards achieving USAID goals before the end of the present project cycle.
- Over 20 power projects in the provinces of Equator, Haut Katanga, Kasai, Kasai Oriental, Kongo Central, Ituri, Lualaba, North Kivu, South Kivu and in Kinshasa.
- 38 requests from various parts of the country solicited through a competitive tender.

The project screening process included a review of project documentation, interviews with site developers, and individual site visits. Project opportunities were ranked according to the following criteria:

- 1) Sufficient number of people who could afford to buy electricity.
- 2) An individual buying electricity (an off-taker) must be credit-worthy.
- 3) Every project must have a champion, a sponsor or project developer.
- 4) The sponsor must have funds that can be mobilized – at least 20% of the projected project cost.
- 5) The sponsor should have successful business experience. Experience in the power supply industry is particularly valuable.
- 6) Projects can be done quickly and be attractive to the private sector. A project that requires studies of long duration and has a drawn-out financing process is not very attractive.
- 7) To increase efficiency in the selection process for the viable candidate, the PSR team eliminated the least promising projects presenting implementation difficulties at an early stage. The projects that were not selected included those originating as requests from communities in the provinces of North Kivu, South Kivu, and Haut-Katanga. These projects turned out to be not viable due to difficult access, security concerns, unstable populations frequently displaced by

¹⁸ Covering the period of January 1, 2018 - June 30, 2019.



organized armed bands competing for control of territories, or because the population was looking for a donation rather than trying to establish a sustainable power project.

As a result of the candidate projects screening, a two-prong approach was developed to provide:

- 1) Engineering, economic, and regulatory technical assistance and advice to private project developers in support of preparation and implementation of individual projects, applicable to performing (pre-)feasibility studies, providing expert advice and consultations; and,
- 2) Financial support to private project operators to increase new connections or installed capacity.

Consequently, the PSR project performed the following activities to provide technical assistance and legal advice to private operators and developers:

1. A study of redressing power supply situation in the eastern provinces of the DRC.
2. An action plan for power generation and distribution project in Walikale in North Kivu for Alphamin Bisie Mining SA.
3. A study for hydro generation site selection for the Agro Park Project in Luozi, Kongo Central for Bio Pharm.
4. A legal advice to High Voltage Angola (Cabinda) – DRC Interconnector Project for AEE Power Consortium.
5. A legal advice to Mbuji-Mayi hydro power rehabilitation and distribution extension project for AEE Power /KATEN Consortium.

The implementation of Component 4 activities also resulted in establishing 2,415 new customer connections as indicated in Exhibit 18.

EXHIBIT 18: STATUS OF NEW CONNECTIONS IN JUNE 2019

No.	Location	Type of Connection	Targeted Connections	Achieved Connections
1	Mutwanga, North Kivu	Conventional distribution system based on hydrogeneration	400	413
2	Butembo, North Kivu	Conventional distribution system based on hydrogeneration	800	800
3	Nyangezi, South Kivu	Conventional distribution system based on hydrogeneration	Not specified	54
4	Lusenda Refugee Camp, South Kivu	Solar lantern and phone charging for refugees	700	172
5	Bukavu, South Kivu	Individual solar home systems	600	273
6	Kinshasa, Kongo Central, Kwilu, South Kivu and Tanganyika	Individual solar home systems	400	703
TOTAL				2,415



B. Technical Assistance and Advice to Private Project Developers

The PSR project provided technical assistance to the following power initiatives in the DRC provinces (ranked from more recent to more distant activity):

1. ToR for Expansion of Power Services and Facilitation of New Connections in North Kivu.
2. Support to the eastern provinces of the DRC to rapidly increase power supply through elaboration of the study of international power trade development between North Kivu and South Kivu and the neighboring countries.
3. Elaboration of an action plan for a power generation and distribution project in Walikale in North Kivu.
4. Direct technical assistance to cooperative for social and economic development SOCODI in Nyangezi in the Walungu territory of South Kivu.
5. Preparation of a study of options for the development of an institutional and contractual framework for HV Angola (Cabinda) – DRC Interconnector Project.
6. Assistance to the AEE Power for the definition of the institutional and contractual framework of the Mbuji-Mayi hydro power rehabilitation and distribution extension project.
7. Hydro generation site identification for the Agro Park Project in Luozi in Kongo Central province.

The above activities are described in detail below.

B-1 TOR for Expansion of Power Services and Facilitation of New Connections in North Kivu

Objectives

The PSR team developed the ToR for a study for expansion of power supply in the Kivu provinces at the request of UCM to enable the GDRC to spend \$25 million earmarked to this end by the World Bank (WB).

Implementation

The provincial Government of North Kivu in eastern DRC has taken a proactive approach in making an effort to encourage private initiatives in their respective provincial power sectors. On December 20, 2016, the Governor of the North Kivu province signed Directive 01/173¹⁹ to provide guidance to operators and investors with respect to obtaining concessions for generation, transmission, and distribution of power energy on the provincial territory.

¹⁹ Directive Administrative 01/173 –CAB/GP-NK du 20 décembre 2016 relative aux procédures d'obtention et de conversion des titres dans le secteur d'électricité en province du Nord Kivu.



As a result, a number of private operators are already performing in the North Kivu power sector, while at the same time, a few donors, such as the WB, USAID, DFID and others, are showing interest in further supporting investments in the power sector of the province.

In particular, the WB has the following financing facilities for the DRC that could be used for power sector development in the eastern provinces:

- Electrification Fund (\$10 million)
- Fund to finance new connections (\$15 million) through a credit line mechanism.

In August 2018, as assistance to the UCM in the deployment of the above WB financing facilities, the PSR project prepared the requested ToR²⁰ that defined a program of activities to strengthen expansion of power service and facilitate provision of new connections in North Kivu and potentially the South Kivu province.

The ToR was prepared in a form of a Study for Expansion of Power Service and Facilitation of New Connections in North Kivu that contains detailed information, sources of additional information, and references, in relation to following:

- Background information related to the DRC power sector: describes the power sector state and conditions.
- DRC Power Sector Institutional Framework: lists all institutions in the DRC power sector, their role and responsibilities.
- Assessment of capacity of existing operators and validation of their connection costs and Tariffs: lists all operators that actively operate in the power sector in North Kivu and tariffs they apply to final customers.
- Review of the procedure applicable to Export – Import of power in the DRC: describes all legal procedures applicable to an applicant for electricity export – import license, including responsibility to issue such license as foreseen in Law No. 14/011 and Decree No 18/53 of December 24, 2018 on Determination of the conditions for export and import of electrical energy.²¹

The ToR goes beyond consulting services, as it provides additional information relevant for any bidder to successfully apply for a power trading project.

²⁰ ToR for a Study for Expansion of Power Services and Facilitation of New Connections in North Kivu

²¹ *Décret N° 18/53 du 24/12/2018 fixant les conditions d'exportations et d'importation de l'Energie électrique en RDC.* In the period of preparation of the TOR the decree was still in a draft form, but validated and submitted to the GRDC for approval.



B-2 Study of Power Trade Possibilities for the Eastern Provinces of the DRC

Objectives

USAID and Power Africa requested a study on power trade possibilities between Uganda, Rwanda, and the eastern provinces of the DRC in the middle of 2018. The main focus of the study was on international power exchange.

Implementation

To perform the study, the Project team travelled to North and South Kivu, Rwanda, and Uganda to discuss power trading possibilities with the main stakeholders.

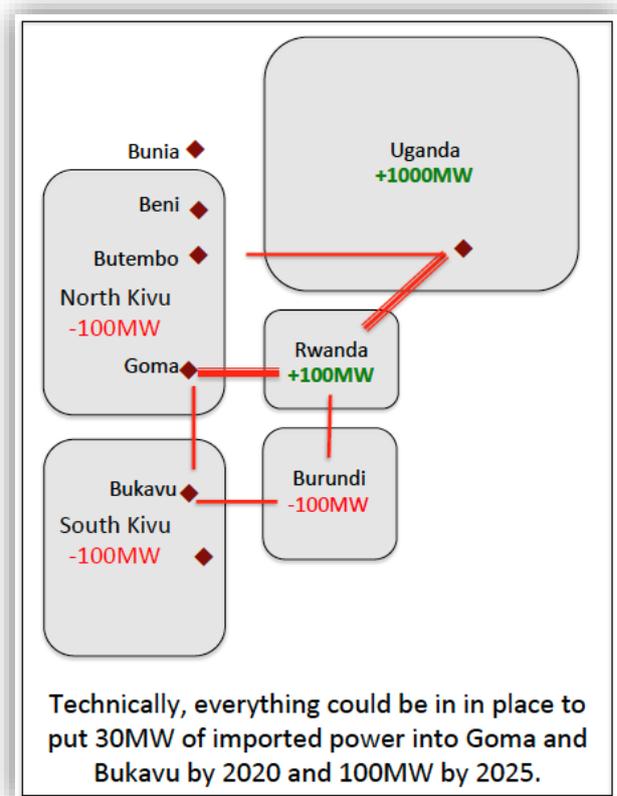
The Project team identified that Uganda is currently facing an energy ‘oversupply’ due to surplus power production of more than 1,000 MW between years 2020 and 2030. This electricity, if imported from Uganda, will be cheaper than any other potential energy source generated in DRC (diesel, mini-hydro, solar, or other new generation assets). Tariffs in the neighboring countries, particularly Uganda are lower than any other power production alternatives, including solar.

The study recommends ways to increase the power available to North and South Kivu by 30 MW by year 2020 and by over 100 MW by year 2025. The transmission system to bring this power to North Kivu is mainly completed, but there are interim measures (reversing the power flows in the existing transmission system) that could enable up to 30 MW to be brought in almost immediately.

The “BBB” (Bunia, Beni and Butembo) 220 kV transmission project would also be the fastest and most economical way of providing large-scale electricity to the three major cities of Bunia, Beni and Butembo, which are presently almost without electricity. These cities are in the centre of the Ebola outbreaks and Mai-Mai rebel activity. They border Virunga national park, the home to the last remaining mountain gorillas.

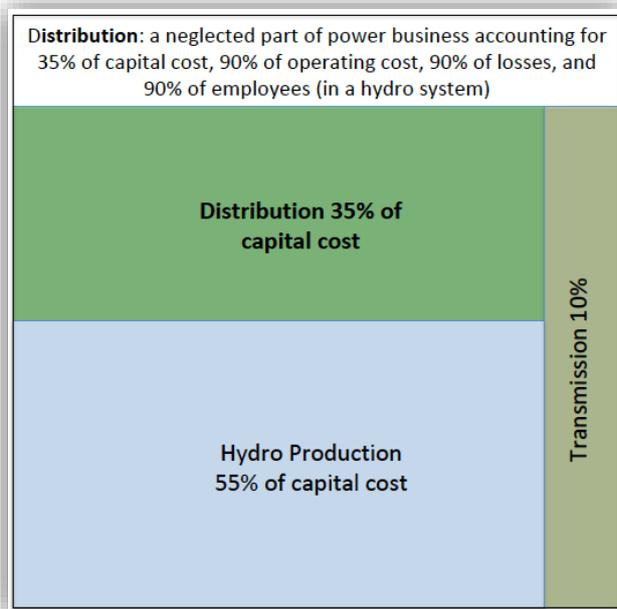
The corresponding increase in new customer connections would be from the current 100,000 to 200,000 in four years. However, a concerted effort toward electricity distribution is required. This can only be achieved by supporting the new private sector electricity distributors - with the PSR project already identifying six operators currently established in North Kivu.

The existing six private electricity distribution companies collectively make a significant entity that could have a major impact on resolving the distribution shortfall and achieving a large number of new connections in the eastern provinces. To achieve this, it is advisable to form, with the donor support, a centralized association (Electricity Distributors` Cooperative Association), following the example of power cooperatives that were established in the US rural areas back in the 1940s.





Obstacles and gaps identified in the study may prevent trading activities with neighbouring countries, particularly if the DRC does not undertake measures to improve its power sector regulatory performance.



Consequently, it is crucial for the DRC to appoint a technically competent and functional Board for ARE and appoint its managers and employees as soon as possible. The absence of a fully operational ARE prevents the establishment of the necessary framework for power trading, as well as the development of a uniform transmission network that can function between countries. It is also an impediment to DRC actively participating on the regional market for power.

PSR experts conducted a mission to the town of Uvira in South Kivu in January 2019 for additional data collection and the team of short-term consultants carried out a mission to Kinshasa from February 24 through to March 16, 2019, with the plan to finalize the study and present its results to USAID and the

beneficiaries (MEHR, UCM, donors, and stakeholders).

During the mission, the PSR team attended the donors' coordination meeting organized by the WB in its offices on February 26, 2019, where it presented the key elements of the Study and encouraged ongoing follow-up. The team presented the findings and recommendations of the study to donors and attracted their interest to the transmission (KfW) and distribution (AfDB) components of the proposed measures.

Furthermore, on March 13, 2019, the Project team organized a stakeholder workshop with major DRC stakeholders in attendance (MEHR, CPARE, CPANSER, SNEL, UCM, FEC). The Office of the Minister of Energy was represented by the Director of the Office of the Minister of Energy. The participants showed vivid interest in the study's outcomes and recommendations and were particularly intrigued by estimates of quantities and price of electricity imports from Uganda and Rwanda.

The UCM coordinator, Max Munga, expressed his view that ECODIT and USAID should continue its support to the power sector in the DRC. To this end, he suggested the creation of the working group on the level of all stakeholders that would work with ECODIT on the creation of a Cooperative Association of Power Distributors to represent the interests of the small distribution companies in two Kivus.

However, the USAID mission in the DRC was unable to approve continuing work on implementation of the recommendations of the import-export study given the short remaining performance period of the PSR Project in its e-mail message dated March 19, 2019.

Nevertheless, the study remains of interest to different development projects financed by Power Africa and other financial development partners. Early in April 2019, the PSR Project shared the study report and its PowerPoint presentation with all the interested parties as a reference document. The Project Director also discussed the study outcomes and recommendation with Power Africa regional energy programs recently launched in Africa during the Power Africa 2019 Annual Coordination Meeting held in Johannesburg on May 20-22, 2019.



B-3 Power Generation and Distribution Project in Walikale

Objectives

The Bisie Tin Mine in Walikale territory of the province of North Kivu is essentially a mineral extraction project under development by Alphamin Bisie Mining SA, who signed an MOU with USAID to jointly collaborate to promote long-term economic and social development in the DRC, particularly in and around the territory of Walikale. The MOU envisions a multi-year partnership of five to 20 years.

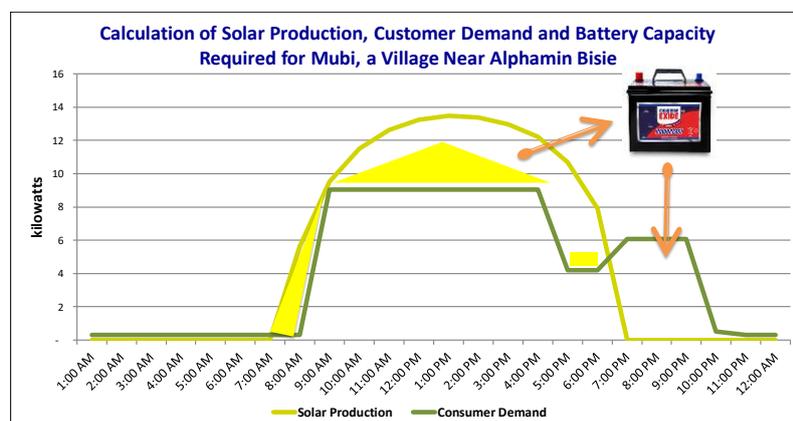
It is within the framework of the MOU that USAID requested the PSR Project to support Alphamin with the preparation of a power project to energize ABM’s mining operations, as well as local populations.

Implementation

Following a competitive procurement, the *Bureau d’Etudes de Géosciences, de Techniques et d’Ingénierie* (BEGTI), based in the community of Gombe in Kinshasa, was contracted to perform a field visit to Walikale on December 09 – 18, 2018.

To assess the potential demand and estimate a price of kWh, power engineers met with traditional chiefs and local population, owners of diesel generator units supplying power as IPPs, visited the mining area in Bisie, and paid visits to private rice and oil producers in the locality Biruwe.

On March 04, 2019, BEGTI submitted its draft technical report which revealed certain reporting weaknesses with respect to a number of technical indicators, namely, the estimated power consumption, (missing) 24-hour typical day load profile, average family revenue and its expendable portion, and assumptions on battery autonomy for solar generation facilities, among others.



The PSR Project team then prepared a supplemental report based on the most recent mini-grid technologies (solar solutions) and the approved US\$250,000 budget.

A draft report was discussed with the Managing Director of Alphamin Bisie Mining SA on May 13, 2019, in Goma. He made two additional requests,



which the Project team has completed: (i) that a document be prepared showing what questions and data needed to be gathered to prepare the load profile required in each village and (ii) that an RFP be prepared so they could call for contractors to perform the work.

In that regard, the team visited one local contractor called GoShop and determined they had the capability to perform the work. Additional contractors will likely be identified in Rwanda.

At the end of May 2019, the PSR Project submitted to Alphamin, as the main beneficiary, the following documents:

1. BEGTI report in French (focused on hydro generation and consumption analysis/forecast);
2. PSR Project's report in English focused on solar generation at the required budget of \$250,000, split 80/20 into infrastructure installation cost and financing measures assuring business model sustainability;
3. Draft RFP document to invite potential implementers to bid competitively on the solar electrification component; and,
4. A summary of preparatory field work to be performed by Alphamin to collect the additional required data on forecasted consumption in the project area (to be handed over to a winning subcontractor).

B-4 Technical Assistance to SOCODI Generation and Distribution Project

Objectives

In June 2018, the PSR team identified an interesting community-based energy generation and supply initiative in a village called Nyangezi, with a population of 66,000, in the Walungu territory in Sud-Kivu province, located at 25 km from the town of Bukavu on national route N5 leading to Ruzizi.

The initiator of the power project is an agricultural cooperative named *Solidarité cooperative pour le développement intégré* (SOCODI).

The cooperative supports various initiatives of different local villages in agriculture, cattle raising, processing, and conservation of agricultural products.



American and European electricity technical standards are not appropriate for the low consumption of African village houses, nor do they provide the higher safety protection required for people with no knowledge of electricity. The Project team developed a safer and more appropriate new customer connection costing \$75 and proved it by installing at 50 houses in the field. Conventional connections usually cost three times that price. Shown here is Ms. Domitille, director general of SOCODI, a private electricity cooperative with two of her electricians.

The cooperative SOCODI submitted its bid for the tender for financing of news connections at the end of 2018. However, following competitive assessment, the funding went to better prepared projects. Given the potential of the SOCODI electrification project for setting example of best practices in the DRC, the PSR team decided to provide technical assistance and limited funding to SOCODI in order to



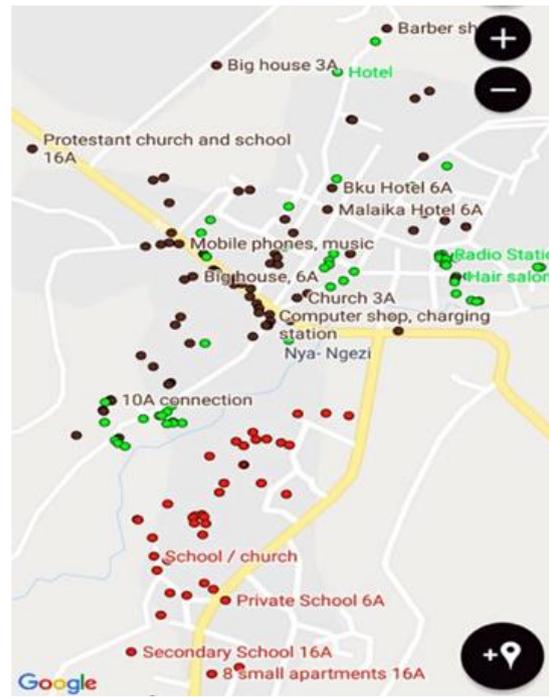
increase the number of new connections in Nyangezi by a maximum possible number, and establish a technical standard for the low-cost methods of connecting new customers.

Implementation

In February 2019, the PSR team performed the first technical mission to Bukavu to observe conditions at a small hydropower plant consisting of a locally made cross-flow turbine, a 165kVA/130kW step-up transformer, a 15kV transmission line, a 165kVA/130kW step-down transformer, distribution cabling throughout parts of Nyangezi village, and a second transformer in storage approximately 4km south of Nyangezi.

The major finding of the mission was that the Nyangezi HPP and mini-grid lacked engineering sophistication and lacked customers. The power plant is very inefficient and the made-in-North-Kivu turbine is functional, but unable to maintain voltage and frequency control. Lack of voltage and frequency control means the electricity produced may damage down-stream appliances.

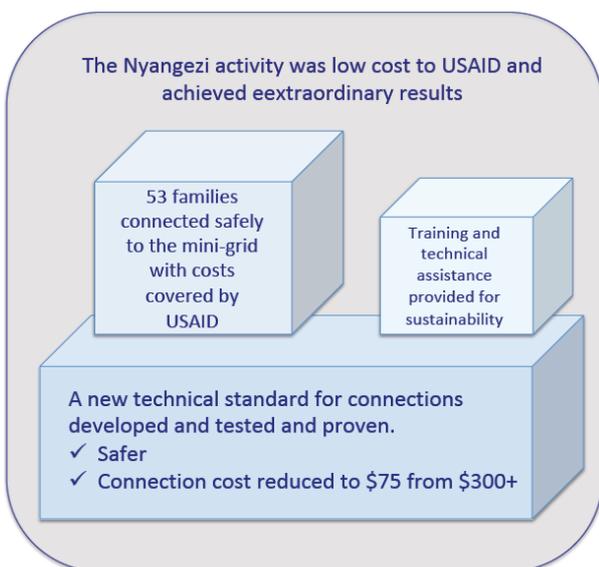
At present, the turbine is under-utilized with an average load of 20kW and a capability of 50kW. A new turbine could produce up to 120kW and produce high-quality electricity, but one quotation from a European supplier was for \$160,000 installed.



Nyangezi connections with green color indicating PSR Project's realizations

One important requirement for SOCODI to become viable is more customers and a solid business plan, both of which could be achieved with further assistance, which was not in the scope of the PSR technical assistance.

Technical assistance was also limited by the engineering and managerial expertise available to SOCODI to enable the cooperative to continue with project improvements. However, the PSR team determined it was possible to develop an appropriate electrification demonstration project for small customers. Most African power companies have a far too expensive way of connecting customers and it would appear that new private power companies are equally expensive.



Connection standards are based on European methodologies and on equipment readily available in the market. Many of those standards for large amounts of power are no longer appropriate for efficiencies in the power industry (LED lights and flat screen TV sets that require 10% of the power previously required). The cost of pre-paid meters has also gone significantly down over the recent years.



One of the objectives was to prove that a connection should cost around \$75, as opposed to the \$300 to \$700 that some companies say it costs them. Consequently, the PSR Project designed a new low-cost technical standard for connection, purchased the material and implemented it on 53-customers as proof of concept.

The second technical assistance visit was performed in May 2019 with two major objectives: (1) to establish at least 50 new service connections with hardware procured in Nigeria, Rwanda, and the DRC; and (2) gather further details on the existing system and potential options for improvement

At the time of the ECODIT team's arrival in Nyangezi, 74 customers were connected to the mini-grid. Although houses and businesses vary in size considerably, nearly all require only a 3A / 700W connection. This was an unexpected observation, especially insofar as it shows the limit to system revenue, as such customers only pay \$9/month. Currently, no customers on the grid have any current-limiting disconnect, so usage is unregulated.

From May 9 -17, 25 new customers were connected, and additional 28 were connected by the end of May, using equipment, tools, and materials supplied by ECODIT. This increased the number of existing customers from 74 to 127. The ECODIT team also provided training to local electrical engineers.



Local poles of naturally insect resistant wood were purchased locally and planted for \$10 each as opposed to \$200+ for imported ones



John and Mandy never received safety gear or safety training before advent of this USAID project.



This box, locally assembled in Nigeria, has two key features: One ground-fault (earth-leakage) protection to guard against electrocution; and 2 or 3 amp current limiting breaker, to keep small clients from exceeding their power allocation.



Each household was given one free LED bulb by USAID to demonstrate energy efficiency and one grounded plug outlet

Training is key to sustainability





B-5 Institutional and Contractual Framework for the Mbuji-Mayi Power Project

Objectives

The study of the institutional and contractual framework for the hydro power refurbishment and distribution extension project in Mbuji-Mayi was requested by a private company AEE Power with support from UCM and USAID Washington.

Implementation

In Mbuji-Mayi, three non-operational hydro power stations for the total installed capacity of 12 MW exist 1 km from each other. This absence of power prevents operating any water plants; currently, a liter of potable water cost \$5 and needs to be brought over a distance of 3 km.

Local operators include mining company *Société minière de Bakwanga* (MIBA), Katanga Energie and *Energie de Kasai* (ENERKA).

A consortium of private developers, AEE Power and Katanga Energy (KATEN), are considering a project to rehabilitate the three hydro power stations and build a distribution network with an expected net increase of 2.6 MW in available generation capacity (from current 4.8 MW to future 7.4 MW).

The PSR team was requested to provide legal assistance and guidance to private operators AEE Power/KATen/MIBA/ENERKA Consortium to define the institutional and contractual framework of the HPP rehabilitation project in Tshiala and extension of the distribution network in the town of Mbuji-Mayi in Kasai Oriental province.

The PSR experts prepared the legal study and submitted it to the developers and the USAID mission in the DRC in September 2018²².

B-6 Institutional and Contractual Framework for Angola – DRC Interconnector Project

Objectives

Following the completion in September 2018 of the study to define an institutional and contractual framework of the Mbuji-Mayi hydro power rehabilitation and distribution extension project for the benefit of a private Consortium led by AEE Power, USAID requested that the PSR Project conduct a similar investigation in support of the Cabinda-Angola interconnection Project to build and operate a HV transmission line interconnecting the DRC and Angola.

Implementation

The interconnector project developer (AEE Power) and their financial partners have specific and major concerns related to the institutional and legal aspects of the Project that may jeopardize its implementation and need to be clarified before going further in the preparation of the Project. The objective of the activity was to assist the interconnector project developers in clarifying the specific aspects of the legal and institutional framework needed to launch and implement this international interconnector project.

²² Projet de Mbuji-Mayi. Analyse légale et institutionnelle. Août 2018.



The team completed the study and submitted the related report²³ to AEE Power / UCM and USAID in December 2018.

B-7 Hydro Generation Component for the Agro Park Project in Luozi

Objectives

The private promoter *Foundation Biotechnologie pour le Développement durable en Afrique* (BDA) and UCM requested assistance in selection of a hydro site for a power plant in Luozi.

Implementation

The Luozi territories in Kongo Central province are characterized by the total absence of any distribution networks (power and water). There is currently a plan to build a pharmaceutical factory that would process rare medicinal plants growing in the area, promoted by BDA.



Mbaya Site

The factory will need power supply estimated at 1.3 – 1.5 MW, while at some distance from the city there is a site on a river with a potential to generate hydro power. Construction of a hydro power station would permit construction of the pharmaceutical factory and excess power will supply a local distribution network. Some specialized private investors expressed their interest in developing the power generation and supply facilities and operating them.

A PSR expert mission investigated three rivers out of seven reported by UCM. Upon visual observations, attention focused on the two sites presenting the highest potential, the Bulu Bulu site and the Mbaya site. At the end of the reconnaissance mission and after first

analysis, the Mbaya site was determined as having the best potential, estimated between 7 MW and 10 MW.

The project team also made an effort to list what could be integrated in the project proposed by BDA, including:

- Construction of a hydraulic production site;
- Creation of a medium voltage (MV) network;
- Definition of the role of concessionaire/distributor;
- Assessment of number of new connections;

²³ Angola – DRC - Cabinda Inter-connection Project. Legal and Institutional Analysis. PSR Project, November 2018.



- Definition of connection conditions for the Pharm African manufacturing plan and the eco-companies as consumers;
- Production of solar energy as part of the construction of the Pharm African manufacturing plant, connected to the grid; and
- Production of energy from anaerobic digestion from the waste produced from the Pharm African factory.

The integrated agricultural project would benefit the territory of Luozi directly and indirectly, as the population would have access to employment, electricity and water, and to global economic development. It meets the objectives of energy mix, presents a high potential for carbon off-set revenues, and will produce a positive socio-economic and environmental impact.



Bulu Bulu Site

It was determined that this development would allow for the installation of 7 MW to 10 MW of new generation capacity, 2,000 new connection in the immediate term, and the introduction of productive uses of power through the creation of 100 eco-companies of 20-25 employees for a total of over 2,000 jobs (representing new connections as well).

The findings of the mission were presented to the MEHR and the site identification report²⁴ submitted in March 2018. With the site correctly identified, it is now possible for project developers to advance the electrification part of their project.

²⁴ Rapport d'études d'identification de site. Cas des chutes et cascades de Mbaya. PSR Project / AEE Power. March 2018.



C. Financial Support to Private Operators to Increase New Connections

In October 2018, in order to identify eligible projects on a competitive basis, ECODIT developed an RFP document, pre-award questionnaire, a budget template for the proposed project, as well as an evaluation scoring sheet and guidelines.

The Call for Proposals was published on October 29, 2018. The publication caused vivid interest among the Congolese private operators. The Project received 30 applications by the due date and evaluated them through an Evaluation Committee.

The evaluation results were disappointing to a certain extent, showing that a significant number of applicants did not make a strong effort to analyze the RFP requirements carefully and as a result did not fully comply with all requirements. Some of the applicants seemed to want to obtain funding for the activities planned or in progress in unrelated areas like water supply and definition of a rural electrification business model for a given area.

As a result of the assessment, two projects received awards:

- *Virunga Energie sarl* to extend power supply to 400 households and commercial initiatives in Mutwanga in North Kivu for the total investment amount of \$200,000.
- *Energie du Nord Kivu sarl* to extend access to power to 800 new accounts in Butembo (North Kivu) for the total investment amount of \$199,970.

During the first quarter of 2019, the PSR Project continued investigating possibilities to support businesses in DRC to meet rural electrification needs through the sales of solar home systems.

The team focused on companies that had previously applied for funding and expressed interest in additional activities that could be turned around in about a month to increase new electricity connections.

The proposed activities were rapidly contracted by ECODIT due to their smaller size, with the goal that they would flow well into follow on USAID activities that are being supported by the Power Africa Transaction Reform Program and the Beyond the Grid Program. The additional assistance recipients are:

- Altech to connect at least 700 clients in Lusenda Refugee Camp in South Kivu for the total investment amount of \$24,567;
- BBOX to electrify 600 new households in Bukavu, South Kivu for the total investment amount of \$25,000;
- Kit4Africa²⁵ to connect at least 400 clients in the provinces of Kinshasa, Kongo Central, Kwilu, South Kivu and Tanganyika, for the total investment amount of \$24,985.

²⁵ Trade name of Weast Trade Ltd.



C-1 Virunga Energy – Extending Access to Power in Mutwanga

Objectives

Following the competitive assessment, Virunga Energy received an award and the contract for the total amount of \$200,000 to achieve 400 new connections, signed on January 28, 2019.

Implementation

The new connections were achieved by expanding the current network in the town of Mutwanga of 42,000 inhabitants, representing approximately 6,400 households, following the upgrade of the existing hydro power plant from 0.38 MW to 1.35 MW, referred to as Mutwanga 2.

In April 2019, the PSR Project carried out in-field mission to monitor Virunga's progress to fulfil the terms of their contract and achieve 400 new connections. The mission became necessary because of the company's management signalled possible slippage of the contractual delivery dates. Upon Virunga's request, the end date was extended to June 10, with all deliverables and connection targets remaining unchanged.

The household heads were initially hesitant to pay between \$50 and \$150 initial deposit to get registered based only on a promise that Mutwanga 2 would start operating soon (and remembering that in the past some rogue dealers used to collect money for future power supply that never materialized). However, the very visible works of extending the power network instilled sufficient confidence to accelerate the registration process.

In order to assure 400 new connections, Virunga Energy built a 3.6 km extension of the existing low voltage network using the same equipment. The work was done with the help of local population who is very enthusiastic about the new connections.



Installation of Metal Poles in Mutwanga

It is important to stress that there is no other alternative power supply in the region. The only alternatives to Virunga's energy are small solar panels or diesel generators (expensive investment, operation and maintenance).

The recently connected owner of the welding shop featured below, who was previously using a genset purchasing diesel fuel at \$1/liter, used to spend on energy \$5 to perform the same activities that would cost him now only \$2 in energy spending.



Mutwanga I has been delivering electricity to 603 clients since 2013. That number hasn't increased because of constrained available capacity. As a result, unconnected inhabitants are very eager to obtain access to the same facilities as their neighbours, and several SME projects are waiting for a good power connection to get started. Overall, the new connections are already visibly producing an increasingly positive impact on the local population.



Newly connected (left to right): A welding shop with visible smart meter box on top of a pole and a secretarial processing shop, offering copying, printing and data processing

On May 30, 2019, Virunga Energy reported completion of 413 new connections, including 32 commercial shops, 1 school and 1 health centre, with the total number of new registrations reaching 607.

By the end of the project, the total number of clients in Mutwanga increased from 601 to 1,014 clients thanks to construction of Mutwanga II and the USAID-ECODIT grant. Consumption, and therefore, network load, are expected to rise in the coming months through the creation of small businesses in connected households and the expansion of existing SME's.

However, initially, the total number of clients supplied by the new turbine in Mutwanga will be limited initially to 1,250 clients to allow to control the network load before resuming with the connection of new clients and the construction of new extensions.

The multiple benefits from this project will last and grow with time. Virunga SARL and the population of Mutwanga sincerely thanked USAID and ECODIT for supporting their electrification project and "the given trust".

C-2 Energie du Nord Kivu (ENK)

Objectives

Consequent to competitive assessment, ENK received an award and the contract for the total amount of \$199,970 to connect 800 households in Butembo, signed on February 13, 2019. The new connections would be realized by expanding the current network in the town of Butembo, North Kivu. The centre of Butembo is already covered by ENK distribution grid and can easily take thousands of additional connections.

Implementation

In terms of leveraging effect, the financial support provided by USAID kick-started the total project with its objective to give access to electricity to about 45,000 households in Butembo and Beni, where currently the company has only been able to connect 1,250 households and about 50 small industries.



In addition, ENK created a fund to be financed by 50% of the revenues generated from the connection of the 800 households. This non-profit fund will be used to help about 240 households, schools, medical facilities, small industries, and woman-owned businesses to have access to electricity through grants and long-term financing conditions every year.

ENK launched the new connections project in February 2019 by introducing technical and social eligibility criteria for the selection of households and their ranking for connection. On May 30, 2019, ENK reported that the company reached 800 payments for the new connections with 600 households already connected and 200 waiting for connection in the coming days.

It also reported that the payment rate doubled from 50 to 100 per day with population getting excited about the USAID Project. The project was such a success that we have about 150 households that could not benefit from the electrification project that have left their money with ENK's accounting services asking to extend the project.

C-3 ALTECH

Objectives

Altech Group Sarl received an award and the contract for the total amount of \$24,567 to achieve 700 new connections, signed on April 26, 2019. Altech proposed to extend their market-based consumer financing model solar lanterns and phone charging via a pilot focused on Lusenda refugee camp and surrounding areas in the Fizi district of South Kivu.

Implementation

Alternative Energy Technologies Group is one of the leading networks for the distribution of solar kits and clean cook stoves in the DRC. In 2013, the company began in an off-grid town of Baraka in Fizi Territory of South-Kivu province in the eastern part of the DRC. Since then, the company has been able to sell more than 150,000 solar solutions and over 1,000 clean cook stoves to base of the pyramid off-grid households in 38 market outlets across 20 provinces of the country.

The company has the stated goal of reaching 2 million customers by 2030 and creating positive impacts on lives of over 10 million people by building Africa's largest and most reliable network for the distribution of clean energy products to bottom-of-pyramid off-grid customers, teachers, health workers, schools, health centers, small businesses and institutions.

Under this subcontract, Altech targeted utilizing its current managers and sales agents (solar ambassadors) from their sales locations 15-60 km away from Lusenda refugee camp to train at least 25 new sales agents, a select number of which will become part of their solar ambassador program.

Through their agents, Altech offered their OmniVoltaic 2.4W solar lantern/ phone charging products at the same cost but longer-term payment terms appropriate for the income streams of customers in and around the Lusenda refugee camp. Altech has modified their training materials to take into account language abilities in Lusenda refugee camp as well as translating their contract into Swahili and providing additional protective clauses and ambassador training to ensure refugees understand their PAYGO program before acquiring a solar unit.



Training of potential sales agents (left). Selection of top performers to equip with uniforms and smartphones (right).

Altech aimed to connect 700 new customers before the end of the project, but as of June 14 had only sold 172 units due to delays in obtaining the authorization to introduce the consumer financing model for off-grid electricity to refugees. However, it is expected that the successful implementation of this pilot project will strengthen the collaboration between UNHCR DRC, local government authorities and Altech Group in order to scale this approach in other refugee camps in the country.

Once sales were allowed to occur, the rate of connections from June 10-14 was encouraging: over 30 units per day. From the documentation provided, it is likely Altech will reach its 700 units target in July. With additional support, Altech hopes to expand to distributing between 5,000 to 10,000 solar kits in both Lusenda and Mulongwe refugee camps by the end of 2020.

Key lessons learned from Altech's pilot project are as follows:

1. The customers preference to purchase on credit seems to be similar to other Altech Group's DRC market outlets in that most of customers prefer to pay on credit. The percentages of customers who are willing to pay cash or with down payment are roughly the same to other market outlets across 20 provinces of the DRC.
2. A longer re-payment period (up to 10 months) is important for affordability to poorer groups such as refugees. Customers in Altech's 32 market outlets in 20 provinces of the DRC are normally given less than 3 months for repayment.
3. Early results of this pilot have indicated and future results can prove that refugees in the country are able to pay for the most important basic needs including solar kits for light and cell phone charging, which Altech understands is a key outcome to obtain the support of the United Nations High Commission on Refugees and the DRC's National Commission for Refugees for expansion of the initiative.
4. Within the Altech Group, the repayment rate and future support will determine if this pilot is successful and warrants the roll out of this business model to poorer households in all villages of the DRC with financing of longer repayment terms.



C-4 BBOXX

Objectives

BBOXX Capital RDC Sarl received an award and the contract for the total amount of \$25,000 to achieve 600 new connections, signed on April 27, 2019. BBOXX proposed to accelerate sales in their newly launched Bukavu branch through marketing, training, and establishing satellite sales kiosks throughout the town.

Implementation

BBOXX is a company established in the UK with headquarters in London and Kigali, Rwanda. BBOXX designs, builds and distributes innovative solar systems to improve access to electricity across Africa and throughout the world. The company was founded in 2010 and has since then sold more than 200,000 solar systems across 35 countries, effectively electrifying around 1,000,000 people in emerging markets. BBOXX's Pulse platform can be used for customer and energy management of solar home systems, other pay-go appliances (e.g. pay-go gas) mini-grids and grids.

BBOXX DRC was established in mid-2017 and has since electrified more than 6,500 households (2,500 Goma and 4,000 Kinshasa through a partnership with Orange called Orange Energy). They have a partnership with the Government with the aim to electrify more than 500K households over the next 5 years. BBOXX launched in Goma in November 2017 and planned to launch operations in Bukavu with support from the USAID PSR program.

Under this subcontract, BBOXX planned to apply lessons learned in their Goma operations to launch a new market in Bukavu. BBOXX proposed to accelerate sales in Bukavu to achieve 600 connections through a number of strategies such as the hiring of 60 sales agents and socialization activities such as a launch event, road show, and other marketing such as TV, radio and Facebook advertising.

In May, fifteen kiosks were established within the city of Bukavu to support sales of BBOXX's flagship store and South Kivu headquarters, which was launched on the 23rd of April. Sixty sales agents have been recruited, trained on BBOXX products and services, sales applications, their business model, the advantages of solar energy, and onboarded into BBOXX Bukavu Team.

Promotional activities carried out included a road show with a huge branded stage truck accompanied by a convoy of BBOXX branded vehicles and motorbikes that circulated around the city with stops at market places, crowded locations for activations and promotions, an ongoing TV and radio campaign and two large billboards installed in Bukavu.

BBOXX reported a number of challenges that reduced their ability to meet their May sales targets. Local authorizations for marketing activities and kiosk roll out took longer than planned. They had Treasury pressure to finalize orders of needed materials and speed up deployment coupled. Also, Bukavu proved to be logistically difficult to easily deploy the teams and their training/field education required more time than expected for people to get used to BBOXX's business model.

As of June 13, BBOXX's sales in Bukavu during the contract period were reported as 273, approximately 35% of the targeted 600 connections. BBOXX projects the target will be reached in July and estimates that additional connections resulting from these USAID supported activities to be over 1500 additional sales in the next 12 months.



Territory	Commune	Avenue	Reference	Item
KADUTU	Kadutu	Av Mahenge	Ancien COPERA	Kiosk 1
	Kadutu	Av Buholo	Carrefour	Kiosk 2
	Kadutu	Av Elila	ONL janda	Kiosk 3
	Kadutu	Av Kaduru	Place Kaduru	Kiosk 4
IBANDA SUD	Ibanda	Av Kibombo	Rond-point ISP	Kiosk 5
	Ibanda	Av Mahenge	Rond-point chez kibonge	Kiosk 6
	Ibanda	Av Kamagama	Panzi	Kiosk 7
	Ibanda	Route EDAP	Chez bilala	Kiosk 8
BAGIRA	Bagira	Av Brasserie	Bralima	Kiosk 9
	Bagira	Av Fariala	INSTIBA (marché Bagira)	Kiosk 10
	Bagira	Av Nyakavogo	Quartier B (petit marché)	Kiosk 11
IBANDA NORD	Ibanda	Av Marechal Mobutu	Feu vert	Kiosk 12
	Ibanda	Route Labotte	Cercle sportif	Kiosk 13
	Ibanda	Av Marechal Mobutu	Cap nguba	Kiosk 14
	Ibanda	Av Patrice Emery Lumumba	Place Mulamba	Kiosk 15

Fifteen BBOXX kiosk locations store which were operational in Bukavu starting in May.

BBOXX is forecasting to sell at over 2,700 solar units in Bukavu in the second half of 2019. This is a significantly faster uptake than BBOXX's 2018 launch in Goma where it took 9 months to achieve 400 sales. So, while BBOXX's initial short-term sales target was not reached, the planned resources have been expended and have set a promising foundation for future sales.



BBOXX sales agent training and flagship store now operational in Bukavu.

C-5 Kit4Africa

Objectives

Weast Energie Solaire & Eau (Kit4Africa) received an award and the contract for the total amount of \$24,985 to achieve 400 new connections, signed on April 29, 2019. The objective of this funding activity was to increase market penetration by solar home systems in urban, suburban and rural areas of the country. The targeted number of connections was 700.



Implementation

Kit4Africa is an initiative of Weast Energie Solaire & Eau since 2016. A variety of solar solutions are offered to provide access to electricity. Over one year ago, PAYGO products were offered for six-month term and banks such as Finca, Advans Banque, Equity Bank, Rawbank and FBN Bank have offered Kit4Africa's products for over two years. Customers are in urban, sub-urban and rural areas in Provinces of Kinshasa, Kongo Central, Kwilu, South Kivu and Tanganyika. To date, over 3,000 solar products have been sold or financed.

Kit4Africa proposed to scale-up their market-based consumer financing in the distribution of solar products. Under this subcontract, Weast Trading's Kit4Africa proposed to accelerate sales to achieve 400 customer connections through a number of strategies such as the hiring a Network Director, training additional sales agents, technician training and socialization activities such as flyers, T-shirts and marketing such as radio and newspaper advertising.

Kit4Africa has carried out all planned training activities and most promotional activities, the exception being radio spots now planned for June due to current lack of availability. The trainings and new sales agents received positive results. The additional sales are reported to be resulting in larger bank loans being sought to sustain Kit4Africa's accelerating sales.



Kit4Africa socialization activity and training lead by their new Network Director Patrick Coco Mukaba.

Due to the positive sales results and increased capacity with their Network Director, Patrick Coco Mukaba, they are targeting expansion to additional four provinces this year. They are seeking additional opportunities for credit and technical assistance with minimizing transportation costs as they expand further into the eastern provinces.

In line with the financial assistance allocated to Kit4Africa by ECODIT from USAID, Kit4Africa reported positive results from their training and promotional campaigns and the number of solar connections in May to be 703, 176% of their contractual target, and the following breakdown by province:



Province	Units
Kinshasa	58
Kongo Central	70
Kwilu	25
Tanganyika	350
South Kivu	200
TOTAL	703

Scarlett Szombat, co-founder of Kit4Africa, estimates that leveraged connections resulting from these USAID supported activities to be between 4,000-5,000 additional sales in the next 12 months.



VII. IMPLEMENTATION ISSUES, OVERALL IMPACT & RECOMMENDATIONS

A. Implementation Issues

The PSR Project experienced many challenges during the implementation that required significant attention and disproportionately increased the time necessary to prepare and complete activities. Such issues were related primarily to the flaws in the power sector reform planning, the country's governance system, and the resulting prevailing power market conditions.

B. Power Sector Reform Context

The DRC is the 11th largest country in the world and the second largest country in Africa, with a land mass equal to that of the United States east of the Mississippi²⁶. The country's population is 85 million, of which 12 million people live in the capital Kinshasa, the second largest French-speaking city in the world.

In the DRC, only 10% of the population are reported to have access to power services. Most of the rural areas live without electricity and in some hospitals, women give birth at the light of petrol burning lamps with fuel for them purchased at \$5 per litre. 92% of the Congolese households rely on charcoal and wood for cooking fuel, thus depleting the DRC's forest reserves.

The current opportunities in the power sector are vast and range from the small-scale micro-hydro facilities supporting off-grid electrification in the most rural areas of the DRC, to the immense and large-scale such as the Grand Inga vision, with the potential to provide electricity to much of the African continent and beyond. However, implementation challenges are enormous and many energy developers face significant constraints with corruption at all levels.

Some private developers seek to disrupt the existing vicious circle in the DRC power sector by developing PV and storage based micro grids or developing new distribution networks closely to the existing generation facilities in provinces. In certain localities, people form cooperative enterprises to build and manage local generation facilities on existing watercourses.

Many strategically prospective energy projects with potential to fill the gaps in the existing energy markets and reach rural and remote consumers are unable to access sufficient financial resources for costly pre-investment activities. Investor funding for these activities is rare, owing to the risks posed by front-end project development.

The power sector in the DRC is stagnating and has to be modernized in order to realize its immense potential. The current situation can be improved if the sector is built on modern institutional and market-based principles and best international practices. Law 14/011, paved the way toward a liberalized power market, opening it to private investors and creating conditions for of a new institutional, legal and regulatory framework to sustain the new market conditions.

However, three major characteristics of the power sector reform emerged during the PSR project implementation:

1. Lack of clear electricity sector policy and strategy in relation to the power sector development,
2. Slow implementation pace of reform activities, and

²⁶ DRC Country Fact Sheet. Power Africa, November 2018.



3. Ambiguity in the reform planning that creates uncertain environment for projects implementation.

The DRC power sector is lacking clear electricity sector policy and strategy in relation to the power sector development. A draft Electricity Sector Policy Paper, developed in May 2009,²⁷ was never adopted and it does not take into account the new commitments of the DRC in the field of power sector reform, as indicated in Law 14/011 and decrees adopted for its implementation. An up-to-date sectorial policy approved by the GDRC is therefore necessary for the power sector.

The slow pace of the reform during the PSR Project lifetime was primarily due to an unstable political situation in the country. This was a period of uncertainty caused by the troublesome preparation of the presidential election during three years of 2016 – 2018. This has created major disruptions in the implementation of the PSR project objectives.

Such disruptions and delays seem to be endemic to the DRC administration. Exhibit 18 shows the timeline of the power sector reform over the last seven years, indicating that the reforms have been delayed by a few years at each stage.

EXHIBIT 18: REFORM IMPLEMENTATION TIMELINE TO DATE

• Drafting of Law on Electricity	2009 – June 2011	}	4 years to adopt the Law
• Adoption of Law on Electricity 14/011	17 June 2014		
• Signing of Decrees Establishing ARE/ANSER	21 April 2016	}	2 years to sign decrees
• Start of USAID Technical Assistance	16 May 2016		
• Signature of 02 MEHR Orders	21 April 2017	}	2 years to sign 13 legal texts with ARE and ANSER still not operational
• Signature of 01 Inter-ministerial Orders	15 March 2018		
• Signature of 05 Decrees	24-27 December 2018		
• Signature of 05 MEHR Orders	27 December 2018		

The ambiguity and uncertainty in the power sector reform planning primarily refer to the activities that are typically implemented when there exists a vertically integrated operator in a power sector in a monopoly situation, as it was the case of the DRC. Under such circumstances, the market liberalization is achieved through a number of principal measures, namely:

1. Defining the reform objectives and strategic approaches;
2. Establishing an appropriate legal and regulatory framework;
3. Unbundling existing integrated companies into entities to improve corporate and financial management;
4. Establishing a new market structure;
5. Selecting methods for management of the unbundled activities; and
6. Monitoring of the new market operations.

²⁷ Quoted indicatively, as not adopted by the Government of the DRC.



In the context of the DRC power sector reform, measures were taken to develop a new legal and regulatory framework and define new management structures for different sector activities. One of the challenges is how to approach the case of national utility SNEL with respect to its corporate structure and performance.

As a state-owned company, SNEL keeps defaulting on its service delivery goals under its performance contract with the Government, and invoicing the majority of its customers (sometimes including households that are not connected to the power network) with estimated lump sum amounts.

In its turn, the GDRC keeps defaulting on payment of SNEL's electricity bills, thus perpetuating this vicious circle. Under the circumstances, it will be difficult for SNEL to ensure compliance with the requirements of the regulated sector. These circumstances are aggravated by the fact that Law 14/011 is silent on the subject of SNEL's future.

C. Issues Related to Governance

Governance System

Experiencing a chronic budget deficit, the DRC state administration is struggling to assure its spending by applying all effort to collect funds from population, domestic and international enterprises. This practice stifles investor initiative and leads to closure of most important industrial facilities in the country.

On a number of occasions independent power sector operators complained about unjustified taxation of their assets and activities. The PSR Project planned to conduct a study of imposition in the DRC power sector and compare them to international practices through a benchmarking exercise. Unfortunately, it turned out to be impossible to obtain the necessary information from the GDRC unit in charge: DGRAD.²⁸

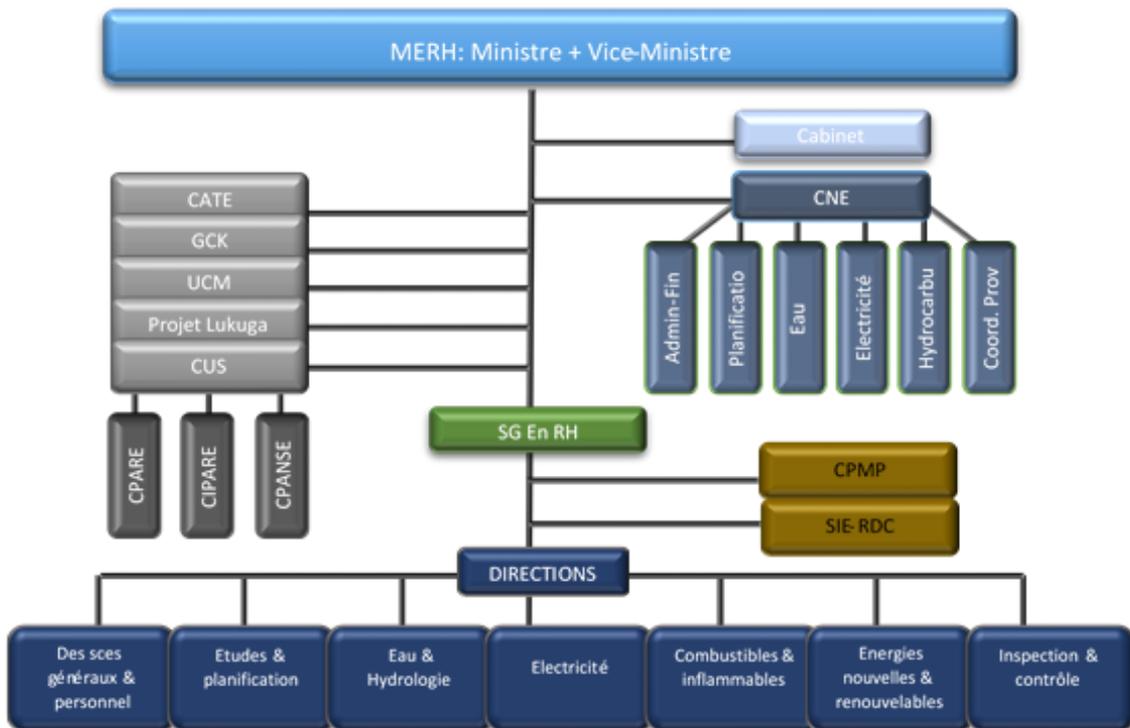
Ministry of Energy and Hydraulic Resources (MEHR)

The MEHR was one of the main DRC counterparts for the PSR project. Its organizational chart in Exhibit 19 shows a complex structure with overlapping responsibilities and unclear purpose behind the existence of in several of its units.

²⁸ Direction Générale des recettes administratives domaniales du Ministère des Finances.



Exhibit 19. MEHR ORGANIZATIONAL CHART



A number of structural divisions have never operated from the outset and all of them are subject to overstaffing under the orders of some ministers. The productivity rate is extremely low is partly explained by the fact the officials are paid with delays of several months and often not in full.

There is a noticeable absence of any unit for reform implementation within the ministerial structure. Such units normally exist in other countries to guide and facilitate the reform implementation.

Moreover, the unstable political situation in the country caused frequent changes in the Government, resulting in periodic replacements of the Minister of Energy himself. Thus, during its tenure, our project worked under three different ministers of energy²⁹ and different members of the Office of the Minister. Each change resulted in delays in the reform process, as newly appointed officials needed time to settle in and understand the situation.

Stakeholder Participation

In the DRC, the representatives of public institutions are used to being paid for their participation in public meetings. As USAID assistance cannot cover any remuneration for participation in public events to the salaried officials in the line of their normal duty, some stakeholder representatives unwilling to participate, if not paid.

²⁹ The successive Ministers of Energy were: (i) His Excellency Matadi Menga Gamanga, incumbent Minister at the start of the project; (ii) His Excellency Pierre Anatole Matusila Malungeni, appointed on December 19, 2016; and, (iii) His Excellency Ingele Ifoto appointed on April 9, 2018, who had to resign when he was elected a national deputy.

At the time of writing, the Minister of the Budget was simultaneously performing as the Minister of Energy – an interregnum situation amounting to no minister at all from the viewpoint of the reform advancement.



However, in the DRC, the representatives of public institutions in the power sector have engaged dynamically with the PSR Project. Meetings and workshops held in Kinshasa with major power sector stakeholders were well attended and achieved their intended objectives.

MEHR, CPARE, UCM and other power sector stakeholders participated actively in several workshops organized during the project's three-year period, commenting constructively various draft iterations of the legal and regulatory frameworks and assisting in different project activities. The meetings were constructive and fruitful, followed by exchange of information and opinion.

D. Issues Related to Prevailing Market Conditions

The difficulties related to the current administration of the power sector are compounded by complicated market conditions found by the private operators brave enough to enter the market.

Obtaining Concessions in Provinces

Many provincial Governments have not fully realized yet what the liberalization of the power sector meant and are still convinced that it is SNEL who is extending access to electricity in their respective provinces, while SNEL provincial offices exist only to manage the existing customer base under the orders from Kinshasa. None of them has any plans for power system development in their respective provinces.

Even though according to Law 14/011, it is the local government that issues concession agreements for activities exercised on a provincial territory, none of the provincial governments, with exception of North Kivu and South Kivu, has made a structured effort to encourage private developers and enable them to develop power supply in the province.

Moreover, a significant number of Memoranda of Understanding (MOU) for independent power projects with private and/or donor funding have been signed in the DRC between different developers and either the MEHR or SNEL. It also possible that some MOUs were put in place in order to stake a potentially lucrative site without any immediate plans for its development.

One of the main reasons for the lack of progress in implementation of many projects is complete absence of an enforceable legal and regulatory framework and the resulting overall murky atmosphere surrounding business deals in the sector. Thus, one of the contenders for funding of conventional distribution system in Butembo, lost its concession to distribute in the city center due to a conflict with an “exclusive” distribution concession for the same area issued to a competitor.

Overcoming the Legacy of Rogue Traders

One of the issues encountered while assisting operators with acquiring new connections is the legacy of rogue traders. While in dire straits for lack of power to support economic development, population in the DRC provinces face a market with high levels of scammers, or ghost companies that take money for a promise of future power supply and then disappear.

Such problems are reported by both conventional power suppliers, like Virunga Energy, and distributors of solar home systems and portable kits. In the former case, the very visible works of extending the power lines instil sufficient confidence to accelerate the connection process, while in the latter case, having a product ready-available on site is usually helpful.

Market Share Acquisition

The solar energy systems are a relatively new to the DRC. While in countries like Rwanda or Kenya, there are multiple players effectively sharing the burden of “activating” the market, in the DRC the



companies that are trying to sell such products are rare and far in-between. This requires investment of time and money in educating the customers from those who are already in the market. Often, such suppliers are the first and only ones on the market and have to gain user confidence.

The distributors of solar solutions also have to establish their brands, as purchasing a solar system requires a high level of trust – customers enter into a long-term commitment for a product that costs ~10-30% of their monthly income. In a troubled market, the level of brand recognition required to support the sales is very high. A stable brand is a pre-condition of successful is a significant cost born by the first mover that prepares the market for followers in future.

Solar products distributors characterise the market in the DRC as not yet mature but promising, describing the market barriers as having:

- Low information and public awareness of the benefits of quality solar systems;
- High acquisition costs for end users make solar options without financing out of reach for most in the DRC, especially when alternatives such as generators and other lanterns have their fuel costs spread over time.
- Non-optimal use of effective marketing and distribution techniques by local entrepreneurs;
- Low involvement of entrepreneurs in the market because of the high costs of taxes and logistics; and,
- No real state involvement and difficulty to access financing³⁰.

E. Overall Impact of the PSR Project on the DRC Power Sector

The PSR Project improved the enabling environment in the DRC power sector by establishing comprehensive legal and regulatory frameworks and preparing all various institutional and business processes required for the establishment of the regulatory authority and the rural electrification agency.

The most critical task of the PSR project was to prepare the establishment of ARE to regulate the power sector and to develop the corresponding legal and regulatory framework, within which to exercise its mandate. While the establishment of ANSER might be viewed as equally important, in reality, success of rural electrification agencies in a number of African countries is limited due to a number of factors listed in Section V in this report. Reforming the power sector as a whole and creating favorable conditions for private operators can bring more tangible results than a centralized rural electrification service.

Despite the fact that neither ARE nor ANSER became operational by the time the USAID PSR project completed its activities (June 2019), the impact on the power sector institutions, strategies and policies cannot be underestimated. The PSR project prepared the body of regulatory instruments that are ready to be activated and mobilized when ARE and ANSER are formally established and institutionalized.

In addition, the activities over the course of 36.5 months can be summed up as formulating the comprehensive legal and regulatory frameworks and supporting the identification and execution of a few small-scale energy projects, sustained continuous interaction with the DRC power sector stakeholders raised awareness about the need for the power sector reform to achieve the intended objectives by the GDRC to improve the power supply and market conditions for private investors.

³⁰ Implementation Plan for Kit4Africa Project with ECODIT RDC. Weast Trading sarl. May 2019.



The USAID technical assistance activities also provided a capacity building exercise through stakeholder consultations which collectively contributed to the understanding of key change agents to continue advocating for the power sector developments toward improved market conditions.

F. Recommendations for Further Assistance

Important measures are still needed to improve access to electricity in the DRC. Among equally important others, they include (a) Preparation and adoption of a policy paper to define a strategy for the power sector development; (b) Development of a transparent tariff-setting regime; (c) Facilitation of increasing access to power in individual provinces through encouragement of private concessions and investment.

One of the critical success factors for continued implementation of the power sector reform already in progress is the pending operationalization of the regulatory authority through appointment of five members of its Governing Board and providing operational budget, and completion of the legal and regulatory framework through adoption of the remaining pieces of secondary legislation.

The experience of the PSR Project leads to the following specific recommendations for further assistance to the DRC power sector:

- **Sectorial Policy and Strategy:** The draft sector policy paper dated back to 2009 was validated by major stakeholders in the DRC, but never adopted. The policy paper takes into consideration different renewable technologies and impact of renewable energy on environment, however it does not take into account the new commitments of the DRC in the field of power sector reform, as indicated in Law 14/011 and the decrees adopted for its implementation. An up-to-date sectorial policy approved by the GRDC is therefore necessary in relation to power sector in general and for the subsector renewable energy in particular.
- **Provincial Concessions and Development Plans:** Despite the liberalization foreseen in Law 14/011, the provincial Governments are acting as if nothing had happened. None of them have any plans for power system development in their respective provinces. None of them, with exception of North Kivu, has made a structured effort to encourage private promoters and increase power supply in the province. The provincial Governments will need assistance in preparing their power sector developments plans and such assistance may come from the donors' community.
- **Adoption of Remaining Legal Texts:** The GRDC needs to adopt and implement the complete legal framework the PSR project prepared and got validated during 2017. Recently, 13 decrees and ministerial/inter-ministerial orders prepared by PSR project were adopted. In spite of this success, some legal texts remain to be adopted.
- **Operationalization of ARE:** It is important for the DRC power sector to appoint the Board of ARE, select its management and recruit technical personnel, so that ARE could become functional as soon as possible. Establishment and operationalization of ARE is one of the main preconditions for the power sector reform in the DRC. The absence of a fully established ARE is delaying DRC's active participation in the regional energy market and proper regulatory oversight over the access to and usage of the power networks. Without a renewed political will of the Government of DRC to establish and enhance ARE mandate and responsibilities, there



are limited options to improve the power sector performance and enable a performing energy market.

- **Further Development of the Regulatory Framework:** ARE will need the support of the donor community internationally and the GDRC domestically to continue further enhancement of the existing regulatory framework. The new regulatory framework that will need to be prepared once ARE becomes operational relates to different regulations, guidelines and methodologies that will enable the regulator to fully discharge its statutory activities. Such texts are needed for ARE to develop regulation on dispute resolution procedure, monitoring plan and program, regulatory accounts regulation, guideline for reduction of losses in the power sector and methodologies for other regulatory matters. ARE will need assistance in developing such this regulatory framework, as well as, in capacity building after it' been operationalized.
- **Accounts Unbundling:** The principle of separation of activities (unbundling) introduced by Law No. 14/011 is fundamental to guaranteeing open and liberalized electricity sector in the DRC. Unbundling is necessary to ensure that third parties can access regulated infrastructure. Unbundling is important for tariffs review and evaluation, in order to avoid cross-subsidies from the bundled energy activities. To this end, the PSR project developed Regulation on accounts unbundling. After being adopted by the Board of ARE, this regulation will need to be implemented.
- **Development of a Transparent Tariff Regime:** A key building block determining the financial viability of any utility is its ability to charge a cost-reflective tariff. At present, the tariffs set across the power sector of the DRC are almost certainly not cost reflective, and offer no insight into how costs are passed to the final customer. Developing a reasonable and transparent framework for tariff setting and evaluation will help investors to identify the potential for a financially viable electric utility in the DRC.
- **Operationalization of ANSER:** In accordance to Law 14/011 and Decree No.16/014, ANSER is responsible for the promotion and financing of electrification in rural and suburban area with the goal to increase access to power services in such area. ANSER will need support during its operationalization in order to properly discharge its responsibilities. Capacity building is another important issue for which ANSER will need donors' community assistance after becoming operational.
- **Further Development of Secondary Legislation of ANSER:** After becoming functional, ANSER will need assistance to: (a) Identify the national energy potential and create a database of the technical, environmental and socio-economics information; (b) Prepare a proposal of the electrification policy in rural and suburban areas for MEHR; (c) Develop the national electrification plan in rural and suburban area; (d) Establish the multi-annual program for execution of the electrification plan; (e) Elaborate the program of actions, budget, activities report and financial statements, as well as (f) develop the monitoring guideline for the implementation of electrification projects in rural and suburban areas.
- **Electricity Distributors' Cooperative Association:** The existing six private electricity distribution companies in North Kivu collectively make a force that could have a major impact on resolving the distribution shortfall and achieving a large number of new connections in the



eastern provinces. To achieve this, it is advisable to form, with the donor support, a centralized association (Electricity Distributors` Cooperative Association), following the example of power cooperatives that were established in the US rural areas back in the 1940s.

- **Comparative study on taxation of sector operators:** On a number of occasions independent power sector operators complained about unjustified taxation of their assets and activities. It is advisable that the donors` community assist GDRC in conducting a study of imposition taxes in the DRC power sector and compare them to international practices through a benchmarking exercise.



VIII. MONITORING & EVALUATION

The 2016 Monitoring & Evaluation Plan of the PSR Project included a number of performance indicators. The most important one was designed to report the number of new institutions operationalized – the power sector regulatory authority and the rural electrification agency. All other indicators were measuring the progress achieved by the two institutions in hiring new personnel, building its capacity etc.

As neither ARE nor ANSER was operationalized by the GDRC, the reporting of all indicator values lost its sense.

The shift in focus of the PSR Project activities made obsolete the performance indicators used from the beginning of the program. In order to monitor the progress of new activities, new indicators were adopted, as shown in Exhibit 20 below.

EXHIBIT 20: INDICATORS FOR NEW ACTIVITIES

No.	Indicator	Definition	Units	Comments
1	USG Supported Future Power Generation Capacity	Total power generation capacity planned or under development with USAID assistance	MW	Disaggregate by province, transaction and stage of development
2	USG Supported New Connections to Power Service	Total number of new connections to the power supply	#	Disaggregate by province, transaction and stage of development

As it turned out to be impossible to achieve increase in MWs within the remaining performance period, the Project focused on provision of new connection reaching a number of 2,415 by the end of the PSR Project. This total is disaggregated by province, type of connection and stage of development in Exhibit 21.

EXHIBIT 21: CONNECTIONS DISAGGREGATED BY PROVINCE, TYPE OF CONNECTION AND STAGE OF DEVELOPMENT

GRAND TOTAL	PROVINCE						TYPE OF CONNECTION		STAGE OF DEVELOPMENT	
	Kinshasa	Kongo Central	Kwilu	North Kivu	South Kivu	Tanga-nyika	Grid	Individual Solar	Total Complete	Percentage Complete
2,415	58	70	25	1,213	699	350	1,267	1,148	2,415	100%
	2,415						2,415			



IX. FINANCIAL AND LEVEL OF EFFORT REPORT

Summary Financial and LOE Tables as of May 31, 2019, are provided below.

SUMMARY OF PROJECT COSTS (for the period January 1 – May 31, 2019)

CPFF Ceiling Price	\$6,042,860
Total Obligated Amount	\$6,006,624
Spent ³¹ as Percentage of Ceiling	93.92%
Spent to Date as Percentage of Obligated	93.92%
	CUMULATIVE LIFE OF PROJECT
Total Direct Costs	\$3,392,609
Total Indirect Costs	\$1,868,184
Fixed Fee	\$380,754
TOTAL COST PLUS FIXED FEE (CPFF)	\$5,641,548

³¹ Includes spending for April and May (as billed to USAID). This will be updated upon project close with final financials as of June 30, 2019.



SUMMARY OF PROJECT PLANNED LOE VS. ACTUAL TO DATE

ECODIT LLC (PRIME CONTRACTOR)	TOTAL LOE BUDGETED (3 Years)	Cumulative LOE Expended
Direct Long-Term Labor (Expatriate) – Project Director/Sr. Policy & Regulatory Advisor	694	670
Home Office (HO) Technical and Non-Technical Support Personnel	797	681
Component 1 – Strategy, Policy, and Decrees Team	60	60.18
Component 2 – Regulatory Authority Team	473.8	473.8
Component 3 – Rural Electrification Agency Team	179.5	179.5
Component 4 – Generation, Transmission, and Distribution Concessions Team	956	927
Non-Technical Support Staff (Local)	682	641
DELOITTE LLP (SUBCONTRACTOR)		
Component 4 – Generation, Transmission, and Distribution Concessions Team	49.4	49.4
Grand Total Level of Effort (LOE, in person days)	3,892	3,682



X. LIST OF PROJECT DELIVERABLES

The deliverables listed by component below were prepared by the PSR Project and submitted to the beneficiary and the USAID mission in the DRC. These documents are available from the MEHR or from ECODIT upon request.

Component 1

1. The Gap Analysis of the Electricity Sector Legislation in Democratic Republic of Congo. PSR Project, November 2016.
2. The Institutional and Regulatory Study of Electricity Sector in DRC. PSR Project, June 2017.
3. The Study of Financial Flows in the DRC Power Sector, PSR Project, June 2017.
4. Review of regulatory framework in the electricity sector in DRC. PSR Project, May 2019.

Submitted to and Adopted by the Government of the DRC during 2017 - 2018:

5. *Arrêté No 031 Cab/MIN-NRH/2017 du 21 avril 2017 fixant les conditions et les modalités d'agrément des experts indépendants, des prestataires des services et des fournisseurs de matériels et des équipements des installations électriques, de froid et de climatisation dans le secteur de l'électricité.*
6. *Arrêté No 030/Cab/MIN-NRH/2017 du 21 avril 2017 portant fixation des conditions d'accès au statut de clients éligibles.*
7. *Arrêté interministériel N° 009/CAB/MIN-ECONAT/2018 et 013/CAB/MIN-ENR/2018 du 15/03/2019 portant détermination des règles, des procédures et des modalités de fixations et de révision des tarifs d'achat de l'Electricité aux producteurs d'Electricité, des tarifs d'accès aux réseaux de transport et de distribution de l'Electricité ainsi que des tarifs de vente de l'Electricité au consommateur final.*
8. *Décret N° 18/050 du 24/12/2018 fixant les mécanismes et modalités de perception et de gestion des ressources de l'Autorité de Régulation du secteur de ressources de l'Autorité de Régulation « ARE » en sigle.*
9. *Décret N° 18/51 du 24/12/2018 portant mécanisme et modalités de perception, de gestion et de répartition des ressources de l'Agence Nationale de l'Electrification et des Services Energétiques en milieux Rural et Périurbain « ANSER », en sigle.*
10. *Décret N° 18/52 du 24/12/2018 fixant les modalités de sélection des opérateurs, d'attributions, de modification et d'annulation des concessions, des licences et des autorisations dans le secteur de l'Electricité.*
11. *Décret N° 18/53 du 24/12/2018 fixant les conditions d'exportations et d'importation de l'Energie électrique en RDC.*
12. *Décret N° 18/54 du 27/12/2018 portant mesures d'allègements fiscaux et douaniers applicables à la production, à l'importation et à l'exportation de l'Energie Electrique.*
13. *Arrêté N° 081/CAB/MIN/ENRH/18 du 27/12/2018 portant cahier des charges général des activités du secteur de l'Electricité.*



14. Arrêté N° 082/CAB/MIN/ENRH/18 du 27/12/2018 fixant les conditions et les modalités de vente de l'excédent d'énergie électrique des installations d'autoproduction de l'Electricité.
15. Arrêté N° 083/CAB/MIN/ENRH/18 du 27/12/2018 fixant les modalités de l'élaboration du bordereau des services annexes de l'Electricité.
16. Arrêté N° 084/CAB/MIN/ENRH/18 du 27/12/2018 portant fixation des termes généraux du contrat d'approvisionnement en Electricité entre l'opérateur et le client.
17. Arrêté N° 085/CAB/MIN/ENRH/18 du 27/12/2018 portant contrats de concession – Type, modèles de licences et d'autorisations de secteur de l'Electricité.

Eight Documents Submitted to the DRC Government for Proposed Adoption:

18. *Projet de Décret fixant les conditions et modalités de la vente de l'excédent de l'énergie électrique des installations d'autoproduction.*
19. *Projet de Décret portant mécanisme de délégation de gestion de service public de l'électricité.*
20. *Projet d'Arrêté interministériel portant détermination et publication des normes et standards admis en République Démocratique du Congo.*
21. *Projet d'Arrêté interministériel fixant les conditions de conclusion de l'accord entre concessionnaire de transport ou de distribution de l'énergie électrique et les concessionnaires fonciers concernés ainsi que les prescriptions techniques à respecter pour la sécurité et la commodité des personnes et des bâtiments.*
22. *Projet d'Arrêté ministériel fixant les conditions techniques de production, de transport, d'importation, d'exportation, de distribution et de commercialisation de l'électricité ainsi que des prestations des services y afférents.*
23. *Projet d'Arrêté ministériel portant approbation du règlement de service public d'électricité.*
24. *Projet d'Arrêté ministériel fixant le taux et les modalités de perception de la quotité des ressources de l'Agence Nationale de l'électrification et des Services Energétiques en milieu rural et périurbain « ANSER » à allouer à l'Autorité de Régulation du secteur de l'électricité, « ARE ».*
25. *Projet d'arrêté ministériel portant définition des modalités et des procédures de gestion des taxes, redevances, loyers, et recettes tarifaires constituant les flux financiers dans le secteur de l'électricité.*

Component 2

26. Road Map for ARE operationalization.
27. 11 job descriptions.
28. Organizational structure of ARE.
29. ARE Budget (a 5-year forecast).
30. ARE Code of Ethics and Conduct.
31. Internal regulation on Functioning and Organization of ARE.
32. Manual of Operations.



33. Human Resources Regulation.
34. Business plan of ARE.
35. Regulation on accounts unbundling.
36. Data gathering methodology (for feed-in tariffs).
37. Gap analysis (review of laws and legislation) applicable to feed-in tariffs.
38. Current Status of the Regulatory Framework Establishment for the DRC Power Sector. PSR Project, May 2019.

Component 3

39. Road Map for ANSER operationalization.
40. ANSER organizational chart optimized for local conditions.
41. ANSER Budget.
42. 14 job descriptions for ANSER managerial and technical personnel.
43. Draft ANSER Manual of Operations.
44. Draft Internal Regulation on Organization of ANSER.

Component 4

45. Rapport d'études d'identification de site. Cas des chutes et cascades de Mbaya. PSR Project / AEE Power, mars 2018.
46. Angola – DRC - Cabinda Interconnector Project. Legal and Institutional Analysis. PSR Project, November 2018.
47. Projet de Mbuji-Mayi. Analyse légale et institutionnelle. PSR Project, août 2018.
48. Rapport des études techniques (Elaboration d'un plan pour la mise en place de système(s) isolé(s) de production de de fourniture de l'électricité à Walikale, Nord Kivu). BEGTI, May 2019.
49. Study for Expansion of Power Services and Facilitation of New Connections in North Kivu. PSR Project, May 2019.
50. Supplemental Report on Solar Mini-grids for ABM. PSR Project, May 2019.
51. RFP Document for Contractors to Construct and Operate Solar Mini-grids for ABM. PSR Project, May 2019.
52. Initial Load Data Survey for Design of Solar Mini-grids for ABM, PSR Project, May 2019.
53. Technical Standard for Low-Cost Customer Connections. PSR Project, May 2019.