POWERING PEOPLE AND PLANET

Impact Report 2023

Global Energy Alliance for People and Planet
GEAPP

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Acronyms

AfDB	African Development Bank
BAU	Business as Usual
BESS	Battery Energy Storage Systems
C&I	Commercial & Industrial systems
DART	Demand Aggregation for Renewable Technology
DRC	Democratic Republic of Congo
DRE	Distributed Renewable Energy
DREAM	Distributed Renewable Energy-Agriculture Modalities
EAP	Energizing Agriculture Program
ENTICE	Energy Transitions Innovation Challenge
ETAFA	Energy Transition & Access Facility for Africa
GEAPP	Global Energy Alliance for People and the Planet
GLC	Global Leadership Council
MEL	Monitoring Evaluation and Learning
GT	Gigaton
GW	Gigawatts
IDB	Inter-American Development Bank
IFC	International Finance Corporation
JET-P	Just Energy Transition Partnership
kWh	kilowatt-hours
LMIC	Low- and Middle-Income Country
IEA	International Energy Agency
MEM	Modern Energy Minimum
MSMEs	Micro, small, and medium enterprises
MW	Megawatt
NEP2.0	Ethiopian National Electrification Plan
NIDF	Nigeria Infrastructure Debt Fund
PCC	Presidential Climate Commission
PUE	Productive Uses of Energy
PV	Photo Voltaic
SDG7	Sustainable Development Goal 7
SEFA	Sustainable Energy Fund for Africa
SEforAll	Sustainable Energy for All
SMEs	Small and medium-sized businesses
UEF	Universal Energy Facility
USAID	US Agency for International Development

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Finally, none of this progress outlined in this impact report would be possible without the extraordinary work of the partnerships that make up the Global Energy Alliance. Together, we are redefining possibilities, shaping a future powered by innovation and sustainable energy solutions.

Rose Marie's profits from her business in Roche a Bateau, Haiti have increased five-fold since receiving a freezer | Credit: Nadia Torres

Global Energy Alliance for People and Planet

Together, we are changing energy for good

Foreword

Welcome to our second annual impact report. The Global Energy Alliance for People and Planet (GEAPP) is a bold initiative established at COP26 in 2021 to pioneer new and practical approaches to achieving global green energy transition for everyone. Two years is a short time in energy sector reform. Returns to green investment, whether measured in terms of reduced carbon emissions, new connections to electricity, or green jobs, do not come on stream overnight, but the urgency and scale of the climate crisis demands that we set a high bar for evaluating our impact. Time is a luxury that climate change does not afford us.

With COP28 on the horizon, it is vital that GEAPP Alliance partners, governments, and investors, assess and, above all, learn from our impact to date. This report provides a snapshot of the evidence on our impact, sets out our approach to evaluation, and looks at future priorities. At the heart of GEAPP's approach and our evaluation methodology is a commitment to measuring impact in order to bring about change in the lives of people and countries that risk being left behind in the transition to green energy.

We aim to set out a frank, transparent, and unvarnished account of our work. Our newly designed Impact Dashboard is one of our key accountability mechanisms allowing us to track progress against our targets. It is designed to capture our investments and the real outcomes they generate, measured by indicators for carbon emission reduction, green power generation, new connections to electricity, and job creation, targets and actuals, offering a complete view of our work to date.

This report provides an overview of how GEAPP is closing the renewable energy investment gap. Around two-thirds of the investment needed to meet the Paris Agreement in developing countries must come from private capital markets. The economic case for that investment is well-established. Renewable energy technologies are increasingly cost-competitive, holding out the potential for high social and economic returns and the provision of a global public good in the form of less harmful climate change. Yet private investment has not taken off. The channels from private capital markets to renewable energy investment are marked by bottlenecks linked to real and perceived risks and institutional constraints, including the cost of capital, early-stage project development, government capacity, currency risks, and governance frameworks.

With its distinctive capital resource and unique alliance of partners, GEAPP is well placed to mitigate risks and mobilize both private capital and public investment. As the country impact summaries in this report show, innovative financing and the creation of enabling environments for private capital investment can remove these bottlenecks, an urgent necessity if we are to avoid climate catastrophe and achieve a just transition to a zero-carbon pathway.

We are developing a monitoring, evaluation and learning framework aligned to GEAPP's wider mission. Ultimately, our impact is shaped by the assets we deploy. Those assets encompass our capital, which can be delivered as concessional finance, more commercial investment, or blended finance either directly or through platforms. The Impact Dashboard is designed to capture the outcomes generated by our capital. But GEAPP's assets and approach include wider inputs. As part of our work, our teams provide technical advice to governments on the deployment of green technologies, such as battery storage and mini grids, along with wider support on building governance and regulatory frameworks conducive to green investment. In each of these areas, our evaluation framework must ask a tough counterfactual question: would the wider investments we support have taken place without GEAPP's participation? This report addresses that question.

Our portfolio is concentrated on a small number of countries but our impact in these countries is of wider relevance for the global energy transition. As we highlight in this report, one-third of the world's population lacking access to electricity live in our priority countries which are marked by difficult governance environments, limited resources, and desperately high levels of household poverty. If our alliance can demonstrate the potential for accelerated progress, identify the enablers driving success, and share the learning, it can help support advances elsewhere.

Some of our early results are encouraging. Our direct investments are contributing to reductions in CO2 emissions, new connections to modern energy, and job creation. We are using our capital to leverage wider investments, as evidenced by one example in Nigeria: Across Africa, local currency capital markets represent a large but under-unutilized, source of investment for renewable energy. By providing a $10m guarantee, GEAPP was able to unlock $40m in investment through the Nigeria Infrastructure Debt Fund (NIDF) supported by Nigerian banks. Another investment in Indonesia has leveraged investment from the country's sovereign wealth fund to support the decommissioning of coal-fired power plants. In Latin America and the Caribbean, through our partnership with the Inter-American Development Bank (IDB) GEAPP has leveraged more than $300 million dollars to projects focused on energy access in the region. These investments provide a powerful demonstration effect highlighting the transformative potential of blended finance.

There are important lessons to be drawn from our current portfolio. In the past, our investments have been channelled predominantly through 'platforms', or intermediary investment mechanisms, including multi-country trust funds operating under the auspices of multilateral development banks and financial institutions. Today, around two-thirds of our investments are platform-based, with one-third channelled through direct investment. However, the evaluation evidence points to a strong case for increasing direct investments to build agility and test new business models. In the coming years, our aim is to reverse the current spilt. The DREAM programme in Ethiopia, highlighted in this report, shows clearly what can be achieved through carefully targeted direct investments.

Our achievements to date demonstrate GEAPP's potential to play a role in supporting transformative change. With our distinctive capital base, our focus on a small number of countries, breakthrough technologies, and — above all — our alliance model, we occupy a distinctive niche in the complex ecology of climate finance.

Evaluations provide opportunities to ask tough questions. There is much to celebrate in GEAPP's record to date and our pipeline includes some exciting new projects. However, we must constantly assess our performance against our potential and against the immense challenges involved in making a just climate transition. GEAPP's resources are limited. If our interventions are not addressing systemic issues and accelerating the speed of the transition, if they are not bringing scale and sustainability, then why is GEAPP involved? Our Alliance includes partners with immense experience, deep knowledge, and significant financing capabilities. Are we leveraging the partnership as effectively as we must if we are to drive systemic change? Above all, are we punching above our weight in the global effort to avoid climate catastrophe, reduce the shocking inequalities in access to affordable energy, and put in place the investments needed to protect future generations? This report provides evidence of action and food for thought in relation to these questions.

Oscar A. Garcia
Chief Impact Officer, Global Energy Alliance for People and Planet (GEAPP)

Executive Summary

The Global Energy Alliance for People and Planet (GEAPP) was created to address the defining challenge of our time, the transition to renewable energy. It was born out of a recognition that progress towards the Paris Agreement's net zero goals too slow to meet the net zero ambitions set under the Paris Agreement, and too uneven to meet the urgent needs of emerging economies. Our work focuses on developing countries. As the global energy transition gathers pace, too many of these countries have been left behind. Failure to change this picture will consign the Paris Agreement to failure, deprive developing countries of the affordable energy needed to spur human development and inclusive growth, and leave millions of the world's poorest people without access to electricity. GEAPP's mission, working through our unique partnerships, is to convert these threats into opportunities, unlocking investments in renewable energy and connecting people to affordable, reliable power. This report summarizes our operational approach, our investment priorities, and our impact to date.

The context for GEAPP's operations is a global investment gap in developing countries. Current investment levels for renewable energy in developing countries and emerging markets are running at around one-fifth of those needed to achieve the Paris Agreement goals, according to the IEA and World Bank. Around two-thirds of clean energy finance needs to come from the private sector, implying that the $135 billion in annual private financing for clean energy in developing countries will need to rise to as much as $1.1 trillion a year within the next decade. Barriers to investment include real and perceived risks, especially related to foreign exchange, the small scale of projects, uncertain regulatory environments, and government capacity. The cost of capital for renewable energy projects in Africa is often more than double that in rich countries. GEAPP's remit is to demonstrate that these barriers can be lowered or removed through innovative investment and business models.

We have focused our efforts on seven priority countries that represent a microcosm of wider climate change challenges. They include Indonesia, South Africa and Vietnam working as part of the Just Energy Transition Partnerships established at COP26 to reduce and then eliminate their dependence on coal-based power generation. They also include countries that are home to one-third of the world's population without access to electricity, among them Nigeria and DRC with the largest unconnected populations in Africa; and countries like Haiti that are clear outliers in the LAC region. By demonstrating progress in these environments, GEAPP can play a far wider role in catalyzing change globally.

Distributed Renewable Energy (DRE) and Battery Energy Storage Systems (BESS) figure prominently in our portfolio. Renewable energy technologies are cost-effective and flexible. Yet their uptake has been limited. Our strategy seeks to demonstrate the potential for more rapid diffusion of green technologies, both off-grid and on-grid.

Our current portfolio is still evolving. Current investments amount to $442m. Around two-thirds of that amount is channeled through platforms and

Nuru deployed DRC''s first solar-based mini-grid in Goma, the largest off-grid mini-grid in sub-Saharan Africa } Credit: Moses sawasawa

the remainder through direct investments. GEAPP's resources are small in relation to the financing gaps facing developing countries but, deployed strategically, they can generate strong leverage effects. While most of our capital is deployed in the form of concessional grants, we also support a range of blended finance interventions by providing risk guarantees, equity, and first loss provision.

Global results point to some encouraging early indicators of impact. We estimate that our operations to date have:

Averted 147MT of CO2e emissions

Connected 1.2m people to new or improved energy systems

Created over 600,000 new jobs

Our outcomes are driven by country programs. There are positive signs that GEAPP's investments are helping drive potentially transformative breakthroughs. This report provides a summary of our operations and distinctive contributions across the seven priority countries. Highlights include:

- A global equity stake in Nuru, an innovative DRE provider in the Democratic Republic of Congo. Working with government, GEAPP is now co-convening a wider partnership which is seeking to reach an additional 20 million people with electricity.
- In Nigeria, GEAPP is working to support the development of 10GW of renewable energy by 2030. It provides guarantees for local currency investment into the Nigeria Infrastructure Debt Fund. In addition, a flagship program for pooling procurement has demonstrated that it is possible to dramatically lower prices.
- In Vietnam, GEAPP is partnering with government to implement an ambitious program under the JET-P to accelerate the transition from coal through the integration of BESS into national grid operations.
- In Ethiopia, GEAPP is part of a wider project to expand the provision of solar-powered irrigation to smallholder farmers. Our investments have helped finance the first metro-grid deployed for irrigation purposes.
- In India GEAPP, in collaboration with MAHAPREIT and the utilities of Odisha, has launched a 1,000 MW agriculture solarization program that is expected to benefit 200,000 farmers over the next two to three years. The program aims to adopt renewable energy to improve irrigation infrastructure and enhance agricultural productivity.

These cases are illustrative of GEAPP's impact — but they tell only a partial story. Government capacity and regulatory arrangements often represent a major barrier to private investment. GEAPP is seeking to lower that barrier through technical advice and support to governments. Capturing the impact of our work in this area is intrinsically difficult. However, it is widely recognized that governance reform and capacity development are among the keys needed to unlock private investment at scale.

Looking ahead GEAPP will seek to identify areas in which there is scope for enhanced impact. We will double-down on our investments in DRE and BESS given the huge and largely unrealized potential of both technologies. Demonstrating through practical application the cost-effectiveness of BESS could help build a market of over $100bn. The market for low-carbon mini grids in developing countries could exceed $15bn by 2030. One of the lessons from our operation to date, and from wider evidence, is that linking renewable energy to livelihoods and wider systems can stimulate demand, potentially accelerating uptake. For example, solar-powered irrigation has the potential to enhance the resilience and productivity of smallholder farmers, with the economic benefits rapidly covering the capital costs.

GEAPP by the Numbers

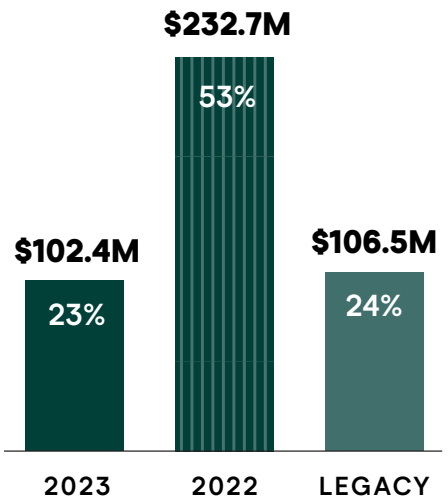
Our 2030 Ambition

4 Gigatons
Of carbon emissions averted

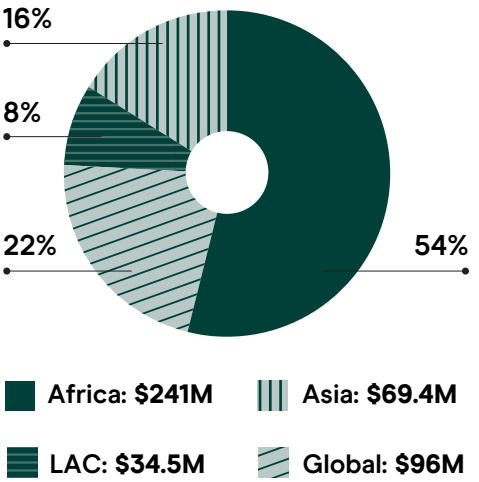
1 Billion
People with new or improved connections

150 Million
Sustainable livelihoods

Awarded Amount by Year



Awarded Amount by Region



Investments to Date*

$442M
Investment to Date

$102M
Investment in 2023

77
Number of Approved Transactions

27
New approved transactions in 2023

*Some transactions approved by GEAPP's Investment Committee may not have been executed yet.

Our Impact[1,2]

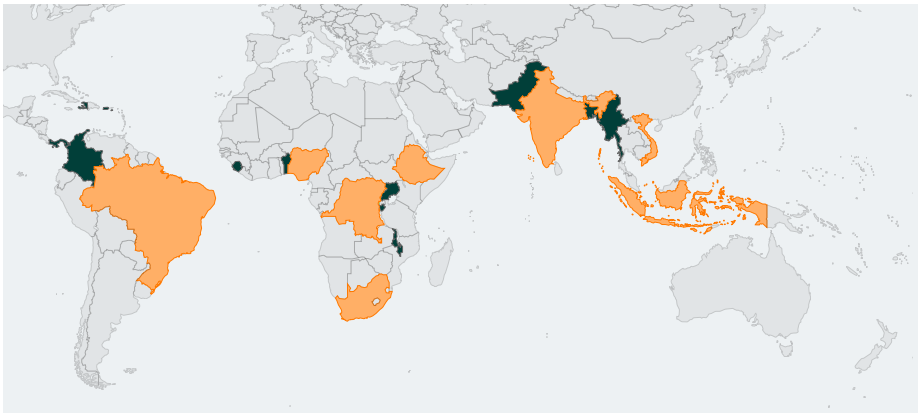
	Cumulative Tons CO2E Reduced or Avoided	Jobs/Livelihoods Supported (FTE)	People/Businesses With New/Improved Access	USD Financial Mobilization (Direct and Indirect)
LONG-TERM INDICATORS	147,000	605,000	1,285,000	$1.07B
TARGETS IN SIGHT	43,300,000	2,175,000	77,300,000	$6.12B

SHORT-TERM INDICATORS

43
Megawatts installed

722
Mini grids deployed

902
Commercial & Industrial solar systems deployed



WE OPERATE IN 20 COUNTRIES

Bangladesh
Benin
Brazil
Burundi
Colombia
DRC
Ethiopia
Haiti
India
Indonesia
Malawi
Myanmar
Nigeria
Pakistan
Panama
Puerto Rico
Sierra Leone
South Africa
Uganda
Vietnam

3
Anchor Partners

27
Country Partners

50+
Collaborating Partners

5
Offices worldwide

105
Staff with 47 new members hired in 2023

65%
Of staff from LMICs

54%
Of staff working in LMICs

Mini-grid site in Shiminkar Community in Nigeria | Credit: GEAPP

1 The global environment — a window of investment opportunity

GEAPP was created to address one of the defining challenges of our time — the global transition to green energy. The large and widening energy divide between developed and developing countries is acting as a global brake on the green transition, stifling progress towards universal energy access, reinforcing disparities, and diminishing efforts to prevent a climate catastrophe. Closing that divide is the world's opportunity to build a more dynamic and resilient economic growth model. This report — our second impact assessment — shows how GEAPP is contributing to that objective through its evolving portfolio.

The decade ahead is *the* window of opportunity for preventing climate catastrophe. Limiting global warming to the 1.5°C threshold set under the Paris Agreement will require a 37 gigaton (GT) reduction in emissions from current levels. Meeting this target needs annual deployment of around 1,000 gigawatts (GWs) of renewable power — more than three times the amount deployed in 2022.[3] Where that power is produced also matters. Continuing our current trajectory will see 75 per cent of global emissions in 2050 originating in developing countries, with rising energy demand fueled by economic growth and population increases. If developing countries are left behind in the green energy transition, simple carbon arithmetic dictates that the world will fail to achieve the Paris Agreement goals. As powerfully reflected in the Final Declaration of the September 2023 Africa Climate Summit, the flip side of that risk is an unrivalled opportunity for cooperation: "Africa possesses both the potential and the ambition to be a vital component of the global solution to climate change."[4]

Investment in renewable energy is trickling down to developing countries far too slowly. Estimates by the International Energy Agency (IEA) and the World Bank's International Finance Corporation (IFC) indicate that investments of between $1.4-1.9 trillion will be needed to meet the rising energy needs of developing countries (excluding China) while achieving the climate goals set out in the Paris Agenda.[5] For context, that represents over five times current investment levels. Around two-thirds of clean energy finance needs to come from the private sector, implying that the $135 billion in annual private financing for clean energy in developing countries will need to rise to as much as $1.1 trillion a year within the next decade. Another $80-100 billion in concessional finance will be needed to unlock private investment in markets where newer technologies have yet to operate at scale. These large financing gaps are the market opportunity that GEAPP was created to seize by working with governments and investors.

Decarbonization must go hand-in-hand with increased and more equitable access. Today,

around 675 million people have no access to electricity. Sustainable Development Goal 7 (SDG7) calls for access to affordable, reliable, and modern energy for all by 2030. Achieving that target purely for connectivity would require 120 million new connections a year, that's four times the projected level for 2023.[6] In sub-Saharan Africa, over 30 countries will need to connect more than 5 per cent of their populations annually.[7] Millions more have limited access. While people in the developed world use over 9,000 kilowatt-hours (kWh) per capita on average, over 3 billion people live in countries where consumption is below the modern energy minimum threshold of 1,000 kWh compatible with sustained human development. In some low-income countries it is less than 50 kWh.

Closing the global energy divide is a condition for a just transition. Despite the energy sector's contribution to a cost-of-living crisis that has hurt so many, populations in rich countries take access to modern electricity in their homes, schools, and hospitals for granted. When homes lack electricity and modern energy sources, children are left to do homework by candlelight, parents must light their homes using expensive batteries, and young girls and women are forced to collect firewood and dung for cooking and heating. Inadequate and unreliable electricity generation leaves businesses without the power sources they need to create jobs and with the costs of purchasing expensive, carbon-intensive diesel generators. Health clinics are unable to store vaccines and schools cannot access devices to enhance learning.

Financing shortfalls are holding back the adoption of green technologies. The technological frontiers of the energy system have fundamentally changed, creating new opportunities for investment. The price of renewable energy provision has plummeted and is now more cost-competitive than fossil fuels. More efficient battery storage systems are set to magnify the cost advantages, for both grid and off-grid power. For countries with large populations lacking electricity, off-grid solar is the most cost-effective and rapidly deployable option available. Yet current investment flows do not reflect the underlying economics.

Perceptions of risk, scale, the governance environment, and other barriers to investment are all hindering the green transition. So too are capital costs. The IEA estimates that capital for renewable energy projects in Africa costs 2-3 times as much as in rich countries and China. One consequence is that sub-Saharan Africa, with one-fifth of the world's population and some of its most abundant renewable energy resources, attracts less than 2 per cent of global renewable investment.[8] Today, the Netherlands produces more solar power than sub-Saharan Africa, which has some 60 per cent of the world's solar potential. The perverse economics at play are reflected in Africa's large and growing market for diesel generators, which produce high cost, carbon-intensive, and highly polluting power. Annual spending on generator fuel alone amounts to $50bn, without adding import and servicing costs.[9]

Global events act as a brake on green transition — but there are opportunities to restore momentum. GEAPP's operating environment is inevitably shaped by the wider economic environment. The Covid-19 pandemic slowed the pace of progress towards universal energy, as the disruption of supply-chains and rising poverty took their toll. Over the past two years, a slowdown in projected economic growth in developing countries, inflationary pressure, rising real interest rates, and debt problems have all contributed to a more difficult investment environment. Set against surging energy prices for fossil fuels, concerns over energy security, and the devastating impact of climate-related events, the case for urgent action to accelerate green energy transition is even stronger. This is also reflected in efforts to mobilize new finance through the multilateral development banking system, with an emphasis on leveraging private capital markets through risk guarantees and other forms of blended finance.

Our unique partnership, distinctive resources and approach can provide powerful demonstration effects. GEAPP is collaborating with over 50 country governments and communities, as well as technology, policy and regulation, development finance, and private sector partners to drive transformational action and achieve our ambitious goals. Each of our

Alliance members has a distinctive expertise and experience. What they share is a recognition that current investment markets are not driving change at the speed and scale required — and a concern that many of the world's poorest countries are being left behind. Moreover, the Alliance is permanently growing and evolving- contributing to the building of a movement.

The interface between capital and technology is one of GEAPP's distinctive competences and comparative advantages. Our ambition is to accelerate the uptake of renewable energy technologies, with a strong focus on equity and efficiency. Two technologies figure prominently in our portfolio: DRE and BESS. We see these as 'scalable solutions' for our priority countries given their demonstrated potential for delivering results.

GEAPP's impact depends on catalytic capital AND catalytic partnerships. GEAPP's resources are modest in relation to the financing requirements of the countries where we work. But used judiciously to support innovation and risk-sharing between public and private investors, our capital can drive change. Harnessed to an effective partnership model, GEAPP can punch far above its weight. Project development within countries already draws heavily on our Alliance assets. Examples include our work with the World Bank on distributed energy in Nigeria and the development of joint projects in Indonesia and Vietnam with the Asian Development Bank (ADB), and the work with the IDB that has allowed GEAPP to rapidly and effectively operationalize the work in region and in countries like Haiti, El Salvador, Bolivia, Colombia, Panama, among others.

Early evidence brings cautious optimism, coupled with a need for sustained ambition. While we are still in our early days, the evidence already points to a potential for systemic change, even in the most difficult operating environments, and the need for new approaches. Institutions have long addressed the symptoms of the renewable energy investment deficit in developing countries, rather than the cause. Funding individual flagship projects does not automatically drive transformation, as witnessed by the under-investment in green energy, the failure of multilateral and public finance to leverage private capital, and the narrowing window of opportunity for achieving the Paris Agreement targets. Global and national markets are currently failing to provide the investments needed to avert climate catastrophe and secure a just transition.

Abubaka Umar, owns a commercial charging booth powered by a solar mini-grid in Shiminkar Community, Nigeria | Credit: GEAPP

2

Our approach, priorities, and the investment portfolio

Village in Myanmar powered by a solar mini-grid | Credit: Smart Power Myanmar

The bar for GEAPP's ambition is set high to address the urgency of the climate crisis and the need to accelerate progress towards universal energy access. Our direct aim is to avert 4GT of CO_2e by 2030 through GEAPP investments and interventions put in place by 2030, while improving access to affordable and reliable energy for 1 billion people. A third target is supporting the development of 150 million new jobs in low-income and middle-income countries (LMICs). Beyond these immediate goals, one of GEAPP's core institutional objectives is to catalyze and support systemic change through demonstration effects, evidence, and the development of innovative business models.

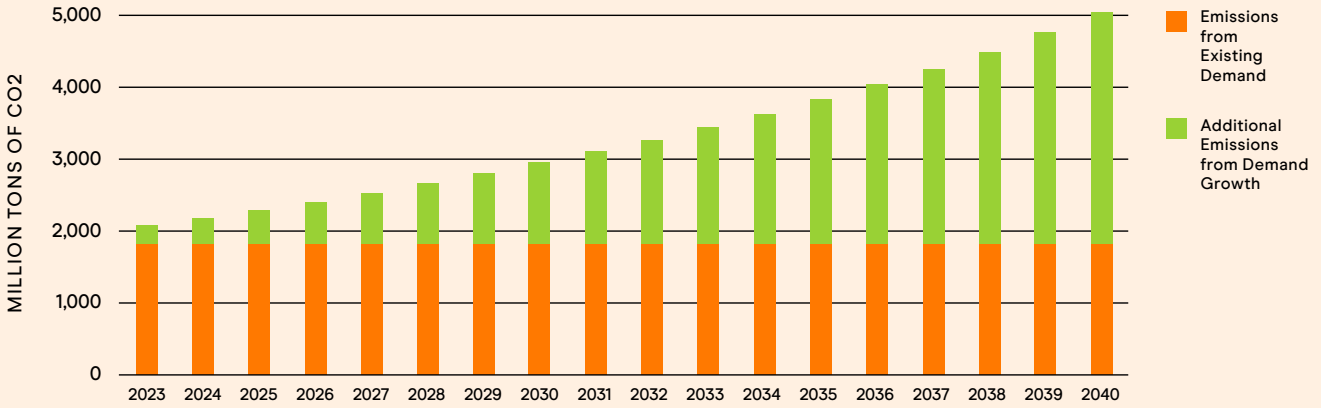
Tightening our focus — our priority countries

Our focus on results prioritizes seven 'must-win' countries. Separately, each of these countries faces immense challenges related to the just transition and decarbonization of energy systems. Taken collectively, breakthroughs across the seven countries will create a demonstration effect that aggregates to a sum far greater than the individual parts. Beyond the significant benefits within countries, this will show that systemic change at the pace and scale required by the Paris Agenda is feasible. The countries are: DRC, Ethiopia, India, Indonesia, Nigeria, South Africa, and Vietnam. In September 2023 GEAPP's board approved the inclusion of Brazil to the list of priority countries and we look forward to establishing that partnership.

The challenge and opportunity presented by our priority countries constitutes an 'addressable market' with investment opportunities for carbon mitigation and connectivity.

- ***Carbon mitigation.*** There is an 'addressable market' of 37GT by 2040 across the seven countries (dominated by the major emerging markets of India, Indonesia, South Africa, and Vietnam). That market represents the 'business as usual' trajectory,[10] which, considering the potential electricity demand growth, as countries move closer to MEM in 2040, will likely see yearly emissions for the seven countries rise from 2GT today to 5GT by 2030. GEAPP's target is to reduce these 'business as usual' emissions by around 10 per cent, or 4GT, illustrating the need to create multiplier effects.
- ***Access to electricity.*** Around one-third of the world's population lacking access to modern electricity, including the top three countries worldwide ranked by numbers of people, live in our seven priority countries. On current trends, none of these three is on a pathway for achieving the SDG goal ensuring access to affordable, reliable, sustainable and modern energy for all by 2030.

FIGURE 1: Potential Power Generation CO2 Emissions of GEAPP Priority Countries



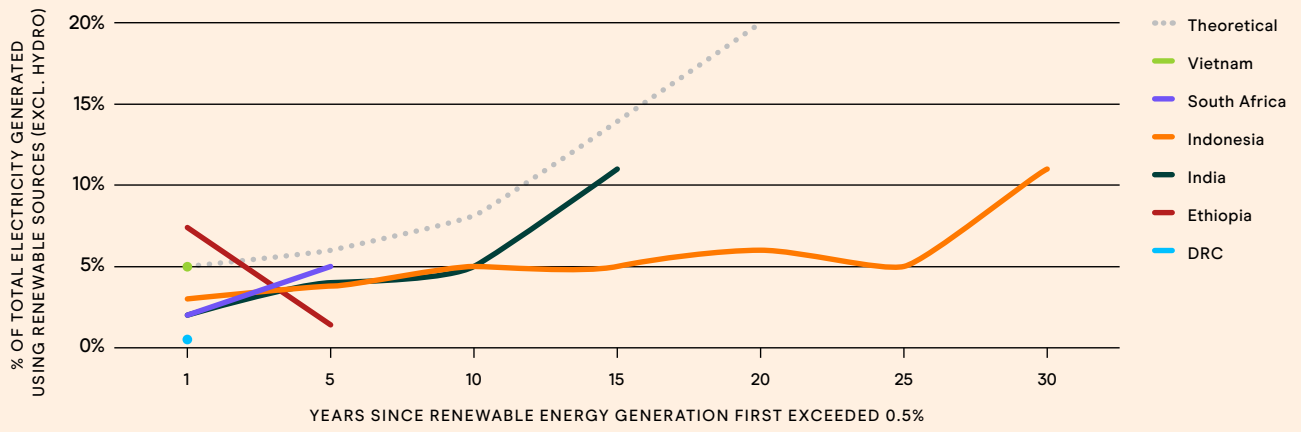
Considered collectively, GEAPP's focus countries, represent an estimated addressable market in new connections of around 450 million by 2030.[11]

Viewed from an investment perspective, 'business as usual' trajectories represent under-served markets with the potential for win-win outcomes. Current technologies have the potential to connect people to green power sources, cutting the energy costs of some of the world's poorest people, reducing pressure on the environment, and reducing future CO2 emissions. Accelerating the green energy transition in coal-dependent emerging markets can prevent carbon lock-in while providing people and firms with more reliable and cheaper energy. For firms currently grappling with the high-cost, unreliable energy distributed through utilities reliant on coal, the green transition represents an opportunity for investment and job creation.

GEAPP's business model for renewable energy can be illustrated by the 'S' curve. The 'S' curve provides a figurative representation of the time taken for technological innovations to achieve wide distribution. Having a long tail — the lower end of the 'S' curve — captures a slow pace of take-up, while a short tail transitioning to an upward curve represents a rapid take-up. The 'S' curve can be thought of as a series of stages moving from initial adoption, through

Solar panels being installed as part of the Community Energy Resilience Initiative in Puerto Rico | Credit: RMI

FIGURE 2: Renewable energy production in GEAPP priority countries



the emergence of a market characterized by rising demand and more widespread dispersion, to a surge in investment, and a subsequent levelling off.

The transition to renewable energy technologies in our seven priority countries is characterized by long tails, with the significant, if partial, exception of India. While renewable energy technologies are available and being adopted rapidly in richer countries and a small number of emerging markets, most developing countries — especially LMICs — are stuck on a long tail at the bottom of the 'S' curve. This applies to our priority countries, as illustrated in **FIGURE 4**. The barriers to entry vary across countries, but investment shortfalls, the governance environment, and difficulties in engineering energy transitions, are common themes. As different countries will require different interventions to reach tipping points and accelerate their path towards a renewable energy transition, GEAPP's focus is on market shaping.

Technologies for green energy transformation

GEAPP's distinctive approach focuses on technologies and business models with a demonstrated potential to drive transformative results. As highlighted by many governments, civil society organizations, and GEAPP's partners, a transition that is not equitable and inclusive will not be a genuine transition. Our catalytic investment will focus on three areas: ***DRE***, ***BESS*** and wider ***pilot programs*** demonstrating speed and scale effects.

Distributed Renewable Energy — beyond the grid

Distributed energy has the potential to provide clean, affordable, power to people, and to small-and-medium enterprises, accelerating progress along the 'S' curve. DRE[12] has the potential to connect some 500 million people by 2030, while reducing carbon emissions by 1.2GT and creating 2 million jobs. It could also increase the reliability and affordability of power for many more households and firms, potentially displacing diesel-powered generators. The IEA's Net Zero Emissions Pathway suggests that off grid solutions represent the most economic route to connectivity for around half the world's unconnected population by 2030.

GEAPP is developing a specialization in mini grid power systems that use a renewable energy source (usually solar PV) a storage system (BESS), and a power distribution network (power lines) to meet the needs of closely located customers. We estimate that by 2030 there will be an annual $15 billion revenue opportunity for low carbon mini grids in LMICs.

Our aim is to deploy 2GW of DRE in six strategic markets and indirectly construct 15GW of mini grid infrastructure through investment partnerships. Complementing traditional grids, mini grids can be deployed faster, provide cheaper power, underpin more resilient energy systems, and cut carbon emissions. The sector has the potential for rapid growth with conditions in place for take-off. We aim to reach that tipping point through demonstration projects, technical support, and a rapid learning platform.

Battery Energy Storage Systems — overcoming intermittent green energy flows

Battery energy storage systems can generate powerful renewable power multiplier effects in existing grids, and through off-grid provision. While renewable energy is efficient it is also intermittent. It is conditioned by the timing of sunshine and wind power. Rapid advances in BESS now make it possible to accumulate, hold, and dispatch solar and other green energy sources to optimize grid output. LMICs have a wealth of renewable energy sources, but their lack of storage systems means this abundance ebbs away. BESS help integrate renewable energy to the grid, offering the best solution for many of these countries. Current projections suggest that less than 10 per cent of new global BESS capacity will be added in LMICs by 2030. BESS are not yet realizing their potential due to a lack of regulation and insufficient proof points of their benefits to accelerate an uptake of renewable energy. GEAPP aims to change this picture through demonstration effects and engagement with governments.

Sudhir Dhokne works at the Babhulgaon power station in Maharashtra, India | Credit: GEAPP

Our Alliance work is crucial to advance the energy transition. GEAPP's Global Leadership Council (GLC) brings together a broad set of leaders to effect collective action on a more ambitious and inclusive global renewable energy agenda. To this end, the GLC is establishing the BESS Consortium, a multi-stakeholder partnership set up to galvanize the transformation of energy systems in Africa, Asia, Latin America, and the Caribbean via expanded deployment of battery energy storage. With this high-level coordination, the Consortium will seek to secure 5GW of BESS commitments by the end of 2024 and mobilize more than $4 billion to accelerate project deployment.

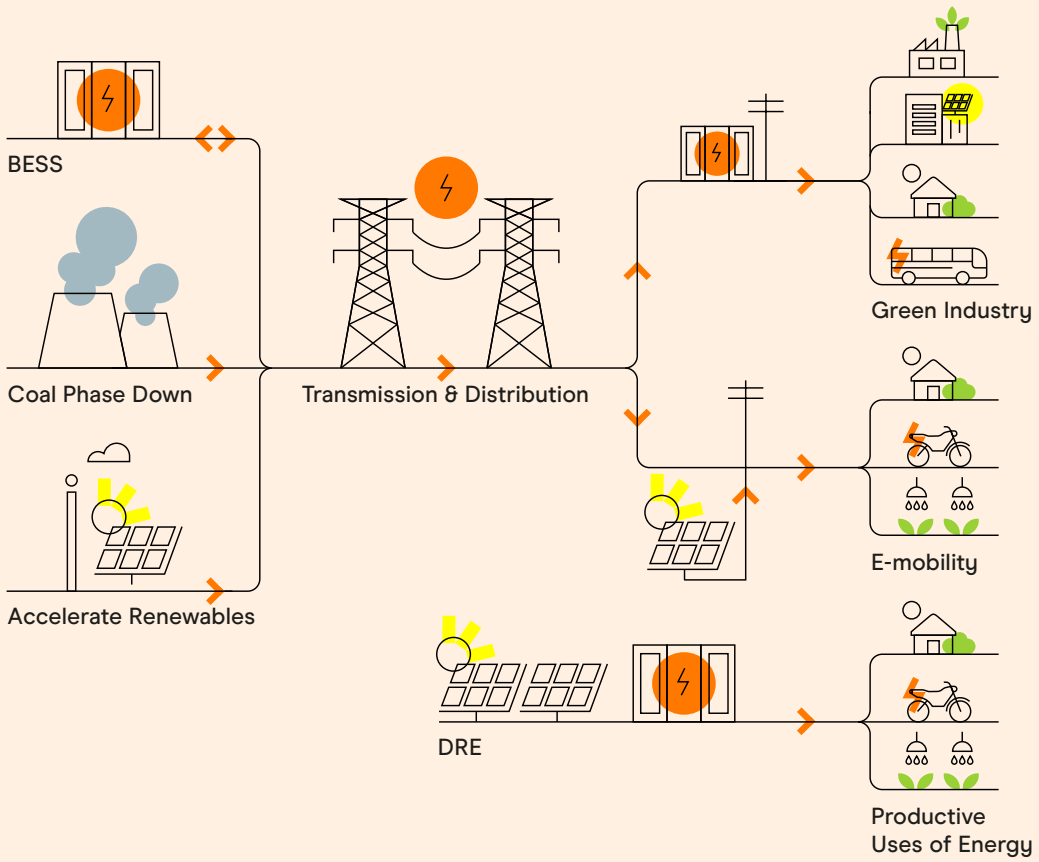
Pilot programs — demonstrating delivery at scale

Pilot programs can help governments and the sector identify accelerated pathways for the green transition. GEAPP's approach is grounded in engagement with governments. Across our seven countries, governments have adopted green transition strategies linked to Paris Agreement climate goals. Our pilot programs are designed to develop and test scalable solutions in six areas: utility scale renewables, fossil fuel decommissioning, transmission and distribution, green industrialization, e-mobility, and energy efficiency.

Our investment model and portfolio — catalyzing finance, shaping markets, and enabling government action

GEAPP's financial resources are limited in relation to current renewable energy financing gaps, but significant as a vehicle for driving change. The impact of our investments hinges critically on the creation of multiplier effects, whether by demonstrating change, unlocking wider investments, or facilitating entrepreneurial activity. IEA scenarios suggest that around two-thirds of the $1.1 trillion investment in renewable energy needed in developing

FIGURE 3: Renewable energy landscape and GEAPP sectors for scalable solutions



countries by 2030 must come from the private sector.[13] One of our core aims is to identify investment models with the potential to leverage private capital. However, successful investment in the green transition is about more than linking finance to technology. Governments and their development partners have a critical role to play in creating an enabling environment for successful investment. The regulatory environment can lower (or raise) the costs of green technologies, incentivize (or deter) private investment, and strengthen (or weaken) equity in energy markets. Our investments of money and time reflect the critical importance of leveraging wider finance and creating an enabling environment. Broadly, GEAPP seeks to deliver impact through three mutually reinforcing vehicles:

- **Catalytic capital** provided through platforms and direct investments. The former are singular, independent entities or vehicles that aggregate capital to develop and/or invest in multiple projects and businesses based on a specific mandate. They can help meet the relatively large minimum capital requirements demanded by major investors. Direct investments are associated with higher-risk business models and technologies of substantive size (over $2 million) in areas currently constrained by limited or unaffordable finance. GEAPP provides concessional capital, guarantees, and viability assistance grants to unlock projects, mobilize funds, and support transactions to attract crowding in of additional capital. Our current portfolio is split roughly one-third and two-thirds respectively between platform and private investments.
- **Market-shaping activities that help lower barriers to investment.** These activities range from supporting entrepreneurs to develop green energy

FIGURE 4: Sum of investments by strategic lever (total of $442m)

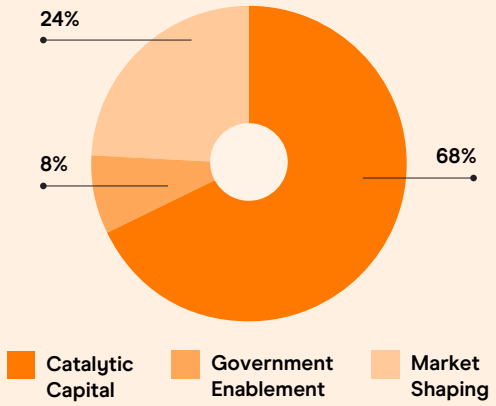


FIGURE 5: Investments by financial instrument

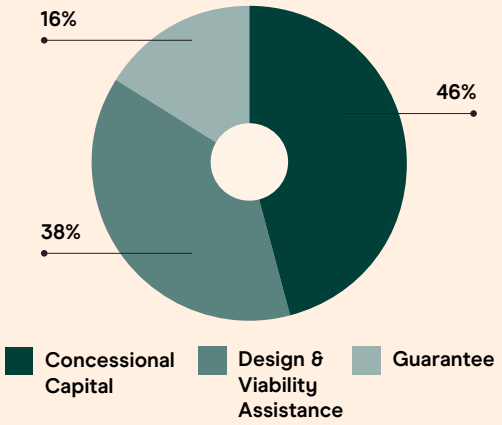
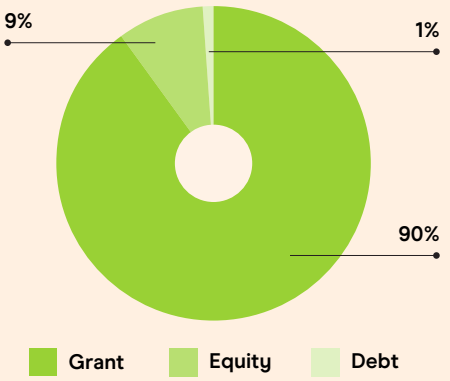


FIGURE 6: Concessional capital breakdown by funding request type (total of $205m)



transition plans backed by affordable finance, to helping establish pipelines of bankable projects. The change we seek will almost always require pilot projects, successful companies that overcome first mover disadvantages, track record and proof points that reduce perceived or actual risk for others, and project pipelines that can attract new market entrants or justify new investment. GEAPP works closely with the private sector in identifying barriers to investment, analyzing opportunities, and mobilizing finance. In the health sector, market-shaping has helped transform access to affordable vaccines through initiatives like the Global Fund and GAVI. While energy markets are very different, they too need to be shaped in a direction that serves people and planet.

- **Enabling and empowering governments.** GEAPP has placed great emphasis on the development of trusted relationships with governments. In many cases, efforts to implement green energy transition programs are constrained by the limited capacity of government agencies, the complexities of project development, and the fragmented nature of financing streams. GEAPP works upstream to develop capacity and help create a policy environment conducive to renewable energy investments by both public and private sector actors.

GEAPP's portfolio of approved transactions has evolved rapidly over the past two years. ANNEX 1 provides a detailed breakdown of legacy portfolio and current investments, broken down by country, regions, and type of investment activity. Around two-thirds of our $442m portfolio is linked to platform investments, with the remainder provided as direct investment. Platform investments have facilitated GEAPP's strategic growth, through rapid portfolio expansion while leveraging economies of scale, providing fertile ground for organizational learning. However, looking ahead there are grounds for shifting the balance towards direct investments, exploiting GEAPP's potential for agile and flexible responses to investment opportunities.

FIGURES 4-6 provide a summary snapshot of our investment and activities. Catalytic capital represents

around 65% of our current portfolio, reflecting GEAPP's focus on leveraging wider investment (**FIGURE 4**). Market shaping accounts for another one-quarter of the portfolio, with 'enabling governments' representing 8 per cent. The distinctive financial instruments deployed by GEAPP are captured in **FIGURES 5** and **6**. Concessional capital, mainly in the form of grants, remains our largest investment, partly because it plays a critical role in unlocking wider investments in countries struggling with affordable finance. In some cases, GEAPP has taken equity stakes to catalyze wider investment — a notable example being our investment in Nuru, in the DRC (see below). Our emphasis on the development of bankable projects is reflected in the weight attached to 'design and viability'. Guarantees occupy a smaller role. However, there is a growing recognition across the climate finance community that well designed risk guarantees can produce strong leveraging effects.

Platform investments create opportunities to support region-wide renewable energy initiatives, as illustrated by GEAPP's operations in Southeast Asia. During the Spring Meetings of the World Bank in April 2023, GEAPP announced a contribution of $35m in catalytic capital for a new capital fund to accelerate uptake of clean energy across South and Southeast Asia, covering India, Indonesia, Vietnam, Pakistan, and Bangladesh. Administered by the ADB, the fund will support priority programs such as BESS in Vietnam and the early retirement of coal-fired power plants in Indonesia. Investments will be supported through technical assistance, grant components for investment projects, and blended concessional instruments to crowd-in additional capital. During COP 27 in 2022, GEAPP announced a contribution of $35m to the African Development Bank's (AfDB) Sustainable Energy Fund for Africa (SEFA) to accelerate the energy transition in priority Africa countries and the countries of the Desert to Power initiative. In December of 2021, GEAPP announced a contribution of $25m in catalytic capital for the creation of a Trust Fund to accelerate energy access the energy transition in Latin America and the Caribbean. The Trust Fund is administered by the IDB and up to date

Christophe Magendo is a manager at Yme Jibu, a water filtering station in Goma, DRC powered bu Nuru metrogrids | Credit: Moses sawasawa

supports 13 projects across de region.

Our investment profile reflects the 'scalable solutions' we are making on breakthrough technologies. Distributed renewable energy accounts for around two-thirds of our investment and utility scale provision for another one-fifth. In both areas BESS has a key role to play in accelerating energy transitions. For example, in India GEAPP's pipeline includes financing for a major program linking battery storage to off-grid solar, while in Vietnam we are working in partnership to promote the uptake of battery storage for grid-based power.

Since we have set the ambition to build a $5 billion portfolio, we are consistently refining our strategy, drawing from insights gained from past investments. For the years 2023-24, our investment pipeline amounts to $261 million spread across 20 countries and 250 million spread accross Africa, Asia and Latin America and the Caribbean. This not only demonstrates our growing geographical reach but also highlights a strategic pivot towards more integrated approaches.

3

Measuring our impact — from national to global

Family reads story at night with power provided by a solar mini-grid in Sumatra, Indonesia | Credit: IKEA Foundation

The real measure of GEAPP's performance is delivery on the ground and improvements in people's lives. Our strategy sets out our goals and an associated theory of change. Accountability to our partners, governments, and communities demands that we report on progress towards those goals, and on the setbacks and lessons learned. Our approach to evaluation is designed to reflect the multiple channels through which GEAPP seeks to drive change, which range from direct investment to market shaping, and capacity-building. In this section, we provide an overview of our evaluation framework. We then summarize GEAPP's delivery against the global benchmarks set out in our strategy, before turning to the country-level projects and programs that drive our results.

Evaluating and learning

Sound monitoring, evaluation, and learning (MEL) occupies a critical place in GEAPP's priorities. It holds the key to capturing and strengthening our impact where it counts, namely, in the lives of people, especially underserved communities and the energy systems they rely on. It underpins our accountability for results. Our MEL toolkit encompasses:

- Quantitative and qualitative data sources on energy, finance, and investment outcomes, including detailed country heat-maps with high-level **key performance indicators** measuring outcomes across short- to longer-term time horizons on CO2 emissions, energy access, jobs, and financial mobilization. We also create **investment-specific priority indicators**.
- Indicators designed to inform public policies and investment decisions, including evidence from investment projects with the potential to spread best-practices.
- Partnership models which draw on insights and practices across GEAPP members.

Our MEL system is informed by our impact targets. **FIGURE 7** provides a picture of how GEAPP is working to translate its global goals into strategies for investment, market shaping, and capacity building — and into the country-level operations that will determine outcomes. Ours is a bottom-up strategy for delivering on ambitious global goals. For evaluation purposes, our impact is defined by outcome indicators which track the transformative impacts we are contributing to. Thoughtful targets serve as the basis for discussions with our Alliance partners on engagement and what else is needed to deliver our collective ambition.

When determining investment-level impact targets, GEAPP conducts due diligence reviews to validate methodologies already used by implementing

partners or where necessary, produces its own ex-ante impact projection tools using an independent MEL partner. We prioritize collaboration and rigorous methodological review in the target-setting process, understanding that we are one of many actors in the sector and that a 'one size fits all' approach will not always work. We seek to reduce burdens on partners by using existing internationally agreed indicators, methods and data processes where possible.

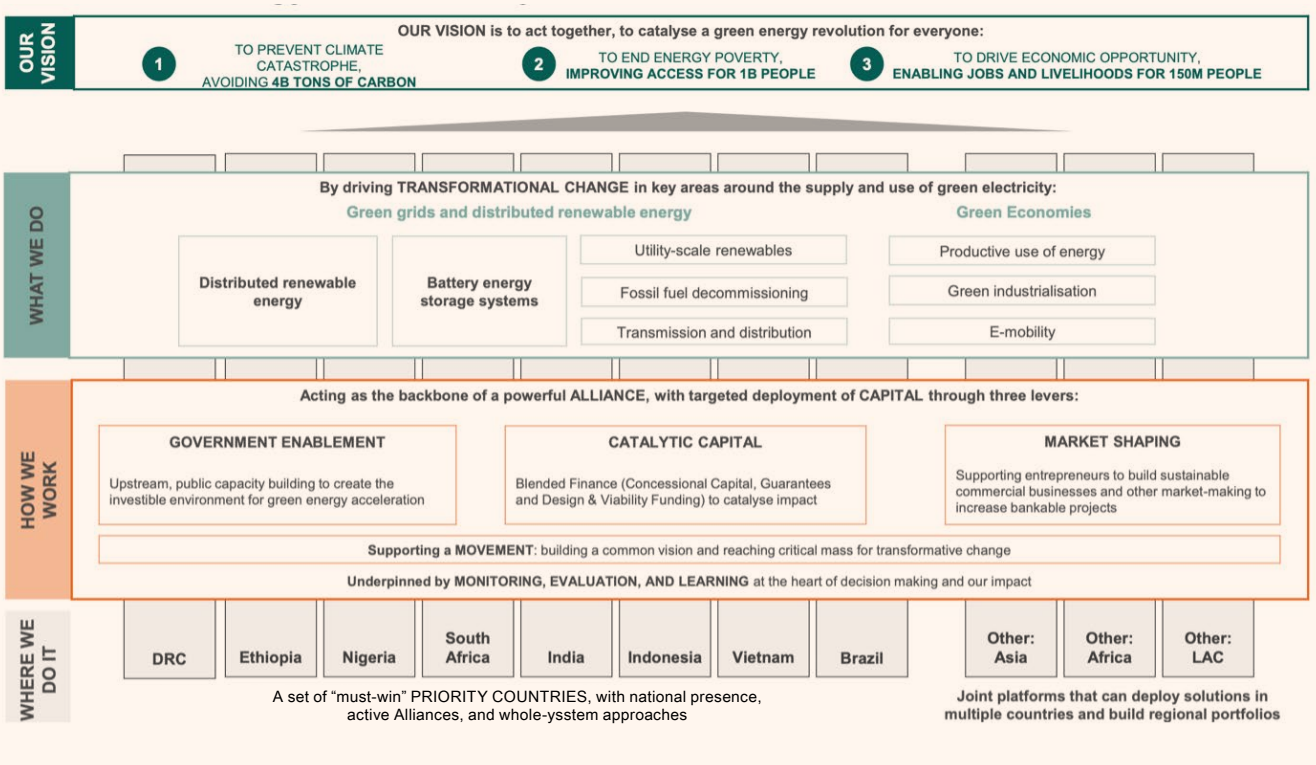
Rigorous evaluation is the bedrock for effective learning. Recognizing that a willingness to take balanced risk is a condition for achieving GEAPP's goals, our evaluation approach seeks to share lessons from failure. Recognizing the complexity of the markets driving the energy transition, and the vast experience of many actors, we approach evaluation with a mix of humility and intellectual curiosity – using existing evidence to inform our strategy and filling evidence gaps with the knowledge we gain. In short, MEL helps us document our impact, identify which areas of our investment and wider activities are delivering results, share our evidence, and learn from our failures.

Global results — cutting carbon, connecting people, creating jobs

Investments in green energy generate social and economic returns over a variable, but typically lengthy, time horizon. In terms of GEAPP's portfolio, the relevant time-horizon is conditioned by the type of investment involved. For example, investments in mini grids have the potential to generate outcomes earlier than, say, support for the decommissioning of coal-fired power. Our strategy seeks to combine the early impacts that are vital to avoiding carbon lock-in and to improving access, along with investment in wider energy sector reform.

GEAPP's Impact Dashboard provides a mechanism for tracking our direct and indirect impacts through project and platform reporting. The Impact Dashboard enables us to track delivery in

FIGURE 7: GEAPP'S Theory of Change



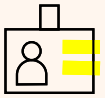
real time against our core strategic targets. For the reporting period up to Q2, 2023, we estimate our results as follows:

- **Cutting CO2 emissions.** Because the impact of our investments is cumulative across the lifecycle of projects, the early carbon mitigation impacts are modest but rising. We estimate reductions to date at 147,000 tons, rising to nearly 44 million across the life cycle of current projects.[14]
- **Connecting people.** Our investments have facilitated new and/or improved connections for 1.3m people across nine countries.[15] This is a first step towards our global target of 83 million new or improved connections. GEAPP's indicators align with the World Bank multi-tier framework, placing more emphasis on Tier 1 or higher with respects to Quality, Reliability and Affordability[16] as the most relevant indicators of improved access in areas where universal coverage is reached or almost reached.
- **Creating jobs.** GEAPP-supported projects have contributed to the creation of around 604,000 new jobs in the energy sector against a global target of 2.1 million.[17] This estimate is based on a formula spanning direct job creation through renewable energy investments,[18] employment created from more efficient energy provided through those investments, improved livelihoods linked to GEAPP-funded renewable energy provision, and jobs created through transitions away from fossil fuels.

Investment is the primary vehicle through which GEAPP drives change. Our resources have the greatest impact when they are catalytic and generate multiplier effects, triggering public and private investment that may not have occurred without GEAPP support. Our global aim is to use our resources to mobilize $6.1bn of new investment. We estimate that current mobilization stands at around $1.07bn — a 'leveraging rate' of around 2.4 against our investment portfolio. The development of our blended finance strategy could achieve a direct mobilization

FIGURE 8: Carbon Access, Jobs and Mobilization Impact

147,000
Cumulative Ton CO2E
Reduced or Avoided



605,000
Jobs/Livelihoods Supported
(FTE)

1,285,000
People/Businesses
With New/Improved Access

$1.07B
USD Financial Mobilization
Direct and Indirect

FIGURE 9: RE Solutions and Generation Results

RE Solutions

722
Mini-Grids
Deployed

902
C & I Systems
Deployed

RE Generation

43.17 MW
Renewable Energy
Capacity Installed

Snapshot from GEAPP's impact dashboard.

rate of 5:1 and an indirect mobilization rate of 10:1 by 2025. These are the type of leveraging ratios that are commensurate with the investment challenges and opportunities GEAPP was created to address.

Our 'scalable solution' technology investments are delivering results. Investment in DRE and BESS has led to demonstrated impacts, including the establishment of more than 43MW of renewable energy generation capacity, instalment of over 900 Commercial & Industrial systems, and the world's largest portfolio of mini grids. We currently have 722 mini grid investments, providing important opportunities for learning and sharing evidence on business models.

Country programs — driving change through demonstrated results

GEAPP's theory of change is built on country-level delivery and global systemic change. Our project investments in countries must deliver real results for people at the sharp end of the energy crisis — and for the planet. They are intrinsically important but will not drive global change alone. Our projects are therefore designed to generate demonstration effects and supply the evidence needed to achieve systemic transformation of energy systems. This section illustrates our wider theory of change, highlighting country-level interventions that couple delivery on the ground with business models offering a route to systemic change.

Marie Solange has doubled the profits of her small bar in Les Anglais, Haiti since receiving a freezer | Credit: Nadia Torres

Democratic Republic of the Congo (DRC)

In DRC, GEAPP has demonstrated the power of its alliance model to support the development of a nationally-owned renewable energy strategy — and it has used its investment to unlock innovation and finance from the private sector.

About 75 million people in DRC live without access to electricity (78% of the population) the second largest number in the world after Nigeria (see below). DRC's national power grid serves only around one quarter of the country's 2.4 million square kilometers, with less than seven thousand kilometers of transmission lines (6975km). The country has a massive potential for renewable energy development, including more than 70GW of solar energy potential. The DRC government has ambitious plans to rapidly scale renewable energy access, creating ripe opportunities for aligned support by international financial institutions and other partners to expand energy access.

In collaboration with the DRC Government, GEAPP is convening an Alliance of key partners to help realize the country's renewable potential. Alliance partners came together to agree on a joint effort to electrify 100 urban and suburban areas based on mapping of renewable energy access potential across the nation (funded in 2022 by the International Finance Corporation – IFC). This will provide 20 million more people with power, increasing DRC's energy access by 10 per cent by 2040. In collaboration with Power Africa, GEAPP convened Alliance and other partners to develop a collective roadmap integrating each partner's goals and capacity. Subsequent engagement with the DRC Government resulted in the formation of a secretariat to support on-going partner coordination and alignment, to provide technical assistance and capacity building to DRC government institutions, and to establish a shared financing platform to invest in partner project pipelines.

CONTEXT: 75+ million people without access to electricity and very limited national grid with growing population and rising demand.

OPPORTUNITY: Support national government ambition to harness vast solar and hydro energy potential to accelerate energy access.

SECTOR: Distributed renewable energy; Develop green economy through expanding productive use of energy by SMEs.

STRATEGY: Accelerate deployment of 100 private-sector-led urban and peri-urban solar metro grids by 2040.

GEAPP'S DISTINCTIVE CONTRIBUTION: An $8 million equity investment in Nuru, a metro grid developer that builds and operates hybrid metro grids consisting of PV panels, battery storage, and back-up diesel generation. The investment has helped Nuru raise $60m to expand its portfolio, including generation of 3.7MW in Goma, 2MW in Kindu and 8MW in Bunia. Expected outcomes include generation of 13.7MW of renewable energy, serving over 20,000 households (equivalent to 120,000+ people) and small- and medium-sized enterprises. Anticipated carbon dioxide equivalent (CO_2e) reductions are over 15,000 tons of carbon dioxide equivalent (tCO_2e) per year.

GEAPP 2030 TARGETS:

6.2MT	78,000	1.4m	$1.1b
GHG emissions reduction	Jobs	New energy access	Capital mobilization

The DRC Government and Alliance partners see a major opportunity to activate the private sector to develop solar and hydropower resources in DRC. In particular, GEAPP and the Alliance hope to apply blended finance approaches to expand solar and hydro-powered metro grids, which are well-suited to provide communities with access to reliable energy supplies where expanding the national grid may be cost prohibitive. GEAPP and the Alliance have complemented this catalytic investment by providing demand-side technical assistance to help small and medium-sized businesses (SMEs) access and productively use metro grid power.

By investing in Nuru, an early developer operating in the DRC, a market that most investors perceive as highly risky, GEAPP is enabling the company to continue proving and scaling its metro grid approach, thereby accelerating access to clean, affordable and reliable electricity in the DRC and creating a blueprint for other emerging developers and economies to follow.

With this funding secured, Nuru launched projects in Goma, Kindu, and Bunia in eastern DRC. The Bunia site will become the largest off-grid solar hybrid metro grid in sub-Saharan Africa with 8MW. These projects will allow Nuru to expand renewable energy capacity by 13.7MW peak and support annual energy consumption of 22.4 million kWh, enough power to support the needs of about 120,000 people.

By taking on the financial risk, GEAPP gave Nuru a chance to get the market moving and prove that these kinds of investments, often seen as too risky by financial institutions, can be highly profitable, sustainable, and transform local economies. GEAPP and its Alliance partners believe that Nuru will serve as a compelling model and help to attract financing for $1 billion in DRC metro grid projects planned by Alliance partners and GEAPP.

Oliver Madirisha, Nurus's Distribution Network supervisor oversees solar and hydro integration project in Goma, DRC | Credit: Moses sawasawa

Impact Case Study: Nuru

"We have already connected more than 2,600 customers who are spread across the Nyiragongo territory and also the city of Goma," Nuru distribution network supervisor Olivier Madirisha reported in September 2023.

Access to reliable, affordable solar power is reshaping life in Goma, from the first streetlights that are reducing street crimes after nightfall to the local cinema that no longer uses five litres of gasoline per night to run its projectors. Yme Jibu, a local water service provider, has expanded its plant since moving off fossil fuel-powered generators. "With this large station, we are able to supply 87,000 people with potable water," said Christophe Magando, the company's commercial manager.

"Not only is there access to electricity, stable and quality electricity, we have reduced by a large percentage the destruction of our planet," said Daniel Sangara, a Nuru manager.

Nigeria

Nigeria is the most populous country in Africa. It is also a fossil fuel superpower, with a domestic energy sector dominated by carbon-based fuels. Through strategic partnerships and investments, GEAPP is supporting efforts to connect the world's largest unconnected population and support a transition to renewable energy.

Nigeria has the world's largest population without access to electricity — over 80 million people. As the largest economy in Africa, it's mainly powered by diesel and gasoline generators, which provide more than 12 times the 4GW capacity of Nigeria's main grid. With a dynamic private sector, Nigeria provides a unique test case to drive and scale new models for market-driven distributed renewable energy.

GEAPP is working in Nigeria to scale DRE to replace fossil fuels and curb carbon emissions nationwide, as well as increase supply and access to energy. GEAPP is supporting Nigeria via eight committed investments and two at pipeline stage, with a combined value of $52m. The aim is to deploy 10GW of renewable energy by 2030.

One of GEAPP's flagship investments in Nigeria is the Demand Aggregation for Renewable Technology (DART) program. DART aims to accelerate the growth of the renewable energy sector in Nigeria and beyond by combining demand pooling and aggregated purchasing of solar equipment, access to affordable finance, and coordinated logistics processes to unlock economies of scale for solar companies and achieve cost savings for end users. The $20 million Nigeria DART pilot effectively led to a cost reduction of 5 per cent for solar panels, 23 per cent for BESS and of 29 per cent for single phase smart meters on average.

CONTEXT: World's largest unelectrified population (86 million people); Africa's largest economy primarily driven by diesel generators (estimated 40-60GW installed capacity, compared to 4GW available grid capacity).

OPPORTUNITY: Highly active private sector, unique for its scale and the opportunity to test and drive new models for market driven DREs.

SECTOR: Distributed renewable energy (DRE), Productive use of energy (PUE).

STRATEGY: Improve business models and accelerate capital flows. Rapidly scale DREs to improve access and replace fossil fuels, underpinning national energy transition goals.

GEAPP'S DISTINCTIVE CONTRIBUTION: In collaboration with Nigerian investment firm, Chapel Hill Denham, GEAPP has established a new local currency subordinated debt vehicle: the Energy Transition & Access Facility for Africa (ETAFA). ETAFA is an innovative financing initiative, which will enable the deployment of $50m to support DRE projects in Nigeria. GEAPP will contribute an initial US$10m, which will in turn mobilize an additional US$40m from the Chapel Hill Denham Nigeria Infrastructure Debt Fund.

GEAPP 2030 TARGETS:

8.5MT
GHG emissions reduction

17,600
Jobs

1.1m
New energy access

$0.5b
Capital mobilization

DART has designed and piloted a construction finance facility that enables developers to build more, faster. It has also designed a forward procurement facility, to cut lead times for developers.

GEAPP and Sustainable Energy for All (SeforAll) have partnered through the Universal Energy Facility (UEF), which offers results-based grants to facilitate the switch to solar and other renewable power. In Lagos, Solad Integrated Power Solutions has used funding from UEF to install solar panels on the roofs of the Ayangburen Market which provide energy to the shops below.

Solad's installation of solar panels, which contain lithium battery technology, provides demonstrable results — longer workdays for sellers, larger inventories to support those additional transactions, and lower energy costs. "When I don't have lights here... I close around five o'clock," said fashion designer Akinsanya Zainab. "But right now, with this solar, I almost spend all my day here." With the switch to Solad's power, she plans to buy an industrial sewing machine to boost productivity.

Across all the DRE, green grid, and green economy sectors, GEAPP's early work in Nigeria is estimated to have contributed to the creation of around 3,400 jobs.

As part of its work to add catalytic capital in Nigeria, GEAPP partnered with Chapel Hill Denham, a Nigerian financial institution, to design and implement local currency financing for DRE solution developers through the Energy Transition and Access Facility project. Naira-denominated debt and equity improves the viability of the projects compared to funding in a foreign currency. GEAPP unlocked a further $40 million from the Nigerian Infrastructure Development Fund in the ETAFA project. Through this investment, GEAPP is setting up a structure to mobilize local currency investment in DRE, with the aim of establishing proof points to scale and bringing in other capital providers.

Yakubu Hadiza is a grain farmer who now uses a solar powered grinder for her business in Lafia Kpada, Nigeria | Credit: BBC Storyworks

Impact Case Study: Nigeria DART

One village to benefit from DART's funding facility is Lafia Kpada, an agricultural village without grid access located in north central Nigeria. Through DART, the energy supplier Prado Power built and now operates a solar-powered mini grid through the village. "As we bring power to these communities, we power the agriculture and then we are able to power the nation," said Terkuma Ivande, a Prado Power engineer.

The village has also benefited from the Energizing Agriculture Program (EAP), a joint effort with the Rocky Mountain Institute and the national Rural Electrification Agency. GEAPP's $5 million investment enables agriculture value chains to transition to green electricity when affordable, reliable, and sustainable mini grids come online. This has benefited consumers like farmer Hadiza Yakubu, who has replaced her mill grinder gasoline engine with an electric one, thereby saving on fuel costs.

"Getting this electric machine, it brought me a lot — more than I expected," said Yakubu, who struggled to start the 15-year-old gasoline engine and never liked the noise. "The solar energy eased my life a lot."

Ethiopia

Nearly half of Ethiopia's 120m population lack reliable access to energy, the third highest number globally. The economy is dominated by agriculture, which accounts for one-third of GDP and 70% of jobs. Food insecurity, linked to drought, poverty, and climate change is widespread. As in other countries across sub-Saharan Africa, dependence on increasingly uncertain rainfall patterns is a major concern. GEAPP is working to support the government's ambitious efforts to accelerate a green energy transition. A project using DRE to power small-scale rural irrigation has the potential for transformative effects for smallholder farmers in Ethiopia and beyond.

In 2020, the Ethiopian government opened the country's energy sector, which had been wholly state-owned, to private investment. The government has also lowered subsidies on diesel, creating incentives for investment in renewable energy sources.

GEAPP is supporting Ethiopia via six committed investments and seven at scoping or pipeline stage, with a combined value of $37.61m. In line with GEAPP's strategic goals, the Alliance is supporting the Ethiopian government and private sector to deploy investment capital in two priority areas aligned with GEAPP strategic goals:

1. **DRE:** supporting the Ethiopian National Electrification Plan (NEP2.0) to increase energy access in rural and urban areas, via the scale up of 300 mini grid sites, including diesel replacement for 30,000 smallholder farmers.
2. **Productive Use of Energy (PUE):** promote affordable and reliable irrigation by displacing 500 diesel pumps saving 20,750 MTCO2e per year.

CONTEXT: Widespread lack of access to reliable energy on top of over 55 million without any access an agriculture sector reliant on fossil fuels, government removing subsidies and opening the energy sector to private investment.

OPPORTUNITY: Support national government to develop a productive renewable energy sector in support of Ethiopian smallholder farms.

SECTOR: Distributed Renewable Energy (DRE). Productive use of energy (PUE), Agricultural value chains and irrigation.

STRATEGY: Scale up mini grid sites, via irrigation-based productive use in support of a commercially viable DRE sector.

GEAPP'S DISTINCTIVE CONTRIBUTION: The Partnership launched its flagship Distributed Renewable Energy-Agriculture Modalities (DREAM) project in 2022. This will facilitate the implementation and private sector operation of nine renewable energy mini grids and irrigation systems across Ethiopia. There are seven active DREAM projects in our portfolio, with $10.6M disbursed to date.with $10.6M disbursed to date.

GEAPP 2030 TARGETS:

2MT	16,000	.015m	$0.27b
GHG emissions reduction	Jobs	New energy access	Capital mobilization

GEAPP's support to Ethiopia under the DRE and PUE priorities comes in the form of the Distributed Renewable Energy Agricultural Modalities (DREAM) investment. DREAM is the first private-sector-led initiative aimed at improving irrigation for small farmers, who historically have used diesel generators to power pumps to irrigate their crops. The recent lifting of fuel subsidies left three out of four farmers, who run small farms and typically earn about $2 a day, unable to afford irrigation.

To address this issue, DREAM is delivering nine pilot projects in government-supported Agricultural Commercialization Clusters that are currently without affordable and reliable irrigation. The initiative will deploy solar mini grids that replace 500 diesel pumps and provide year-round power for wells, pumps, and distribution systems. The initiative has ambitious targets to displace up to 200,000 tons of greenhouse gas emissions by 2030, deliver new or improved electricity access to over 290,000 people, and improve over 60,000 jobs. Projections show the investment may support crop yields increases of between 50 and 250%.

DREAM's target of 200 mini grids providing water across 2 million hectares of farmland by 2030 would become the largest mini grid-powered irrigation system in Africa. AfDB-SEFA, a co-financer, has committed $8.1m to the delivery of pilots.

The irrigation-first approach to DRE contrasts with how utility companies historically have approached agricultural uses. But DREAM is not exclusively about farming. The mini grids will generate enough electricity to power telecommunications, medical facilities, schools, and homes. Spreading demand for power in this way reduces the risk for developers and investors. The 200 planned mini grids will provide new or better access for 290,000 people.

Community members wait hours in line for water in Murche, Ethiopia | Credit: Capital Media

Impact Case Study: Ethiopia DREAM

In Murche, the third-largest DREAM mini grid will power 14 water pumps as well as support 300 households, five shops, four religious centers and a mill. "The queue for water starts at 3am and goes through 2pm. Most of the day is spent getting drinking water for families," one resident told GEAPP and government officials who visited the town recently. "The access is in two shifts as there is not water for everyone."

"If there is access to electricity, there will be new business opportunities," a local owner said. "Water access will mean increased productivity of lands. Electricity means longer hours for production, higher productivity and higher profits."

India

Two years ago, the Indian government committed to net zero emissions by 2070, starting with drawing half of its electricity from renewable sources by 2030. Despite relatively low renewable energy costs, fossil fuels dominate energy consumption, and only 12 percent of India's energy currently comes from renewables.[19] Increasing energy supply reliability — rather than access — is the key challenge facing India; innovation and experimentation will be required to meet it.

GEAPP has moved faster and farther in India than in any other priority country, with nine committed investments and eight at scoping or pipeline stage, with a combined value of $31.89m. The Alliance is working with the Indian government and private sector to deploy investment capital in three priority areas aligned with GEAPP strategic goals:

Accelerating the growth of the Indian mini DRE sector, building a 10GW solar energy market for rural MSMEs and irrigation; Creating markets for distribution level BESS, enabling Indian distribution utilities to implement smart metering and infrastructure enhancements; and enabling financing for electric vehicles to support the conversion of India's commercial and private vehicle fleet.

To date, GEAPP investments in India have reduced or avoided 102,389 cumulative tons CO2e; provided 831,096 people/businesses with new or improved energy access, supported 597,475 jobs and livelihoods and (directly & indirectly) mobilized $128m in additional financing. Below we provide further examples of the impact GEAPP is delivering

CONTEXT: Fossil fuels dominate energy consumption (including for the transport sector), renewables make up 3% of the energy mix, end use consumption of electricity stands at 18%. Ensuring reliability of energy supply is the key challenge facing India.

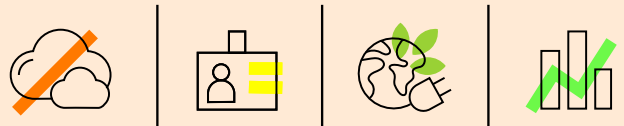
OPPORTUNITY: Help Indian national and state governments to increase RE capacity to 500GW by 2030, create and scale up markets for battery storage, and electrify a large proportion of commercial and private vehicles.

SECTOR: Distributed renewable energy (DRE); battery energy storage system; e-mobility.

STRATEGY: Enable transformational change via scale up of renewable solutions in India through demand aggregation and availability of finance through risk reduction.

GEAPP'S DISTINCTIVE CONTRIBUTION: Deploying capital for development of India's mini grid sector, BESS, and e mobility. This includes a pioneering $20m pipeline project under which GEAPP will provide 70% of capital as concessional debt (not commercially available from DFIs or banks due to high-risk and quantum), with a private sector strategic investor providing the remainder. Following successful execution, a scale-up is planned which would involve 5 or more projects aggregated at platform level. Significant support from DFIs is anticipated, alongside private sector equity capital.

GEAPP 2030 TARGETS:



44MT	41,000	2.7m	$5b
GHG emissions reduction	Jobs	New energy access	Capital mobilization

in India across its priority areas. The Alliance has also put efforts into the development of a common agenda between its members, in November 2023 it hosted the first Energy Transition Dialogues in Delhi, where it managed to gather it's partners around a joint **communiqué** that establishes priorities to decarbonize the Indian economy.

Distributed Renewable Energy (DRE)

Nearly 98 million people in India can benefit from new and improved renewable energy connections (through grid and DRE solutions) by 2030. GEAPP is targeting rural areas that lack DRE to scale mini grids and rooftop solar to serve agriculture and micro, small, and medium enterprises (MSMEs). Projects in the states of Bihar, Odisha, and Uttar Pradesh will generate 1GW within three years, serving 20,00 farmers and 40,000 businesses.

In the state of Maharashtra, the Alliance has partnered with the government-owned utility MAHAPRIET to launch 500MW of rooftop solar and 500MW of ground-mounted, decentralized solar installation. When completed in the next two years, the projects will benefit 100,000 farmers and reduce carbon emissions by 400 thousand tons a year.

Battery Energy Storage Systems (BESS)

India expects to increase renewable energy by 250 percent by 2030, which will challenge the existing grid. The Alliance has partnered with the state-owned utility in a pilot to create 40Mwh of battery storage to address the stress on electrical distribution. The Alliance also provides policy guidance to the state of Delhi, helps utilities train employees, and offers concessional funding to projects that satisfy regulators that they can become viable businesses. The aim is to create a pathway to 1GW in battery storage by 2026 that would garner additional Alliance assistance.

To support both DRE and BESS innovations in scaling, GEAPP created a program called **Energy Transitions Innovation Challenge (ENTICE)**. Start-ups in renewable energy, battery storage, or energy distribution present plans to a seven-person panel. The top 5 visionaries of the competition will be provided an access point to Series A funding, market linkages and mentorship.

Moreover, GEAPP is supporting a first-of-its-kind 20MW/40MWH project in New Delhi that attracted bids from some of the largest private developers in the country. The project will be India's first commercial BESS project for a distribution utility, enabling them to integrate more renewables in their energy mix. GEAPP's catalytic capital blended with commercial capital helped discover a record-breaking tariff in line with mature western markets. The project is expected to go live in 2024.

Rooftop solar has empowered businesses in Uttar Pradesh, increasing efficiency and profits while decreasing air pollution | Credit: Smart Power India

Impact Case Study: India DRE

Renu Patel, who runs a grain mill in Uttar Pradesh, has adopted the solar technology supported by GEAPP to grow her business. Since installing rooftop solar panels, her mill processes double the volume of wheat compared to when it used diesel-powered generators.

"There is a visible difference in our earnings," she said. Diesel is no longer a cost, "so a lot of money is saved from that for the household." She and her husband are using the extra profit on their children's education, and her customers' costs have dropped by around 25 percent.

Support to Just Energy Transition Partnerships — South Africa, Indonesia, and Vietnam

Three country programs are directly linked to the Just Energy Transition Partnerships (JET-Ps), which emerged out of the COP process. Successful implementation of the JET-Ps would provide a powerful demonstration effect, shifting the fast-rising energy demands of emerging markets from coal and other fossil fuels to renewable energy. However, success will be demonstrated by new investment and new business models. Over 70% of anticipated financing will need to come from private sector sources. GEAPP programs in South Africa, Indonesia, and Vietnam are intended to support the ambitions of governments as they implement the JET-Ps.

All three countries rely heavily on coal-fired power plants to generate electricity and suffer from frequent load shedding (power outages) in some areas despite widespread energy access. Indonesia and Vietnam have the third- and sixth-highest electricity sector emissions respectively among LMICs, and South Africa is the 14th largest global emitter of carbon dioxide, with more than 40 percent of emissions coming from its coal-fueled electricity generation. GEAPP has engaged as a trusted partner with the national governments in South Africa, Indonesia, and Vietnam, as well as with the donor countries and multilateral institutions that have pledged financing. Capacity building has been essential to enabling national secretariats and key ministries to oversee JET-Ps from origination to execution.

By working across countries, GEAPP has encouraged knowledge sharing and networking among the three countries. For example, South African officials have been able to pool their early lessons and insights with officials supporting more recent JET-P efforts in Indonesia and Vietnam. The Alliance also has funded demonstration projects that respond to the local needs described in each country's JET-P investment plans. The Alliance also has funded demonstration projects that respond to the local needs described in each country's JET-P investment plans. It is critical that GEAPP is positioned to support the efforts of governments in JETP countries to accelerate the energy transition.

Children in India study by solar mini grid powered light | Credit: Smart Power India

South Africa

South Africa is Africa's largest source of CO2 emissions, reflecting the history of reliance on its abundant coal resources. Power utilities are marked by high levels of inefficiency, creating a potential for renewable energy investments. GEAPP is working with government actors and the private sector to realize that potential.

With a national unemployment rate topping 32%, the Alliance has a major focus on creating jobs through the green energy transition. The Alliance funds South Africa's Presidential Climate Commission (PCC), a coalition that includes the private sector, government, local communities, and organized labor. The PCC not only champions the energy transition, it ensures people are included in the move to renewable energy. GEAPP has funded, with the PCC, an analysis of job creation opportunities in a greener economy, including retraining workers displaced from coal sector jobs and creating new jobs in renewable energy industries.

GEAPP is supporting development of a new facility in Komati on the site of an aging coal-fired power plant, which closed in 2022, that will retrain plant workers to operate the renewable energy plant that will replace it, powered with 150MW of solar, 70MW of wind and 150MW of storage batteries. This investment represents an important effort to mitigate the impacts of lost jobs and livelihoods in local communities from the transition to renewable energy through reskilling and new job creation in the green energy sector. The Komati experience provides an invaluable learning laboratory as the Alliance supports the Government of South Africa to address the economic and employment impacts associated with retiring other coal assets across the country. Insights from this work will be invaluable to inform how the Alliance can help countries navigate these challenging transitions.

CONTEXT: At COP26, international partners committed an initial 2023-2027 US$8.5 billion investment in South Africa's JET-P.

OPPORTUNITY: Support the Government of South Africa with JET-P implementation to realize its 2030 goals and 2050 net-zero commitment.

SECTOR: Greening the grid through transmission and distribution infrastructure for RE; focus job creation in the transition to a green economy.

STRATEGY: Enable a job-positive ~50 GW of new installed renewable energy capacity by 2030, ending load shedding and growing the economy. Contribute to unlocking ~$70 billion to support JET-P implementation (including ~$20 billion from international financial institutions).

GEAPP'S DISTINCTIVE CONTRIBUTION: Investing in renewable energy training facility (Komati Training Facility) has been launched at Komati power plant to provide training and skills development for job creation as part of the coal decommissioning process.

GEAPP 2030 TARGETS:

16.9MT	26,000	0.26m	$0.8b
GHG emissions reduction	Jobs	New energy access	Capital mobilization

Komati power station in Mpumalanga, South Africa is being repurposed from coal to solar | Credit: GEAPP

Indonesia[20]

Strong interest from the government, the Indonesian Sovereign Wealth Fund, and Alliance partners such as the ADB has accelerated efforts to phase out coal-based power generation and develop utility-scale renewable energy. Launched in November 2022, Indonesia's JET-P support could reconfigure the country's energy system by accelerating the phase out of coal, with solar PV capacity climbing from 0.17 GW to between 170-210 GW.[21] Through a $36 million investment by the Alliance, the Cirebon-1 coal-fired power plant is targeted to be retired seven years early (reducing carbon emissions by 28 metric tons) with 200 workers being trained for new jobs.

The Alliance has also supported the creation of Coal to Clean Credits, carbon credits that can be used to pay for the early retirement of other coal-fired plants; the Monetary Authority of Singapore has a strong interest in facilitating the credit purchases. Creative approaches to scaling investment in renewable energy are critical in Indonesia. To meet growing energy demand and replace existing coal power, Indonesia will need to radically transform its power mix to a combination of renewables by 2050, to include 170 MW of solar PV and between 12-21 GW nuclear power.[22]

CONTEXT: Ambitious JET-P targets set in November 2022 to increase renewable energy to comprise at least 44% of Indonesia's power generation by 2030 and to cap power sector CO2 emissions in 2030 at 250MT (down from 305MT 2030 baseline).

OPPORTUNITY: Support the Government of Indonesia with JET-P implementation to realize its 2030 goals and 2050 net-zero commitment.

SECTOR: Greening the grid through accelerated deployment of renewable energy and coal power plant decommissioning.

STRATEGY: Accelerate deployment of 1 GW of Renewables; Support Indonesia's ambitions to decommission 4.8 GW of coal fired power plants; mobilize $3.8 bn from partners and the private sector towards scaled RE deployment and early coal retirement.

GEAPP'S DISTINCTIVE CONTRIBUTION: This includes a first-of-its-kind investment focused the early retirement of coal fired power plants in Indonesia. The model will be scaled through a platform approach, with additional private sector capital to support early retirement of coal in Indonesia. GEAPP's initial investment of around $5m is being leveraged by significant funding from Indonesia's sovereign wealth fund and development bank.

GEAPP 2030 TARGETS:

70MT	2,700	$3.8b
GHG emissions reduction	Jobs	Capital mobilization

Solar mini grids have transformed communities and businesses in Sumatra, Indonesia | Credit: IKEA Foundation

Vietnam[23]

Vietnam is already a regional leader in the use of renewable energy, with installed capacity of 21GW. Yet it still faces shortages due to limited transmission infrastructure and poor integration of renewables into the national power grid. Vietnam's JET-P envisages an increase in the share of renewables in the national grid from 36 percent to 47 percent by 2030, with a commitment to phase out coal by 2040.

To achieve these goals, Vietnam will have to pivot the bulk of power generation to wind and solar — a move that will take investment in enabling infrastructure, including battery storage.[24] GEAPP has provided technical assistance and catalytic capital to enable the country to step past fossil fuel dependence and develop its renewable energy sources. Alliance partners are also providing technical and capacity building support to Vietnam's new JET-P ministry and to help create the country's first gender, climate, and energy transition initiative to embed gender equality into JET-P programs and projects.

A key element of GEAPP's work in Vietnam, along with our partner collaborators at the US Agency for International Development (USAID), the (ADB, and Rocky Mountain Institute, is to ensure that BESS are an integral part of the new power development plan and JET-P. BESS is a pivotal technology to enable intermittent renewable energy sources such as solar PV and wind to provide smooth, reliable power when the sun is not shining, and the wind is not blowing. BESS is expected to support frequency control and regulation, energy shifting, and other services. The Alliance and the ADB are leading efforts to implement the nation's first grid-connected BESS pilot of 50MW/50MWh by Viet Nam Electricity (EVN) and to use the expertise and resources of its members—at the invitation of the Deputy Prime Minister—to help create a BESS growth roadmap and regulatory framework to support deployment 300MW of BESS capacity. BESS is vital to enabling the Government of Vietnam to meet its JET-P aspirations to achieve 47% renewable energy mix by 2030.[25]

CONTEXT: Ambitious JET-P targets set in December 2022 to increase renewable energy to comprise at least 47% of Vietnam's power generation by 2030 and to limit coal capacity to 30 GW on a pathway to net-zero by 2050.

OPPORTUNITY: Support the Government of Vietnam with JET-P implementation to realize its 2030 goals and 2050 net-zero commitment.

SECTOR: Greening the grid through accelerated deployment of renewable energy and battery energy storage systems (BESS).

STRATEGY: Contribute to accelerating renewable energy development (including off-shore wind); Accelerating BESS scale-up to support RE integration; Mobilize $2.1 bn from partners and the private sector towards scaled BESS, off-shore wind energy, and renewable energy for commercial and industrial users.

GEAPP'S DISTINCTIVE CONTRIBUTION: GEAPP supported two studies, on RE scale-up in the northern region and BESS scale-up for frequency management, which are likely to feed into projects that will be included in the Resource Mobilization Plan under JET-P.

GEAPP 2030 TARGETS:

47MT	5,700	$2.1b
GHG emissions reduction	Jobs	Capital mobilization

Looking ahead — our call to action

Dattatray Waghmare, a farmer, is part of a 500 MW agriculture solarisation programme in Maharashtra, India | Credit: GEAPP

"We are now faced with the fact that tomorrow is today. We are confronted with the fierce urgency of now. In this unfolding conundrum of life and history, there "is" such a thing as being too late. This is no time for apathy or complacency. This is a time for vigorous and positive action."

Martin Luther King, Jr.

Sixty years have passed since Martin Luther King spoke those words at the March on Washington, but they retain a powerful contemporary resonance for the climate crisis now facing humanity — and for GEAPP's mission. As the world addresses the existential threats posed by global warming, there is such a thing as being 'too late'. With the window of opportunity closing, this is no time for complacency. It is a moment for working together towards our shared goals and the just transition that defines our shared humanity. That is what GEAPP was created to do.

Investment, finance, technology, and business models may appear abstract and remote, but they are at the heart of the climate challenge. There is no shortage of reports documenting the gap between the investment needed to avoid climate catastrophe and the funds now flowing into developing countries and emerging markets. Closing that gap will enable developing countries to achieve the ambitious zero-carbon goals they have set, generating benefits for their citizens, spurring innovation and inclusive growth, and contributing to global efforts to tackle the climate crisis.

While the challenges are immense, GEAPP's record demonstrates that change is possible — and that markets can be shaped to support a just transition. The barriers to private capital investment are well-known. Many of those barriers are grounded in perceptions of risk related to foreign currency, uncertain revenue streams, the small scale of operations, and the limited size of markets. In many cases, the barriers are further raised by deficits in public investment for energy infrastructure, the cost of capital, limited government capacity, and the sheer complexity of project financing. Our portfolio shows that these barriers can be lowered and — ultimately — removed, accelerating progress along the 'S' curve for renewable energy adoption.

Beyond the complexity of financial engineering and business models are real people. GEAPP's junior equity stake in Nuru means that tens of thousands of children in the DRC will no longer read and do their homework by candlelight, and that desperately poor families can save money on diesel. Our catalytic investments in Vietnam are starting to enable a government committed to transitioning out of coal to meet its ambitious goals for renewable energy generation. In Nigeria, our first loss financing is supporting the development of mini grids that are providing homes with electricity and small-and-medium enterprises with the more affordable energy they need to create jobs. Meanwhile, our DREAM project is demonstrating through practical action that the costs of renewable energy can be lowered through more efficient procurement. Considered in isolation, none of these projects marks a transformative breakthrough. But each of them contains a powerful demonstration effect which, if taken to scale, will accelerate progress towards a zero-carbon pathway.

Our alliance is uniquely well-placed to catalyze change. GEAPP is a partnership. It brings together agencies that represent a vast reservoir of expertise and knowledge, along with significant capital assets. Many of our partners are grappling with the same set of problems. They recognize that a 'project-by-project' approach has run its course. They have struggled to leverage private capital on the scale required to effect and accelerated transition to renewable energy. Above all, they understand the urgency of the climate crisis. Many of them are involved in a fundamental rethink of the architecture for climate finance. There is a growing recognition that fragmented delivery across multiple agencies, siloed approaches to risk and financing, and failures of coordination are part of the problem to be resolved. In commenting on the potential role of the MDBs in financing climate and wider goals, the Independent Expert Group has called for a new approach underpinned by "joint financing and risk sharing, jointly improving the eco-system of project pipeline development, regulatory and institutional reform, and information exchange."[26] GEAPP provides a vehicle for acting on these principles — and we encourage others to join us.

Ubale works as an electrical engineer in Shiminkar community, Nigeria | Credit: GEAPP

It's time to sharpen our focus. When GEAPP was founded at COP26, 20 countries answered our call for country partnerships. Initially, our work addressed very context-specific issues in a demand-led environment. This gave us the chance to learn and test approaches. We are now tightening our focus around tried, tested and proven interventions across a smaller but strategic group of priority countries. We will continue to prioritize our investments and activities to deliver results with the potential to provide powerful demonstration effects.

DRE will remain central to our strategy. These are technologies with transformative power. Mini grids offer not just the most cost-effective route to bring affordable energy into the lives and homes of millions of the world's poorest people, but an extraordinary investment opportunity. Seizing that opportunity could create a market of $15bn annually by displacing diesel generators, while saving some of the world's poorest households some $7.5bn — savings that could be directed into productive investment. Our goal is to enable 50GW of mini grids that avoid 1.2 gigatons of CO2 emissions by stimulating the $120bn investment needed to unlock the market. GEAPP will directly support 2GW of mini grids in six countries by 2027. Achieving these targets will not be easy. The diffusion of mini grids

has been constrained high capital and operating costs and low-capacity utilization. Long project lead times, and a tendency to provide bespoke, project-based solutions, and a complex financing eco-system including governments, private firms, MDBs, NGOs, philanthropies, banks, and development finance institutions, has made it difficult to scale-up. Historically, each of those factors has been tackled in isolation rather than jointly. The time has come to act on a partnership model for coordinated delivery, as an Alliance. Working with our partners, GEAPP will demonstrate that mini grids can outcompete generators, creating win-win scenarios for investors, local economies, climate change, and people.

GEAPP will work to demonstrate the unrealized potential of BESS. Our immediate aim is to support 5GW of BESS through 100 projects across 30 countries by 2030, building on the foundation that have been laid in Vietnam, India, and other countries. But this aim is part of a global ambition to **help seed through BESS 90GW of renewable power and unlock a battery storage market of over $100bn. BESS illustrates the scope for accelerating progress up the 'S' curve for the diffusion of renewable energy technologies.** These systems address the variability in renewable energy — a factor in driving up costs. In developed countries unsubsidized wind or solar paired with BESS is competitive with power plants that use natural gas and coal. Yet the technology is spreading far too slowly in developing countries. On current trends, less than 10 per cent of new BESS capacity will be added in LMICs by 2030. Changing this picture will require action on multiple fronts. The regulatory environment often limits the ability of utilities to recoup capital costs. There is insufficient 'proof of delivery', which in turn fuels the overpricing of risk by investors. GEAPP's interviews with battery project financiers in the US, Malawi, Vietnam, and India have revealed a risk premium for LMIs in the range 40-280% on the cost of financing battery storage. GEAPP is seeking to mobilize $4bn in BESS financing for 2030 while working with the partnership to demonstrate effective delivery.

DRE and BESS illustrate GEAPP's strengths and the power of partnership. The business case for both technologies can be built on spreadsheets and cost-benefit analysis. But what will open the investment flood gates is the practical demonstration effect that comes with practical delivery. Through our partnership with the MDBs there is an opportunity to develop a coordinated approach to out-competing diesel and expanding access to affordable energy. At the same time, we must accelerate the deployment of **green grids** using utility-scale renewables and the associated transmission, distribution, and storage, to make low-cost, climate-resilient electricity available, while replacing and avoiding fossil fuels.

GEAPP will continue to prioritize the mobilization of private capital while keeping its investment portfolio under constant review. In deploying GEAPP's capital it is vital that we optimize results. The partnership is a relatively small but agile player in a crowded field. With the MDB and wider development finance system looking for innovative ways to share risk across public and private investment, GEAPP has opportunities to participate in emerging blended finance initiatives. Our current portfolio is dominated by grants and concessional finance, but includes the provision of risk guarantees, first loss arrangements, and junior equity stakes. Our participation in platforms means that we have been able to unlock wider investments, though precise attribution is inevitably difficult. Looking ahead, as we deploy our current resources and seek to mobilize new investments, GEAPP will seek to strike a balance between direct financing and platform financing.

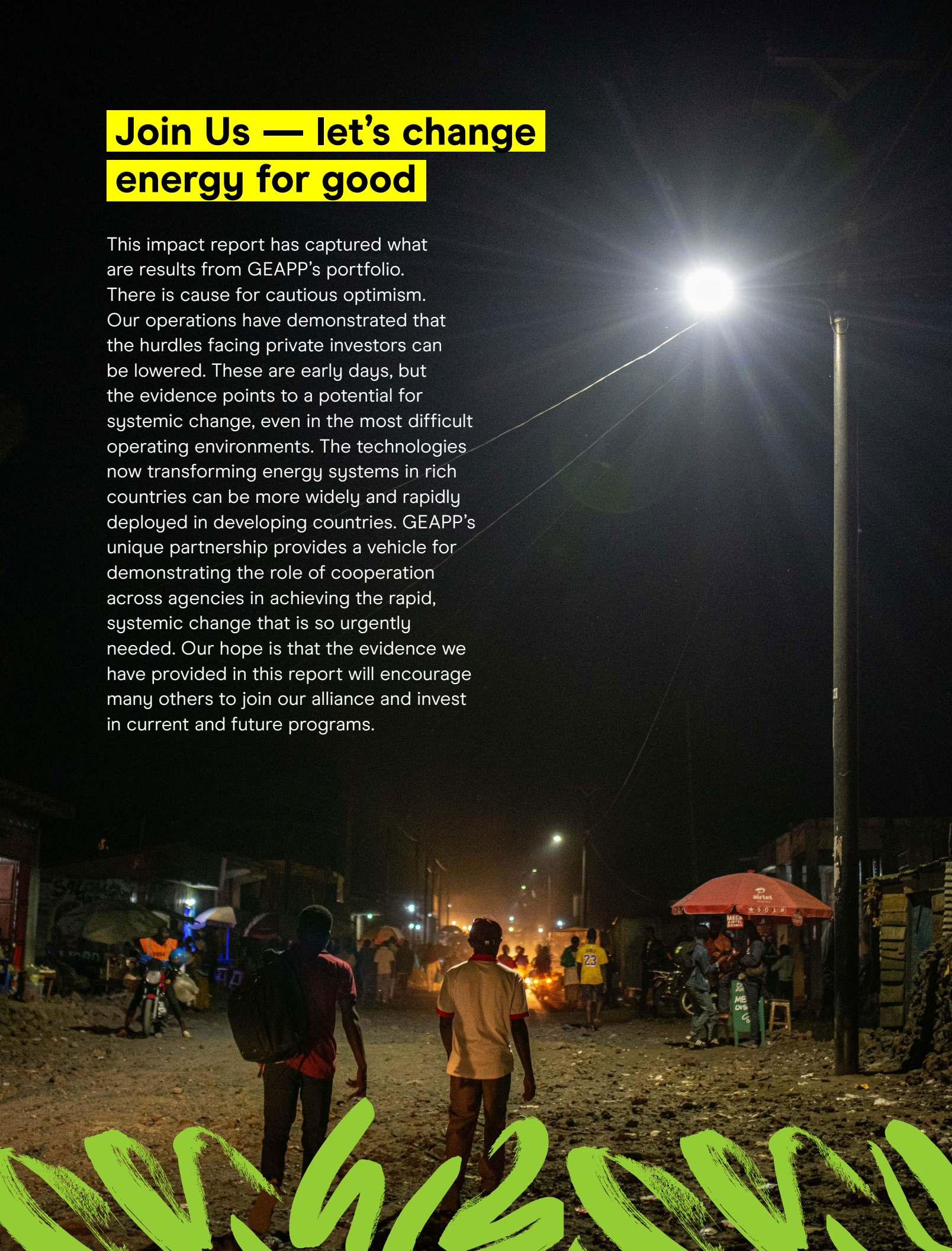
Strengthening the link between renewable energy, resilient livelihoods, and inclusive growth will be a priority. A just transition to renewable energy must be viewed not just from the supply-side (cost-effective technologies and affordable finance) but also from the demand side. Creating demand with productive uses of energy is itself a spur to innovation and the diffusion of technology. Affordable, reliable renewable electricity will be critical to unlocking the jobs and businesses that can create a new generation of livelihood opportunities in sectors of critical importance such as agriculture, SME development, education or public health.[27]

Women in Murche, Ethiopia fill jerry cans at new water pump in the community | Credit: GEAPP

GEAPP's experience in Ethiopia illustrates the dynamic interface between renewable technology and production. As part of its National Irrigation Strategy, the Ethiopian government has signalled an intention to build on a series of pilot programmes which have demonstrated the viability of solar-based, small scale irrigation systems. Working in this government-led enabling environment, GEAPP has participated in an investment initiative — DREAM (see Ethiopia) — which will finance the first-ever mini grids used for irrigation in the country. As part of an investment platform with partners like the World Bank, the European Investment Bank, and the AfDB, the initiative will provide over 200 mini grids and bring electricity to some 290,000 people. The significance of this project goes beyond the immediate benefits that will accrue to farmers struggling with uncertain rainfall: less than 5 per cent of Ethiopia's land is currently irrigated. Research suggests that a $2.1bn investment in solar-powered irrigation could raise the value of crops produced by $7bn, lifting over 1 million people out of poverty, and displacing half of the diesel generators now used to pump irrigation.[28] That is what transformation looks like when viable initiatives are taken to scale — and GEAPP will explore the scope for increased investment in solar-based irrigation, among other productive uses of renewable energy.

Join Us — let's change energy for good

This impact report has captured what are results from GEAPP's portfolio. There is cause for cautious optimism. Our operations have demonstrated that the hurdles facing private investors can be lowered. These are early days, but the evidence points to a potential for systemic change, even in the most difficult operating environments. The technologies now transforming energy systems in rich countries can be more widely and rapidly deployed in developing countries. GEAPP's unique partnership provides a vehicle for demonstrating the role of cooperation across agencies in achieving the rapid, systemic change that is so urgently needed. Our hope is that the evidence we have provided in this report will encourage many others to join our alliance and invest in current and future programs.



Annex 1:

GEAPP's Portfolio of Approved Transactions

Year of Approval	Code Name	Applying Organization	Investment Type	Lever	Instrument	Geographic Code	Region	Record Type	Awarded Amount
2023	Pan-Asia ADB MoU Grant	Asian Development Bank	Platform	Catalytic Capital	Design & Viability Assistance	Regional: Asia	Asia	Grant	12,899,263
2023	Pan-Asia ADB MoU Grant	Asian Development Bank	Platform	Market shaping	Design & Viability Assistance	Regional: Asia	Asia	Grant	6,879,607
2023	Pan-Asia ADB MoU Grant	Asian Development Bank	Platform	Catalytic Capital	Design & Viability Assistance	Regional: Asia	Asia	Grant	4,299,754
2023	Pan-Asia ADB MoU Grant	Asian Development Bank	Platform	Catalytic Capital	Design & Viability Assistance	Regional: Asia	Asia	Grant	3,439,803
2023	Pan-Asia ADB MoU Grant	Asian Development Bank	Platform	Catalytic Capital	Concessional Capital	Regional: Asia	Asia	Grant	2,751,843
2023	Pan-Asia ADB MoU Grant	Asian Development Bank	Platform	Government Enablement	Design & Viability Assistance	Regional: Asia	Asia	Grant	2,579,853
2023	Pan-Asia ADB MoU Grant	Asian Development Bank	Platform	Catalytic Capital	Design & Viability Assistance	Regional: Asia	Asia	Grant	1,289,926
2023	Pan-Asia ADB MoU Grant	Asian Development Bank	Platform	Catalytic Capital	Design & Viability Assistance	Regional: Asia	Asia	Grant	859,951
2023	Puerto Rico FCPR Community Energy Resilience Initiative	Fundacion Comunitaria de Puerto Rico	Direct	Market shaping	Design & Viability Assistance	Puerto Rico	LAC	Grant	5,000,000
2023	Myanmar PACT Local Guarantee for C&I	PACT	Platform	Catalytic Capital	Guarantee	Myanmar	Asia	Grant	12,531,078
2023	India SEWA Programme	Mahila SEWA Trust	Direct	Market shaping	Design & Viability Assistance	India	Asia	Grant	968,265
2023	India International Foundation for Research and Education Ashoka University	International Foundation for Research and Education	Direct	Government Enablement	Design & Viability Assistance	India	Asia	Grant	999,878
2023	India International Sustainable Energy Foundation E-Bus Deployment Solutions	International Sustainable Energy Foundation	Direct	Market shaping	Design & Viability Assistance	India	Asia	Grant	500,000
2023	Pan-Africa Mercy Corps DFL Design Grant	Mercy Corps	Direct	Government Enablement	Design & Viability Assistance	Africa	Africa	Grant	98,028
2023	Indonesia CPI JETP Secretariat Support and Carbon Stakeholder Engagement	Climate Policy Initiative	Direct	Government Enablement	Design & Viability Assistance	Indonesia	Asia	Contract	900,000

Annex 1 presents approved transactions up to October 15 2023. Legacy projects were approved before the consolidation of GEAPP in 2021.

2023	Global RMI GUIC	Rocky Mountain Institute	Direct	Market shaping	Design & Viability Assistance	India, Africa	Global	Grant	1,500,000
2023	Pan-Asia SEACEF Early-Stage Capital Fund	Southeast Asia Clean Energy Fund II, LP	Platform	Catalytic Capital	Design & Viability Assistance	Indonesia, Vietnam, Philippines	Asia	Grant	10,000,000
2023	Global IRENA Partnership	International Renewable Energy Agency	Platform	Government Enablement	Concessional Capital	Global	Global	Grant	2,600,000
2023	India Social Alpha Innovation Foundation BioCNG Pilot	Social Alpha Innovation Foundation	Direct	Market shaping	Design & Viability Assistance	India	Asia	Grant	935,450
2023	DRC Nuru Metro-Grids	Congo Energy Solutions Limited	Direct	Catalytic Capital	Concessional Capital	DRC	Africa	Equity	8,000,000
2023	DRC Nuru Virunga Interconnection	Congo Energy Solutions Limited	Direct	Market shaping	Design & Viability Assistance	DRC	Africa	Grant	400,000
2023	India Hamara Grid Minigrids	HAMARA GRID	Direct	Catalytic Capital	Concessional Capital	India	Asia	Debt	2,500,000
2023	DRC Dentons Support to ARE Legal Capacity	Dentons Europe LLP	Direct	Catalytic Capital	Design & Viability Assistance	DRC	Africa	Contract	586,120
2023	Pan-Africa McKinsey ACMI Design	McKinsey and Company Africa (Pty) Ltd	Direct	Government Enablement	Design & Viability Assistance	Regional: Africa	Africa	Contract	4,250,000
2023	Pan-Africa Clarion Events Youth Energy Summit Sponsorship	Clarion Events Limited	Direct	Government Enablement	Design & Viability Assistance	Regional: Africa	Africa	Grant	100,000
2023	Nigeria ETAFA Local Currency Facility	ETAFA Africa Limited	Platform	Catalytic Capital	Guarantee	Nigeria	Africa	Equity	10,000,018
2023	Ethiopia KBE Advisory and Engineering Services for DRE Irrigation	Keller-Bliesner Engineering LLC	Direct	Catalytic Capital	Design & Viability Assistance	Ethiopia	Africa	Contract	641,600
2023	Malawi Alliance for Sustainble Energy Malawi BESS TA support	Alliance for Sustainable Energy LLC	Direct	Catalytic Capital	Design & Viability Assistance	Malawi	Africa	Contract	850,000
2023	India Dalberg ENTICE Design	Dalberg Media	Direct	Market shaping	Design & Viability Assistance	India	Asia	Contract	547,694
2023	DRC EED Advisory Government Capacity	EED Advisory Limited	Direct	Government Enablement	Design & Viability Assistance	DRC	Africa	Contract	998,842
2023	Pan-Africa Africa Climate Summit Event Management	Vivace	Direct	Government Enablement	Design & Viability Assistance	Regional: Africa	Africa	Contract	100,000
2023	Pan-Africa Bayes Consulting ACS Data Management Support	Bayes Consulting Ltd.	Direct	Government Enablement	Design & Viability Assistance	Regional: Africa	Africa	Contract	348,220
2023	Pan-Africa Africa Climate Summit Digital Content	Isaac Mugo	Direct	Government Enablement	Design & Viability Assistance	Regional: Africa	Africa	Contract	44,250
2023	South Africa BCG Eksom JET strategy	The Boston Consulting Group RSA (Pty) Ltd	Direct	Government Enablement	Design & Viability Assistance	South Africa	Africa	Contract	450,000
2023	Pan-Africa Africa Climate Summit Communications	Mimi Kalinda	Direct	Government Enablement	Design & Viability Assistance	Regional: Africa	Africa	Contract	64,000

2023	India Mercados Energy Markets Solarisation of Agriculture PMU	Mercados Energy Markets India Pvt. Ltd.	Direct	Market shaping	Design & Viability Assistance	India	Asia	Contract	441,583
2023	India Canyon Consultancy Solarisation of Agriculture PMU	Canyon Consultancy Pvt. Ltd	Direct	Catalytic Capital	Design & Viability Assistance	India	Asia	Contract	468,364
2023	India M/S MP Enystem Advisory Solarisation of Agriculture PMU	M/S MP Ensystem Advisory Pvt Ltd.	Direct	Market shaping	Design & Viability Assistance	India	Asia	Contract	278,775
2023	Pan-Africa Cross Boundary DFL Design	CrossBoundary LLC	Direct	Government Enablement	Design & Viability Assistance	Regional: Africa	Africa	Contract	297,111
2022	South Africa SARETEC Komati Training Facility	Cape Peninsula University of Technology	Direct	Government Enablement	Design & Viability Assistance	South Africa	Africa	Grant	2,174,890
2022	South Africa Wits University Capability and JET Support	University of the Witwatersrand	Direct	Government Enablement	Design & Viability Assistance	South Africa	Africa	Grant	1,000,000
2022	Malawi Presidential Delivery Unit	Republic of Malawi	Direct	Government Enablement	Design & Viability Assistance	Malawi	Africa	Grant	1,548,000
2022	Indonesia PTSMI Energy Transition Mechanism TA	PT Sarana Multi Infrastruktur (Persero)	Direct	Government Enablement	Design & Viability Assistance	Indonesia	Asia	Grant	1,322,080
2022	Vietnam Institute of Energy Support for RE and BESS Studies TA	Institute of Energy Vietnam	Direct	Government Enablement	Design & Viability Assistance	Vietnam	Asia	Contract	217,363
2022	Haiti MEF Government Capacity	Ministry of Economy and Finance of Haiti (MEF)	Direct	Government Enablement	Design & Viability Assistance	Haiti	LAC	Grant	800,000
2022	Pan-Africa AfDB MoU Grant	African Development Bank	Platform	Market shaping	Concessional Capital	Ethiopia	Africa	Grant	4,205,607
2022	Pan-Africa AfDB MoU Grant	African Development Bank	Platform	Market shaping	Concessional Capital	Senegal (DtP), Tunisia, Namibia, Botswana, AFREC	Africa	Grant	435,327
2022	Pan-Africa AfDB MoU Grant	African Development Bank	Platform	Market shaping	Concessional Capital	Sierra Leone and Ghana	Africa	Grant	210,280
2022	Pan-Africa AfDB MoU Grant	African Development Bank	Platform	Market shaping	Concessional Capital	Nigeria, Sudan, DRC, South Africa, Mali, Angola, Gabon, Zambia, Congo	Africa	Grant	2,102,804
2022	Pan-Africa AfDB MoU Grant	African Development Bank	Platform	Catalytic Capital	Concessional Capital	Nigeria, DRC Congo, Tanzania, Togo, Zambia, Madagascar	Africa	Grant	3,469,626
2022	Pan-Africa AfDB MoU Grant	African Development Bank	Platform	Catalytic Capital	Concessional Capital	Mauritania (DtP)	Africa	Grant	3,314,673

2022	Pan-Africa AfDB MoU Grant	African Development Bank	Platform	Market shaping	Concessional Capital	Nigeria, Sierra Leone and South Africa Kenya, Morocco, Rwanda, Senegal	Africa	Grant	210,280
2022	Pan-Africa AfDB MoU Grant	African Development Bank	Platform	Market shaping	Concessional Capital	South Africa, Rwanda, Senegal (DtP)	Africa	Grant	1,051,402
2022	Pan-Africa AfDB MoU Grant	African Development Bank	Platform	Catalytic Capital	Concessional Capital	South Africa, Rwanda, Senegal (DtP)	Africa	Grant	20,000,000
2022	Global World Bank MoU Grant	The World Bank	Platform	Catalytic Capital	Concessional Capital	Global, Sierra Leone, Nigeria, South Africa, Democratic Republic of the Congo	Global	Grant	7,000,000
2022	Global World Bank MoU Grant	The World Bank	Platform	Market shaping	Concessional Capital	Global, Sierra Leone, Nigeria, South Africa, Democratic Republic of the Congo	Global	Grant	8,000,000
2022	Global World Bank MoU Grant	The World Bank	Platform	Catalytic Capital	Concessional Capital	Global, Sierra Leone, Nigeria, South Africa, Democratic Republic of the Congo	Global	Grant	35,000,000
2022	South Africa ACF Presidential Climate Finance Task Team Delivery Support	African Climate Foundation Trust	Direct	Government Enablement	Design & Viability Assistance	South Africa	Africa	Grant	1,531,635
2022	Pan-Africa CLASP Productive Use Appliances	CLASP	Direct	Market shaping	Design & Viability Assistance	Africa	Africa	Grant	6,500,000
2022	Uganda A2EI Appliance Demand Platform (E-Cooking)	Access to Energy Institute GmbH (A2EI)	Direct	Market shaping	Design & Viability Assistance	Uganda	Africa	Grant	600,000
2022	Nigeria RMI Utility Innovation Pilots	Rocky Mountain Institute	Direct	Market shaping	Design & Viability Assistance	Nigeria	Africa	Grant	3,221,658
2022	Global SEForAll MoU Grant	Sustainable Energy for All	Platform	Catalytic Capital	Concessional Capital	Africa, Global, DRC, Nigeria	Africa	Grant	30,000,000
2022	Global SEForAll MoU Grant	Sustainable Energy for All	Platform	Government Enablement	Concessional Capital	Africa, Global, DRC, Nigeria	Africa	Grant	3,700,000
2022	Global SEForAll MoU Grant	Sustainable Energy for All	Platform	Market shaping	Concessional Capital	Africa, Global, DRC, Nigeria	Africa	Grant	16,300,000
2022	Nigeria All On DART Top-Up	All On Partnerships for Energy Access, Limited by Guarantee	Direct	Catalytic Capital	Guarantee	Nigeria	Africa	Grant	15,000,000
2022	South Africa ACF/ PCC JET Strategy	African Climate Foundation Trust	Direct	Market shaping	Design & Viability Assistance	South Africa	Africa	Grant	4,644,671
2022	Global ISA MoU Grant	International Solar Alliance	Platform	Market shaping	Concessional Capital	Global	Global	Grant	10,000,000
2022	India ORF India Dialogues	Observer Research Foundation	Direct	Government Enablement	Design & Viability Assistance	India	Asia	Grant	1,000,000

2022	Indonesia IESR Accelerated Coal Decommissioned Roadmap TA	Institute for Essential Services Reform	Direct	Market shaping	Design & Viability Assistance	Indonesia	Asia	Contract	278,035
2022	Indonesia CPI ETM Taskforce JETP Support TA	Climate Policy Initiative	Direct	Government Enablement	Design & Viability Assistance	Indonesia	Asia	Contract	250,000
2022	Pan-Africa ACMI CAP-A Report	Climate Action Platform - Africa	Direct	Government Enablement	Design & Viability Assistance	Africa	Africa	Contract	200,000
2022	Global RMI GUIC JV	Rocky Mountain Institute	Direct	Catalytic Capital	Design & Viability Assistance	Global	Global	Contract	100,000
2022	Nigeria All On Innovation Hub Interim Support	All On Partnerships for Energy Access, Limited by Guarantee	Direct	Market shaping	Guarantee	Nigeria	Africa	Grant	1,385,000
2022	South Africa RMF NECOM Resourcing	Resource Mobilization Fund	Direct	Government Enablement	Design & Viability Assistance	South Africa	Africa	Grant	2,500,000
2022	Malawi ESCOM BESS Pilot	Electricity Supply Corporation of Malawi	Direct	Catalytic Capital	Design & Viability Assistance	Malawi	Africa	Grant	20,245,000
2022	Pan-Asia AGA Phase 2 Stakeholder Engagement for G20	Asia Group Advisors	Direct	Catalytic Capital	Design & Viability Assistance	Indonesia, Vietnam	Asia	Contract	220,000
2022	Sierra Leone KK Advisors Betmai Support	KK Advisors LLP	Direct	Catalytic Capital	Design & Viability Assistance	Sierra Leone	Africa	Contract	280,784
2022	Sierra Leone XR Plus Mini-Grid Program Design Consultancy	XR Plus	Direct	Catalytic Capital	Design & Viability Assistance	Sierra Leone	Africa	Contract	113,140
2022	Kenya Dalberg TA for green economy roadmap	Dalberg Global Development Advisors - Kenya	Direct	Market shaping	Design & Viability Assistance	Kenya	Africa	Contract	808,526
2022	Sierra Leone CrossBoundary Mini-grid tariff buy-down	CrossBoundary LLC	Direct	Market shaping	Design & Viability Assistance	Sierra Leone	Africa	Grant	1,945,000
2022	Sierra Leone KK Advisors Training for Gov Institutions	KK Advisors LLP	Direct	Government Enablement	Design & Viability Assistance	Sierra Leone	Africa	Contract	160,887
2022	South Africa BCG Long-term JET strategy	The Boston Consulting Group RSA (Pty) Ltd	Direct	Catalytic Capital	Design & Viability Assistance	South Africa	Africa	Contract	1,453,116
2022	Malawi GIZ Ag-Energy Pilots	GIZ	Platform	Catalytic Capital	Design & Viability Assistance	Malawi	Africa	Grant	4,000,000
2022	Malawi Engie Malawi IRP	Engie Impact Belgium S.A.	Direct	Government Enablement	Design & Viability Assistance	Malawi	Africa	Contract	498,385
2022	Ethiopia VC Ethiopia DREAM Scale-Up and Project Coordination	VC Ethiopia LLC	Direct	Catalytic Capital	Design & Viability Assistance	Ethiopia	Africa	Contract	999,850
2022	Haiti TTA Meshgrid Technology	Trama TecnoAmbiental (TTA)	Direct	Market shaping	Design & Viability Assistance	Spain, Haiti	LAC	Contract	128,500

2022	Global Reos GUIC Workshop	Reos Partners	Direct	Government Enablement	Design & Viability Assistance	Global	Global	Contract	67,523
2022	Pan-Africa Equator Venture Capital	Equator Africa Fund LP	Platform	Catalytic Capital	Concessional Capital	Africa	Africa	Equity	10,000,000
2022	Haiti FDI / OGEF Meshgrids	Fonds de Developpement Industriel	Direct	Catalytic Capital	Design & Viability Assistance	Haiti	LAC	Grant	1,302,000
2022	Haiti FDI / OGEF Meshgrids	Fonds de Developpement Industriel	Direct	Catalytic Capital	Design & Viability Assistance	Haiti	LAC	Grant	1,250,000
Legacy	Ethiopia ATA MoWe Innovation Centre	Agricultural Transformation Agency	Direct	Government Enablement	Design & Viability Assistance	Ethiopia	Africa	Grant	1,000,000
Legacy	Ethiopia ATA DREAM Scale-up	Agricultural Transformation Agency	Direct	Catalytic Capital	Design & Viability Assistance	Ethiopia	Africa	Grant	5,400,000
Legacy	Pan-LAC IDB MoU	Inter-American Development Bank	Platform	Catalytic Capital	Concessional Capital	Global	LAC	Grant	25,000,000
Legacy	Global IFC Blended Finance MoU Grant	International Finance Corporation	Platform	Catalytic Capital	Guarantee	Global	Global	Grant	25,000,000
Legacy	Global IFC Upstream Partnership MoU Grant	International Finance Corporation	Platform	Market shaping	Concessional Capital	Global	Global	Grant	5,000,000
Legacy	Global Resilient Cities Network Partnership	Global Resilient Cities Network	Direct	Market shaping	Design & Viability Assistance	Global	Global	Grant	2,300,000
Legacy	Nigeria RMI Energising Agriculture Program	Rocky Mountain Institute	Direct	Catalytic Capital	Design & Viability Assistance	Nigeria	Africa	Grant	5,000,000
Legacy	Sierra Leone SEForAll Energy Transition and Access	Sustainable Energy for All	Direct	Market shaping	Design & Viability Assistance	Sierra Leone	Africa	Grant	2,497,220
Legacy	Nigeria RMI Utility-enabled DERs Scoping	Rocky Mountain Institute	Direct	Market shaping	Design & Viability Assistance	Nigeria	Africa	Contract	775,000
Legacy	Ethiopia NDO DREAM Cap-ex subsidy	Stichting SNV Nederlandse Ontwikkeling-sorganisatie	Direct	Catalytic Capital	Design & Viability Assistance	Ethiopia	Africa	Grant	5,000,000
Legacy	Sierra Leone CARE Solar Harnessed Entrepreneurs	Cooperative for Assistance and Relief Everywhere, Inc.	Direct	Market shaping	Design & Viability Assistance	Sierra Leone	Africa	Grant	2,557,259
Legacy	Nigeria SEForAll Energy Transition Office	Sustainable Energy for All	Direct	Government Enablement	Design & Viability Assistance	Nigeria	Africa	Grant	965,651
Legacy	Uganda Power for All Piloting Utility-Integrated DREs	Power for All	Direct	Market shaping	Design & Viability Assistance	Uganda	Africa	Grant	950,525
Legacy	Nigeria All On DART Pilot	All On Partnerships for Energy Access, Limited by Guarantee	Direct	Catalytic Capital	Guarantee	Nigeria	Africa	Grant	5,000,000
Legacy	Additional SEforAll Legacy Grant Balancing figure	Sustainable Energy for All	Platform	Market shaping	Concessional Capital	Regional: Africa	Africa	Grant	4,534,349

Legacy	Additional CLASP Legacy Contract	CLASP	Direct	Catalytic Capital	Design & Viability Assistance	Regional: Africa	Africa	Contract	305,425
Legacy	Pan-Africa Odyssey DART platform	Odyssey Energy Solutions	Direct	Market shaping	Design & Viability Assistance	Africa	Africa	Grant	1,600,000
Legacy	Haiti Fonkoze Foundation RE Demand Stimulation	Fondasyon Kole Zepòl	Direct	Market shaping	Design & Viability Assistance	Haiti	LAC	Grant	1,000,000
Legacy	Pan-Africa Shortlist Women's Employment in DRE	Shortlist Professionals LTD	Direct	Market shaping	Design & Viability Assistance	Ethiopia, Kenya, Malawi, Sierra Leone, Uganda, Nigeria	Africa	Grant	2,200,000
Legacy	Ethiopia VC Ethiopia LLC Country Programme Design Support	VC Ethiopia LLC	Direct	Market shaping	Design & Viability Assistance	Ethiopia	Africa	Contract	394,287
Legacy	Pan-Africa FactorE Ventures Investing in Energy Access Solutions	FactorE Ventures PBC	Direct	Catalytic Capital	Design & Viability Assistance	Regional: Africa	Africa	Grant	6,000,000
Legacy	Pan-Africa Good Machine Productive Use Incubator	Good Machine, LLC	Direct	Market shaping	Design & Viability Assistance	Regional: Africa	Africa	Grant	3,510,023
Legacy	KBE Legacy Contract	Keller - Bliesner Engineering	Platform	Catalytic Capital	Design & Viability Assistance	Africa	Africa	Contract	462,166
Legacy	China Impact Sourcing Legacy Contract	China Impact Sourcing	Direct	Catalytic Capital	Design & Viability Assistance	Nigeria	Africa	Contract	35,580

FIGURE 1: Sum of investments by year (total of $442m)

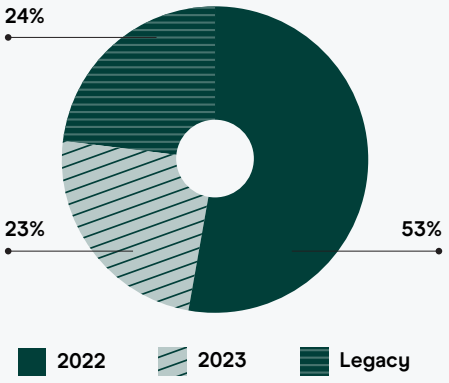


FIGURE 2: Sum of investments by type (total of $442m)

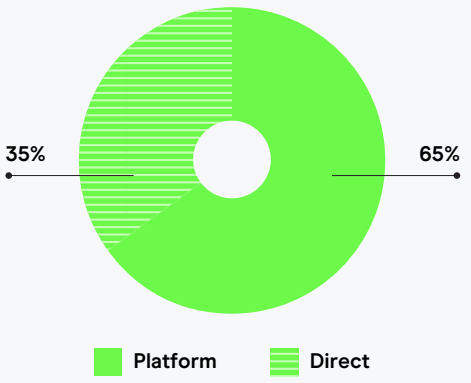


FIGURE 3: Sum of investments by strategic lever (total of $442m)

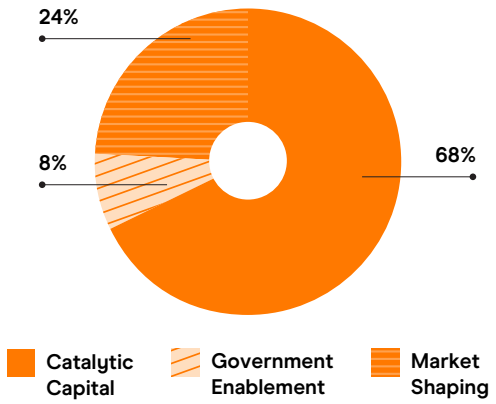


FIGURE 4: Sum of investments by region (total of $442m)

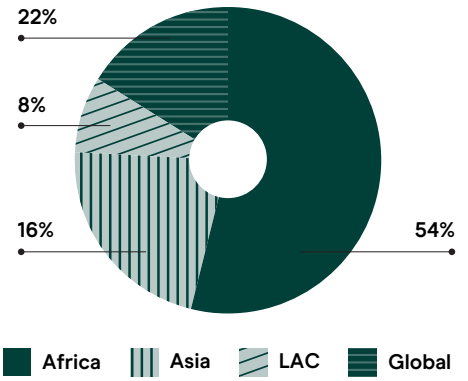
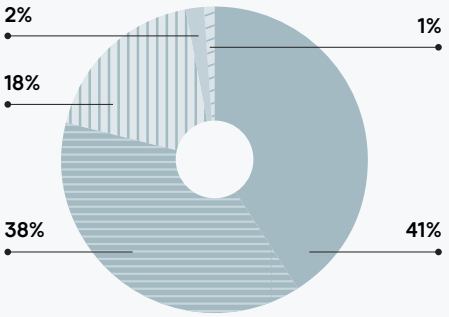


FIGURE 5: Sum of investments by type of recipient (total of $423m)[1]



[1] Excluding contracts. Including Programme Related Investments (PRI), debt, equity, and grants.

FIGURE 6: Sum of investments by financial instrument (total of $442m)

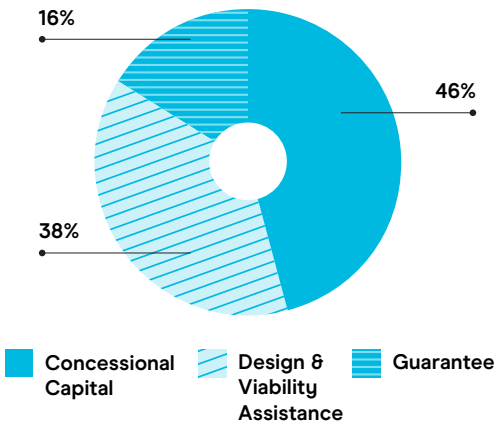
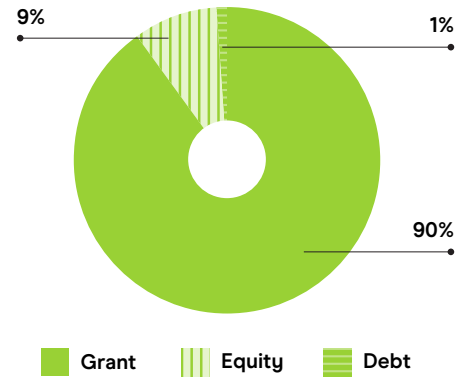


FIGURE 7: Concessional capital breakdown by funding request type (total of $205m)



Annex 2: Impact Dashboard

Transactions of more than $500,000.- have a Results Management Sheet (RMS) and are therefore included in the impact dashboard. As of 15 October 2023 the impact dashboard includes 71 projects, accounting for $361m (~82% of GEAPP's entire investment portfolio).[29, 30, 31]

FIGURE 1: Sum of investments by Strategic Lever (total of $361m)[1]

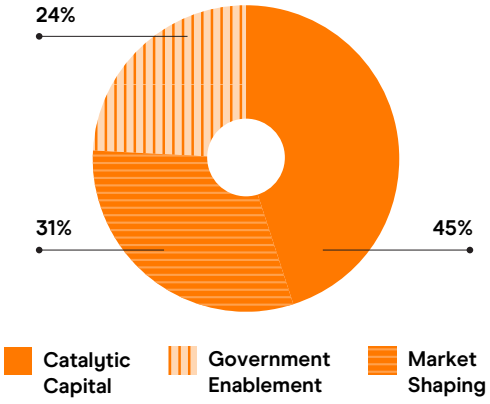


FIGURE 2: Sum of investments by sector (total of $361m)[2]

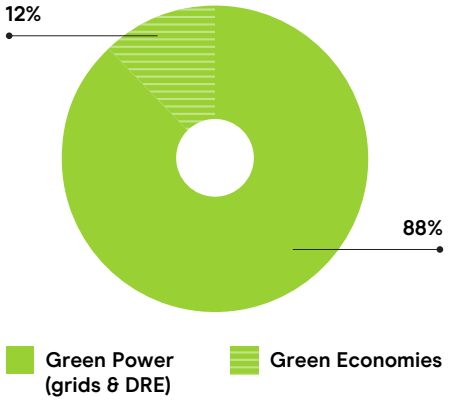
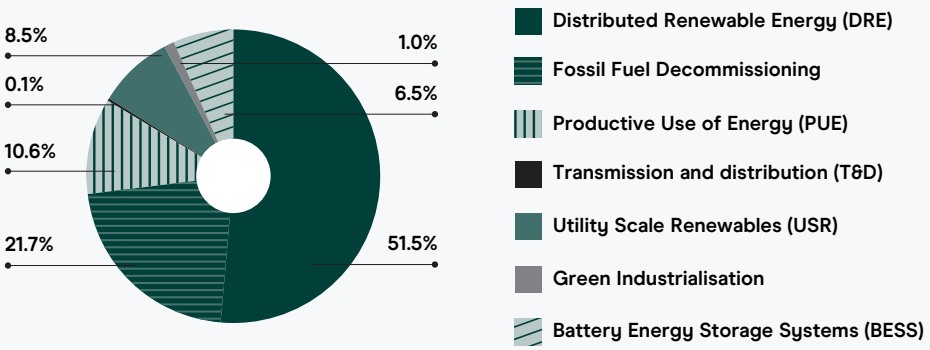


FIGURE 3: Sum of investments by sub-sector (total of $345m)[3]



[1] Original tags have been renamed and merged to align with the current framework. Enabling Environment = Government Enablement; Entrepreneurship and Innovation were merged into Market Shaping; High Risk Capital & Investing =Catalytic Capital.

[2] Sub-sectors within Green Power include Battery Energy Storage Systems (BESS), Distributed Renewable Energy (DRE), Fossil Fuel Decommissioning, Transmission & Distribution, and Utility-Scale Renewable Energy (USR). Sub-sectors within Green Economies include Productive Use of Energy (PUE), Green Industrialization, and E-mobility

[3] Breakdown of the two sectors presented in figure 2. Excluding $16m of investments that have not been tagged with sectors due to the nature of the project (e.g. general operating support or technical assistance).

Annex 3: Our Alliance

Our Alliance

Bezos Earth Fund (BEF) (Anchor Partner)

IKEA Foundation (IF) (Anchor Partner)

The Rockefeller Foundation (RF) (Anchor Partner)

World Bank (WB)

Agence Française du Développement (AFD) (PROPARCO)

African Development Bank (AfDB)

Asian Development Bank (ADB)

Inter-American Development Bank (IDB)

European Investment Bank (EIB)

Asian Infrastructure Investment Bank (AIIB)

International Finance Corporation (IFC)

U.S. International Development Finance Corporation (USDFC)

British International Investment (BII)

Sustainable Energy for All (SEforAll)

Energy Transition Council (ETC)

International Solar Alliance (ISA)

International Renewable Energy Agency (IRENA)

US Agency for International Development (USAID) - Power Africa

Rocky Mountain Institute (RMI)

German Corporation for International Cooperation (GIZ)

Global Resilient Cities Network

CrossBoundary LLC

Malawi Presidential Delivery Unit

CLASP

Access to Energy Institute GmbH (A2EI)

Agricultural Transformation Agency, Ethiopia

Stichting SNV Nederlandse Ontwikkelingsorganisatie

Power for All

Odyssey Energy Solutions

All On Partnerships for Energy Access

FactorE Ventures PBC

Good Machine

Observer Research Foundation

PT Sarana Multi Infrastruktur (Persero)

Shortlist Professionals

Cooperative for Assistance and Relief Everywhere (CARE)

African Climate Foundation Trust

Electricity Supply Corporation of Malawi

Cape Peninsula University of Technology

University of the Witwatersrand

Mercy Corps

Fondasyon Kole Zepòl

La Organización Latinoamericana de Energía (OLADE)

Renewables in Latin America and the Caribbean (RELAC)

Puerto Rico Community Foundation

Student Energy

Institute of Energy Vietnam

International Sustainable Energy Foundation

International Foundation for Research and Education

60_Decibels

Catalyst

DOEN Foundation

Chapel Hill Denham

The Renewable Energy Performance Platform (REPP)

Proparco

E3 Capital

Voltalia

Schmidt Family Foundation

GAIA Impact Fund

Joseph Family Foundation

Smart Power Mynamar

Global Leadership Council

African Development Bank | Akinwumi Adesina

French Development Agency | Remy Rioux

Asian Development Bank | Masatsugu Asakawa

Asian Infrastructure Investment Bank | Jin Liquin

Bezos Earth Fund | Andrew Steer

British International Investment | Nick O'Donohoe

German Corporation for International Cooperation | Ingrid-Gabriela Hoven

Green Climate Fund | Mafalda Duarte

European Investment Bank | Werner Hoyer

Global Energy Alliance for People and Planet | Ravi Venkatesan

Government of Norway | Jonas Gahr Store, PM

IKEA Foundation | Per Heggenes

Inter-American Development Bank | Ilan Goldfajn

International Energy Agency | Fatih Birol

International Finance Corporation | Makhtar Diop

International Renewable Energy Agency | Francesco La Camera

EQT Group | Francesco Starace

International Solar Alliance | Ajay Mathur

Ministry of International Cooperation, Arab Republic of Egypt | Rania Al-Mashat

Mission Possible Partnerships | Jessica Uhl

Net Positive | Paul Polman

Rocky Mountain Institute | Jon Creyts

Rubicon Carbon | Anne Finucane

Sustainable Energy for All | Damilola Ogunbiyi

The Rockefeller Foundation | Raj Shah

The World Bank | Ajay Banga

Tufts University | Kelly Sims Gallagher

U.S. International Development Finance Corporation | Scott Nathan

United Nations Development Program | Achim Steiner

United Nations Framework Convention for Climate Change| Patricia Espinosa

United Nations High Level Climate Panel | Vera Songwe

USAID-Power Africa | Samantha Power

World Economic Forum| Børge Brende

Governments

Vietnam

Indonesia

India

South Africa

Nigeria

Uganda

Malawi

Ethiopia

Sierra Leone

DRC

Colombia

Bolivia

Brazil

El Salvador

Haiti

Panama

Puerto Rico

Italy

Norway

Denmark

UK

Germany

Finland (FinnFund)

France

EU

USA (SPEC; Treasury; USAID; USTDA, NREL)

Canada

End Notes and References

[1] Our current portfolio requires a maturity time of 3 years on average. 78% of actuals correspond to legacy projects developed between 2015 and 2021.

[2] Targets in sight refers to the measurable impact that we expect to achieve throughout the active life of the current portfolio, our long term indicators, namely Carbon, Access, Jobs and Financial Mobilization measure against our 2030 goals.

[3] https://mc-cd8320d4-36a1-40ac-83cc-3389-cdn-endpoint.azureedge.net/-/media/Files/IRENA/Agency/Publication/2023/Jun/IRENA_World_energy_transitions_outlook_v1_2023.pdf?rev=cc4522ff897a4e26a47906447c74bca6

[4] https://media.africaclimatesummit.org/Final+declaration+1709-English.pdf?request-content-type=%22application/force-download

[5] https://www.ifc.org/en/insights-reports/2023/scaling-up-private-finance-for-clean-energy-in-edmes

[6] https://www.iea.org/commentaries/access-to-electricity-improves-slightly-in-2023-but-still-far-from-the-pace-needed-to-meet-sdg7

[7] https://iea.blob.core.windows.net/assets/830fe099-5530-48f2-a7c1-11f35d510983/WorldEnergyOutlook2022.pdf

[8] https://www.iea.org/reports/financing-clean-energy-in-africa/executive-summary

[9] https://documents1.worldbank.org/curated/en/640791573016682618/pdf/Summary.pdf

[10] The calculation is composed by emissions from existing demand (Orange in Figure ?} but also additional emissions from demand growth to reach at least MEM in 2040 (blue). Our goal is to ensure that the new demand (blue) is met by renewable energy instead of a high carbon pathway.

[11] GEAPP recently calculated addressable markets for its 10 priority countries (including DRC, Ethiopia, Nigeria, South Africa, Vietnam, India, Indonesia, Myanmar, Haiti, Brazil). The addressable market represents the potential impact that GEAPP and others could have if we reach global goals, it is the difference between assumed ideal and BAU scenario projected into the future. For the access heatmap, using population growth projections (UNDESA) and data on electricity access (World Bank) we calculated the number of new connections from now until 2030 assuming a business-as-usual situation where the electrification rates the coming years was a continuation of the trend over 2017-2021. We then calculated the number of connections we would need (considering population growth) to reach universal access in 2030 (IEA ideal scenario). The difference between the two constitutes the addressable market. For the carbon heatmap, we assumed modern energy minimum levels for each country in 2040 (aligned with IEA scenarios). Accounting for population growth, we calculated total extra electricity consumption increase for each country if they were to achieve MEM and beyond levels, and the number of emissions that would be produced through a high carbon development pathway (dirty power mix of 61 per cent fossil fuels). The addressable market is the CO2 emissions per country that could be avoided if the extra electricity was produced by a clean energy mix in an ideal scenario. The carbon and access addressable markets provide valuable information on the work that GEAPP and others need to do to achieve universal targets on time and in a sustainable manner, as well as informing GEAPP's country targets.

[12] DRE includes the use of several off-grid technologies, including mini grids, metro grids, mesh grids and rooftop solar, among other modalities that may be implemented in future investments.

[13] "Scaling up Private Finance for Clean Energy in Emerging and Developing Economies", International Energy Agency, 2023, https://iea.blob.core.windows.net/assets/a48fd497-d479-4d21-8d76-10619ce0a982/ScalingupPrivateFinanceforCleanEnergyinEmergingandDevelopingEconomies.pdf

[14] Life Cycle of projects

[15] Actuals for new and improved connections across: DRC Malawi, Sierra Leone, India, Uganda, Myanmar, Haiti, Nigeria, and one global level transaction-

[16] Quality understood as correct level of stability voltage and frequency; Reliability referred to the absence of power outage of energy supply, and Affordability referred as cost of package not exceeding a normative percentage of the household income.

[17] Target estimated for the active life of the current 368M portfolio

[18] This includes supply-side, jobs for people 'directly' employed in areas such as the construction, installation and operation of renewable energy systems

[19] 0.4% Biofuels, 2.5% Solar, 1.8% Wind, 4.5% Hydro, 1.1% Nuclear & 1.3% Other renewables (including geothermal and biomass) - Our World in Data (2022).

[20] Indonesia has an electrification rate of 97%; thus, there are no targets for new connections in this priority country.

[21] https://www.mofa.go.jp/files/100421665.pdf

[22] https://jetp-id.org/cipp

[23] Vietnam has an electrification rate of 100%; thus, there are no targets for new connections in this priority country.

[24] https://www.mckinsey.com/capabilities/sustainability/our-insights/charting-a-path-for-vietnam-to-achieve-its-net-zero-goals

[25] https://www.mckinsey.com/capabilities/sustainability/our-insights/charting-a-path-for-vietnam-to-achieve-its-net-zero-goals

[26] https://www.cgdev.org/sites/default/files/The_Triple_Agenda_G20-IEG_Report_Volume1_2023.pdf

[27] Three-quarters of Africa's health care facilities do not have reliable access to electricity. An estimated one-quarter have no electricity at all. Equipping hospitals and health clinics with solar-powered systems would create a viable, predictable market, while improving the lives and well-being of millions of people. The African Union's High-Level Panel on Emerging Technologies has identified mini-grids and BESS as two of the key technologies that could dramatically enhance Africa's health care systems.

[28] https://www.rockefellerfoundation.org/wp-content/uploads/2021/09/Transforming-a-Billion-Lives-The-Job-Creation-Potential-from-a-Green-Power-Transition-in-the-Energy-Poor-World.pdf

[29] Original tags have been renamed and merged to align with the current framework. Enabling Environment into Government Enablement; Entrepreneurship and Innovation were merged into Market Shaping; High Risk Capital & Investing into Catalytic Capital.

[30] Sub-sectors within Green Power include Battery Energy Storage Systems (BESS), Distributed Renewable Energy (DRE), Fossil Fuel Decommissioning, Transmission & Distribution, and Utility-Scale Renewable Energy (USR). Sub-sectors within Green Economies include Productive Use of Energy (PUE), Green Industrialization, and E-mobility

[31] Breakdown of the two sectors presented in figure 2. Excluding $16m of investments that have not been tagged with sectors due to the nature of the project (e.g. general operating support or technical assistance).

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