Energy Peace Partners

Baseline report: Malakal, South Sudan

Understanding the socio-economic and peace impacts of the electrification of a health-care facility

January 2023

Executive Summary and Key Findings

In December 2022, IOM officially inaugurated a 50kWp solar array with 100kWh lithium-ion battery bank for Malakal Teaching Hospital (MTH) to provide an increased and more reliable source of electricity. This system is powering a portion of MTH that is operated by the International Medical Corps (IMC). The deployment of this solar project was made possible by a P-REC transaction involving IOM, Block, and 3Degrees with support from Energy Peace Partners (EPP). The electrification of the hospital is estimated to benefit approximately 12,000 people in the town of Malakal (2018 estimates) and the 25,000 people living in the Protection of Civilians (PoC) internally displaced persons camp situated on the edge of town[1], with the hospital treating approximately 100 people per day.

EPP collected baseline data from the beneficiary community in Malakal town before the commissioning of the solar array, and aims to collect follow-up data one year later (December 2023) in order to understand potential changes in socio-economic well-being.

Conditions in Malakal town are dire: poverty is rampant and access to public services such as health care and education are extremely limited. Estimates suggest that close to 100 percent of Malakal town's population is food insecure, only around 20 percent have access to safe water and sanitation, and around 90 percent of the population spends more than one-quarter of their income on health care.

There is general dissatisfaction with the 'government' health facility (MTH), with most people preferring to make the long trek to the PoC to visit the IMC/IOM clinics. The health infrastructure available to women around child birth is especially poor.

There is some hope that with the further electrification of MTH, more and better quality doctors and nurses will be attracted to work there, enabling better health care services and ultimately improved health outcomes.

---

[1] https://www.iom.int/sites/g/files/tmzbdl486/files/dtm/south_sudan_dtm_201802.pdf

Acknowledgements

EPP would like to thank the time, resources and energy of IOM/DTM who provided the in-kind donation of enumerators to make this data collection effort possible.

Acronyms

AOR	Acceptance of the Rights of Others
DTM	Displacement Tracking Matrix
EDR	Equitable Distribution of Resources
EPP	Energy Peace Partners
FFI	Free Flow of Information
FGD	Focus Group Discussion
GRN	Good Relations with Neighbours
HHC	High-levels of Human Capital
IEP	Institute for Economics and Peace
IOM	International Organization for Migration
IMC	International Medical Corps
LLC	Low Levels of Corruption
M & E	Monitoring and Evaluation
MSF	Medicines Sans Frontier
MTH	Malakal Teaching Hospital
PoC	Protection of Civilians
PPI	Positive Peace Index
P-REC	Peace Renewable Energy Credit
SBE	Sound Business Environment
SDG	Sustainable Development Goals
UN	United Nations
WASH	Water, Sanitation and Hygiene
WFG	Well Functioning Government

Table of Contents

Renewable Energy and Peace: Context

Energy Peace Partners (EPP) is a U.S. based non-profit organization who works to increase access to renewable energy in fragile, climate vulnerable, and energy poor countries. EPP is partnering with the International Organization for Migration (IOM) to facilitate the financing of a hospital electrification project in Malakal town, South Sudan.

Energy Peace Partners' goal is to use renewable energy as a building block for peace in energy poor, climate vulnerable, and fragile states. It does this by facilitating investments in renewable energy projects in these triple-threat contexts of energy poverty, climate vulnerability, and state fragility, through the issuance of Peace Renewable Energy Credits (P-RECs).

P-RECs monetize renewable energy generated in fragile states in order to meet increasing corporate commitments to sustainability and social responsibility. This extends mature international REC markets into crisis contexts and increases financial incentives for renewable energy development. P-RECs support both public and private sector actors to introduce clean energy solutions that deliver tangible benefits to communities affected by conflict.

EPP believes that bringing renewable energy into underserved fragile contexts has peace impacts through the provision of energy access, the expansion of energy access, and the replacement of fossil fuel energy sources. It further believes that new RE projects in the 'triple-nexus' settings can create new entry points for peace-building and stabilization[2].

EPP's theory of change operationalizes the inputs provided by EPP, in this case unlocking the capital that funded the solar array for the hospital, and the short, medium and long term impacts our work contributes to, culminating in the eight pillar framework known as Positive Peace, developed by the Institute for Economics and Peace[3]. The short and medium term outcomes are all framed in the context of the Sustainable Development Goals (SDGs) and Indicators. Figure 1 provides a summary of this theory of change.

FIGURE 1: ENERGY PEACE PARTNER'S THEORY OF CHANGE

---
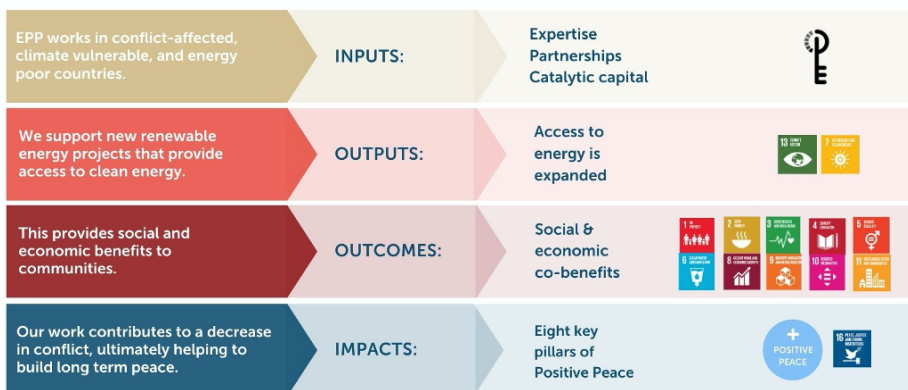
[2] Results from EPP internal questionnaire
[3] Please see the work of the Institute for Economics and Peace on the development and operationalization of the Positive Peace framework, for example in: https://www.visionofhumanity.org/wp-content/uploads/2022/01/PPR-2022-web.pdf

Malakal context

Malakal, the capital of Upper Nile State, has suffered extensive destruction, in terms of displacement, infrastructure and general quality of life, since the outbreak of conflict in December 2013. Pre-conflict census data from 2008 put the population of Malakal County at around 176,000; today, this number changes on an almost continual basis as people move in and out of the area based on outbreaks of conflict, natural disasters, and livelihood opportunities.

Ongoing tensions and conflict in and around Malakal are tied to both the larger conflict in the country, as well as local dynamics around land and administrative control. There continues to be significant displacement in and around Malakal. Most recent estimates of the Protection of Civilian site set up on the outskirts of Malakal Town put the population at between 28,000 and 34,000 individuals. In addition, Malakal town is comprised of host community (~15%), internally displaced people (~59%), returnees (~23%), relocated persons (~4%) and voluntary migrants (~3%).

Malakal Town, which was formerly the second largest city in South Sudan after Juba, comprises six payams of which five are accessible: Lelo, Ogod, Malakal North, South, East and Central. Based on conversations with the IOM enumeration team at least one of the payams is not accessible and does not have a settled population. In a 2018 Village Assessment Survey, the population of Malakal Town was estimated at around 11,500[4], of which the majority live in Malakal North.

A 2020 analysis of health care facilities found 14 such facilities in the county of Malakal, of which seven were operational, summarized in Table 1. Despite the presence of health care facilities, a 2021 DTM multi-sector needs assessment conducted in Malakal found that about 33 percent of households indicated that they were unable to access health care services when needed in the past six months. Internally displaced persons within Malakal town reported higher rates of inability than host community. The main barriers to access reported in the survey were a lack of medicines in the clinics as well as a lack of transport.

TABLE 1: DTM ESTIMATES OF HEALTH CARE FACILITIES IN MALAKAL COUNTY, 2020

	# Health Facilities	# Operational Health Facilities
Malakal North	3	0
Malakal South	2	2
Malakal Centre	2	2
Lelo	3	1
Ogod	4	2

Malakal Teaching Hospital is located in Malakal Centre, and was the main health facility in the area, and a fully developed Level 4 hospital until the civil war broke out in 2013. The hospital was destroyed during the war, renovated in 2021 and has recently restarted basic operations. It mostly serves the town's residents (including IDPs). The hospital has two sides – one run by MSF and one run by IMC. The solar electrification project, funded by P-REC revenue, is supporting the IMC side of the hospital.

---

[4] A more recent 2021 multi-sector vulnerability assessment led by IOM did not give more updated data.

Currently, the IMC operates a 15kVa generator for a couple of hours each day to provide some light for consultations only at the hospital. The health clinic currently has diesel generators that are normally operated for 8 hours during the day[5]. Normally there is no lighting at night unless there is a medical emergency that requires lights. Patients normally use flashlights as light during the night.

Data collection

EPP collected baseline data in December 2022, collecting 198 household surveys and two focus groups (one male and one female), across three payams in Malakal (north, east and central). The sample size was constrained by resources, and is not aimed to be portraying a comprehensive representative sample of the population of Malakal town.

TABLE 2: BREAKDOWN OF SURVEY RESPONDENTS BY GENDER AND PAYAM

PAYAM	Female respondents	Male respondents	Total
Malakal_central	26	8	34
Malakal_east	47	13	60
Malakal_north	97	7	104
Total	170	29	198

This baseline data provides estimates of metrics against which change will be assessed in the follow up evaluation approximately one year from now. The broader objectives of these data collection efforts is to understand, both quantitatively and qualitatively, what the effects of the better electrification of the teaching hospital are for the broader community in Malakal at both a household and community level.

The main questions grounding this monitoring and evaluation effort is:
How does the difference in electrification of the hospital– both quantity of electrification and quality of electrification– affect daily life and the quality of life of communities?

Are there different effects for different segments of the community, for example, women and men, and if so, how and why?
The research design aims to capture differences in an array of socio-economic indicators before and after the electrification of the hospital. The research design is thus temporally comparative in nature, and analysis of the collected data will be done accordingly.

---

[5] This is from the P-REC qualification report. It conflicts with the estimate from the "baseline" capacity estimate generated by the consultant hired by EPP in 2022.

Findings

Access to health care and basic WASH services in Malakal town is very limited, and where it exists is very poor. Both the male and female FGDs revealed that there is general dissatisfaction with the 'government' health facility (MTH), with a male respondent claiming that most people prefer to make the long trek to the PoC to visit the IMC/IOM clinics. In addition, it was claimed that the MSF area of the teaching hospital accepts only emergency cases. The female FGD from Malakal East were highly critical of the health care infrastructure available to women especially around child birth, and claimed that the closest clinic (the MTH) is a one to two hour walk from them, with no other transport options available. Both FGD groups stated that there is a severe shortage of sanitation options/latrines, with most people defecating in the open. This is of course a major public health concern – and not one that is solvable by hospital electrification.

Hopes expressed were that increased electrification of the MTH will attract better qualified doctors, and will be able to treat more patients by being able to operate for longer hours.

Measured SDG indicators

Table 3 presents the initial estimates of the relevant SDGs based on the available and useable survey data. We note that there is concern related to data quality, as many responses to questions were either non-sensical or recorded incorrectly. The table below shows the overall estimate for the three payams, and then a breakdown by payam, as there is significant variation across most metrics by payam. Central Malakal seems to show particularly concerning levels of poverty and deprivation – although with such a small sample size from this payam we are unable to say that the differences are statistically significant.

TABLE 3: ESTIMATED SDG INDICATORS

| SDG indicator	Overall AVERAGE	North Malakal	East Malakal	Central Malakal
sdg 1.2.1: Total Population proportion below poverty line.	92%	95%	81%	100%
sdg 1.2.1: Female Population proportion below poverty line	93%	95%	84%	100%
sdg 1.2.1: Male Population proportion below poverty line	91%	94%	79%	100%
sdg 6.1.1: Population proportion with access to safe water	25%	10%	53%	12%
sdg 6.1.1: Population proportion with access to safe sanitation	20%	10%	50%	0%
sdg 2.1.2: Population proportion that is food insecure	100%	100%	100%	100%
sdg 3.1.3: Malaria incidence per 1,000 population	199	94.3	258.0	243.3
sdg 3.8.2: Population proportion spending more than 25% income on health	91%	89%	83%	100%
sdg 4.1.2: Female Population proportion that has completed primary school	32%	27%	25%	44%
sdg 4.1.2: Male Population proportion that has completed primary school	52%	55%	52%	51%
sdg 5.4.1: Female Population proportion time spent on unpaid domestic work	9%	4%	22%	2%

sdg 5.4.1: Male Population proportion time spent on unpaid domestic work	2%	0%	4%	2%
sdg 5.b.1: Female Population proportion owning mobile phone	34%	29%	32%	43%
sdg 5.b.1: Male Population proportion owning mobile phone	41%	43%	35%	44%
sdg 8.5.2: Female Population proportion unemployed	31%	22%	41%	29%
sdg 8.5.2: Male Population proportion unemployed	37%	31%	38%	40%
sdg 8.10.2: Adult Population proportion with financial account	3%	2%	6%	0%
sdg 9.c.1: Population proportion covered by mobile phone network	85%	97%	56%	100%
sdg 10.3.1: Population proportion discriminated against in past 12 months	12%	1%	25%	9%
sdg 16.1.3: Population proportion subjected to violence in past 12 months	1%	2%	0%	0%
sdg 16.1.4: Population proportion that feels safe walking around neighbourhood alone at night	43%	27%	40%	100%
sdg 16.5.1: Population proportion asked or forced to pay bribe by public official[6]	56%	75%	45%	100%
sdg 16.6.2: Population proportion satisfied with public services	71%	52%	60%	100%
sdg 16.7.2: Population proportion who believe decision-making is inclusive and transparent	13%	2%	38%	0%
sdg 17.3.2: Volume of remittances as share of income	3%	0%	9%	0%
sdg 17.8.1: Population proportion using the internet	18%	17%	11%	26%

Measured levels of Peace

Using the methodology described in the Annex, calculations of baseline levels of positive peace were done using the baseline survey data. Results show that overall, Malakal performs best on the `Acceptance of the Rights of Others' pillar, and worst on the `Equitable Distribution of Resources' pillar. However, as can be seen in Figure 2 there is significant variation by payam.

---

[6] This is calculated based on only those respondents that claimed to have had any contact with a public official in the last 12 months.
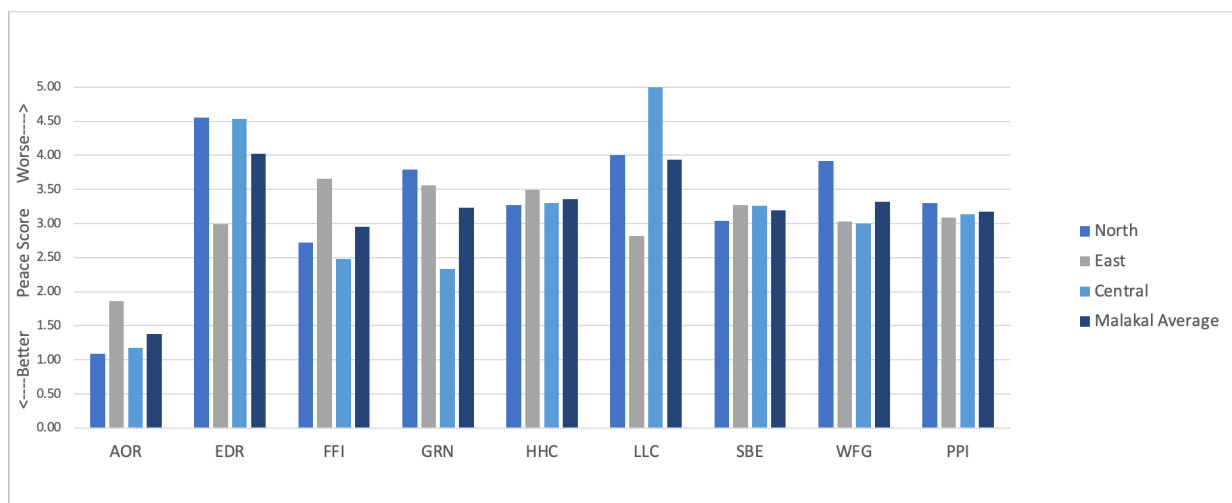
AOR: Acceptance of the Rights of Others; EDR: Equitable Distribution of Resources; FFI: Free Flow of Information; GRN: Good Relations with Neighbours; HHC: High-levels of Human Capital; LLC: Low Levels of Corruption; SBE: Sound Business Environment; WFG: Well Functioning Government; PPI: Positive Peace Index

Malakal Teaching Hospital Capacity and Resources

In May 2022, EPP commissioned a consultant to collect some baseline data on the technical and physical capacities of the teaching hospital, as well as limited data on the challenges at the community level. Baseline indicators related to the teaching hospital itself are summarised in Table 4 below.

TABLE 4: BASELINE CHARACTERISTICS OF MALAKAL TEACHING HOSPITAL

Physical Equipment		
Unit	Number of units IMC	Number of units MSF
ACs	3	6
Autoclave	1	0
CBC Analyser	0	1
Centrifuges	1	1
Computers	1	4
Fans	14	30
Lights	66	143
Microscope	1	1
Oxygen concentrators	0	8
Priority AC	3	3
Refrigerators	3	4
Resuscitation table	0	0

Security Lights	6	42
Ultrasounds	0	0
X-ray	0	0
Freezers	2	5
Roller Mixers	0	1
CB4 Connt Machine	0	1
Chem Analyser	0	1
Vorte X	0	1
Standing Fans	3	15
Kettles	0	3
Printers	0	2
Projector	0	1
Hours of lighting	12 hrs	24 hrs

Human Resources	
	Number[7]
Number of trained doctors	3
Number of trained nurses	3
Number of trained midwives	5
Number of administrative staff	3
3a. Number of other staff:	3
Lab technicians	3
Pharmacists	1
No. of local community employed	6

Patient capacity	
	Number
Maximum capacity of number of admitted patients (number of beds)	0
Number of outpatients patients treated per day	90
Number of emergency (life-saving) surgeries per day	0
Average wait time to see a doctor or nurse (outpatients)	7- 15 minutes
Number of adults admitted in last 7 days	0
Number of adult deaths in last 7 days	0
Number of under 5s admitted in last 7 days	0
Number of under 5 deaths in last 7 days	0
Average number of vaccines to children administered per day	8

---

[7] Data received did not specify if these figures were for IMC or MSF sides, or both.

Learning from Baseline Data Collection

The pilot data collection effort was run with and through Leonardo impact tracking software[8], and the first data collection effort used the Trainer-of-trainers (ToT) model rather than direct in person training. A number of lessons were learned from these efforts.

General data collection logistics and implementation:
  - o Not being involved in the training of enumerators, it was difficult to gauge the extent to which the individuals trained in the ToT was able to effectively deliver the purpose of the data collection exercise and the training on the survey. Very little information was relayed on this front from IOM/DTM other than that the training had taken place.
  - o One big area of concern relates to the data quality assurance – potentially linked to insufficient training of the enumerators also - as many responses to questions were either non-sensical or recorded incorrectly.
  - o There was an over-representation of female respondents, and unequal by payam (neighbourhood).
  - o The write-ups of the FGDs – the female one in particular – was very basic, and without any audio it is difficult to capture any further details or nuances of these discussions including potential quotes.

Leonardo Survey specific:
  - Responses to Income and Expenditure questions seem totally unreliable, with over 50 percent of respondents claiming more monthly expenses than monthly income. Some suggestions:
    - o Constrain income question, and specify more "all money coming into this household from work, selling, assistance from NGOs/government, money received from friends and relatives."
    - o Income question before expenditure questions. And maybe have them follow on from each other.
    - o Expenditure questions could be reframed as: "on average what share of the household income would you say you spend on: health care?" 1. Less than 25%, 2. 25-50%, 3. More than 50%"
  - Need to place extra constraints/logic around certain questions, for example: hours a day electricity needs an upper limit of 24.
  - Refining survey to reduce redundancies and confusion. For example, influence on government in community and influence on politics in community are too confusing to distinguish what the difference is; suggest to drop the politics question.

---

[8] Leonardo impact software is an integrated online platform to measure, verify and report sustainability impact, integrating the household survey design and data collection, analysis and reporting based on EPP's M & E framework. See https://www.leonardo-impact.com

Annex A. Research and Field Methodology

Both quantitative data (household survey and hospital administrative data) and qualitative data (focus group discussion) was collected at baseline – December 2022, with follow-up planned December 2023.

A.1 Quantitative Data Collection

Household Survey

EPP's household survey that was piloted in Goma DRC in May 2022 was tweaked slightly in the Malakal instance, working together with Leonardo, to ensure consistency with integrating into their tracking systems. The household survey, consisting of 115 questions was deployed using KoboToolbox and is designed based on the outcomes and impacts from EPP's theory of change. See Annex B for the data collection tools.

Sample size determination

For this exercise, total sample size was estimated based on the most recent sampling methodology and numbers used by the most recent national survey (2022) on perceptions of peace in South Sudan[9]. The 200 households were selected across the three payams approximately in proportion to the rough population size estimates of each payam, with Malakal North being the most populated and Malakal East being the least populated. The sample size gives a rough margin of error for our indicator estimates of between 5 and 10%, and is largely constrained by budget.

TABLE 5: ROUGH SAMPLE SIZES FOR DATA COLLECTION

Neighbourhood	Actual sample
Malakal North	106
Malakal Centre	34
Malakal East	60

Sampling technique

The household sampling technique followed a non-probability sample, randomly selecting households following a standard protocol that involves picking a random spot in the payam, and a random direction to walk in and sampling every 5th household until the quota for that payam is met. The overrepresentation of female respondents was due to the fact that "most of the people present during the interview were female, and they were found to be available, whereas most of the men are out for their daily works and normally return in the evening hours."[10]

In each household, the enumerators can target either the head of the household or the most "important" decision maker, striving to balance female and male survey respondents.

---

[9] D. Deng, S. Dawkins, C. Oringa and J. Pospisil, "National Survey on Perceptions of Peace in South Sudan", 2022.
[10] Explanation given by the enumerator supervisor from IOM/DTM.

A.2 Qualitative Data Collection

The qualitative research seeks to better understand the how and why of any relationships between hospital electrification and socio-economic indicators and outcomes. To get this information, the qualitative research uses community focus group discussions (FGDs).

Two FGDs were conducted in Malakal town, one all female group from Malakal East (ten participants), and one all male group from Malakal North (nine participants). Figures 3 and 4 show the FGDs in session.

FIGURE 3: MALE FGD IN MALAKAL TOWN, DECEMBER 2022

FIGURE 4: FEMALE FGD IN MALAKAL TOWN, DECEMBER 2022

Focus Group Discussions (FGDs) gather together a small number of individuals with either similar experiences or shared backgrounds to discuss specific topics of interest. The FGD was led by a moderator using an FGD guide, to facilitate discussion amongst participants, allowing for agreement and disagreement, and is particularly useful to obtain a sense of the range of opinions or views on the same topic. A simple focus group discussion guide was designed based on the main research question. Criteria for participation

in the community FGDs included; being 18 years of age or older, being a resident of the particular community/payam of interest.

A.3 Ethical considerations for data collection: Human Subjects Protection

Both the household survey and the FGD involve voluntary participation, and as such, the enumerators/interviewers asked for informed consent before commencing any data collection (as outlined in the data collection tools).
Participants had the option of remaining anonymous for the purposes of recording data, and also had the option of stopping participation whenever they chose.

A.4 Calculating Positive Peace Scores

The measured and calculated SDG indicators are combined with additional indicators related to perceptions to track the eight pillars of the positive peace framework, as outlined in Table 6. Please note the definitions of the positive peace pillars have been developed by the Institute for Economics and Peace, and as such EPP will be relying on this independent source for its own monitoring and evaluation purposes.

TABLE 6: INDICATORS FOR TRACKING THE EIGHT PILLARS OF POSITIVE PEACE

Positive Peace Pillar	Indicators
Equitable Distribution of Resources (EDR):	**EDR is measured based on :**
Equitable distribution of resources includes equity in access to education, health and equality in income distribution	SDG10.2.1 proportion of people living below 50 per cent of median income, by sex,
	SDG 3.8.2 Household expenditures on health (share of population spending more than 25% of income on health care)
	SDG 1.4.1 Proportion of population living in households with access to basic services
	Safe water: "A safely managed drinking water service is defined as one located on premises, available when needed and free from contamination."
	Safe sanitation: "improved facilities which are not shared with other households and where excreta are safely disposed in situ or transported and treated off-site"

Low levels of corruption (LLC):	LLC is measured based on:
Corruption can lead to inefficiency in resource allocation, public distrust and a lack of funding for public goods and services, as well as civil unrest.	SDG 16.5.1 proportion of persons who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months
	SDG 16.7.2 proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group
Sound Business Environment (SBE):	**SBE is measured based on:**
SBE refers to the strength of economic conditions as well as the formal institutions that support the operation of the private sector to enable business competitiveness and economic productivity	SDG 8.10.2 Proportion of adults (15+) with a bank or mobile money account;
	SDG 17.3.2 Volume of remittances as percentage of GDP
	SDG 8.5.2 Unemployment rate by sex
Well-functioning government (WFG)	**WFG is measured based on:**
WFG is defined as one that engenders trust and participation, upholds the rule of law and delivers quality public services	SDG 16.6.2 proportion of population satisfied with their last experience of public services
	SDG 16.7.2 proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group
Good Relations with Neighbours (GRN)	**GRN is measured based on:**
GRN is defined as peaceful internal and external relations within and around a country. Internally, it refers to socially cohesive relationships between groups within a country.	SDG 16.1.4 is the proportion of population that feel safe walking alone around the area they live.
	Conflict and Trust questions (from Afrobarometer)

High levels of Human Capital (HHC):	HHC is measured based on:
HHC is the stock of intangible knowledge, social and other personal attributes such as health, that enable economic productivity	SDG 4.1.2 Completion rate (primary, lower secondary, upper secondary), by sex: The number of persons in the relevant age group who have completed the last grade of the given level of education is expressed as a percentage of the total population (in the survey sample) of the same age group
	SDG 2.1.2 Prevalence of moderate or severe food insecurity in the population based on the Food insecurity Experience Scale (FIES)
	SDG 3.3.3 Malaria incidence per 1,000 population
Free flow of information (FFI)	**FFI is measured based on:**
Relates not only to a free and independent press, but also to transparency within governance institutions and an environment in which access to information is made possible in a timely manner.	SDG 17.8.1 Proportion of individuals using the Internet;
	SDG 9.c.1 Proportion of population covered by a mobile phone network
Acceptance of the Rights of Others (AoR)	**AOR is measured based on:**
AOR includes formal laws guaranteeing basic human rights and freedoms as well as informal social and cultural norms that relate to the behaviours of people. It includes rights and empowerment for minority groups and non-discrimination.	SDG 10.3.1 proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law (ethnicity, gender, religion)
	SDG 5.4.1 Proportion of time spent on unpaid domestic work by sex; (difference between men and women)

Annex B: Renewable Energy and Peace

Renewable energy potentially has implications for both negative peace – meaning the absence of violence and conflict, and positive of peace – which refers to a more lasting peace built on sustainable investments in economic development and institutions, as well as societal attitudes that foster peace.'

An actionable measure of Positive peace is the eight-pillar framework developed by the Institute for Economics and Peace, and shown in Figure 5. These eight component parts systemically interact to build a societies' attitudes, structures and institutions that create sustainable peace.

The eight pillars are derived through empirically analysing an estimated 25,000 data series to determine which factors are most highly correlated with negative peace. In this way, positive peace is known to be a statistically significant correlate of the absence of conflict and violence.

FIGURE 5: POSITIVE PEACE FRAMEWORK

This definition and measure of positive peace also provides a framework for assessing a country's, or community's, resilience; its ability to plan, absorb, and respond to shocks[11]. Climate change related disasters are one such type of shock for which a country, or community, needs resilience. This positive peace framework also links directly to many of the Sustainable Development Goals, with research concluding that of the 169 targets outlined across all SDGs, 85% are relevant to more than two Positive Peace factors[12].

---

[11] Institute for Economics and Peace, Positive Peace Report 2019. Accessed at:
https://www.economicsandpeace.org/wp-content/uploads/2020/08/PPR-2019-web.pdf
[12] Institute for Economics and Peace, SDG 16+ Progress Report 2019. Accessed at:
https://www.economicsandpeace.org/wp-content/uploads/2020/08/SDG16Progress-Report-2019-web.pdf