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# OUTCOME CASE STUDY

### ENERGY PEACE PARTNERS SEPTEMBER 2023





R.P.



Ministry of Foreign Affairs of the Netherlands



Grand Challenges Canada" Grands Défis Canada

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### CASE STUDY SUBJECT

INNOVATION PROJECT TITLE	The Peace Renewable Energy Credit: Unlocking renewable energy solutions in conflict settings		
NAME OF IMPLEMENTING ORGANIZATION	Energy Peace Partners (EPP)	TIMEFRAME	31st March 2019 to 31st March 2021
LOCATION	Democratic Republic of the Congo, South Sudan	CASE STUDY PERIOD	May-June 2022
GRANT VALUE	CAD \$249,852	GRANT TYPE	Proof of Concept (Round 1 grant)
CASE STUDY AUTHORS	Triple Line: Simon Hale, Nora Loncsar & Esther Winslow (UK); Lievin Bisimwa Rukabya (Democratic Republic of Congo)		

### EXECUTIVE SUMMARY

Renewable energy can bring significant benefits to conflict-affected populations, but very little investment is directed to these areas, in large part due to the perceived risks. Energy Peace Partners (EPP) was funded by Creating Hope in Conflict: A Humanitarian Grand Challenge (CHIC) to establish and demonstrate an innovative solution – the Peace Renewable Energy Credit or P-REC. This would include the development of the market for P-RECs, achievement of P-REC sales and investment of the proceeds in energy projects in conflict settings which would bring peace benefits. The model would be capable of attracting new private sector funding into the delivery of basic (renewable) energy services for conflict-affected populations or business communities that previously had no or unreliable access to affordable electricity. P-REC sales are used to fund a range of social impact projects including extending energy access, reducing tariffs and community services.

Creating Hope in Conflict: A Humanitarian Grand Challenge contracted Triple Line Consulting to deliver a series of outcome and value for money case studies for a sample of funded innovations. The principle objectives of these case studies are:

- To capture outcomes delivered by the CHIC program and validate CHIC's contributions that led to these outcomes.
- To support CHIC in delivering value for money case studies by providing the evidence base on the achievement of intermediate outcomes and CHIC's contribution to these.

Below is a summary of the findings of the outcome and value for money case study developed for Energy Peace Partners, a CHIC-funded innovation.

#### INTERMEDIATE OUTCOMES ACHIEVED, THEIR SIGNIFICANCE AND CHIC CONTRIBUTION

OUTCOME I – CHIC support to achieve scale and sustainability. During the lifetime of the CHIC funding, EPP showed proof of concept and is on the pathway to scale and sustainability. EPP was able to extend renewable energy credit issuance to countries that are conflict prone, climate vulnerable and energy poor. Three P-REC transactions to a value of USD \$280,000 were facilitated during the CHIC grant in South Sudan and Democratic Republic of Congo (DRC) and a subsequent P-REC achieved after the grant ended brought the total to USD \$500,000. This demonstrates the feasibility of the model, establishment of its legal framework and a willingness and demand from corporate clients to purchase P-RECs to support renewable energy projects in conflict settings. This is particularly significant for UN operations which are heavily reliant on diesel. EPP has a pipeline of P-REC transactions with 30 developers in 11 countries including Somalia, South Sudan, Chad and the DRC. Those under discussion are expected to raise the total value of P-REC deals to over USD \$800,000.

OUTCOME 2 – Further investment and completion of seed phase. EPP secured funding from seven further sources in the grant period, critical to ensuring its financial sustainability and ability to grow. It successfully completed its seed project.

OUTCOME 3 – Use of innovation by vulnerable populations affected by conflict and by humanitarian responders. Funding from P-REC sales during the grant were used to install solar energy generation capacity for the Malakal Teaching Hospital in South Sudan, run by International Organization for Migration

(IOM). Another P-REC sale funded the installation of 35 streetlights in the Ndosho neighbourhood of Goma, DRC (a project implemented by another CHIC-grantee, Nuru; a solar energy provider) with attendant benefits.

OUTCOME 4 – Humanitarian ecosystem is strengthened. The four P-REC transactions now successfully completed have brought new funding from new stakeholders into conflict-affected humanitarian contexts for renewable energy projects and delivery of basic energy services for communities. EPP have also demonstrated that P-RECs can bring additional private sector financing to UN agencies for humanitarian interventions, over-coming challenges in UN financing regulations.

Unforeseen intermediate outcome level results include new peace dividends through the potential for renewable energy to reduce drivers of conflict, such as the diesel supply chain, personal insecurity or very limited livelihood opportunities.

CHIC's contribution to results was principally through its grant funding which de-risked further investment and gave EPP and the P-REC model credibility and validation.

#### LESSONS LEARNED AND CHALLENGES

- Partnerships between humanitarian organizations and corporations can pose challenges, especially for corporations that do not typically work in fragile or conflict-affected countries.
- There are further opportunities for CHIC to introduce innovators to key stakeholders.
- Working to change processes within the UN requires internal champions and/or pre-existing momentum.
- There can be added benefits to developing a communication plan with all stakeholders.
- Partnerships with private sector requires time investment and trusted partnerships.
- Political instability in fragile, conflict-affected settings poses additional challenges.
- The challenges to scaling posed by high transaction costs vis-á-vis the value of P-RECs and the resource intensive nature of the P-REC application process for developers.
- Existing legal frameworks may pose additional challenges.
- Buyers of P-RECs are more motivated by social impacts that arise than the energy credits they can provide.

#### IMPACT AND VALUE FOR MONEY ASSESSMENT

THE <u>VALUE FOR MONEY</u> ASSESSMENT FOR EPP EXAMINES ITS CONTRIBUTION TO IMPACT AGAINST EXPECTATIONS.

#### IMPACT I - INNOVATION COSTS AND BENEFITS

Assessment: Very good Impact exceeds expectations

- The social impact of the Ndosho streetlights project validates EPP's claim to benefit conflict-affected people significantly.
- CHIC's expectation of willingness and demand by corporate clients to purchase P-RECs to support projects in conflict settings, demonstrated by at least one company that had made a commitment to go '100% renewable', was met through the facilitated P-REC transactions.

#### IMPACT 3 - INNOVATION ADOPTION IN THE HUMANITARIAN SYSTEM Assessment: Good Impact meets expectations

- EPP has met expectations for humanitarian system change i.e. building the P-REC architecture, developing the P-REC market and adapting and proving the concept by securing P-REC sales.
- EPP has met expectations for adoption i.e. 'At least 2 P-REC-financed renewable energy projects piloted, financed by P-RECs purchased by multiple RE100 companies.'
- Wider adoption is dependent upon several identified conditions.

## IMPACT 2 - INCREASING EFFICIENCY AND COST-EFFECTIVENESS OF HUMANITARIAN ASSISTANCE

Assessment: Good Impact meets expectations.

- The implicit expectation was of a cost-effectiveness gain.
- The transaction costs incurred by IOM to complete the P-REC deal for Malakal hospital showed that there was in fact some pressure on humanitarian budgets, but this is expected to be lower in future deals because the Malakal deal provides a model.

#### OVERALL P-REC VALUE FOR MONEY ASSESSMENT:

Assessment: Good EPP's P-REC innovation has met value for money expectations.

#### THE CHALLENGE

More than 800 million people around the world have no access to electricity, 90 per cent of whom live in fragile and conflict-affected states which have limited capacity and/or resources to provide their citizens with reliable basic services. In addition to being energy poor, these conflict-affected countries are also climate vulnerable, with climate impacts increasingly contributing to drivers of conflict. Renewable energy can deliver significant potential benefits in these states, including greater electricity access for conflict-affected populations and businesses, economic development opportunities, decreased noise and air pollution, reduced dependency on diesel that is expensive and often closely linked to the war economy, and through these it has the potential to create future peace dividends.

Yet - in large part due to the high perceived risk of investing in conflict affected contexts - of the more than \$300bn in global renewable energy investment, only 6 per cent goes to the Middle East and Africa, with fragile and conflict-affected countries receiving a small fraction of this.<sup>1</sup> Investment in energy infrastructure that benefits local communities and micro, small and medium enterprises - rather than large corporations (such as mining companies) or humanitarian operations - is even rarer.

The work of Energy Peace Partners (EPP), funded by Creating Hope in Conflict: A Humanitarian Grand Challenge (CHIC), is significant in that they managed to design, show proof of concept, and start the journey to scale of innovative solutions that are capable of attracting new private sector funding into the delivery of basic (renewable) energy services in high-risk fragile or conflict-affected contexts to segments of the population or the business community that previously had no access at all to electricity or had no access to reliable and affordable electricity. This improved access is in turn expected to deliver a range of benefits typically associated with greater electrification, which are confirmed to varying degree by the Value for Money (VfM) study in section 4 of this case study.

Access to clean energy is also a key challenge for humanitarian actors, including the various UN agencies operating in conflict contexts. Despite numerous initiatives and commitments aimed at the green transition of these organisations, such as the Global Plan of Action for Sustainable Energy Solutions for Situations of Displacement (GPA) or Secretary-General Ban Ki-moon's goal for all UN organizations to achieve carbon neutrality by 2020, most humanitarian operations are highly dependent on diesel for electricity. According to some estimates, this dependency among UN agencies is around 95 per cent. Diesel is not just a key contributor to the war economy in many places, but also risky to transport and highly expensive in the contexts where they operate. For example, in Malakal (South Sudan), one of the sites where EPP's innovation is being implemented, the price of diesel delivered to the humanitarian hub in 2018 was \$1.7–\$2.6 per litre (with hub purchases peaking at over \$3 per litre at different times since 2014) compared to \$1.10–\$1.15 per litre in the city of Juba.<sup>2</sup> Another strong element of EPP's value proposition is that its innovation would be able to incentivise and fund the transition of these humanitarian hubs to renewable energy – although at the time of this report there were still only a few examples of this in practice.

EPP's innovation is the Peace Renewable Energy Credit (P-REC), which is described below. EPP was funded by CHIC to establish and demonstrate the feasibility of the P-REC model; develop the market for P-RECs and achieve P-REC sales; and invest the proceeds in energy projects in fragile or conflict-affected countries which would bring peace benefits.

<sup>1</sup> EPP Final Progress Report

<sup>&</sup>lt;sup>2</sup> Owen Grafham and Glada Lahn (2018) The Costs of Fuelling Humanitarian Aid

#### THE INNOVATION:

#### Energy Peace Partners' Peace Renewable Energy Credit

Energy Peace Partners have developed the Peace Renewable Energy Credit (P-REC) to support renewable energy in fragile settings. P-RECs are a type of energy attribute certificate that provides proof that the energy was created through a renewable, pro-peace source. The P-RECs were developed as a system-level tool to help support renewable energy projects in different conflict settings by monetizing renewable energy generated. For every mega-watt hour (MWh) of renewable electricity generated from a qualifying project, a renewable energy credit is created, which represents the environmental attribute of this MWh. These can be bought and sold separately from the physical distribution of the electricity itself. Buyers of P-RECs create a new revenue stream for renewable electricity produced in fragile or conflict-affected countries, along with the associated socio-economic benefit commitments.

Renewable Energy Credit markets have grown rapidly in recent years and are widely traded in Europe and North America. The International Renewable Energy Credits (I-REC) Standard, on which P-RECs are issued, is the dominant framework for RECs outside of North America and Europe. However, before EPP developed the P-REC, only three countries were authorized to issue I-RECs in Africa (Uganda, Morocco and South Africa), none of which are fragile or conflict-affected. The innovative nature of EPP's work is that it was able to extend renewable energy credit issuance to countries that are conflict prone, climate vulnerable and energy poor (EPP is currently the authorized country issuer of P-RECs and I-RECs in the DRC, South Sudan, Somalia, and Chad) and attach the requirement for pro-peace co-benefits associated with new clean energy generated (hence the P=Peace in P-REC).

Energy developers sell P-RECs once the energy credit is generated and invest at least 51% of the proceeds from sale of the certificate in 'social impact' projects such as extending energy access (the use to which the Malakal EPP P-REC was put), providing community service (such as the P-REC funded streetlight project in Goma, DRC), reducing the energy tariff for consumers or otherwise contributing to achievement of the Sustainable Development Goals. Alternatively, buyers are willing to purchase P-RECs for years in advance, enabling energy developers to invest the money into the development or expansion of renewable energy networks or infrastructure.

EPP is also currently in the process of establishing a P-REC Aggregation Fund that is specifically designed to generate funding from various investors and allow the monetization of future yield of energy attributes, providing developers with up front capital that they can use to build renewable energy projects. In addition to P-RECs, EPP also has a policy influencing workstream that aims to bring about a larger policy shift towards adopting renewable energy in UN Peacekeeping and humanitarian programming in conflict and crisis settings. (The Aggregation Fund and policy influencing workstreams was not funded by CHIC's 2019 grant and are thus not covered by the case study.)

### 2. INTERMEDIATE OUTCOMES ACHIEVED, THEIR SIGNIFICANCE AND CHIC CONTRIBUTION

## INTERMEDIATE OUTCOME I: ENHANCED EFFECTIVENESS AND EFFICIENCY OF CHIC IN SUPPORTING HUMANITARIAN INNOVATIONS TO ACHIEVE SCALE AND SUSTAINABILITY

During the lifetime of the CHIC funding, EPP showed proof of concept and is on the pathway to scale and sustainability. Through their seed project, EPP have demonstrated a willingness from corporate clients to purchase P-RECs as a means to support projects in conflict settings. As a result, the project team have achieved proof of concept by piloting three renewable energy projects, financed by P-RECs purchased by several multi-national RE100<sup>3</sup> companies. They have shown there is interest in their innovation and are working on a pipeline of developers and potential buyers for future transactions. Their sustainability plan includes de-risking the P-RECs to make them accessible to a wider audience, and they have a strong portfolio of investments (see Intermediate Outcome 2 below for details).

With climate change high on the global agenda, large corporations are increasingly looking to procure renewable energy. P-RECs offer companies the opportunity to maximize the impact of their investments not only from a carbon reduction perspective, but also from a climate equity perspective by investing in regions that are the most impacted by climate change and are currently energy-poor. Previously, there were few instruments available for these corporations to make investments in these areas, or they were considered too risky for corporations. The first P-REC transaction – developed with Nuru, purchased by Microsoft, and issued and facilitated by EPP – provided all parties with enough assurances to move forward and make this first-of-its-kind transaction a reality. Although the concept of the P-REC was born before CHIC funding, the concept needed accreditation before identifying developers and buyers.

The project has demonstrated a willingness and demand from corporate clients to purchase P-RECs to support renewable energy projects in conflict settings, with positive outcomes. Energy Peace Partners successfully facilitated three P-REC transactions totalling USD \$280,000 value during the CHIC grant (the third of which was concluded shortly after the grant ended):

- One P-REC transaction in DRC with fellow CHIC-funded innovator, Nuru, to install 35 streetlights in Goma with funding from Microsoft.
- One P-REC transaction of a five-year pre-purchase by Google used to invest in and help finance two mini-grids in communities adjacent to Garamba National Park in DRC.
- One P-REC transaction, ultimately purchased by Block, with the International Organisation for Migration (IOM), which funded the solar electrification of a regional hospital in the city of Malakal, South Sudan.

These three transactions were significant and led to a second Microsoft investment, the largest P-REC deal ever transacted, making Microsoft the first repeat buyer of this variation of international renewable energy certificates. Including this latest transaction,<sup>4</sup> P-RECs have now generated over USD \$500,000 in revenue to support new renewable energy projects in fragile or conflict-affected countries.

<sup>3</sup> RE100 is a global initiative bringing together the world's most influential businesses committed to 100% renewable electricity. <u>https://www.there100.org/</u>

<sup>&</sup>lt;sup>4</sup> This further transaction was secured after the CHIC grant had ended.

The successful collaboration with IOM has demonstrated the previously unknown value of P-RECs to UN agencies (by comparing favourably with the cost of existing services) and demonstrated that this more complex transaction can work.<sup>5</sup> This has paved the way for future catalytic funding deals; furthermore, the cost of transaction in-house for IOM will be much smaller now that they have completed the first contract.

Additionally, renewable energy developers such as PowerGen, Winch Energy and ZIZ Energie, have reached out to EPP to discuss partnership opportunities and the issuance and sale of P-RECs from their projects. EPP has a number of other P-REC transactions in the pipeline – with 30 developers in 11 countries including Somalia, South Sudan, Chad and the DRC - which demonstrates that there is interest in the model, now that it is proven, and which could lead to significant investment: they report<sup>6</sup> a pipeline of projects under discussion ('in contracting') that would raise the total value of P-REC deals to over USD \$800,000.

There is evidence of growing interest in P-RECs within the humanitarian community. EPP is currently engaged in conversations with several UN agencies, including IOM and UNHCR, around using P-RECs to support renewable energy projects in humanitarian settings. As EPP expands the number of countries in which P-RECs can be issued, the number of potential humanitarian actors using the P-RECs will grow. These new partnerships will allow EPP to scale the sale of P-RECs to new regions.

EPP, as the issuer of the P-RECs, receives a small earned revenue stream and is working to further develop this model to increase the sustainability of the innovation. While earned revenue may not cover all of EPP's work, the growth of the P-REC market could cover the expenses of the P-REC program itself. They are also looking into earned revenue models for the Aggregation Fund.

EPP thus hopes to establish a sustainable P-REC marketplace, increasing finance flows and renewable energy investment and project development in fragile states.

#### Strength of Evidence<sup>7</sup>: Strong

Evidence is from EPP's Final Progress Report, Nuru's progress reports and interviews with IOM. Findings were triangulated across documentation and with stakeholder interviews.

#### INTERMEDIATE OUTCOME 2: INCREASED EFFECTIVENESS AND EFFICIENCY OF INNOVATORS IN GENERATING FURTHER INVESTMENT AND SUCCESSFULLY COMPLETING THE SEED AND TRANSITION-TO-SCALE PHASES

During the funding period, EPP secured the following funding:

- Renewal grant from the Good Energies Foundation for 18 months starting in October 2020
- Renewal funding from the 11th Hr Project to support EPP's Powering Peace work in 2020 and 2021
- Grant from the DRK Foundation to build a strategy around EPP's earned revenue model
- Renewal funding from the Flora Family Foundation to support EPP in 2020 and 2021
- Funding from the Yellow Chair Foundation to support EPP in 2019, 2020, and 2021

 $<sup>^{\</sup>scriptscriptstyle 5}$  See IO4 and lessons learnt section for further information.

<sup>&</sup>lt;sup>6</sup> In an interview, February 2022

 $<sup>^{\</sup>rm 7}$  For the criteria on assessing the strength of evidence base see Annex 1.

- Selected to participate in the Global Innovation Lab for Climate Finance 2021 accelerator program to support EPP's work on the Aggregation Fund
- Selected for the Henry Arnhold Fellowship, with funding from the Mulago Foundation, in 2021

This funding and support is critical for EPP to ensure its financial sustainability and ability to grow until it achieves its ultimate vision, which is to become self-sustaining through the sale of P-RECs, from which it earns a small revenue.

With the conclusion of the P-REC sales outlined above (see Intermediate Outcome I), EPP achieved proof of concept for the P-REC by showing there is an appetite for P-RECs among large private institutions and by demonstrating that the legal frameworks are in place for the concept to be scaled. At the time of writing, CHIC was considering EPP for a transition to scale grant, and in March 2023, they were awarded the grant.

#### Strength of Evidence: Fair

Evidence is EPP's Final Progress Report and otherwise provided by EPP; additionally, some grant funding could be triangulated or confirmed through online searches (although not through stakeholder interviews).

#### INTERMEDIATE OUTCOME 3: INCREASED USE OF HUMANITARIAN INNOVATIONS AMONG THE MOST VULNERABLE POPULATIONS AFFECTED BY HUMANITARIAN CRISES CAUSED BY CONFLICT, AND/OR HUMANITARIAN WORKERS

The third P-REC transaction involved humanitarian actor IOM and its operations in Malakal, South Sudan and managed to create an additional revenue stream for IOM to deliver assistance to conflict-affected populations. The P-REC transaction involved the transfer of P-RECs generated from the IOM-managed solar plant in the Malakal Humanitarian Hub to 3 Degrees, which were then eventually sold to Block. The funding will be used to create solar electricity for the Malakal Teaching Hospital, which serves an estimated 100 people per day and struggles with limited electricity. The agreement was the largest P-REC agreement to date at the time, and the first in South Sudan.

EPP is also providing a new platform for a wider group of actors to proactively participate in the humanitarian ecosystem. Developers (such as Nuru) and private corporations (such as Microsoft and Google) are an important part of the ecosystem and by choosing to operate in conflict-affected areas, they can complement the work that humanitarian workers do (see Intermediate Outcome 4 sub-section for more detail).

A forthcoming outcome case study on Nuru will examine the achievements of that grant in detail, including the installation of P-REC-funded streetlights in Ndosho from Nuru's first mini-grid, which was funded by CHIC. The benefits of the streetlights are reviewed in the value for money assessment in section 4 of this study.

#### Strength of Evidence: Fair

Evidence is from Results Reports and EPP's Final Progress Report but could not be triangulated with external stakeholder feedback.

#### INTERMEDIATE OUTCOME 4: HUMANITARIAN ECOSYSTEM IS STRENGTHENED

At the time of writing, EPP has successfully concluded four P-REC transactions, (three during the CHIC grant), collectively totalling over USD \$500,000, between Nuru, and Microsoft and Google in the DRC, and between IOM, 3Degrees and Block in South Sudan. These have contributed to the strengthening of the humanitarian ecosystem by bringing new funding from new stakeholders into humanitarian contexts, at a time when humanitarian organizations increasingly struggle to raise their minimum funding requirements from traditional donors. If the uptake of P-RECs continues, it has the potential to influence systems-level changes through expanding the financing options available to energy projects targeting businesses and communities in humanitarian contexts (for more detail on the latter see section 4 – VfM case study).

It is generally acknowledged that the private sector has the potential to become an important humanitarian sector player both as delivery organizations and funders, and thus strengthen the humanitarian ecosystem. Yet attracting private sector funding and investment for projects by organizations working in fragile and conflict-affected contexts is difficult because of the perceived risks of these ventures (e.g. security risks, political risks, concerns around sustainability and return of investment etc.). This is despite the various commitments from humanitarian actors to explore innovative financial mechanisms, including private sector financing, in humanitarian settings (e.g. Global Platform for Action on Sustainable Energy in Displacement Settings) and from private sector to invest in social impact projects (e.g. Business for 2030 initiative).

Securing private sector funding is especially difficult for the UN and similar multilateral humanitarian organisations. As an interviewee remarked, UN agencies speak a completely different language from the private sector and cannot accept, for example, funding in the form of investment. They also face considerable administrative, bureaucratic and resource challenges in contracting with private sector investors (for more details see Lessons Learned section and VfM case study).

The completion of the first successful P-REC transaction in South Sudan is thus a landmark achievement and, according to the same interviewee, is one of the only two known innovative financial models successfully used by IOM. It proved the concept that the P-REC could bring additional financing to UN agencies for humanitarian interventions from the private sector, overcoming challenges in UN financing regulations.<sup>8</sup> Feedback from stakeholders is positive in terms of the replicability of this P-REC transaction, and IOM is already in discussion with EPP and 3Degrees (who have facilitated all four P-REC transactions) about additional potential deals in South Sudan and Nigeria.

For energy project developers, attracting private sector investment is somewhat easier, as long as they can show a sufficiently high return on investment. This has most often required that developers build their business around so-called anchor clients, such as the UN or large companies, that are bankable and offer a fairly stable demand. Finding private sector funding for energy projects that supply communities, especially communities with very low purchasing power and that can't consistently afford electricity, has been a challenge. Developers like Nuru have been trying to tackle this challenge through experimenting with cross-subsidization models to offset costs for customers with low purchasing power and they continue to trial this approach in order to strike a balance between financial viability and serving price-sensitive communities.

<sup>&</sup>lt;sup>8</sup> This revenue that accrued to IOM from the P-REC was structured in the form of a donation rather than proceeds from a sale or investment, which is ruled out by UN financing rules.

The four P-REC transactions now successfully completed are therefore significant as they have demonstrated that it is possible to attract private sector funding to renewable energy projects and to the delivery of basic energy services for communities (for more detail see VfM case study). As discussed in more detail under Intermediate Outcome I, feedback from 3Degrees suggest that there is increasing interest from the private sector in P-RECs. Microsoft, for example, has put aside some other energy procurement projects to prioritise P-RECs. Feedback from an energy developer also suggests that as P-REC transactions become more common and better understood, developers will be better able to integrate them into their investment portfolio, allowing them to scale up the number of projects they undertake in fragile and conflict affected contexts.

#### Strength of Evidence: Strong

Evidence is from multiple data sources, including interviews with various external stakeholders.

#### UNFORESEEN INTERMEDIATE OUTCOME LEVEL RESULTS

#### GENERATING NEW PEACE DIVIDENDS

CHIC-funded innovations have the potential to reduce conflict drivers, which could be another pathway of change to improving the lives of conflict affected populations. For example, most humanitarian operations are highly dependent on diesel for electricity. Diesel is a key contributor to the war economy in many places, is highly expensive and risky to transport. Although current P-RECs have not yet replaced the UN's reliance on diesel, the innovation (and others like it) has the potential to greatly reduce the UN's reliance on military-controlled energy supplies in the future. This is in addition to several more visible benefits such as a) protecting humanitarian actors from price shocks b) reducing negative perceptions of receiving military-transported fuel c) reducing operational risks by having energy in-situ d) directly contributing to SDG 13: Climate Action.

P-RECs can also directly contribute towards increased security (as is the case for Nuru's streetlights) or grow the local economy by creating jobs and attracting outside investment, and thus creating peace dividends, and there is some evidence of this in the forthcoming Nuru outcome case study.

#### Strength of Evidence: Fair

Evidence from EPP's Final Progress Report and Nuru's Progress Reports. Partially triangulated with stakeholder interviews.

#### CHIC CONTRIBUTION TO RESULTS

CHIC's CAD \$250,000 Seed grant funded the development of the P-REC concept, its accreditation and the successful piloting of the first P-REC projects and was thus fundamental to EPP's success.

Feedback suggests that CHIC's grant and the public announcement of the grant (even before funding was received) have been critical in de-risking additional investment and financing. The CHIC grant, and its backing by high profile government donors, also brought credibility and validation for the P-REC idea and gave the team – which at the time was working on a semi-volunteer basis - a boost of confidence.

EPP also praised the flexibility of the CHIC grant. At the time of the grant application, EPP were planning to pilot the P-REC in Haiti and South Sudan. Unforeseen challenges meant that piloting in these two locations became impossible, but CHIC supported a pivot to the DRC.

In addition to funding, EPP received technical assistance support from CHIC. Staff participated in the Innovation Accelerator Week and appreciated the experience, especially the opportunity to network with other innovators working in similar contexts. That said, the case study team could not identify any tangible impact of the technical assistance provided.

#### Strength of Evidence: Strong

Evidence on the de-risking and credibility contribution of CHIC funding derives from multiple data sources and has been triangulated with external stakeholder feedback, and thus is assessed as 'Strong'. Evidence on the benefits of flexible funding reflects innovator perspectives. PARTNERSHIPS WITH HUMANITARIAN ORGANIZATIONS AND CORPORATIONS THAT DO NOT TYPICALLY WORK IN FRAGILE OR CONFLICT-AFFECTED COUNTRIES CAN BE CHALLENGING.

EPP faced several contractual issues both with private sector partners and UN agencies in concluding P-REC deals. Contracting between for-profit innovations and UN agencies is complex due to strict UN rules around income sources. In the Malakal sale, careful consideration was needed to make the language in the 'buy' and in the 'sell' contracts match, because one was a 'buy' and one was actually a 'donation'. Part of the challenge in working with the private sector was also the time invested in making the P-REC transactions look similar to other energy procurements which corporate finance departments would have executed in the past.

Contractual discussions were also slowed by a disagreement between the developer (Scatec) and IOM about ownership of the environmental attributes arising from the P-REC. Furthermore, Block's due diligence was concerned with direct contracts with entities in South Sudan. Instead, Block signed a contract with 3Degrees (who are located in USA) and 3Degrees signed with IOM. The future P-REC Aggregation Fund will sign contracts directly with corporates as it will be an entity in the US that the corporates can fully vet. Finally, there is an additional struggle in measuring the social impact element for potential buyers. Demonstrating the benefit of the work with videos and maps helps to show the value of paying the extra premium of a P-REC compared to a regular I-REC.

Future private sector innovations may confront similar challenges in working with humanitarian organizations and corporations and could learn from EPP's experience of overcoming these.

### CHIC CAN USE THEIR POSITION AND INFLUENCE TO INTRODUCE INNOVATORS TO KEY STAKEHOLDERS.

As discussed above, the humanitarian context can be difficult to penetrate. CHIC used the opportunity of a CHIC donor meeting to introduce EPP to actors who could influence EPP's visibility among UN Agencies. CHIC and innovators should continue seeking opportunities to collaborate with relevant stakeholders within CHIC's network.

### WORKING TO CHANGE PROCESSES WITHIN THE UN REQUIRES INTERNAL CHAMPIONS AND/OR PRE-EXISTING MOMENTUM.

Innovations and innovative projects with UN agencies take significant time, require flexibility and adaptability, and are often dependent on finding champions within the agencies to move the project forward. Progress requires collaboration from multiple different departments, pulled together by committed senior managers. In the case of EPP, they were able to capitalize on the opportunity brought with new management in IOM. For significant change to occur within the UN around green transition specifically, wider internal momentum for a renewable energy transition will be needed. If momentum is low, innovations may need to initially focus on a pipeline of private developers.

## AGREEING ON A COMMUNICATION PLAN WITH ALL STAKEHOLDERS INVOLVED IN THE EARLY STAGES OF THE INNOVATION.

There were often delays of over six months between agreeing and announcing P-REC sales whilst communications plans were developed. The announcement of sales has been important for EPP in the early days of P-RECs as they contribute to awareness of the innovation among potential buyers interested in broader social impact and can build momentum for innovation uptake. This points to the importance of developing clear, mutually agreed communication plans between innovators and buyers alongside other aspects of P-REC development especially in the early stages of the innovation.

## PARTNERSHIPS WITH PRIVATE SECTOR REQUIRES TIME INVESTMENT AND TRUSTED PARTNERSHIPS.

A key contributor to the success of the first P-REC sales was EPP's ability to speak to both private customers and public suppliers, invest time to look for companies that are willing to invest, and play a key role in matching supply and demand partners. Having a trusted facilitator can provide extra reassurance. Due to their pre-existing relationship, 3Degrees was able to de-risk Microsoft's first investment by playing an intermediary role. Transparency among all partners was key, even where they were not contractually a counterparty.

## POLITICAL INSTABILITY CHALLENGES IMPACTED THE PLANNED ROLLOUT OF P-REC PROJECTS.

Outbreaks of conflict and political instability negatively affected the planned rollout of P-REC projects. Several countries where EPP had developed potential P-REC projects -- Chad, Somalia and Myanmar – have been placed on hold. In the case of Myanmar, the renewable energy sector in the country has been paused indefinitely following the February 2021 coup. How this instability affects the corporate appetite for P-REC projects still remains to be seen. EPP's plans for an Aggregation Fund will go some way in mitigating the risks for buyers. Innovators seeking to implement their product in regions affected by conflict will need to build mitigation plans into their business model to minimize the impact of instability on business operations.

#### HIGH TRANSACTION COSTS VIS-Á-VIS THE VALUE OF P-RECS AND THE RESOURCE INTENSIVE NATURE OF THE P-REC APPLICATION PROCESS FOR DEVELOPERS POSE SOME CHALLENGES TO SCALING.

IOM noted that a key challenge for humanitarian actors to take advantage of P-RECs is the high costs involved in the application process compared to the size of revenue they can generate through P-RECs from the solar electrification of their operations: Hubs the size of Malakal that are solar powered are rare. Therefore, in other locations, IOM are considering bundling P-RECs from several sites to make the investment worthwhile. Some developers also noted that the P-REC application process is long and resource intensive, especially in a context where P-RECs are just one of many funding sources. Feedback from EPP suggests that they are working on streamlining the application process.

## CHALLENGES WITHIN EXISTING LEGAL FRAMEWORKS LIMIT CORPORATIONS' ABILITY TO SOURCE RENEWABLE ENERGY IN SOME REGIONS.

Restrictions within the technical criteria for claims of renewable energy in US and European markets inadvertently create restrictions for corporates sourcing renewable energy in a number of regions, including countries where P-RECs are issued. Therefore, there is a need for ongoing advocacy and corporate engagement to shift these criteria and expand how key stakeholders think about renewable energy procurement. EPP is working on a series of thought pieces to help reshape the opinions and attitudes of RE100 decision makers, especially around incorporating more social impact considerations. If CHIC-funded innovators are seeking to influence or change the system directly or introduce a new product that requires legislation, significant efforts will be needed to advocate for policy changes during the proof-of-concept stage.

#### BUYERS ARE MORE INTERESTED IN THE SOCIAL IMPACT THAN ENERGY CREDIT.

Corporations appear to be more motivated by the social impacts of P-RECs than the energy credits they provide. The impact of non-'peace' REC projects they see in America are beneficial for local communities but are less tangible than the impact P-RECs can have in communities with no prior access to electricity (or at least reliable electricity). This potential social impact makes P-RECs potentially more attractive to the buyers. Capturing and communicating the impact stories is therefore critical and can go a long way in attracting funding and potential buyers.

### 4. IMPACT AND VALUE FOR MONEY ASSESSMENT: OVERVIEW AND RATIONALE

#### ASSESSMENT CRITERIA

TripeLine conducted an assessment of EPP's impact and value for money using the three impact criteria outlined in CHIC's logframe. These criteria have been slightly rewritten for the purposes of VfM assessment:

- to clarify that innovation benefits are defined and assessed by the intended beneficiaries and users of the innovation
- to clarify that benefits includes social and environmental benefits
- to take into consideration social and environmental costs
- to ensure a cross-cutting assessment of <u>equity.</u>

The logframe impact criteria have been re-ordered 1,3,2 as this is a more logical sequence for analysis.

#### IMPACT 1: INNOVATION COSTS AND BENEFITS

To what extent has the innovation brought net benefits to conflict-affected people (that is, the benefits experienced by beneficiaries outweigh any costs experienced by either beneficiaries or users) – 'benefits' here meaning benefits that have increased survival or improved lives.

To the extent that the innovation has brought benefits, it is a <u>successful project</u>.

#### IMPACT 3: INNOVATION ADOPTION IN THE HUMANITARIAN SYSTEM

To what extent is the innovation spreading beyond its pilot location and is contributing to product, process or system-level change in the humanitarian system (or is on a pathway towards doing so)?

To the extent that the innovation is both a successful project (Impact 1) and is being adopted more widely (Impact 3), it is a <u>successful innovation</u>.

## IMPACT 2: INCREASING THE EFFICIENCY AND COST-EFFECTIVENESS OF HUMANITARIAN ASSISTANCE

To what extent does (or might) such change increase either the efficiency or cost-effectiveness of humanitarian assistance?

#### INNOVATION VALUE FOR MONEY ASSESSMENT

What were CHIC's initial expectations for the innovation's impact? This is the implicit VfM Benchmark.

The grant was made in the expectation that the innovation would demonstrate an impact (defined by the three impact criteria) as anticipated in EPP's grant application. CHIC was making the claim that if the innovator meets these expectations, this represents good value (= impacts) for money (the grant + technical assistance). [Note that this logic depends on demonstrating that the CHIC grant made a significant contribution to the innovator's achievement of results – this is covered in the Contribution section of the Case Study].

How does each impact measure up to CHIC's expectations? Compared with benchmark, is the impact assessed as sub-optimal, good or very good, taking context into consideration?

The benchmark may be imprecise and circumstances will throw up obstacles and/or enablers to the achievement of impacts, hence this will be a judgement call, supported by reasoned argument.

#### The Value for Money Assessment

The VfM of the innovation is sub-optimal, good, or very good to the extent to which the innovation's overall impact is assessed as sub-optimal, good or very good overall.

#### IMPACT I: INNOVATION COSTS AND BENEFITS

#### LOGFRAME IMPACT 1:

Increased survival and improved lives among the most vulnerable populations affected by humanitarian crises caused by conflict through the implementation of humanitarian innovations.

- What benefits has the innovation brought to conflict-affected people, either directly or indirectly, and were they distributed equitably? Has it brought environmental costs or benefits?
- What costs or downsides have been experienced by users of the innovation?
- Does the innovation deliver a significant net benefit (that is, benefits taking costs into consideration) that increases survival or improves lives of conflict-affected people?

#### ANTICIPATED BENEFITS

#### P-REC-funded renewable energy infrastructure has potential benefits:

1. For conflict-affected people directly - when it provides reliable and affordable electricity from a renewable source to private, public and commercial customers (previously without electricity or dependent on an unreliable, environmentally hazardous or unsustainable source) - through better public services, enhanced night-time security, more commercial activity and domestic benefits.

2. For conflict-affected people indirectly – when it de-risks high-risk energy solutions in conflict zones - such as enabling investment in the electrification, and subsequently, the safety and security, of conflict-affected communities. P-RECs increase finance flows into these communities and catalyze energy investment in energy-poor states.

3. For humanitarian actors such as IOM - when it replaces diesel gensets with renewable energy to power humanitarian hubs and camps - through lower costs, decarbonization of their activities and (where diesel is obtained in a war economy) by reducing commercial transactions with conflict actors.

P-RECs are marketed for their social and environmental benefits in conflict-affected settings and EPP's systems aim to ensure that social benefits are in fact delivered. To this end, at the proposal stage, EPP carries out a social benefit analysis of projects put forward for funding by P-RECs. This was done for the Ndosho streetlights project implemented by Nuru and for the Malakal teaching hospital project implemented by Kube. EPP subsequently does impact verification of commissioned projects.

#### ACTUAL BENEFITS

The assessment of actual benefits is as follows.

I. The actual social benefit for conflict-affected people of the Goma streetlights project was monitored by Nuru internally and by Triple Line externally.<sup>9</sup> The findings are reported in the Nuru case study, which was under development at the time of writing.

Ndosho residents report positive social benefits of the 35 public streetlights. Benefits include increased night-time safety and security, increased commercial activity, as local businesses and vendors can stay open longer into the night, and increased investment as new businesses open.

Streetlights, unlike other products or services that need to be paid for by the end user, provide equitable benefit to the entire community: data sources concur that they contribute to safer streets for everyone, they enable women to work longer hours and feel safer while walking at night.

2. The indirect benefit for conflict-affected people is seen in both the Ndosho and the Malakal projects; in both cases, new finance from corporate Environmental, Social and Governance (ESG) budgets has flowed into projects in conflict-affected communities delivering public benefits. This is discussed below.

3. This benefit has not yet been achieved, but there is a reasonable expectation that it will be, as discussed below.

#### IMPACT 3: INNOVATION ADOPTION IN THE HUMANITARIAN SYSTEM

#### LOGFRAME IMPACT 3:

Contribute to and foster systems change within the humanitarian ecosystem

- What product, process or system-level change in the humanitarian system is the innovation contributing to (or is on a pathway to do so)?
- To what extent has the innovation spread beyond its pilot location and what is the pathway to wider adoption?

What product, process or system-level change in the humanitarian system is the innovation contributing to (or is on a pathway to do so)?

EPP is potentially a system level change of wide application in the following respects:

P-RECs offer a way to source corporate funding (from corporates' ESG budgets) that previously was
not directed to conflict-affected settings. It's new money. Only very few specialized investors will
invest in infrastructure in conflict-affected settings because of the high risks involved; but many large
corporates will buy P-RECs that fund such infrastructure. The funding is additional to humanitarian
actors' budgets.

<sup>9</sup> The Malakal project had not been commissioned when this VFM assessment was being undertaken, so no direct social benefits could be assessed. The Garamba National Park project was not specifically targeted at 'vulnerable populations affected by humanitarian crises caused by conflict' so assessing and validating its benefits were outside the scope of this VFM assessment

• The funding is used to build renewable energy infrastructure in conflict-affected settings where either there was no reliable energy provision (there may have been no provision, or unreliable provision from another provider), or where energy provision was primarily or wholly from fossil fuel sources (such as diesel gensets) which carry high environmental, financial and/or ethical costs (e.g. where diesel is sourced in a war economy such as South Sudan, potentially putting money into the hands of conflict actors).

To what extent has the innovation spread beyond its pilot location and what is the pathway to wider adoption?

For the pilot, Microsoft bought P-RECs which were used to fund the provision of 35 public streetlights in Ndosho, Goma, in DRC. Subsequently, Google bought P-RECs to fund the extension of a grid in Garamba National Park, and Block has purchased P-RECs which will fund renewable energy provision to the Malakal Teaching Hospital, South Sudan. In May 2022, Microsoft announced an additional P-REC purchase from Nuru's solar project in Goma, DRC, which brings the cumulative value of P-REC transactions to over USD \$500,000. In February 2022, EPP reported that they are in discussion with 30 developers in 11 countries and project P-REC to soon pass USD \$800,000 in cumulative value.

It seems that there is an <u>appetite among corporates</u> for ESG products that have a bigger impact than standard RECs. RECs provide credits for renewable energy generation, but P-RECs promise an additional social impact which corporates find attractive; they see bigger impact for their purchase. Microsoft described their P-REC purchase as a contribution to 'climate equity'. As it's a new product, there has been a period of corporate education, but this is said to be bearing fruit as evidenced for example by a corporate roundtable support for EPP's Aggregation Fund. The market for the sale of P-RECs looks to be large and growing.

Identification of renewable energy infrastructure whose energy generation credits can be marketed as P-RECs is facing some constraints. There are two basic kinds of infrastructure and hence <u>two modalities for</u> increased uptake of P-RECs.

The first is to continue to sell the credits from existing renewable energy generators in conflict-affected settings for use in constructing <u>additional infrastructure</u> of benefit to conflict-affected people. Ndosho and Malakal are examples of this modality. In each case, the corporate bought a P-REC linked to the renewable energy already generated by an existing facility. Thus in Malakal, the IOM humanitarian hub's renewable energy facility – which was not financed by P-RECs – provided the energy credits that were ultimately purchased by Block to finance the additional hospital infrastructure in the nearby town. This modality may be used (a) where renewable energy infrastructure is already in place in a conflict affected setting, and (b) where the owners of the infrastructure are willing and able to engage in contractual arrangements for the sale of the renewable energy credits (RECs) from their facility as P-RECs to finance further infrastructure. Both these conditions have proved restrictive:

(a) There is little renewable energy infrastructure in conflict-affected settings generally because of the perceived investment risk, though imaginative infrastructure providers such as Kube (who developed, along with Scatec, the IOM humanitarian hub facility leased to IOM in Malakal) are skilled at making a business case that attracts high-risk investors.

In principle UN humanitarian agencies (UNHCR and IOM) responsible for IDP/refugee camps and humanitarian hubs should be a major source of P-RECs but 'solarization' in UN facilities is still at a very low level: almost all are run on diesel; the Malakal hub is an exception.

(b) The contractual and institutional obstacles encountered in negotiation with IOM for sale of P-RECs from the Malakal hub were noteworthy, casting doubt on the growth trajectory for this modality.

The second modality, picking up on point (a) above, would be the use of P-RECs to <u>finance renewable</u> <u>infrastructure where none currently exists</u> in conflict settings. Two issues arise.

(a) Corporate buyers generally buy P-RECs linked to certified past, rather than prospective, power generation. EPP is developing a financing mechanism – the P-REC Aggregation Fund – to address this timing issue. The Aggregation Fund is intended to provide upfront capital investment to developers of new infrastructure in conflict-affected settings equivalent to approximately 10% of the construction costs, in exchange for ownership of the P-RECs generated by the project over a determined period, typically ten years of commercial operation. The EPP investment thus reduces the amount of (generally high cost because high risk) capital the developer needs to raise commercially. Once the facility is built and generating renewable energy, the P-RECs linked to that energy may be sold and the proceeds used to replenish the fund. It could thus be seen as a bridging facility. Its value lies in its use for capital funding of entirely new renewable infrastructure, rather than add-on infrastructure. The term 'aggregation' refers to aggregation of several projects to spread the risk.<sup>10</sup>

(b) The second issue is a reliable market for the electricity to ensure return on the investment in an acceptable timeframe. As mentioned, commercial investment in conflict-affected settings is seen as high risk, both because of physical security risks to the infrastructure itself, and because conflict-affected people with low purchasing power are not seen as a reliable source of demand and hence revenue. UN humanitarian facilities are in principle a large potential market that gets around these problems: the security concern is met by building the facility within a protected UN compound; and because protracted IDP and refugee displacement has become widespread, energy needs by UNHCR, IOM and other humanitarian actors can be anticipated with some degree of confidence far enough ahead for investors to feel confident in a return. However, UN progress on replacing its diesel gensets with solar has been very slow. Currently, the UN will only build a renewable electricity facility if the price per kWh is less than that of using diesel; there is no environmental consideration. Thus the business case only works where the price of diesel is exceptionally high (as in Malakal). EPP in partnership with other renewable actors is actively lobbying for a faster UN transition to decarbonization of its field operations. Real progress here will depend on a shi are not seen as a reliable source of demand and hence revenue. UN humanitarian facilities are in principle a large potential market that gets around these problems: the security concern is met by building the facility within a protected UN compound; and because protracted IDP and refugee displacement is the norm, energy needs by UNHCR, IOM and other humanitarian actors can be anticipated with some degree of confidence far enough ahead for investors to feel confident in a return. However, UN progress on replacing its diesel gensets with solar has been very slow. Currently, the UN will only build a renewable electricity facility if the price per kWh is less than that of using diesel; there is no environmental consideration. Thus the business case only works where the price of diesel is exceptionally high (as in Malakal). EPP in partnership with other renewable actors is actively lobbying for a faster UN transition to decarbonisation of its field operations. Real progress here will depend on a shift in UN policy.

#### LOGFRAME IMPACT 2:

Maximize value for money by increasing the efficiency and cost-effectiveness of humanitarian assistance

To what extent may (or might) the innovation either:

- Increase the efficiency of humanitarian activities (through, for example, reducing costs of certain common humanitarian outputs), or
- Increase the cost-effectiveness of humanitarian actions (through, for example, improving outcomes (while keeping costs low) from certain common humanitarian interventions)?

P-RECs drive the installation of extra renewable energy capacity, which, in some circumstances, represents an efficiency gain. This is seen in the business case of a UN installation such as Kube/Scatec's Malakal grid, which is strengthened by energy costs per kWh from the solar-generated electricity of the mini-grid being lower than they would be from diesel-generated electricity. As and when UN managers price carbon into the cost of diesel (which at present they don't do), the gain will be seen to be much larger.

There is a clear cost-effectiveness gain to the use of P-RECs: new money is made available to fund new infrastructure to the benefit of conflict-affected people, without drawing on existing humanitarian actors' construction/logistics budgets. There have however been significant transaction (staff time) costs. The private sector and the UN speak different languages and have different compliance frameworks. For the Malakal hospital deal, on the IOM side, this was a novel transaction requiring management flexibility, engagement, and co-ordination across a number of different departments (legal, compliance etc); this was achieved as a result of the commitment and drive from senior management. Difficulties were very fundamental: there was discussion about how to even define the transaction in a way that could be understood by UN and private sector compliance and legal frameworks. However, this has now been done and Malakal provides a model for future UN private sector engagement. Those involved in the deal anticipate that transaction costs for similar deals in the future will be much lower now that they know how to do it.

### INNOVATION VALUE FOR MONEY ASSESSMENT

What were CHIC's expectations for the innovation's impact? This is the implicit VfM Benchmark.

How do the impacts measure up to CHIC's expectations? Compared with benchmark, is the impact achieved rated as sub-optimal, good or very good, taking context into consideration?

VfM Assessment: The innovation is assessed as representing sub-optimal, good, or very good value for money overall.

CHIC's expectations for P-RECs derived initially from the Seed Grant Application but more relevantly from the Proof of Concept Statement developed for the CHIC grant, which is cited below.

#### IMPACT I (INNOVATION COSTS AND BENEFITS)

#### Expectations and Achievement

#### I. DIRECT BENEFIT TO CONFLICT-AFFECTED PEOPLE

CHIC's expectation was that the EPP verification process at the commissioning stage and its social impact monitoring would show that the infrastructure funded by P-RECs did in fact benefit conflict-affected people where implemented.

#### 2. INDIRECT BENEFIT TO CONFLICT-AFFECTED PEOPLE

CHIC's expectation for the Seed funding at the start of the grant was as follows: 'Willingness and demand by corporate clients to purchase P-RECs, as a means to support projects in conflict settings: at least IRE100 company (companies that have made a commitment to go '100% renewable') becomes P-REC anchor client.'

During the CHIC funding period, EPP successfully facilitated two P-REC transactions with corporate clients, Microsoft and Google, surpassing expectations.<sup>11</sup> Soon after the funding period ended, a third P-REC transaction from the IOM – Malakal project was confirmed (which concluded important work carried out during the CHIC funding period to this aim).

#### 3. BENEFIT TO HUMANITARIAN ACTORS

There was no expectation of achievement under this heading at this stage.

Assessment: Very Good (The impact exceeds the expectation.)

#### IMPACT 3 (INNOVATION ADOPTION IN THE HUMANITARIAN SYSTEM)

#### I. HUMANITARIAN SYSTEM CHANGE

#### Expectation and Achievement:

GCC's expectation was that, with CHIC funding, EPP would:

- Build the P-REC architecture
- Develop the P-REC market Adapt and prove the concept by securing P-REC sales

EPP has met those expectations as discussed under Impact 3.1 above, and hence initiated a potential system change of wide application.

#### Assessment: Good

#### 2. ADOPTION

#### Expectation and Achievement

CHIC's expectation as articulated in EPP's proof of concept statement was as follows: 'At least 2 P-RECfinanced renewable energy projects piloted, financed by P-RECs purchased by multiple RE100 companies.' EPP has achieved that result, as discussed under Impact 3.2 above.

#### Assessment: Good

As discussed above, looking ahead, wider adoption of P-RECs will depend to a considerable extent on:

(a) Successful development of the Aggregation Fund (e.g. achievement of its funding target) to provide upfront financing of renewable energy projects in conflict-affected settings; this is seen by one developer as a very welcome additional source of low-cost capital. EPP has a fundraising target of USD \$10.25m from donors, DFIs, impact investors and corporates, which, as discussed above, it hopes will leverage USD \$90m in capital investment across the projects it then invests in. EPP has expressed confidence that the fund will be fully funded.<sup>12</sup>

(b)Willingness of UN agencies to absorb the transaction costs involved in constructing P-REC deals to sell the credits from their own renewable energy usage (to the limited extent that UN agencies use renewable energy). The success of the Malakal model and feedback from IOM suggest this will happen in other locations, though how many is unclear.

(c) A change in UN policy to price in carbon when making the business case for installing new renewables (instead of importing gensets) for their humanitarian hubs and camps. The prospects for this are unknown,

but one well-informed observer took the view that over the next five years the UN will make substantialprogress to decarbonize its operations; as UNHCR alone is currently said to be operating I I,000 diesel gensets, the potential here is considerable. CHIC will explore with its government partners the extent to which they might use their advocacy capabilities to pave the way to better adoption. FCDO (and, to some extent, USAID) have expressed interest in doing what they can, at the various UN forums they engage with, to influence a shift in UN policy to solarize their camps/humanitarian hubs.

The P-REC is a unique instrument. Overall we, and other stakeholders, are optimistic about P-RECs':

- Proven ability to extend renewable energy grids to energy-poor conflict-affected settings, either in the hinterland of UN installations or as additions to urban renewable infrastructure, and its
- Potential to play a role in transitioning UN humanitarian facilities from diesel to renewable energy.

## IMPACT 2 (INCREASING EFFICIENCY AND COST-EFFECTIVENESS OF HUMANITARIAN ASSISTANCE):

#### Expectation and Achievement

There was no explicit VfM expectation at the outset. However, because P-RECs were seen as a source of additional financing for humanitarian assistance at no cost to humanitarian budgets, the implicit expectation was of a cost-effectiveness gain. The transaction costs in fact incurred by IOM to complete the P-REC deal for Malakal hospital showed that there was in fact some pressure on humanitarian budgets, but this is expected to be lower in future deals, as discussed above, because the Malakal deal provides a model of how to construct a deal using wording that works for both the UN and the private sector.

Assessment: Good.

OVERALL P-REC VALUE FOR MONEY ASSESSMENT: GOOD.

### Annex I. Strength of Evidence Assessment Criteria

	STRONG	FAIR	WEAK
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Evidence is coming from multiple data sources or one highly reliable one, and is triangulated with feedback from external stakeholders

Evidence is coming from multiple data source or from one highly reliable data source (e.g. progress report) but could not be triangulated with feedback from external stakeholders

Evidence is mostly from one data source and could not be triangulated with feedback from external stakeholders (i.e. stakeholders other than the innovators of CHIC)

### Annex 2. CHIC Theory of Change



PROBLEM | As the length, frequency, and scope of the world's conflicts increase, it is becoming more difficult to reach affected people in insecure areas with life-saving and life-improving humanitarian assistance. New and scalable solutions are needed that respond to the needs of vulnerable, inaccessible communities through strengthened funding partnerships, while ensuring sustained innovation uptake learning within the broader humanitarian system.

VISION | To save and improve the lives of populations affected by conflict by reducing gaps in humanitarian assistance, while fostering systems change across the humanitarian sector.



### Annex 3. Evidence Sources

LIST OF RESPONDENTS				
Name	Organisation	Position		
Dave Mozersky	Energy Peace Partners	President, Co-Founder		
Katie Retz	Energy Peace Partners	Renewable Energy Finance Director		
Linda Wamune	Energy Peace Partners	Program Director		
Kyle Hamilton	Nuru	Senior Manager of Strategy and Partnerships		
Emma-Lee Knape	World Food Program	Lead, TTS Innovation Support, WFP Innovation Lab		
Eva Mach	International Organisation for Migration	Head of Environmental Sustainability		
Josh Thomson	University of Michigan	Post-graduate student		
Erin Horleman	3Degrees	Product Development Director		
Mathilde Sirbu	Gaia Impact Fund	Investment Officer		
Mads Uhlin Hanson	KUBE Energy	Chief Executive Officer		

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