Enabel

EDCL
ENERGY DEVELOPMENT CORPORATION LIMITED

FINAL REPORT FOR BE3 2017-2022

Improving access to reliable on-grid electricity services for households and priority public institutions – Belgian contribution to EARP RWA 1509511

Belgian development agency

enabel.be

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Acronyms

AfDB	African Development Bank
CDEU	Capacity Development Energy Utility
DI	Director of Intervention
DP	Development Partner
EARP	Electricity Access Roll-Out Programme
EDCL	Energy Development Corporation Limited
EDPRS	Economic Development Poverty Reduction Strategy
Enabel	The Belgian development agency
EPC	Engineering procurement construction
ESMAP	Energy Sector Management Assistance Program
ETR	End term review
EUCL	Electricity Utility Corporation Limited
EWSA	Energy Water and Sanitation Authority
GMO	Gender Monitoring Office
GOR	Government of Rwanda
HOC	Head of Cooperation
ICB	International Competitive Bidding
ICP	Indicative Cooperation Program (between Rwanda and Belgium)
ITA	International Technical Assistant
M&E	Monitoring and Evaluation
MD	Managing Director
MTF	Multi-Tier Framework
MTR	Mid-term review
PIM	Project Implementation Manual
PMU	Project Management Unit
RAF	Administrative and Financial Responsible
RAFI	International Financial and administrative Responsible
REF	Rural Electrification Strategy
TFF	Technical and Financial File
WB	World Bank

Intervention form

Intervention title	Improving access to reliable on-grid electricity services for households and priority public institutions – Belgian contribution to Electricity Access Roll-Out Programme (BE3-EARP)
Intervention code	RWA1509511
Location	Western Province(Rubavu), and Eastern Province, Rwanda
Total budget	€ 10.000.000 (BE3-EARP)
Partner Institution	Ministry of Infrastructure (MININFRA) Rwanda Energy Group (REG) Electricity Development Corporation Limited (EDCL)
Start date Specific Agreement	BE3-EARP: 16 February 2017
Date intervention start /Opening steering committee	BE3-EARP: 16 February 2017
Planned end date of execution period	BE3-EARP: 15 February 2021
End date Specific Agreement	BE3-EARP: 15 February 2022
Target groups	Households, priority public institutions and businesses in rural areas of Eastern Province
Impact[1]	The energy sector is able to provide sufficient, reliable and affordable energy to all Rwandans
Outcome	The access to reliable on-grid electricity services for households and priority public institutions in rural areas is improved
Outputs BE3-EARP	Electricity supply is increased by grid upgrade activities EDCL capacity in financial management, planning, supervision and contract management is strengthened
Years Covered by the Intervention	February 2017 to February 2022

[1] Impact refers to global objective, Outcome refers to specific objective, output refers to expected result

Global appreciation

Describe your global appreciation of the intervention (max 200 words):
Unlike the first two phase of BE EARP, in this third phase, the focus was shifted from extending the grid and connecting new households and businesses towards upgrading the existing grids. Grid upgrade activities will decrease technical losses and serve to an increasing demand with an improved grid reliability and power quality. These aspects are considered crucial for the clients (especially businesses relying on reliable electricity), as well as for the utility, who will see its costs decrease and revenue increase. The choice of upgrades will be based on a thorough needs assessment and feasibility analysis, using technical and economic analysis for ranking priorities. Intervention areas of BE3 EARP primarily include the border districts like, Rubavu, Ngoma, Nyagatare, kayonza, kirehe and Rwamagana that are geographically peripheral and economically pivotal where the supply of reliability electricity holds a tremendous potential for economic boost. This project has improved and established essential infrastructure that contribute to the reduction of technical losses, improvement of grid reliability and improvement of the security and quality of supply. The project was highly relevant and critical to REG which was facing enormous challenges to meet the Government of Rwanda energy target as well as upgrading the existing networks with limited financial, technical, and human resources. As the Rwandan utility was facing some constraints on supply of single phase meters to meet the connection demand in the country, the project also turned out to be an opportunity to provide financing support in bringing 50000+ single phase meters with the unspent project balance towards the end of the project period. The smooth functioning of the steering committee gave strategic direction and worked together to overcome challenges to the achievement of project goals.

Score your global appreciation of the intervention2:	**Score** your global appreciation of the intervention3:
Very satisfactory	Very satisfactory
National execution official	Enabel execution official
Reuben Reuben Ahimbisibwe Director of Inverntion, BE EARP	Bibek Raj Kandel, Intervention Co-Manager, BE EARP

2 Very satisfactory - Satisfactory - Non satisfactory, in spite of some positive elements - Non satisfactory

3 Very satisfactory - Satisfactory - Non satisfactory, in spite of some positive elements - Non satisfactory

PART 1 : Results achieved and lessons learned

1 Assessing the intervention strategy

1.1 Context

Rwanda's Electricity Access Roll-out Program (EARP) was designed to achieve the GoR stated targets set out in Economic Development and Poverty Reduction Strategy (EDPRS II) covering the period 20012-2017 EDPRS. The GoR was even projecting an average annual growth of 11.5% between1 2013 and 2018. According to the GoR's vision, economic growth would be, among other things, driven by the uninterrupted provision of energy at prices that are stable and regionally competitive. This ambition called for both number of electricity connections to increase and existing power infrastructures ungraded and strengthened significantly, with a special emphasis on connecting productive uses, social infrastructures-health facilities, schools and administrative offices. EARP is a nationwide program operating under the Rwanda Energy Group (REG) which has a program management department for this purpose.

This represented a considerable financial challenge that could only be met with massive Government funding and support from development partners. The total cost of required investments was initially estimated to be 690 million USD over the period 2013 - 2018. So far, the REG planning is more focused on grid extension and for high voltage line construction or upgrade. However, a national distribution grid also needed to be permanently adapted to increasing demands, especially in rural development contexts where initial demand was very low but could grow quickly due to increasing household and especially industrial/productive use. In 2017, the total number of on-grid connections was around 24% of the population. The BE3 EARP, in this backdrop, was a pivotal contribution to GoR ambition of improving, expanding and strengthening electricity markets in Rwanda.

The project was hosted in EDCL and was implemented under co-management arrangement between EDCL and Enabel. As such the BE EARP intervention aspires not only to strengthening existing power networks abut also to improve the organization's performance and enhance Rwandan utility's ability to function and operation with enhanced capacity to respond to GoR's energy ambition within today's rapid changing environment.

BE3 EARP forms a part of the bilateral cooperation project between Belgium and Rwanda named "Improving access to reliable on-grid electricity services for households and priority public institutions – Belgian contribution to EARP (BE3 EARP)" which started in February 2017 for an initial duration of 4 years with a budget of 12,000,000€ and a Belgian contribution of 10,000,000€.

The general objective of BE3 is for the energy sector to be able to provide sufficient, reliable and affordable energy for all Rwandans. The purpose of BE3 project is to improve access to reliable on-grid electricity services for households and priority public institutions in urban, peri-urban and rural areas.

The project focused on increasing rural electricity access through national electricity grid extensions, improving grid electricity reliability and affordability and developing capacity within the utility.

1.2 Important changes in intervention strategy

Both the energy landscape and institutional context has evolved significantly since formulation of the project. During the initiation of the project, the government of Rwanda has a target of reaching 70% electricity access by 2018, which was later on revised to reach universal electricity access by 2024, with more emphasis on on-grid connections (48% off grid, 52% on-grid). In 2021, REG revised the target aiming for 69.1% of access to come from the extension of national grid, and that of 30.9% from off-grid connections. BE EARP programme was focused on-grid infrastructure and was embedded within EDCL, but the some of the capacity building scope was extended to include the entire institution of REG.

The BE3 EARP project is well aligned with the Government of Rwanda overall policies and strategies, and the project maintained its relevance to EDCL in a changing context through a responsive and highly flexible approach adapting to the needs of the utility. Unlike BE2 EARP, the BE3 project saw only a slight adaption of its support scope, especially on capacity building aspects where some of initially foreseen experts supports around financial management at REG and project and contract management to be placed at EDCL could not be executed. Instead, the project financed one generation expert at EDCL, and supported the financing of advisor to the minister at MININFRA through steering committee decisions. Additionally, the project financed to bring in additional supplies (single phase meters) with the project balance of 1.65 million euros available during the end of the project period. Also, the contract with Solener Technolgoies, the firm entrusted for the supervision works of Eastern province grid upgradation from single phase to three phase was cancelled because of the firm's poor performance. Since the project was already advancing, to bring in new firm turned out to be equally complex and procurement delay risks in the context of COVID pandemic, the supervision works was taken over was EDCL planning department.

Also, some of the output level indicators for grid strengthening activities have been adapted compared to the Log Frame available at TFF. The adapted log frame is provided in the report.

2 Results achieved

BEE3ARP/ RUBAVU -UPGARDE Logical framework

	Logical of the intervention	Indicators – Tentative target	Baseline Value	Target Value	Actual Value	Sources of verification	Comments
SO	The access to reliable on-grid electricity services for households, businesses and priority public institutions in urban, peri-urban and rural areas is improved	Technical losses reduction	N/A	50% reduction	Reduced to 17.11%	REG reports	
		Increase of power delivered (Power demand delivery e.g Serena, Radio, HS, & Hospital)	6.6MW (2019)	50% reduction of unserved demand	9.3 MW[1] (2022)	REG reports	
		Frequency of voltage outages reduced	855 (2019)	N/A	2 (2022) monthly average	EUCL software	This feeder is covering a large region. The impact of the project on the number of outages is not sure.
		Duration of voltage dropouts reduced	53:17 (2019)	N/A	02:00	EUCL software	
		Number of businesses with access increased.	92 (Postpaid customers)	N/A	107	EUCL branch reports, EUCL management system	
R1	Electricity supply is improved by grid upgrade activities	Number of upgraded Cabins	0	20	20	Contractor Project completion report	
		Number of distribution Transformers Installed	0	18	20	Contractor Project completion report	
		Kilometres of MV lines constructed	0	9.7km	9.7km	Contractor Project completion report	

[1] Country wide
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	Logical of the intervention	Indicators – Tentative target	Baseline Value	Target Value	Actual Value	Sources of verification	Comments
		Kilometres of LV lines constructed	0	33.7km	33.7km	Contractor Project completion report	
		Transformer capacity increased on selected lines	6.6/0.4kV	30/.04kV	30/.04kV	Contractor Project completion report	
		Streetlights installed	0	7.2km	7.2km	Contractor Project completion report	
		Number of complaints (technical and commercial) reduced	8694	EUCL call center in Kigali (Valence)	3566		
R2	EDCL capacity in planning, supervision and contract management for is strengthened	The EARP program will establish its HR baseline and targets for all staff involved (including the ITA and high-level experts)	HR baseline (available within 6 months after start)	Targets reached	11 EDCL/BEEARP staffs were provided training capacity building support across various domains. 2 MBA study support 3 PMP Certifications trainings 2 Undergrad study support	EDCL annual & quarterly performance and progress reports Individual performance evaluation and measurement	Staff is recruited Staff is retained

BEE3ARP/ Eastern -Upgrade from Single phase to Three phase Logical framework

	Logical of the intervention	Indicators – Tentative target	Baseline Value	Target Value	Actual Value	Sources of verification	Comments
SO	The access to reliable on-grid electricity services for households, businesses and priority public institutions in urban, peri-urban and rural areas is improved	Technical losses reduction	N/A	N/A	Reduced to 17.11%		
		Increase of power delivered. (Power demand delivery) e.g industries	N/A	N/A	93,580,030.34[5]	EUCL branches	
		Frequency of voltage outages reduced	N/A	N/A	22 Average (monthly)	EUCL branches	
		Duration of voltage dropouts reduced	N/A	N/A	8:42 Average (monthly)	EUCL branches	
		Number of businesses with access increased.	N/A	N/A	N/A	EUCL branch reports, EUCL management system	
R1	Electricity supply is improved by grid upgrade activities	Number of upgraded and none-upgradable MV Lines constructed-km	0	180.75	192km	Contractor Project completion report	
		Number of distribution Transformers Installed	0	152	123	Contractor Project completion report	
		Number of complaints (technical and commercial)	N/A	N/A	N/A		

2.1 Analysis of results

2.1.1 To what extent will the intervention contribute to the impact6 (potential impact)?

With regards to the assessment of quality and reliability of the BE3 supported projects, particularly for network upgradation project in Rubavu, signification improvement has been observed with as much as 50% drop in the technical loss in the upgraded network.

Generally speaking, on average - electrification interventions have positive effects on a range of education, socioeconomic welfare, health, and environmental outcomes. These effects were associated with considerable heterogeneity across the studies, which highlights the need to have more specific impact evaluation studies of electricity projects after couple of years of electrification projects.
These completed projects are expected to greatly contribute to the achievement of project's specific objectives and outcomes which also goes beyond the project's implementation period. and also contributes to the objectives of new economic recovery plan set by Rwandan government in responding to mitigating economic impact of COVID-19 pandemic. Major components of such on-grid electricity infrastructure normally have a lifespan of over 20 years. The electricity networks laid down by this project will, therefore, continue to contribute to economic growth, employment generation and improvements in health and education facilities in the region over many years to come.

2.1.2 To what extent have outputs been achieved? Explain

Out of 2 key outputs provided on TFF, output 1 has been achieved to a greater extend. For instance, through the construction and upgradation of power networks in selected districts of Eastern province and in Rubavu, the project has contributed to improvements in network performance and supply reliability. Key outputs are provided below. Further, capacity building support in the selected utility domains contributed to the narrowing of the skills and knowledge gap across all result areas. Some adjustments were made during the project period in the selection of support areas.

Outputs	Key achievements
OUTPUT1: Electricity supply is increased by grid upgrade activities	• 10 Km of Medium voltage line and 33.7 Km of low voltage lines have been upgraded as a part of Rubavu distribution network upgradation project. Also, 20 substation cabins were rehabilitated/constructed and streetlights were installed along the 7.2km of street in Rubavu. • 180.75kms of Medium Voltage lines have been upgraded and 152 transformers were installed in the Eastern province districts as a part of network upgradation projects under BE3. Also, the project supported in the purchase of 70,000 single phase electrical meters
OUTPUT2: EDCL capacity in financial management, planning, supervision and contract management is strengthened	Capacity Building, mostly through the recruitment of international experts and training of partner staff. • The project supported one international Generation expert at EDCL, one Planning expert at REG and one Senior advisor to MININFRA.

2.1.3 To what extent did outputs contribute to the achievement of the outcome

Outputs contributed to achievement of the outcome to a very good extent. The contributing factors included a significant reduction (50%) in the unserved power demand as well as 50% drop in technical losses in the case of Rubavu network upgradation project. Various other indicators illustrated above holds a greater improvement of customer satisfaction. More details surveys and studies can be carried

[6] Terminology: Impact = General Objective, Outcome = Specific Objective, Outputs = Expected Result

out by the utility or Enabel in coming years to gather a better picture of the project contribution both at the outcome and impact level. In general, construction of over 1000 km of power networks, over 250 km of network upgradation works as part of the BE EARP activities have provided a greater boost to the GoR universal electricity access target by 2024. Also, the practical and priority driver approach in the capacity building support to the utility across various domains is greatly appreciated by the partner.

2.1.4 Assess the most important influencing factors. What were major issues encountered? How were they addressed by the intervention?[7]

Most of these contracts went through significant delays with an average of as much as 9 months beyond the planned implementation period. All the projects and physical outputs were accomplished within all phases of BE EARP specific agreement periods, except of one of the upgradation projects in the eastern province region within BE3 EARP, which saw a delay of over a year from the planned implementation period.

It is also important to note that most of the electrification projects feel the impact of the Covid pandemic as the supply chain was disrupted since the beginning of February 2020 which further got exacerbated during the lockdown period owing to periodic movement restrictions and social distancing measures imposed to slow-down the COVID-19 situation throughout most of the BE3 electrification constructions years.

2.1.5 Assess the unexpected results, both negative and positive ones

One of the unique approaches adopted by BE EARP project was to encourage local contractors and suppliers to participate in the construction of electric lines. Typically, one of the barriers for local bidders to participate in bigger contracts had been their limited financing. Even though project employed international contractors and suppliers for bigger tender, some of the larger works were broken down to multiple smaller activities (rather than one EPC contract) by separating supplies and works. This encouraged local contractors to participate in the construction works by not having to deliver the supplies that require huge upfront finances. out of over 1000km of power networks built, approx. 270km of networks has been built by employing Rwandan contractor. This approach has substantially improved the capacity building and know-how of local contractors and engineers in the process.

- Also, some of the supervision roles were internalized to utility departments (by supporting utility through TA/Capacity building activities). This approach can typically reduce 5-10% of construction cost.
- Quality assurance and technical support related to execution of the project have been continuously provided by engineers employed by Enabel and also by hiring external supervision engineers.

2.1.6 Assess the Integration of Transversal Themes in the intervention strategy

The project didn't have a gender specific activity in its implementation design. Most of our activities were gender blind, like construction of power networks, supplies and so on. BE EARP's general philosophy on gender is that women tend to benefit more from improved electricity access than their male counterparts. Nevertheless, the project collected disaggregated data on those indicators during project surveys.

This also to note the project contributed to the preparation of gender profile on the energy sector that was finalized through the Study and Expertise Fund (SEF) and in close collaboration with the Gender Monitoring Office (GMO) in mid-2018.

[7] Only mention elements that are included in (Context), if any

Enabel has also expressed its solidarity to Women in Rwandan Energy (WIRE) initiative pledging to contribute its resources that aligns with the objectives and priorities of its energy progrommes in the country. The project took three women apprentices for 3 months in collaboration with WIRE programme.

2.1.7 To what extent have M&E, backstopping activities and/or audits contributed to the attainment of results? How were recommendations dealt with?

M&E, backstopping and audit activities contributed to a very good extent, by ensuring that the project team kept in alignment with expected results, though in highly dynamic project environment. In the absence of a dedicated project M&E expert, the project developed process monitoring tools to ensure quality assurance, congruence with project objectives and partner country expectations. Furthermore, the project implemented recommendations of the Mid-term review (MTR), on the supervision of short-term project experts embedded withing utility departments. The recommendation by the MTR that the project should have updated the logical framework of BE3 EARP was only addressed in the final year of the project implementation phase, approximately during the project closure period.

3 Sustainability

3.1.1 What is the economic and financial viability of the results of the intervention? What are potential risks? What measures were taken?

The links between infrastructure and development are well established. They include the impact of infrastructure on poverty alleviation, equity, growth and specific development outcomes such as job creation, market access, health and education.
Intervention areas of BE EARP primarily include the border districts like, Rubavu, Rusumo, Nyagatare, Ngoma as well as districts of economic prospects like Rwamagana, Kayonza that are geographically peripheral and economically pivotal where the increased electricity access and supply of reliability electricity holds a tremendous potential for economic boost.
This project has improved and established essential infrastructure that contribute to the reduction of technical losses, improvement of grid reliability and improvement of the security and quality of supply. Some potential risks include the quality of wooden poles that needs to be continuously monitored and maintained by the utility. Besides REG should focus a particular attention to stimulate the demand as well as to improve the income base of its customers to ensure a timely return on its investment. The project was highly relevant and critical to REG which was facing enormous challenges to meet the Government of Rwanda energy target as well as upgrading the existing networks with limited financial, technical, and human resources.

3.1.2 What is the level of ownership of the intervention by target groups and will it continue after the end of external support? What are potential risks? What measures were taken?

Access to affordable and reliable energy remains a high priority for Rwanda. While the BE3 EARP has contributed towards the strengthening of on-grid electrification targets, it will be necessary to further enhance the performance of the grid now an in the future. Operation of the distribution grid and ensuring reliability is a real time occupation. Apparently, the provision of electricity and affordability should be accompanied by broader measures to stimulate growth and revenue, which serves the real purpose of improving resilience and stability of the grid.
Coordination among the interdepending sectors- REG, state government, local government agencies and their lessons learned understanding and addressing the consumers' real requirements will continue to become vital in improving sustainability aspects of the grid. Lack of investment in capacity building in the short to medium term, low uptake of energy demand in the short to medium term and budgetary

constrained at the utility level to invest in enhancing the operation and maintenance of the network can be considered as some of the potential risks.

Rwanda government and its regulatory agencies' continual efforts in collaboration with sector stakeholders exploring the available fiscal and policy measures in coordination with interdepending stakeholders sets a positive discourse on the matter.

3.1.3 What was the level of policy support provided and the degree of interaction between intervention and policy level? What are potential risks? What measures were taken?

Rwanda's National Strategy for Transformation (NST1) aims for the country to achieve middle-income status by 2035 and high-income status by 2050. As one of its core objectives, the strategy targets universal electricity access by 2024. On grid electricity access continued to become the priority of the Rwandan government since the inception of the BE EARP project. As of May 2022, the cumulative connectivity rate is 71.92% of Rwandan households including 50.61% connected to the national grid and 21.31% accessing through off-grid systems.

During the elaboration of the EDPRS II, the Government of Rwanda took a clear policy decision to diversify the sources of electricity from traditional dominant grid to include even off-grid connections. Subsequently, households far away from the planned national grid coverage have been encouraged to use alternatively cheaper connections such as Mini-grids and Solar Photovoltaics (PVs) to reduce the cost of access to electricity whilst relieving constraints on historical government subsidies (REG, 2022).

3.1.4 How well has the intervention contributed to institutional and management capacity? What are potential risks? What measures were taken?

At the institutional level, MININFRA/REG played a central role on the strategic project decision of all three phases of BE EARP activities.
There had been increased focus by REG in the coordination between EDCL and EUCL by integrating some of the key functions like Planning under one umbrella. The BE EARP project also financed several experts support to some of the key areas of expertise like Planning, generation, as experts support to energy sector coordination at MININFRA during the project period. These supports have been appreciated by MININFRA/REG to have contributed to the capacity building of these institutions and to enhance the efficiency, effectiveness and productivity of these institutions.

PART 2: Synthesis of (operational) monitoring

1 Expenses

Export an overview of expenses from UBW (Annexed)

BE3 - RWA 1509511	Budget	Expenditures										Balance	Disbursement rate by end of Jan 2022
		Previous years								Reporting Period			
		FY 2013-14	FY 2014-2015	FY 2015-2016	FY 2016-2017	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022	FY 2022-2023		
Total	**€ 10.000.000**	**€ 0**	**€ 0**	**€ 0**	**€ 22.861**	**€ 32.532**	**€116.004**	**€1.475.485**	**€2.943.122**	**€3.501.286**	**€1.801.835**	**€ 107.902**	**99%**
Output 1	€ 8.717.307	€ 0	€ 0	€ 0	€ 1.181	€ 0	€6.549	€1.442.417	€2.605.603	€2.829.627	€1.778.075	€ 54.855	99%
Output 2	€ 542.233	€ 0	€ 0	€ 0	€ 0	€ 0	€1.487	0.22	€159.193	€369.052	€ 0	€ 12.491	98%
General Means	€ 740.470	€ 0	€ 0	€ 0	€ 21.680	€ 32.532	€107.968	€33.041	€178326	€302.607	€23.760	€ 40.556	95%

2 Disbursement rate of the intervention

Source of financing	Cumulated budget	Real cumulated expenses	Cumulated disbursement rate	Comments and remarks
Direct Belgian Contribution	€10000000	9,892,098	99%	updated
Contribution of the Partner Country	€2,000,000		100%	In kind contributions
Other source				

3 Personnel of the intervention

The flowing individuals were directly involved in the project execution.

Name	Function	Organization	Years
Christine Uwajeneza	Procurement Specialist	EDCL	2015 to 2020
Harriet MULISA	Contract Manager	EDCL	2017 till project end
Jean Paul Rutembesa	Project manager	EDCL	2014 till project end
Carine Vanommeslaeghe	Project RAFI	Enabel	2014 to 2016
Marie Vandenabeele	Project RAFI	Enabel	2018 till project end
Ntare Adabert	Project driver	EDCL	2014 to 2019
Abimana Lauben	Project driver	EDCL	2014 till project end
Bataringaya Simon	Project Site Engineer	EDCL	2015 till project end
Nyirahabyarimana Jeanne d'Arc	Project accountant	EDCL	2015 till project end
Harindintwari Uzziel	Project driver	EDCL	2020 till project end
Bibek Kandel	Project co-manager	Enabel	2017 till project end
Ahmad Parsa	Project co-manager	Enabel	2014 to 2018
Julien Jomaux	Technical Assistant	Enabel	2016 to 2020
Héloise Dubois	Junior Assistant	Enabel	2019 to 2020
Samuel Sonck	Junior Assistant	Enabel	2017 to 2018
Jeannine NYAWERA	Project Controller	Enabel	2019 till project end
Butera Michael	M&E speciliast	EDCL	2017 till project end
Tuyishime Pascal	Environmental Safeguards Specialist	EDCL	2017 till project end
Nyinawamwiza Muganga Petronille	EARP Social Safeguards Specialist	EDCL	2019 till project end
Nirere Marie Solange	Project Engineer	EDCL	2020 till project end
Nkurunziza Silas	Project Engineer	EDCL	2020 till project end
Munezero Yvette	Project Administrative Assistant	EDCL	2018 till project end
Munyambabazi Elias	Project Driver	EDCL	2015 till project end
Nkusi Innocent	Project Engineer	EDCL	2019 till project end

4 Public procurement

TENDER DESCRIPTION	Successful Bidders	CONTRACT SIGNING DATE	CONTRACT DURATION	COMMENCEMENT DATE	CONTRACTUAL COMPLETION DATE	TOTAL AMOUNT (Euro)	REMARKS
Supervision of Rubavu distribution network upgrade from 6.6kv to 30kv	JV. IBC group and Cabira	22-Oct-18	15 months from the commencement date	19-Feb-19	30-Nov-20	211,734.80	completed
Design, supply and installation of electrical equipment to upgrade Rubavu distribution network from 6.6 kv to 30kv	JV. ABC &Rwandamotors	21-Jan-19	15 months from the commencement date	20-Feb-19	30-Nov-20	4,518,592.13	completed
Design, supply, installation and commissioning of electrical equipment to upgrade Eastern province network from 17.32kV to 30kv (single to 3 phase)	BURHANI engineers Ltd	23-Dec-19	15 months from the commencement date	23-Jan-20	17-Jun-2022	4,548,593.00	completed
Supervision of works for design, supply, installation and commisioning of electrical equipment to upgrade Eastern province network from 17.32kV to 30kv (single phase to 3 phase)	Solener technologies	21-Apr-20	15 months from the commencement date	28-Apr-20	28-Jul-21	290,530.00	Cancelled and budget reallocated

5 Equipment

List of equipment owned by the project

Equipment type	Cost in Euro	Delivery date	Status/Remarks
1. Vehicles			
TOYOTA Land Cruser IT539RE	26,358.99	10/31/2014	Good condition
TOYOTA Land Cruser IT453RE	26,358.99	10/31/2014	Good condition
SUZUKI Grant Vitara IT 378 RG	18,974.80	04/18/2017	Good condition
Total	**71,692.78**		
2. IT equipment			
Laptop Dell	1,033.92	9/30/2014	Out of usage
Laptop Dell	1,033.92	9/30/2014	Out of usage
Dell Screen Computer	123.3	3/18/2015	Good condition
Dell Screen Computer	123.3	3/18/2015	Good condition
French Keyboard	6.16	3/18/2015	Good condition
French Keyboard	6.16	3/18/2015	Good condition
Alcatel Router (4G)	79.99	4/2/2015	Out of usage
HP Flash 16 GB	24.31	11/14/2015	Out of usage
Laptop Dell	1,750.65	12/28/2015	Out of usage
Laptop Dell		12/28/2015	
Accessories to the laptop	522.38	12/28/2015	Good condition
1X synology disk station DS716	679.00	1/26/2017	Good condition
Lenovo laptop with accessories	1,832.66	4/14/2017	Good condition
Tablets Samsung	1,372.09	12/4/2017	Good condition
HP M130NW **Printer**	417.60	1/12/2019	Good condition
HP 250 Core I5/4GB/1TB Laptop	1,157.36	28/02/2019	Good condition
Logiciel comptable TOMPRO	3,700.00	23/06/2017	Good condition
Printer	452.47	28/12/2017	Good condition
Laptop	1,261.19	31/12/2017	Good condition
Keyboard USB Querty	21.16	29/01/2018	Good condition
1 HP Odyssey Backpack	32.13	29/01/2018	Good condition

Printer	1,181.36	27/05/2019	Good condition
Laptop	581.08	03/12/2019	Good condition
Laptop	581.08	15/05/2019	Good condition
Laptop	581.08	15/05/2019	Good condition
3 Screen Dell	841.22	15/05/2019	Good condition
Accessories to the laptop			
Total	**19,935.57**		

3. Others Equipments

2 licenses MS Office 2016	509.45	3/22/2016	Obsolete
Safe Godrej 40L	338.95	6/30/2016	In good condition
2 cupboards Libuyu	439.85	7/28/2016	In good condition
Malles métalliques	102.04	8/22/2016	In good condition
High Closed Cabinet	486.91	11/3/2017	In good condition
High Closed Cabinet	453.4	12/19/2017	In good condition
White Board	105.74	3/15/2018	In good condition
2 High Closed Cabinet	296.61	9/27/2019	In good condition
High Closed Cabinet	148.31	11/7/2019	In good condition
Computer Stand and drawers	202.43	11/7/2018	In good condition
Total	**3,083.69**		
Cumulative total	**95,340.39**		

6 Original Logical Framework from TFF :

	Logical of the intervention	Indicators – Tentative target	Baseline Value	Target Value	Sources of verification	Hypothesis
		Streetlights installed	0	7.2km	Contractor Project completion report	
		Number of complaints (technical and commercial) reduced	8694	EUCL call center in Kigali (Valence)		
R2	EDCL capacity in planning, supervision and contract management for is strengthened	The EARP program will establish its HR baseline and targets for all staff involved (including the ITA and high-level experts)	HR baseline (available within 6 months after start)	Targets reached	EDCL annual & quarterly performance and progress reports Individual performance evaluation and measurement	Staff is recruited Staff is retained

7 Complete Monitoring Matrix

BEE3ARP/ RUBAVU -UPGARDE Logical framework

	Logical of the intervention	Indicators – Tentative target	Baseline Value	Target Value	Actual Value	Sources of verification	Comments
GO	The energy sector is able to provide sufficient, reliable and affordable energy for all Rwandans	Country-wide indicators of the energy sector Per capita monthly power consumption (kWh/inhabitant/month) Aggregated index of Access to Energy (global tracking framework)	NA	31-35%	65% by June 2021 73% (as of June 2022) 28704	**REG periodic reports** REG Reports Project reports	Actual connection includes the fill-in connections provided through REG branches
SO	The access to reliable on-grid electricity services for households, businesses and priority public institutions in urban, peri-urban and rural areas is improved	Technical losses reduction	N/A	50% reduction	17.11%		
		Increase of power delivered (Power demand delivery e.g Serena, Radio, HS, & Hospital)	6.6MW (2019)	50% reduction of unserved demand	9.3 MW (2022)	Rubavu Branch	
		Frequency of voltage outages reduced	855 (2019)		2 (2022) monthly average	EUCL software (Valence)	This feeder is covering a large region. The impact of the project on the number of outages is not sure.

	Logical of the intervention	Indicators – Tentative target	Baseline Value	Target Value	Actual Value	Sources of verification	Comments
GO	The energy sector is able to provide sufficient, reliable and affordable energy for all Rwandans	Country-wide indicators of the energy sector Per capita monthly power consumption (kWh/inhabitant/month) Aggregated index of Access to Energy (global tracking framework)	NA	31-35%	65% by June 2021 73% (as of June 2022) 28704	**REG periodic reports** REG Reports Project reports	Actual connection includes the fill-in connections provided through REG branches
		Duration of voltage dropouts reduced	53:17 (2019)		02:00		
		Number of businesses with access increased.	92(Postpaid customers)	N/A	107	EUCL branch reports, EUCL management system	
R1	Electricity supply is improved by grid upgrade activities	Number of upgraded Cabins	0	20	20	Contractor Project completion report	
		Number of distribution Transformers Installed	0	18	20	Contractor Project completion report	
		Kilometres of MV lines constructed	0	9.7km	9.7km	Contractor Project completion report	
		Kilometres of LV lines constructed	0	33.7km	33.7km	Contractor Project completion report	
		Transformer capacity increased on selected lines	6.6/0.4kV	30/.04kV	30/.04kV	Contractor Project completion report	
		Streetlights installed	0	7.2km	7.2km	Contractor Project completion report	
		Number of complaints (technical and commercial) reduced	8694	EUCL call center in Kigali (Valence)	3566		

	Logical of the intervention	Indicators – Tentative target	Baseline Value	Target Value	Actual Value	Sources of verification	Comments
GO	The energy sector is able to provide sufficient, reliable and affordable energy for all Rwandans	Country-wide indicators of the energy sector Per capita monthly power consumption (kWh/inhabitant/month) Aggregated index of Access to Energy (global tracking framework)	NA	31-35%	65% by June 2021 73% (as of June 2022) 28704	**REG periodic reports** REG Reports Project reports	Actual connection includes the fill-in connections provided through REG branches
R2	EDCL capacity in planning, supervision and contract management for is strengthened	The EARP program will establish its HR baseline and targets for all staff involved (including the ITA and high-level experts)	HR baseline (available within 6 months after start)	Targets reached	11 EDCL/BEEARP staffs were provided training capacity building support across various domains. 2 MBA study support 3 PMP Certifications trainings 2 Undergrad study support	EDCL annual & quarterly performance and progress reports Individual performance evaluation and measurement	Staff is recruited Staff is retained

BEE3ARP/ Eastern -Upgrade from Single phase to Three phase Logical framework

	Logical of the intervention	Indicators – Tentative target	Baseline Value	Target Value	Actual Value	Sources of verification	Comments
SO	The access to reliable on-grid electricity services for households, businesses and priority public institutions in urban, peri-urban and rural areas is improved	Technical losses reduction	N/A	N/A	Reduced to 17.11%		
		Increase of power delivered (Power demand delivery) e.g industries	N/A	N/A	93,580,030.34[8]	EUCL branches	
		Frequency of voltage outages reduced	N/A	N/A	22 Average (monthly)	EUCL branches	
		Duration of voltage dropouts reduced	N/A	N/A	8:42 Average (monthly)	EUCL branches	
		Number of businesses with access increased.	N/A	N/A	N/A	EUCL branch reports, EUCL management system	
R1	Electricity supply is improved by grid upgrade activities	Number of upgraded and none-upgradable MV Lines constructed-km	0	180.75	192km	Contractor Project completion report	
		Number of distribution Transformers Installed	0	152	123	Contractor Project completion report	
		Number of complaints (technical and commercial)	N/A	N/A	N/A		

8 Tools and products

Following are the communication materials produced and disseminated during the BE EARP project period.

- Switching to Lights: Stories of Change 2021

  web link: https://www.enabel.be/publication/switching-light-electricity-access-stories-change#:~:text=Rwanda%20has%20a%20target%20of,the%20Eastern%20Province%20of%20Rwanda

- Audio-visual material

  Audio video documentary capturing the stories change in BE EARP electrification project areas;

  https://www.youtube.com/watch?v=IgxGnt07ZF8&list=PLgnfcBtveF5PK27GZKBl3WvbXsUEXMfe6