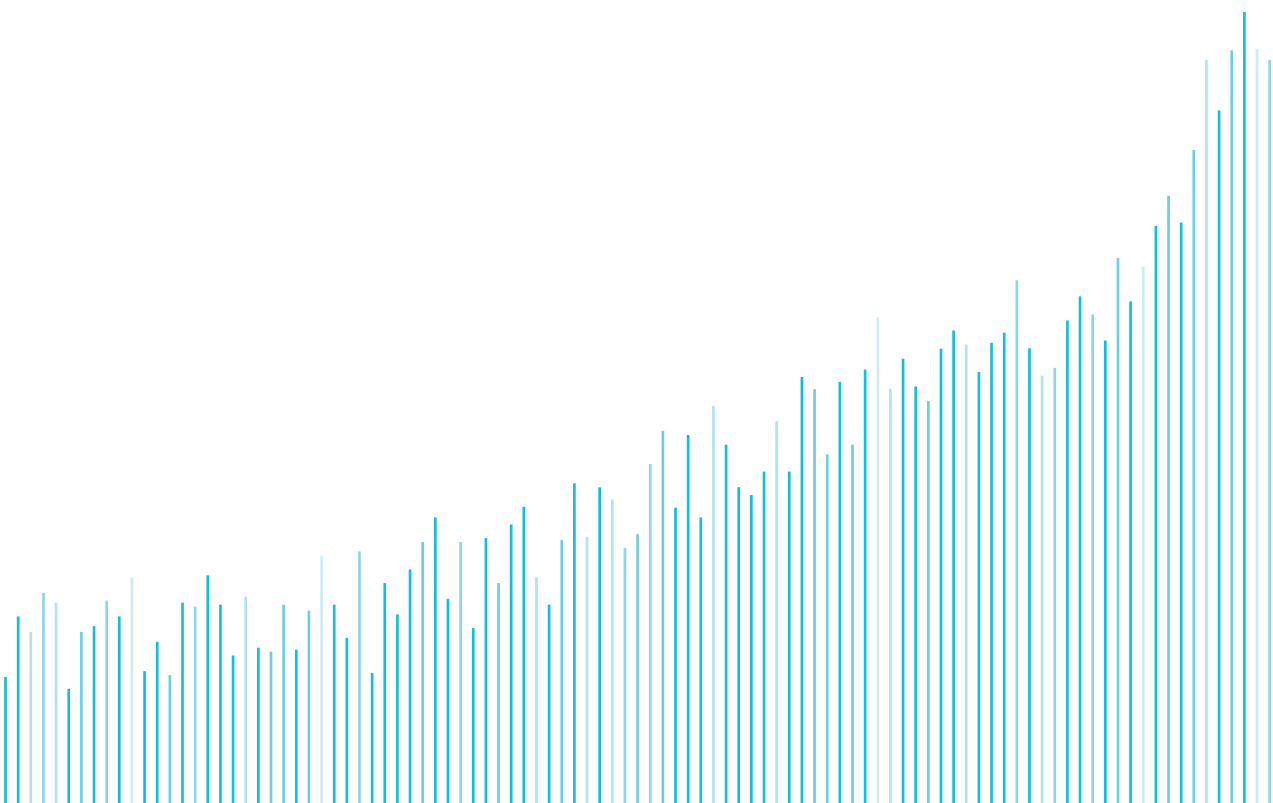


Evaluating Impact Performance:

Clean Energy Access Investments



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We are grateful for the leadership, ongoing thought partnership, and data contributions of study participants and advisors, whose support made this research possible. For the full list of contributing organizations, please see Appendix 1.

Reviewers

We thank Lissa Glasgo, Manager for IRIS+ and Impact Measurement and Management, for her ongoing support throughout this research process. Several other members of the GIIN team reviewed and provided critical feedback on this report, including: Amit Bouri, Leticia Emme, Rebecca Kurland, Kelly McCarthy, Abhilash Mudaliar, Pete Murphy, Aliana Pineiro, Kathryn Savasuk, Hannah Schiff, Sapna Shah, and Sarah Zhukovsky. We would also like to thank Eveline Jansen from GOGLA, Anna Kanze from Grassroots Capital Management, Emma Sissman from SJF Ventures, and Pritisha Uttamchandani from CDC Group for reviewing parts of this report.

About the Global Impact Investing Network (GIIN)

The Global Impact Investing Network (GIIN) is the leading global champion of impact investing, dedicated to increasing the scale and effectiveness of impact investing around the world. The GIIN builds critical infrastructure and supports activities, education, and research that help accelerate the development of a coherent impact investing industry. For more information, see www.thegiin.org.

Statement from the CEO

Dear Reader,

At the GIIN, we envision a world where financial markets serve all members of society and where finance plays a central role in solving the social and environmental challenges facing the global community. As we welcome new investors to the market, intentional and measurable impact must be woven into the heart of these investments.

We need to safeguard the integrity of impact investing. This is no easy endeavor. Yet it must be done, if we are to direct more capital where it is needed most.

To do so, we have to increase sophistication around impact performance. This report marks the industry's first collaborative effort to create an approach that allows rigorous and transparent impact comparisons across investments. Through this approach, we build on our *Core Characteristics*, which define what it means to practice impact investing, and our existing impact measurement and management work, including IRIS+, to articulate which metrics matter most when assessing impact.

Further, we're inspired to see the impact results of the investors participating in the pilot of this approach; together, these investors have facilitated new access to clean energy for 2.4 million individuals and contributed to the reduction of 3.9 million metric tons of greenhouse gas emissions in a one-year period, making modest but meaningful progress toward addressing climate change.

To attempt this type of pioneering research and self-reflection requires leadership, humility, and boldness of action — each of which is reflected through the GIIN's network of investors and field-builders who are working collaboratively to advance the market.

The GIIN is committed to leading and championing impact investing, and with that comes the responsibility of laying the groundwork that is needed to make our vision a reality. As you read about the approach outlined in this report, I hope you are inspired by the future of this dynamic industry.



A stylized, handwritten signature in black ink, appearing to read 'Amit Bouri'.

Amit Bouri
Co-Founder and CEO, Global Impact Investing Network
🐦 @AmitKBouri

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Executive summary

The impact investing industry has matured significantly in recent years to the point that investors expect rigorous impact measurement and management practices to be part of an impact investing approach. Yet, impact investors continue to identify transparency in impact performance as a key challenge facing the market. Until now, there did not exist a methodology to aggregate impact results across investments.

The GIIN conducted this pilot research study to assess the annualized impact performance of direct impact investments in clean energy access and housing, two sectors in which impact investors have a relatively long track record of activity and generally align to standardized metrics sets. At each stage of the research process, a cohort of study participants and advisors offered guidance and input. This effort addressed two sets of questions:

1. Feasibility: Is it possible to aggregate and compare impact performance data to generate insights?

The first phase of this study determined that it is feasible to create such insights. This research identified four characteristics required of impact data that enable aggregate and comparable impact performance analysis — volume of available data for both aggregate and segmented analyses, rigor and standardization of data collection methods and calculations, relevance to real impact results, and availability of data for disclosure — each of which was presented through the data submissions for both sectors studied.

This effort found that it is, indeed, possible to compare impact investments' impact — and therefore to factor impact considerations into investment selection and investment management decisions.

Additionally, the study identified several key lessons about the process of conducting impact performance research: context is crucial to understanding and comparing impact performance results; routine, synthesized data collection reduces the reporting burden for investors and investees while also enhancing the pool of available, quality data; and standardized assumptions must be used to produce standardized performance data — and therefore to analyze performance in a comparable way.

Ultimately, this effort found that it is, indeed, possible to compare impact investments' impact — and therefore to factor impact considerations into investment selection and investment management decisions.

2. Results: If so, what social and environmental results are associated with impact investors' activity?

This section explores the impact performance of impact investments in clean energy access relative to both the scale of the energy access shortage and the

volume of capital invested.* Collectively, 11 investors shared data on 56 unique investments and 64 total observations, or annualized investments. These investments were made through various instruments, with a primary focus on private market capital, and across stages of business, with a concentration in ventures and growth stages.

Investors primarily articulated two impact objectives associated with these investments: improving access to affordable and clean energy and improving energy efficiency, which, in turn, reduces energy consumption and offsets harmful emissions. They sought to achieve these objectives by financing products and services ranging from solar home systems to grid-based energy systems to waste-to-energy services.

These dual social and environmental objectives are reflected in clean energy access investment results. Together, over the course of a one-year period, these investments:

- **facilitated new access to clean energy for 2.4 million individuals**, which represents 2,058 individuals per USD 100,000 invested;
- **contributed to 3.9 million metric tons of greenhouse gas emissions reductions**, or 3,147 metric tons per USD 100,000 invested; and
- **supported enterprises in creating nearly 10,000 net new jobs**, or nearly 19 jobs per USD 100,000 invested.

In each of these cases, results indicate relatively modest progress toward addressing significant social and environmental challenges, but progress nonetheless. This analysis indicates that impact investors' efforts contribute to positive change, yet also reinforces that much work remains to be done.

In addressing both of these research questions, this study represents a significant step toward enabling the impact investing industry to better understand its impact, identify and select investments with high impact potential, manage impact performance to strengthen results, and efficiently and effectively communicate those results to all stakeholders.

These dual social and environmental objectives are reflected in clean energy access investment results.

* For information on the Housing sector, visit: thegiin.org/research/publication/evaluating-impact-performance.



SOURCE: FMO

Clean energy access: A global challenge

Lack of access to clean energy contributes to social and environmental challenges for populations in both developed and emerging markets. In response to the global climate crisis and as a priority for global development, the urgency of expanding access to clean energy is reflected by the Paris Climate Agreement and Sustainable Development Goal (SDG) 7 (affordable and clean energy access).

Regarding the climate crisis, about two-thirds of greenhouse gas (GHG) emissions are linked to fossil fuels burned for everyday use,¹ with electricity usage alone accounting for an estimated 25% of GHG emissions. Adapting clean energy sources and reducing overall energy usage is therefore a crucial first step in mitigating climate change and achieving the Paris Climate Agreement targets. Yet, despite progress, oil and coal remain the world's leading sources of energy, at 33% and 30%, respectively.²

Lack of access to clean energy also exacerbates societal inequities both locally and globally. Worldwide, about one billion people (13% of the population) lack access to electricity, limiting their ability to efficiently perform basic daily tasks, such as cooking and heating their homes. Additionally, many households not connected to an electrical grid system instead use traditional biomass, such as wood, coal, and kerosene, which causes localized pollution that has long-term adverse health effects — especially among women and children.³ Lack of electricity access is particularly acute in emerging markets and rural communities.⁴

Driven, in part, by wind and solar energy, notable recent progress includes increased use of renewable sources in both energy production (6% growth in global share, to 25%, from 2000 to 2016) and consumption (18% absolute growth during about the same time period).⁵ Energy efficiency has also improved with the emergence of natural gas and renewable energy sources. From 1990 to 2014, average global household electricity consumption (excluding non-electrified households) remained relatively stable between 3,100 and 3,500 kilowatt hours (kWh), while average household CO₂ emissions decreased from 1.5 tons in 1990 to 0.9 tons in 2014.⁶

Still, much more progress will be required to avoid irreversible climate damage, and impact investors' continued role and active engagement will be necessary to address both the social and the environmental consequences of limited clean energy access.

Two-thirds

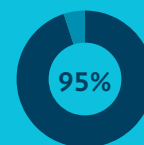
of GHG emissions come from the use of fossil fuels

25%

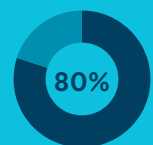
of GHG emissions come from electricity alone

One billion

people worldwide lack access to electricity...



in emerging markets



in rural areas



**Example
SDG 7 Targets**

- 7.1** Universal access to affordable, reliable, modern energy sources
- 7.2** Increased share of renewable energy in global energy mix
- 7.3** Doubled rate of improvement in energy efficiency

Study motivations

This effort, thus, represents a landmark effort to build a viable approach to compare impact performance and analyze impact investments' results.

As the impact investing industry has matured, demand has grown for understanding and comparing impact performance results. The absence of a reliable, rigorous methodology to aggregate, contextualize, and compare impact across investments hinders transparency and prevents investors from making strategic investment decisions based on impact. Developing this methodology will strengthen the evidence base of impact investments and deepen investors' ability to achieve social and environmental impact. This study, thus, represents a landmark effort to build a viable approach to compare impact performance and analyze impact investments' results.

While three in four impact investors feel that transparency in impact data and results are key to advancing the market, more than one-third identify it as a significant challenge in impact measurement and management (IMM) practice.⁷ Additionally, nearly nine in ten impact investors report that progress had been made in the sophistication of IMM practice, yet three-quarters still say this remains a moderate or significant challenge, which suggests that IMM has substantial room for development.⁸

To address industry demand for transparent impact results and assess the potential for developing a rigorous methodology to assess impact performance, the GIIN sought to answer two sets of research questions through this pilot study:

Addressing these two sets of research questions will enable the impact investing industry to better understand its impact, identify and select opportunities with high impact potential, manage impact performance to strengthen results, and efficiently and effectively communicate results to all stakeholders.

- 1. Is it possible to aggregate and compare impact performance data to generate insights?** This first set of questions, explored throughout the 'Feasibility' section of the report on page 31, concerns the specific constraints faced by impact investors in impact data collection, reporting, and aggregation. Additionally, this effort sought to identify the requisite segments for and levels of analysis (e.g., investment- versus fund- levels); determine how to weight results to enable meaningful comparisons, and propose strategies to overcome barriers to data quality, availability, and sharing.
- 2. What social and environmental results are associated with impact investors' activity?** This second set of questions, addressed in the 'Sample Overview' section of this report on page 13, sought to evaluate investors' social and environmental impact in aggregate as well as how impact results vary by segment within a given sector (such as the type of product or service offered by the investee), investment features (such as by asset class or stage of business of the investee at the time of investment), and investors' financial and impact expectations.

Ultimately, addressing these two sets of research questions will enable the impact investing industry to better understand its impact, identify and select opportunities with high impact potential, manage impact performance to strengthen results, and efficiently and effectively communicate results to all stakeholders.

Report methodology

Sample scope

Participants in this pilot study included impact investors with activity in either the clean energy access or housing sectors (or both). Respondents submitted annualized impact performance data per investment for select investments, using the GIIN's definition that impact investments are made with the intention to generate positive, measurable social or environmental impact alongside a financial return. Investments were restricted to include only those made directly into companies, projects, or real assets to avoid potentially double-counting results or conflating investment- with fund- or portfolio-level performance.

As a pilot focused on assessing both feasibility and results, this study intentionally targeted two small, precisely defined samples concentrated in the clean energy access and housing sectors. These sectors were selected for their relatively long track record of impact investment activity through which investors and field-builders have largely aligned on key metrics sets. This standardization has yielded a pool of relatively high-volume, high-quality data — a prerequisite to conducting comparable impact performance analysis. This particular report explores the performance of clean energy access impact investments.*

This study explores two sectors — clean energy access and housing — with relatively long track records of impact investing activity through which investors and field-builders have largely aligned on key metrics sets.

Role of participants and advisors

The study benefited from the guidance and expertise of a group of advisors from the GIIN's Investors' Council and from ongoing engagement with study participants. This advisory group was convened throughout the research process in small groups and one-on-one calls to gather input and feedback and to leverage advisors' and participants' deep, sector-specific experience. Critically, advisors offered guidance on which data and corresponding analyses are useful, thus shaping key decisions throughout the course of this research. A full list of participants and advisory body members may be found in Appendix 1.

Research process

This study was produced through an iterative process conducted in partnership with study participants and advisors, as described on the next page.

* For information on the Housing sector, visit: thegiin.org/research/publication/evaluating-impact-performance.

Scoping: The Research Team first collected existing research on the impact results of impact investments, finding only a limited set of available resources. The Team then explored relevant analogous works, such as strategies for impact evaluation in other industries and methodologies for analyzing financial performance, in order to identify relevant factors to consider when analyzing impact performance. Narrowing its focus to clean energy access and housing investments, as described above, the team studied 10 - 12 publicly available impact reports in each sector to define commonly reported investment features, objectives, and impact metrics.

Instrument design: The team compared these commonly reported impact metrics to existing standards for impact measurement in each sector: for clean energy access, those recommended by the Clean Cooking Alliance and Global Off-Grid Lighting Association (GOGLA), and for housing, those recommended by Aeris and the Building Healthy Places Network (BHPN).^{*} Additionally, the team cross-analyzed all metrics with those recommended by IRIS+ (a generally accepted system for impact measurement and management), which enables investors to set impact goals and assess their performance.[†] Through this process, a set of 8-12 metrics were identified for each sector, tested with the study's advisory body, and further refined. The team then incorporated these metrics into a broader questionnaire designed to align to the Impact Management Project's five dimensions of impact, namely What, Who, How Much, Contribution, and Risk, and to capture key features of each investment submitted, such as stage of business at the time of investment and asset class.[‡]

Data collection and analysis: This questionnaire was shared with target respondents, who completed it and sent their responses to the GIIN Research Team. Thus, this report is based entirely on self-reported data. The Research Team reviewed every submission with respondents to clarify any inconsistencies and to understand the context in which each investment was made. In some cases, large outliers or responses for which data could not be clarified were excluded from analysis in order to better represent the overall market. Common constraints to data collection and submission were discussed with study advisors and participants to gather additional color and nuance and identify strategies to overcome those constraints. The team then analyzed reported impact results, again calling upon the expertise of advisors and participants to refine assumptions shaping the methodological framework and strengthen the study's overall rigor and usefulness.

This research product therefore derives from extensive collaboration, coordination, and iteration with impact investors, sector experts, and impact measurement professionals.

^{*} More detail can be found about each of these industry players in Appendix 2.

[†] IRIS+ is the catalog of generally accepted performance metrics within the IRIS+ system, managed by the GIIN. For more on IRIS+, see iris.thegiin.org.

[‡] For more information on the Impact Management Project, see impactmanagementproject.com.

The importance of context

One key insight from calls with study advisors and participants was that context is crucial to enabling understanding and comparison of impact. Impact performance results inherently reflect the context in which each investment was made; central to performance is the investee's operating environment and resources, the instrument or size of the investment, and the availability of a given resource (such as clean energy products and services or affordable housing) to target stakeholders prior to investment, besides numerous other factors. To account for such context and enhance the comparability of analytic outputs, the Research Team weighted results in two ways:

- 1. Relative to the volume of capital invested** to gauge the relative efficiency with which investments contribute to impact. The Research Team weighted results relative to the total volume of capital deployed through up to three transactions for each investment.
- 2. Relative to the scale of the problem reflected by each impact metric** to gauge investments' relative contribution toward solutions to the critical social and environmental challenges facing the world. The specific challenge corresponding to each impact performance metric is detailed alongside the analyses presented throughout this report. Rigorous, third-party data were used to measure the scale of each challenge at the country-level.

The specific assumptions underlying these analyses are detailed in the 'How Much' section of this report (page 19).

Study caveats

This study represents a broader learning process about impact performance research, and as such, elevated a few caveats that suggest that the data should be interpreted with caution. The findings presented through this report do still contain insight and value for impact investors.

- **Self-selection bias:** As with all performance research, this bias manifests when respondents with poor-performing investments are more likely than their peers to decline to participate in a performance study. Additionally, respondents were encouraged to submit data for as many investments as they were able, and in instances where they were not able to report on their full portfolio, they were asked to submit a representative sample. Of course, this process raises the possibility of respondents sharing those investments with the best performance figures, though this risk remains low in a study for which all analysis is aggregated and anonymized.
- **Limits of a small dataset:** In analysis of impact performance relative to capital invested, larger investments have a disproportionate influence on overall results and averages. As the dataset continues to grow, this outsized influence will diminish while the ability to conduct increasingly segmented analysis will increase.



SOURCE: FONDACTION'S INVESTMENT IN ENERKEM

Sample overview

Investor background

For this study, 11 investor organizations shared impact performance results regarding 56 unique investments made by 14 investment funds or vehicles. Some investors provided multiple years of data for a given investment, which resulted in 64 total observations — or annualized investments — across multiple years. The average investor provided data on 5.1 unique investments. This section analyzes investment and investor context primarily at the level of unique investments ($n = 56$). The remainder of this report primarily concerns analysis at the observation level ($n = 64$).

Most of the investment funds or vehicles included in the sample are based in developed markets, with five headquartered in WNS Europe and six in the U.S. and Canada. Among the remainder, two are headquartered in Southeast Asia and one in South Asia. Together, investors in the sample manage USD 17.5 billion of impact investing assets.* While the average investment fund/vehicle AUM is USD 1.5 billion, the median AUM is significantly lower at USD 29 million; two large investors account for USD 17 billion of the total AUM (97%). Excluding these two outliers, the average AUM size is just under USD 52 million.

Over half (57%) of total investments were made via private debt. Private equity accounted for another 21% of investments (Table 1).

* This excludes one organization which did not provide its total impact investment AUM.



TABLE 1: Investment instruments

$n = 56$ investments by 14 vehicles/funds.

	NUMBER OF UNIQUE INVESTMENTS		NUMBER OF VEHICLES/FUNDS	
Private debt		32		6
Private equity		12		5
Equity-like debt		5		4
Public debt		2		2
Real assets		1		1
Other		4		2

Note: 'Other' includes cases where different tranches of investment were made through each of private debt and private equity.
Source: GIIN

Investment features

Investments included in the sample were made between 2006 and 2019 (2017 at the median). Respondents reported up to three tranches or capital deployments into each project or company. Investments ranged in size from USD 30,000 to USD 135 million, with an average first investment size of USD 12.3 million and an average total investment of USD 12.6 million, indicating relatively small second and third tranches of investment. Investors made a second investment in 12 investees and a third investment in six of the investees. Average total investment size was significantly larger for investments into grid-based energy solutions (USD 28.4 million) than for investments into all other types of products (USD 5.5 million). Additionally, investments were larger among funds headquartered in developed markets (USD 14.8 million in the U.S. & Canada and USD 16 million in WNS Europe) than among funds headquartered in emerging markets (USD 1.4 million in Southeast Asia and USD 260,000 in South Asia).

The investments cover a variety of businesses and projects, ranging from solar system non-profit organizations in East Africa to off-grid utility companies in India to farm enterprises using bioenergy in Canada. The diversity of this sample reflects the range of investee capital needs. At the time of first investment, investee size in terms of total asset value ranged from USD 39,000 to over USD 5.5 billion (22 investments). For these organizations, the initial investment was an average of 4% of investees' capitalization at that time.

Sixteen of these businesses were in the venture stage at the time of first investment, and 15 were growth-stage. Only two were mature, private companies (Table 2).

Thirteen investment funds or vehicles reported their target financial returns for 38 investments; 87% targeted risk-adjusted, market-rate returns and 8% targeted below-market-rate returns that are closer to market rate. Two investments targeted below-market-rate returns that are closer to capital preservation. Both are venture-stage investees providing solar home systems to households in Kenya.

TABLE 2: Stage of investee business at the time of first investment

n = 38 investments by 12 investor organizations, each of which may have multiple investments.

	UNIQUE INVESTMENTS		INVESTOR ORGANIZATIONS	
Seed/start-up stage		5		4
Venture stage		16		8
Growth stage		15		3
Mature, private companies		2		2

Source: GIIN

TABLE 3: Target and realized annualized financial returns for market-rate investments

	ANNUALIZED FINANCIAL RETURNS	
	TARGET	REALIZED
n	28	22
Mean	14%	9%
Median	10%	9%

Note: Figure excludes investments that target below-market-rate returns, as this sample included too few reports of target below-market-rate returns to enable meaningful analysis.

Source: GIIN

The median target, annualized financial return in this sample was 10% (Table 3). Target returns were highest among investees that produced mini-grids (20% on average) and lowest among investees managing grid-based systems (9%). As expected, targets were higher for seed- and venture-stage investments (18-21% on average) than for investments in more mature investees.

The median realized, annualized financial return across this sample was 8%. Among 22 investments with reported realized returns, 81% met their financial performance expectations and 16% fell short. The remaining 3% exceeded their financial performance expectations. Interestingly, realized returns were highest among grid-based systems (11%), perhaps suggesting that investors can better anticipate returns from more established products than for newer technologies. Excluding one case in which an investee filed for bankruptcy, average realized returns ranged from 7% to 9% across all other types of products.

WHAT creates the impact

Investors demonstrated commitment to pursuing both social and environmental impact in clean energy access. They articulated these dual motivations in part through their impact targets, which anchored broadly around two objectives:

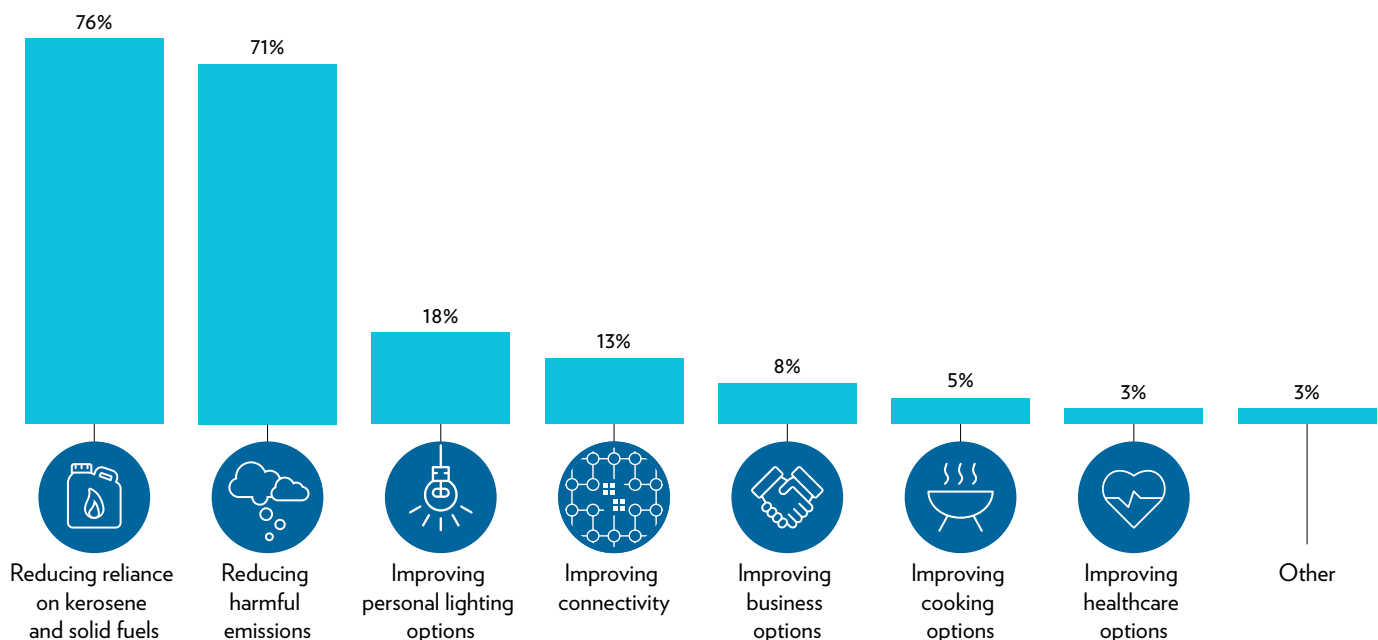
- **improving access to affordable and clean energy; and**
- **improving energy efficiency, which, in turn, reduces energy consumption and offsets harmful emissions.**

More than three-quarters of investments sought to reduce reliance on kerosene and solid fuels (76%), and 68% seek to reduce harmful emissions (Figure 1). Only 18% of investments in the sample sought to improve personal lighting options.* Investors' objectives are also reflected in investments' target demographics, which

* The selection of target outcomes aligns with the IRIS+ Strategic Goals for clean energy access, which were designed through a consultative process with asset managers, fund managers, and other industry stakeholders to ensure credible and comparable data in impact measurement and management. See more on IRIS+ Strategic Goals: iris.thegiin.org/.

FIGURE 1: Target impact outcomes reported by investors

n = 38 investments; investments may target multiple outcomes



Note: 'Other' includes one investment targeting clean and efficient energy for heating / cooling.
Source: GIIN

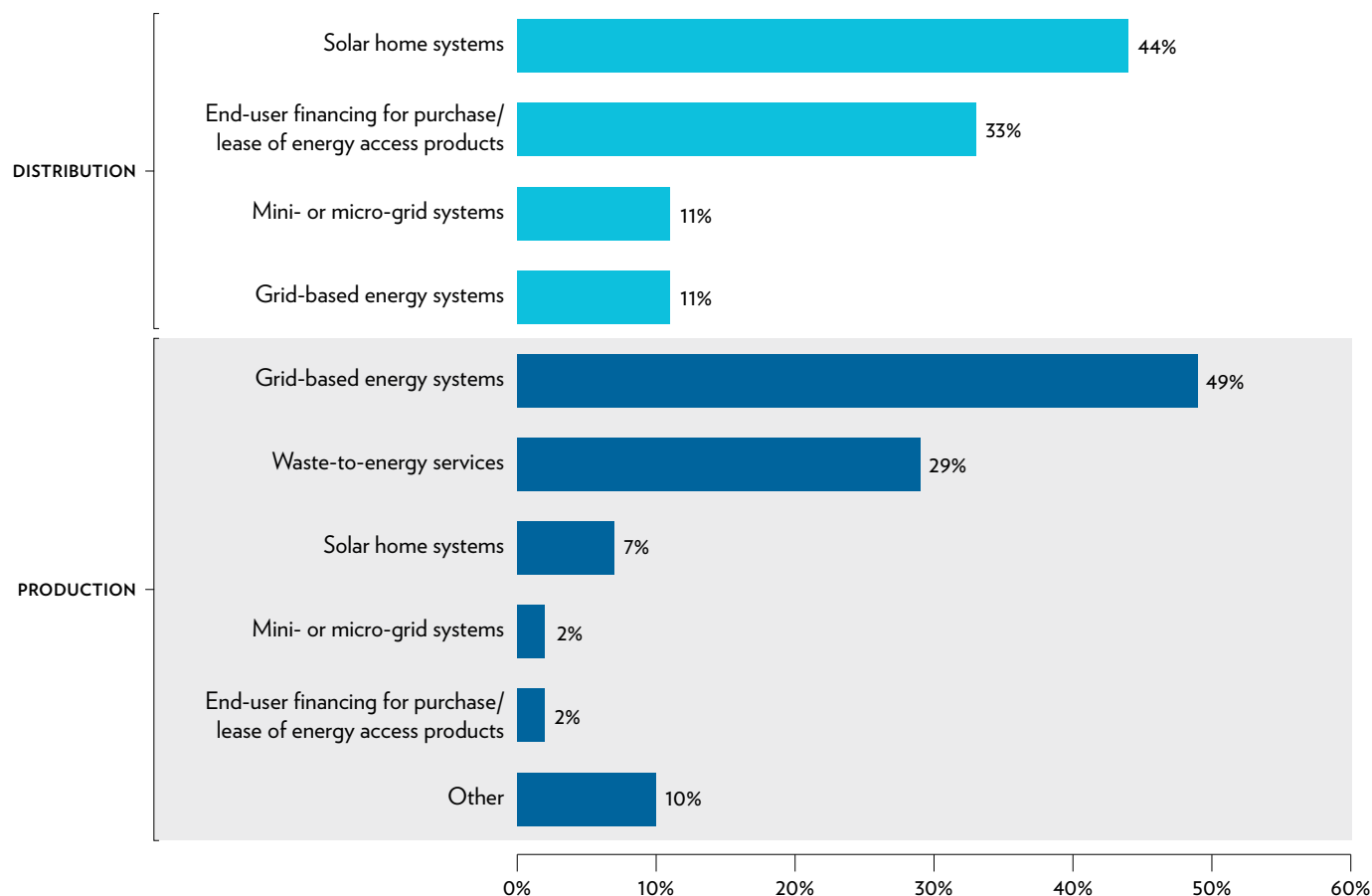
largely center around rural and low-income households in emerging markets. For further detail, see the ‘Who’ section on page 18.

Some investors offered additional specificity regarding their target outcomes, such as scaling up clean energy production to reduce fossil fuel dependence and consumption. Interestingly, two investors, for their two investments in clean energy access, also included the provision of financing as an avenue to achieve their target outcomes. Only one investor did not provide target outcomes for its investments.

To achieve these impact outcomes, investees provide solutions for clean energy access through both energy production and energy distribution. They primarily offer grid-based energy systems (20 investments), waste-to-energy services (12 investments), and solar home systems (four investments) at various stages along the energy production value chain (Figure 2). Only one investee provides end-user financing for the purchase or lease of energy access products. All investees offering waste-to-energy services are based in the U.S. and Canada and contribute to the production stage of the value chain, while all three investees offering solar home systems are based in either SSA or South Asia.

FIGURE 2: Products or services offered by investee, along the energy production value chain

n = 54 investments



Note: ‘Other’ includes hydro-electric power, methane capture and destruction products, and energy-efficient home products.
Source: GIIN

WHO the investment seeks to benefit

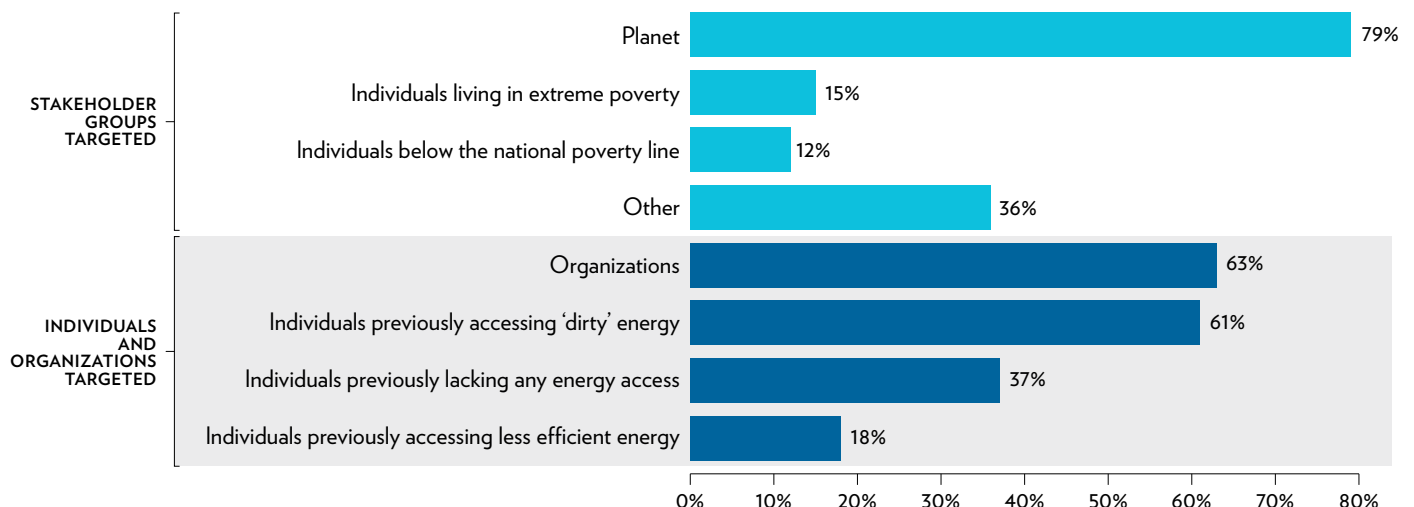
Investors target a diverse set of investees operating across 26 countries, with 23% of all investments in Canada, followed by 20% in India, and 18% in Egypt. Nine investees operate in multiple countries, with one in as many as 12 countries. Notably, 23 investees operate in nine SSA countries, with 10 of the 12 investments that disclosed this information operating in rural communities. Altogether, 84% of investees operate in rural areas, 42% in urban areas, and 29% in peri-urban areas. (Some investees operate in multiple areas.)

In line with their target outcomes, stated above, investors focused on increasing clean energy access for individuals (44 investments) and organizations (23 investments). In this sample, 23 investments targeted individuals that were previously accessing 'dirty' energy and 14 targeted those that previously lacked access to any energy (Figure 3). Investments targeting organizations also typically target the production stage of the energy value chain; only four investments in this category focused on other stages of this value chain.

Nearly all investors in this sample identified the planet as a target stakeholder to impact. Four investments targeted individuals below the national poverty line (Figure 3). Regarding their primary stakeholder groups, investors also identified customers or clients (22 investments), followed by distributors (12 investments).

FIGURE 3: Stakeholders targeted by investment

n = 33 investments for stakeholder groups targeted; n = 38 investments for individuals and organizations targeted



Note: 'Other' stakeholder groups targeted include women and girls as well as municipalities.

Source: GIIN

HOW MUCH impact has been achieved

Respondents were asked to report data on up to 11 metrics identified with study advisors and third-party sector experts and aligned to generally accepted metrics sets. These metrics reflect various components of their impact performance, specifically designed to assess the depth, breadth, and duration of their impact. Not all metrics are relevant to impact strategies for clean energy access; respondents chose to answer metrics based on their assessment of the relevance of each.

Collectively, respondents reported the greatest volume of standardized data for the seven metrics highlighted in Table 4. These are analyzed in-depth in this chapter; the sample sizes and data quality for the remaining four metrics were insufficient for analysis. In some cases, data are analyzed with respect to a single, independent metric, such as the number of jobs created. In other cases, data are analyzed across multiple combined metrics. For example, the number of units sold is used as an input to estimate GHG reductions per investment, since GHG reductions were reported per product or service.

TABLE 4: Number of responses to each metric

Table includes all observations in the sample (n = 64); for a breakdown by unique investments, refer to Table 5 in the 'Feasibility' section. Highlighted rows indicate performance data analyzed in this report.

	METRIC	NUMBER OF RESPONSES
DEPTH	Percent savings on energy-related expenditures, per client household (%)	13
	Energy savings per product sold (KWh)	10
	GHG reductions per product sold or service rendered (metric tons)	35
	Investee revenue growth (%)	20
BREADTH	Client individuals provided new access	26
	Jobs created at directly supported or financed enterprises	39
	Total units sold	35
	Number of hours of clean energy provided (hours)	4
DURATION	Product lifetime (years)	15
	Organization provides product or service warranty	34
	Percent of products recalled (%)	24

Source: GIIN

Client individuals provided new access

IRIS+ PI2822

DESCRIPTION: Number of unique client individuals served by the organization and provided new access to clean energy.

METHODOLOGY

To gauge the number of client individuals provided new access to clean energy — a key component of SDG target 7.1 (universal access to affordable, reliable, and modern energy sources) — we first disaggregated responses between those who previously lacked access to any electrical energy and those who previously accessed energy from ‘dirty’ sources. These two segments reflect distinct baselines in energy access and discrete sets of stakeholders. We then compared the number of individuals in each group who gained access to clean energy to the total population of the countries in which each investee operates that lacked respectively electrification or were previously connected to a grid.⁹ In cases where an unknown number of individuals were reached, we estimated by multiplying the number of products sold by the average household size¹⁰ (for product-based energy) and electrification rates (for grid-based solutions) in the countries of investee operations.

FINDINGS

Thirty-one investments in the sample facilitated clean energy access for 2.4 million individuals across 27 countries around the world in a one-year period;^{*} these investments facilitated clean energy access for an average of 77,970 people. This represents approximately 2,058 individuals per USD 100,000 invested, or about USD 49 per person, and 0.5% of the individuals lacking clean energy access across the countries represented in the dataset. As noted previously, respondents target stakeholders from various income segments, focusing particularly on individuals below the national poverty line and the extreme poor.

RELATED OUTCOMES

Many impact investors seek to evaluate additional outcomes associated with clean energy access, such as benefits with respect to health, education, and business outcomes. Evidence also suggests that greater connectivity increases time available for various activities related to educational and economic productivity and improved standard of living.⁺ Additional analysis of the specific demographics of clients reached can offer greater insight into the depth of impact achieved. For an example, see the *responsAbility* spotlight.

SPOTLIGHT:

responsAbility

responsAbility is a private Swiss asset manager that makes private debt and equity impact investments in emerging market companies.

Its investments in SolarNow,^{*} an East African company that sells and finances off-grid solar systems, have, as of 2017, helped the company to provide improved energy access for almost 101,000 people in rural Uganda. This has increased connectivity for rural communities, where 91% of households did not previously have access to grid electricity. Families no longer rely on kerosene and can enjoy well-lit homes in safer environments with access to television, radio, and electrical appliances. With 2.4 hours of extra light for each household each evening, children can study for an average of one hour longer each night. SolarNow has also boosted economic productivity for small businesses by enabling 71% of its customers to remain open for longer hours, resulting in higher incomes for 91% of businesses.

^{*} Learn more about *responsAbility*'s investment in its [2017 Impact Report](#).

^{*} Figures exclude five investments for which assumptions do not apply.

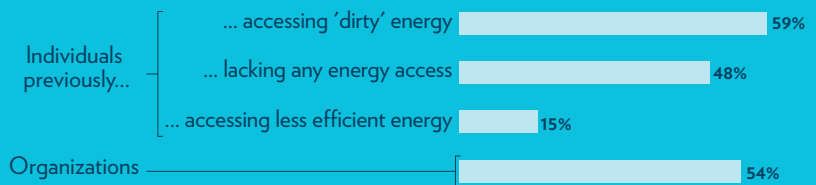
⁺ See IRIS+ details on clean energy access: [improved connectivity](#).



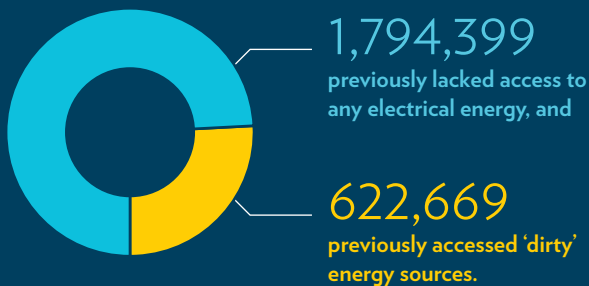
2,417,069

CLIENTS PROVIDED NEW CLEAN ENERGY ACCESS YEARLY

TARGET STAKEHOLDERS INCLUDE



AMONG WHOM,



Depending on the 'baseline' of energy access by target stakeholders, changes in access are compared to either the population lacking electrification or the population already connected to the grid in the countries of investee operations.

IN TOTAL, INVESTMENTS PROVIDED CLEAN ENERGY ACCESS TO

0.5%

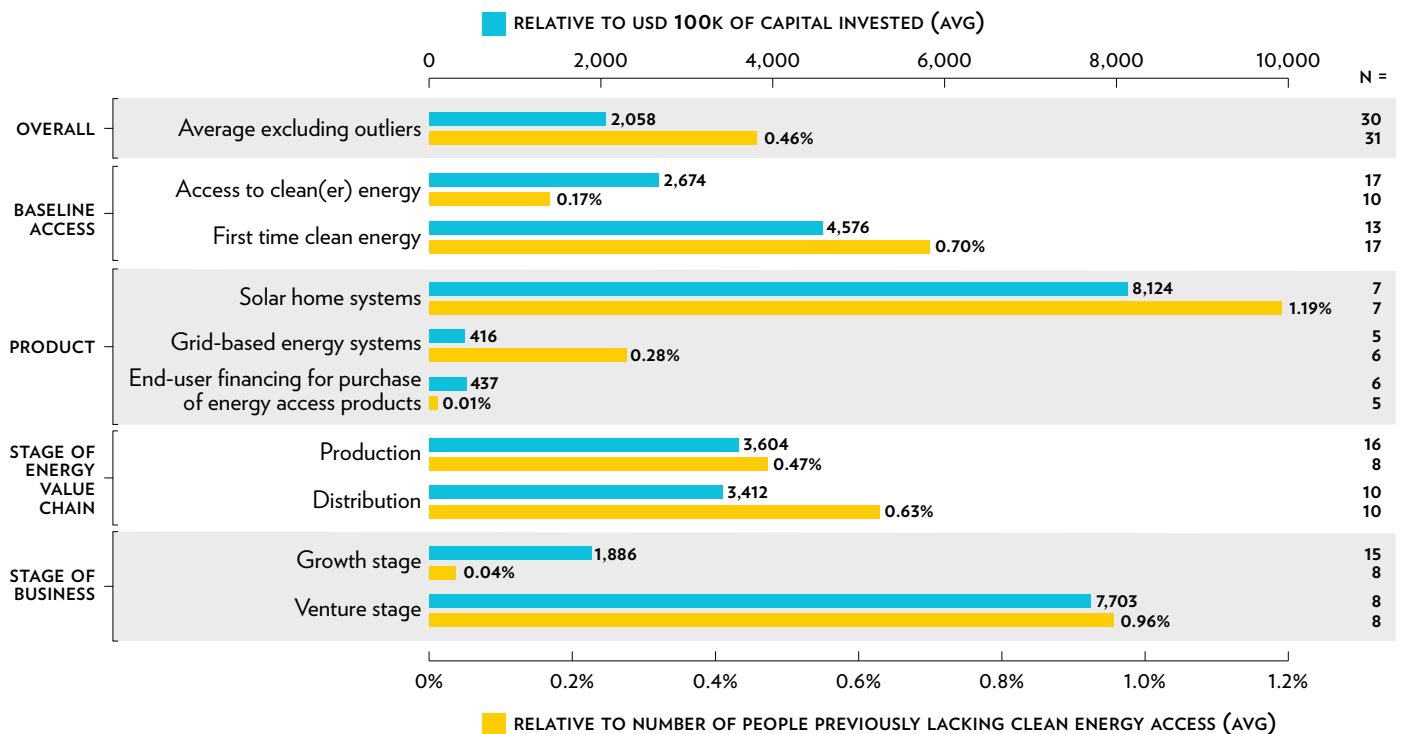
of the population previously lacking clean energy across 27 countries,

— and —

2,058 INDIVIDUALS

for every USD 100,000 invested, on average, in a one-year period.

Investments in different segments of clean energy access vary in terms of the percentage of the previously excluded population reached and the number of individuals provided new access per USD 100,000 invested, as shown below.



GHG emissions reductions

IRIS+ PI5376

DESCRIPTION: Amount of reductions in greenhouse gas (GHG) emissions during the reporting year.

METHODOLOGY

Respondents reported GHG emissions reductions, in metric tons, per product sold or service rendered in each reporting year. We multiplied these figures by the total number of products or services sold that year to reach total emissions reductions on a per respondent basis. We then aggregated across respondents and compared this total to annualized energy emissions in the countries in which investees operate in an effort to gauge their relative contribution to country-level energy-related GHG emissions.¹¹ Since GHG reductions in later years from products sold or services rendered in previous years are not included in this analysis, these figures likely do not capture the investments' total impact on GHG emissions.

FINDINGS

Thirty investments reported data on GHG emissions reductions and number of products or services provided. Excluding outliers, **over a one-year period, these investments reduced GHG emissions by more than 3.8 million metric tons** (147,540 metric tons on average). Compared to total emissions in the countries of investee operations, this decrease in emissions represents, at the mean, 0.1% of energy-related emissions. On average, excluding outliers, investments reduced GHG emissions by 3,147 metric tons per USD 100,000 invested.

RELATED OUTCOMES

Investors that measure GHG reductions often seek to track progress toward several corresponding social and environmental outcomes. Evidence-backed outcomes

include reduced air pollution, improved physical health, improved standard of living, improved community health and wellness, improved environmental sustainability, and stronger local economies.* For an example, see the IDB Invest spotlight.

SPOTLIGHT:

IDB Invest

IDB Invest, a member of the Inter-American Development Bank (IDB) Group, is a multilateral development bank that finances sustainable companies in pursuit of financial return and development impact in Latin America and the Caribbean.

In 2014, IDB Invest financed La Jacinta, Uruguay's first commercial-scale solar photovoltaic power plant, with the aim of reducing Uruguay's dependence on fossil fuels and encouraging commercial capital allocation toward long-term renewable energy. La Jacinta generates an average of 94,000 megawatt hours of renewable energy per year, which has helped to displace 60,000 tons of CO₂ equivalent emissions as of 2018 — the equivalent to nearly 13,000 passenger vehicles driven for one year.* In 2018, IDB Invest provided the project a second round of financing via a bridge-to-bond structure,[†] to mobilize additional financing for renewable energy from institutional investors and align with Uruguay's long-term climate change mitigation goals. While non-conventional renewable energies did not exist in the country in 2009, they now account for nearly 48% of the country's energy generation. Over its expected 25-year lifetime, La Jacinta is projected to displace approximately 454,000 tons of CO₂ equivalent emissions, equivalent to over 79,000 homes' electricity use for one year.

* Equivalencies for this spotlight calculated using the EPA equivalencies calculator. [See more here.](#)

† A bridge-to-bond structure, or B-Bond, is sold to a special purpose vehicle and then privately placed to an institutional investor, to encourage institutional investments. [See more on IDB Invest's B-Bond in the context of this investment.](#)

* See IRIS+ details on clean energy access: [reducing harmful emissions](#).



3,836,028

METRIC TONS OF GREENHOUSE GAS (GHG)
EMISSIONS REDUCED YEARLY

Each investee's contribution to GHG reductions was compared to total annual GHG emissions from the energy sector in the countries of each investee's operations. This contribution was also assessed across the sample at large.

IN TOTAL,
INVESTMENTS
REDUCED GHG
EMISSIONS BY

0.1%

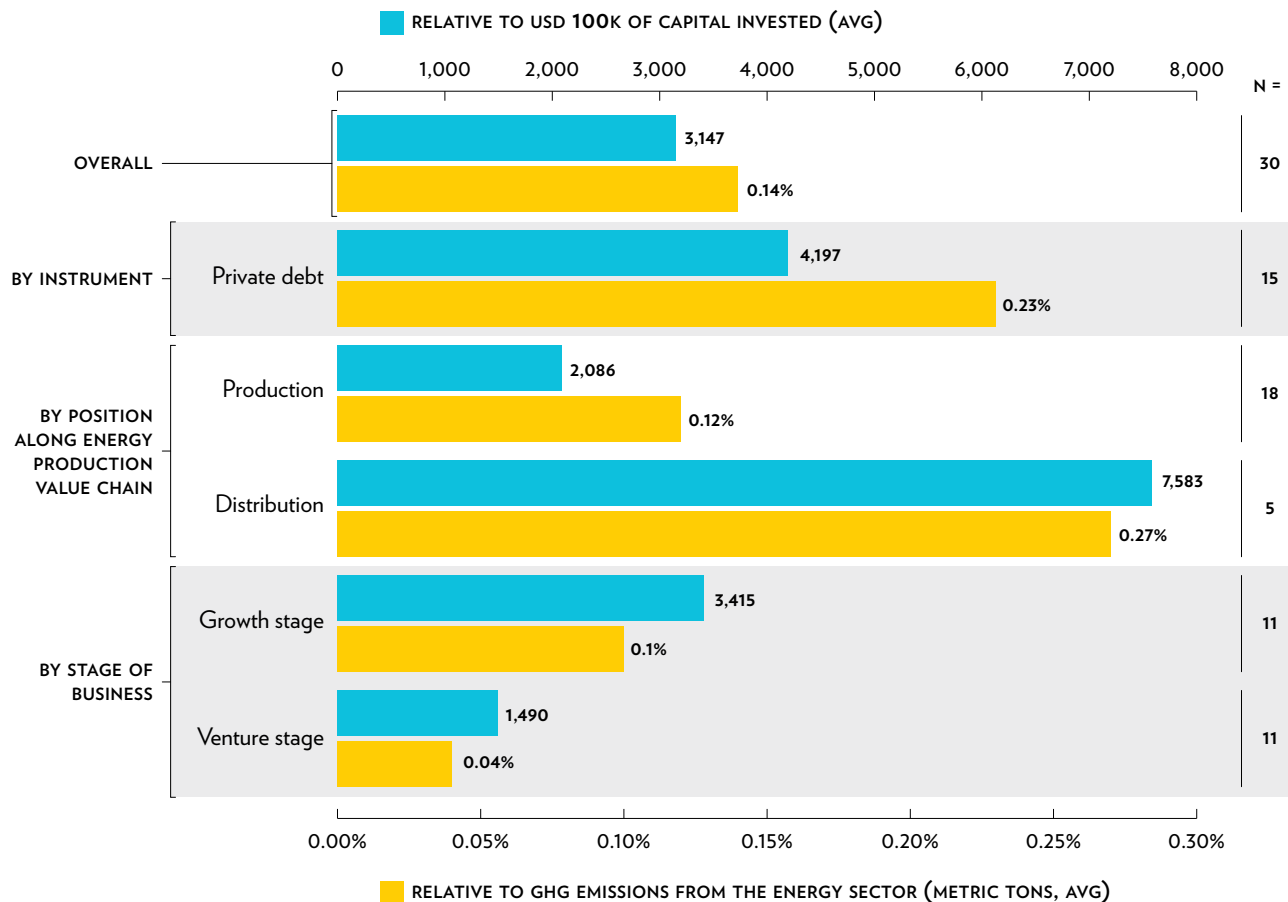
of annual total emissions from
the energy sector,

— and —

3,147
METRIC TONS

for every USD 100,000 invested,
on average, in a one-year period.

These resulting figures are
disaggregated below to depict
variance among different
segments of clean energy
access investments.



Jobs created at directly supported or financed enterprises

IRIS+ PI3687

DESCRIPTION: Net number of new full-time equivalent employees working for enterprises financed or supported by the organization between the start and end of the reporting year.

METHODOLOGY

Respondents, including those for whom job creation is not a primary impact objective, reported the total number of new jobs created at their investee companies (or directly facilitated via financing provided by investees). As a baseline, we first identified unemployment statistics at the country level and, using data on the size of each country's labor force, then calculated the number of unemployed people actively seeking jobs.* Where an investment operated in multiple countries, we then summed the size of the unemployed labor force across those countries of operation. Additionally, we compared the number of jobs created by investees in the dataset to the scale of renewable energy-related jobs currently available in those countries (where available) to gauge their relative contribution to the renewable energy workforce.

FINDINGS

Thirty-nine investments created 9,772 net new jobs at directly supported/financed enterprises in the reporting year, adding to jobs created by those investments in previous years. On average, each investment created 251 new jobs, representing 2.3% of the renewable energy workforce across the countries in which those investees operate.† Relative to the scale of unemployment, these jobs register very-small-scale incremental change (0.03% on average), as to be expected. On average, each investment added 18.8 jobs for every USD 100,000 invested per year, although, notably,

more than half of investments in the sample created fewer than 10 jobs per USD 100,000 invested.

RELATED OUTCOMES

Investors that track the number of jobs created also often seek to understand the outcomes of those jobs, which evidence suggests can lead to improved quality of life, greater resilience in the face of economic downturns or other shocks, and greater overall economic productivity and stability.‡ For an example, see the Fondation spotlight.

SPOTLIGHT:

Fondation

Fondation is a Canadian labor-sponsored fund that manages retirement savings and makes direct investments in SMEs across Québec to support the social economy and create local jobs.

Between 2018 and 2019, Fondation has created and maintained over 39,500 jobs throughout Québec. Fondation invested USD 1.6 million in Nimschu Iskudow,† a low-carbon hockey arena, through its forest biomass fund in 2017. This investment is aimed at converting the arena's heat systems to operate on residual forest biomass produced locally, instead of relying on fossil fuels, and offers youth recreational opportunities in the First Nations' Cree community in Northern Québec. This clean energy investment led to 14 direct and indirect employment opportunities for Cree individuals via operations, transportation, and construction jobs. In an isolated community of 2,400 people with high unemployment rates, five Cree men were also trained as biomass operators, equipping them with the technical skillset to obtain sustainable employment in the operations industry. Fondation's investment will ensure year-round sports for the youth, keeping them active, engaged, and off the streets. Given its multi-pronged impacts — cost-savings on diesel fuel, employment opportunities, and community development — this green energy arena will serve as a model for the community's next biomass building investment.

* ILO data indicated 2018 labor force sizes by country.

† Job creation among thirty-four investments was assessed relative to the scale of the renewable energy sector; data were not available for some countries of investee operations and hence they were excluded from analysis.

‡ See IRIS+ details on clean energy access: [improving business options](#).

* More details can be found online about Fondation's investment in [Nimschu Iskudow](#).



9,772

NEW JOBS CREATED BY INVESTEES, YEARLY

The number of jobs created was compared to the total number of unemployed individuals in the countries of investee operations and to the number of current renewable energy sector jobs in each country.

IN TOTAL, INVESTMENTS PROVIDED

0.3%

of the unemployed population in the countries of investee operations

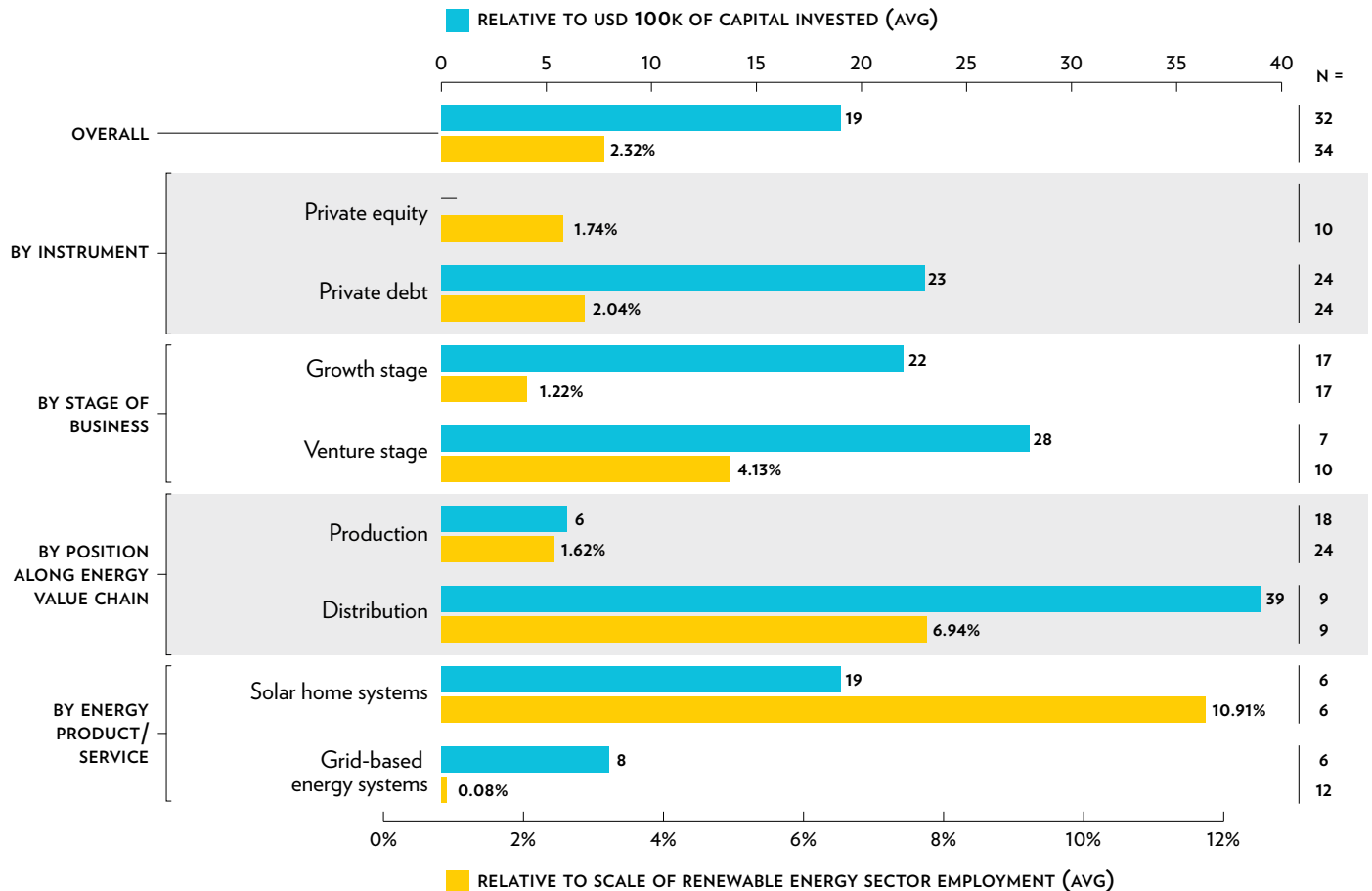
2.3%

of employment in the renewable energy sector

18

jobs for every USD 100,000 invested, on average, in a one-year period

Variance in figures among different segments of clean energy access investments is depicted below.



Product quality

IRIS+ PI7834

DESCRIPTION: Indicates whether the organization provides a warranty for its product/service.

IRIS+ PI4128

DESCRIPTION: Proportion of an organization's products that were recalled during the reporting year.

IRIS+ PD4587

DESCRIPTION: Lifetime of the product provided by the organization, based on reasonable use.

Regarding product quality, 55% of 31 unique investments offer product/service warranties.* As might be expected, investments offering warranties primarily target household-level customers directly, with products such as solar home systems. The remaining 45% of respondents that did not offer any warranty were primarily engaged in grid-based solutions and waste-to-energy services.

Additionally, across the sample, an average of 0.02% of products had been recalled; among the 24 investments for which this metric was reported, only one had experienced any product recalls.

By estimating product lifetimes, responses also explored the duration for which the impact from investments in the sample is expected to last. Specifically, investors in 15 unique investments reported anticipated product lifetimes, with products expected to remain fully functional for anywhere from two to 30 years (median 18 years). Durability, naturally, varies by product type. Solar home systems, for example, were expected to last an average of seven years while grid-based systems were expected to last an average of 22 years.

Additional metrics

Some respondents shared additional metrics they track, many of which relate to investments' ability to reach specific demographics and business-related indicators of financial soundness and sustainability. Examples of these metrics include:

- percent of employees who are female;
- number of indirect beneficiaries of the investment's products or services;
- certifications held by the company;
- sales revenue by client type and geographical location; and
- increase in study time among client households.

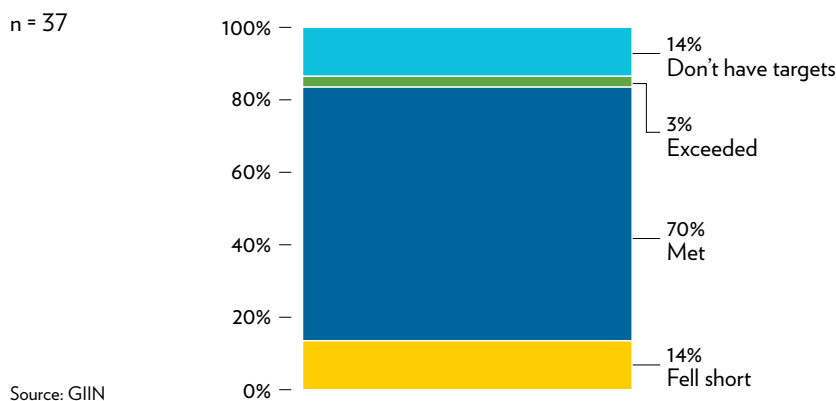
In cases where respondents indicated such bespoke metrics, the Research Team could not meaningfully analyze results. These metrics will, however, be considered for inclusion in future editions of this report.

* Investors did not answer this question for the remaining 34 investments.

RISKS to creating impact

A clear majority of investments in the dataset met or exceeded their impact performance expectations (73%; Figure 4). Most of the remaining investments did not have clear impact targets and therefore could not assess their performance against these goals. Fourteen percent fell short of their impact expectations.

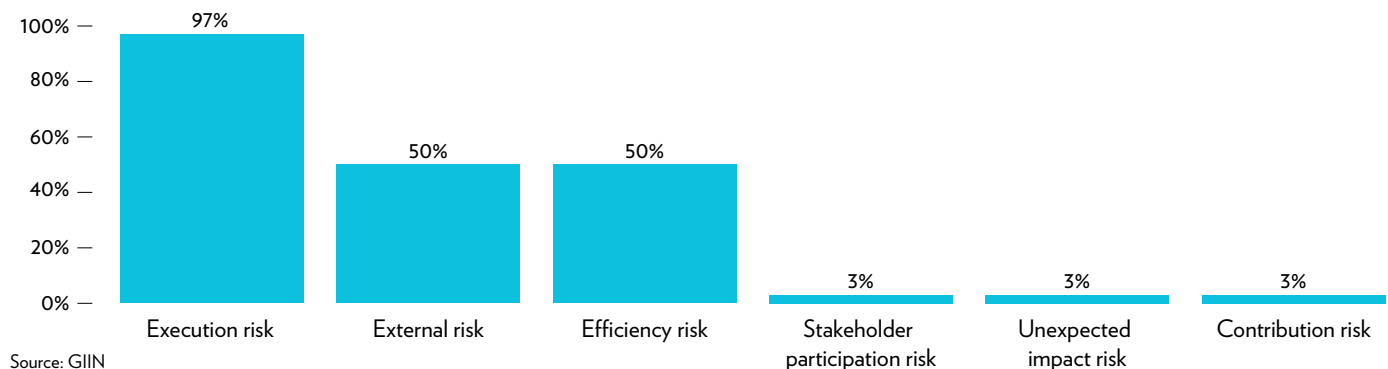
FIGURE 4: Impact performance relative to expectations



About three-quarters of respondents indicated that their investments had faced some impact risk since their initial investment (Figure 5), most commonly execution risk (97%), external risk (50%), and efficiency risk (50%). Specific examples of impact risk incidents cited included some technical difficulties that affected turbine efficiency, challenges executing market expansion plans in accordance with initial projections, and the inherent risks of iteration required to develop new, untested business models. A detailed example of how investors identify and mitigate impact risks can be found in the FMO spotlight box. For detailed definitions of each of these types of impact risk, see Appendix 2.

FIGURE 5: Impact risks faced since inception of investment

n = 32; respondents may face multiple risks.



SPOTLIGHT:

FMO

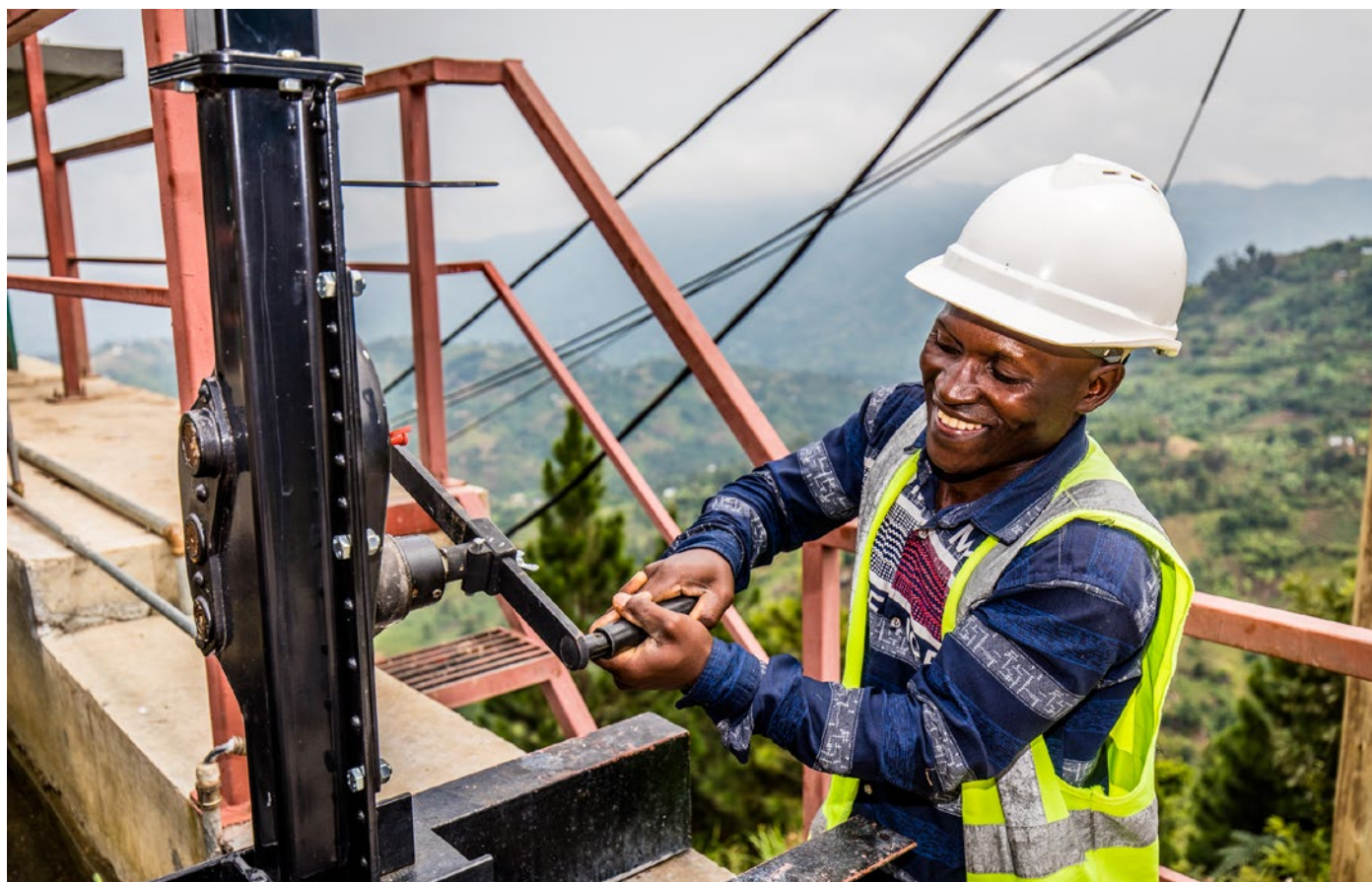
FMO, the Dutch development bank, invests in companies and financial institutions based in emerging markets.

In 2017, FMO* invested in Azure Power, a solar power company based in India, and subsequently financed solar rooftop solutions for its sister company, Azure Rooftop Power. This solar energy investment seeks to provide 200 MW of power generation capacity to government institutions and businesses. However, conducting business in India has presented both external and execution risks, as the FMO team contended with practices around land acquisition and safety, health, environment, and social (SHES) issues in India. To address these risks, FMO supported Azure's implementation of a social due diligence process along with a land acquisition procedure for all new projects. Azure has since created a department dedicated to addressing SHES issues related to ground and rooftop installations. To address this impact risk directly, FMO has also supported a workshop on innovative solutions to tackle SHES, such as incentives provided to staff to reinforce good practice.

In Uganda, FMO and its client, Frontier Energy, invest in several run-of-the-river hydro projects designed to address Uganda's

increasing demand for electricity. The main construction contractor for each is a Sri Lanka-based company, VS Hydro. VS Hydro employs 350 individuals for each project, 80% of whom are employed by sub-contractors. In 2016, FMO faced unexpected impact risk and discovered poor labor standards at the work sites, which led FMO and Frontier Energy to commission a labor audit. The audit findings highlighted a number of workplace issues, including a lack of human resources staff, overtime hours, absence of employment contracts, and poor record-keeping. Due to the predominantly Sri Lankan management team and Ugandan workforce, these problems were exacerbated by language and cultural barriers. To address these issues, FMO collaborated with its investees to develop a roadmap to address the identified gaps and improve working conditions. As a result, VS Hydro implemented a new HR system, developed contractor management systems, increased wages, and integrated new workforce policies to improve working conditions. FMO has since continued its engagement through monthly check-ins to mitigate any additional unexpected risk. VS Hydro also intends to implement these labor standards and policies at its new development sites in Western Uganda and Rwanda.

* Learn more about [Azure Power](#) and [VS Hydro](#).



SOURCE: FMO

CONTRIBUTION to impact results

Types of investor contribution

Impact investors often seek to understand how their investments and the work of their investees create positive social and environmental effects beyond what would have likely occurred anyway. This ‘contribution’ to progress offers insight into the influence of investors’ capital and its ability to efficiently stimulate change. Respondents employed four primary strategies to contribute to impact generation: engaging actively with their investees (47%), providing flexible capital (28%), signaling that impact matters (22%), and growing new or undersupplied capital markets (22%). For definitions of each of these strategies, see Appendix 2.

Of course, different types of capital may have different roles to play as they support impact generation. For example, regarding growth-stage investments, 73% of responses indicated seeking to engage actively, versus 13% of responses regarding other stages of business. Respondents with investments in private debt also largely sought to engage actively with their investees (57%), whereas, interestingly, respondents with private equity investments were evenly split between engaging actively with and providing flexible capital to those investees (43% each).

Ways to gauge contribution

Investors can gauge their contributions in a few ways, such as by whether they offer additional, non-financial support to investees. Among 36 investments with this data reported, 41% benefited from technical assistance funded by the investor; the remaining 49% had not received any such assistance. This figure aligns strongly with the proportion of investors described above who seek to engage actively with their investees.

Contribution may also be assessed by an investee’s ability to raise follow-on capital, which suggests attractiveness to either the original investor (in a latter transaction) or to additional investors. Among the 37 investments with responses to this question, 57% had successfully raised follow-on capital, from either the same investor (16%) or from other investors (41%). That the others had not yet raised follow-on capital, may reflect, in part, the relatively recent vintage of many investments in the sample.

Lastly, investors assessed the level of competition investees face in their target markets, which serves as one indicator of investees' contribution to advancing access to clean energy. Particularly where investors seek to grow new or undersupplied capital markets and in markets where investees face little-to-no competition, investees' products and services inherently reach new, underserved customers. For nearly three-quarters of the 37 investments with responses to this question, investees faced a little competition. The remainder were split between those facing a lot of competition (16%) or no competition (11%). Investees in both energy production and energy distribution faced similar levels of competition.

While these figures indicate that impact investors are pursuing the contribution strategies they described, accurately assessing and determining contribution remains a complex challenge facing the industry. Various factors may influence the role of an investor in facilitating impact results, including the relative stake of their investment in the company, project, or property; the level of engagement of the investor with the investee; the stage of business of the investee at the time of investment; among others. Future analysis will continue to explore these relationships to better understand how different factors correlate to impact results.

Feasibility of impact performance research

A significant component of this research effort was to explore the feasibility of conducting aggregate and comparable impact performance research. As noted in the Methodology on page 9, this research effort included extensive engagement with an advisory body featuring members of the GIIN's Investors' Council and other impact investors active in the energy access sector. This process elevated key constraints to participation, discussed further below, yet also reinforced significant industry demand for comparable impact performance data.

This process reinforced significant industry demand for comparable impact performance data.

Aggregate and comparable impact performance analysis requires each of four factors to fall into place:

1. **Volume** of data to enable meaningful aggregate and segmented analyses;
2. **Rigor** and standardization in data's collection and calculation;
3. **Relevance** of data to impact performance and real results; and
4. **Availability** of data from impact investors, who must be able and willing to disclose the information required to meet the first three factors.

To determine whether these required factors are present, the Research Team conducted a feasibility study to pilot this research effort through extensive consultation with the study's advisory board. The Team also assessed external indicators of the broader industry to understand market demand and the state of impact measurement and management practice. In short, investors are collecting a significant volume of impact data, and a pioneering group of impact investors are ready, able, and willing to share. The amount of data contributed by this pilot group of impact investors exceeded the Team's initial targets for data collection, especially at the output level, which enabled aggregation and comparison across impact investments. In group and one-on-one conversations, the Research Team confirmed that investors collect and calculate output metrics in a standardized manner; outcome metrics, however, require the use of additional assumptions and proxies and are therefore subject to additional variation. To address this potential variance, the Team conducted most calculations for outcome metrics in-house, as detailed in the 'How Much' section (page 19). Finally, study respondents and advisors confirmed through their participation in the development of the questionnaire and their early methodological feedback that the data collected from impact investors and included in this study are relevant to and indicative of impact.

With the industry at large demanding transparency in impact data and results, as indicated in the 'Study Motivations' section (page 8), the market seems

ready for comparable impact performance data and analysis. Impact investors increasingly align their impact measurement and management practices to standardized metric sets and reporting frameworks, such as IRIS+, a prerequisite to aggregating impact data. As a result, the industry has collectively developed a robust set of impact data waiting to be shared. **Together, these study- and industry-specific indicators suggest that impact performance can be aggregated and compared among impact investments.**

Data availability

The Research Team collected data on transaction features, impact objectives, and impact results from investors in clean energy access. Performance metrics reflect the degree to which an investment sustains impact (depth), the extent of impact (breadth), and how long the impact lasts (duration).

Since not all metrics are relevant across all impact strategies within a given sector, all questions were made optional for respondents. In total, 11 investor organizations reported data on 56 unique investments in 64 total observations, exceeding

TABLE 5: Number of data points collected per metric

n = 56 unique investments made by 11 investors.

	METRIC	IRIS METRIC ID NUMBER	NUMBER OF RESPONSES
DEPTH	Percent savings on energy-related expenditures, per client household (%)	PI1748	9
	Energy savings per product sold (KWh)	PI7623	6
	GHG reductions per product sold or service rendered (metric tons)	PI5376	25
	Investee revenue growth (%)	FP4761	14
	Total 'depth' data points	-	54
BREADTH	Client individuals provided new access	PI2822	16
	Jobs created at directly supported or financed enterprises	PI3687	36
	Total units sold	PI1263	27
	Number of hours of clean energy provided (hours)	-	4
	Total 'breadth' data points	-	83
DURATION	Expected product lifetime (years)	PD4587	15
	Organization provides product or service warranty	PI7834	31
	Percent of products recalled (%)	PI4128	24
	Total 'duration' data points	-	70

Source: GIIN

the study’s initial target to collect data on up to 40 investments.* Despite some challenges accessing and sharing certain data points, investors collected and shared sufficient impact data to enable meaningful analysis. Respondents reported quality data for analysis on seven of the 11 indicators collected (Table 5). The analysis and key findings derived from these metrics are presented in the ‘How Much’ section of this report (page 19). Where respondents did not report a given metric, they were asked to articulate the reasons they could not submit data (Figure 6).

Overall, the biggest barrier to providing information on impact performance was the lack of high-quality data, as indicated by 36% of responses. A second major impediment to data submission was irrelevance to investors’ impact strategies, implying that the metric had not been tracked (34%). Since not all metrics are necessarily relevant for a given impact strategy, all questions in this survey were made optional. Only 14% of responses identified confidentiality concerns as a barrier to submitting data for five metrics, suggesting participation in this study was not hindered significantly by confidentiality restrictions. The remainder of this section details the reasons respondents were unable to share data by category of metric, followed by lessons learned to address key challenges moving forward.

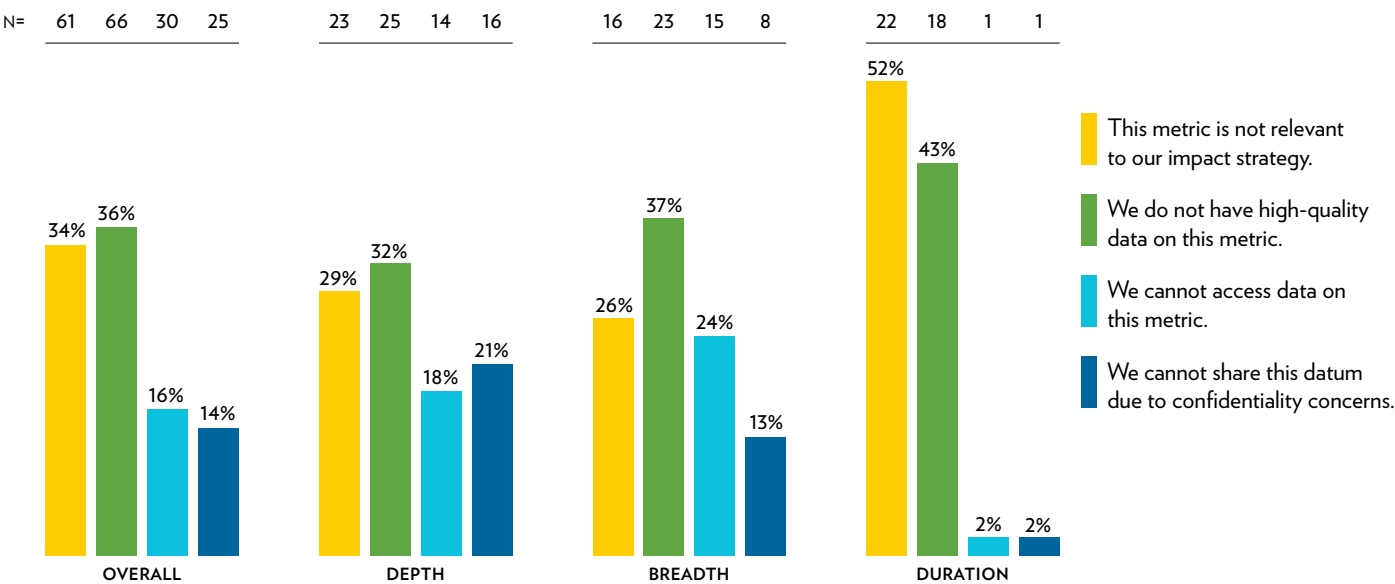
METRICS RELATED TO DEPTH OF IMPACT

Depth of impact reflects the importance of the impact for the people or ecosystems affected. Relevant metrics included percent savings on energy-related expenditures

* An observation is an annualized investment; in some cases, investors provided multiple years of data for a single investment.

FIGURE 6: Overall reasons respondents were unable to submit data

Number of responses shown beside each bar.



Note: Respondents answered questions about data constraints only in cases where they could not submit or did not have data available; in some cases, respondents shared data constraints across multiple metrics. Total numbers of responses varied for each category; this figure therefore reports all responses for why respondents could not submit data (Overall) and broken down by category (Depth, Breadth, and Duration), details of which can be found in Table 5 above.

Source: GIIN

per client household (%), energy savings per product (KWh), GHG reductions per product sold or service rendered (metric tons), and investee revenue growth (%). Respondents submitted a total of 54 data points across depth metrics; they had the greatest amount of standardized data available for GHG emissions reductions (25 investments) and some data available for other metrics, per Table 5 above. Nine investors could not report GHG reductions per product sold or service rendered, eight of which articulated that they could not due to unavailability of data. Interestingly, while confidentiality was not a major concern across all depth metrics (21% of constraints to participation in this survey), it was the largest barrier to sharing investee revenue growth (46% of the 13 investments for which data were not available).

METRICS RELATED TO BREADTH OF IMPACT

Breadth of impact reflects the reach of impact across groups of people or ecosystems. Relevant metrics included the number of client individuals provided new access, number of jobs created at directly supported or financed enterprises, total units sold, and number of hours of clean energy provided. Respondents had the most data available on the number of jobs created (36 investments), units sold (27), and client individuals provided new access (16). For five investments, however, investors could not share data on client individuals provided new access, because they did not deem this metric relevant to their impact strategies. Only two investors could not share data due to confidentiality concerns for two metrics, 'client individuals provided new access' and 'total units sold.' And no respondents cited confidentiality concerns for the remaining two metrics, 'jobs created at directly supported or financed enterprises' and 'number of hours of clean energy provided,' suggesting that impact research related to breadth may not be hindered by confidentiality constraints. Similarly, obtaining high-quality data on the total number of units sold was not difficult for any of the investments, perhaps because, as some investors indicated, this is an operational metric that is already integrated in investors' reporting processes.

However, investors cited challenges obtaining high-quality data on the number of jobs created at directly supported or financed enterprises for five of the eight investments for which data were not available. Data quality also hindered reporting on the number of hours of clean energy provided, with data available for only four of the 64 investments included in the sample.

METRICS RELATED TO DURATION OF IMPACT

Metrics used to assess the duration of impact included product lifetime (years), whether the organization provides a product or service warranty, and percent of products recalled (%). Respondents provided the greatest amount of data on whether the organization offers a warranty (31 investments) and the percent of products recalled (24). Since metrics on duration often require sustained tracking and, in some cases, are perceived as removed from the impact itself, not all investors routinely collect these data. In some cases, investors did not believe that duration metrics indicate impact or offer enough value to their investment or impact management practices. Investors did not provide data on product or service warranties for seven investments in total, primarily because they saw this metric as irrelevant to their impact strategies (six investments). Due to a lack of high-quality data, investors could not provide data on product lifetime for 13 investments.

Lessons learned

The impact investors that participated in this study remained highly engaged throughout the process, reflecting genuine and earnest interest in seeing impact performance results materialize in the market. Their engagement and their submitted data offer the following five lessons for impact performance research.

1. Context is crucial to understanding and comparing impact performance results.

Nearly universally, investors emphasized that interpreting impact performance results requires careful attention to context and nuance, specifically with respect to the types of stakeholders affected and the nature of their previous energy access, location of investee operations, and investee approach to creating impact. The nature of impact results varies widely with the type of clean energy access product or service. For example, while solar home systems may provide one group of stakeholders with their first access to energy, grid-based systems may channel cleaner energy to an altogether different set of stakeholders who are already connected to the grid. The Research Team has contextualized impact performance within the analytic methodology, accounting for the geography of investee operations and the nature of previous energy access; in evaluating aggregate results, the analysis included further context, such as details on the sample's investment features and objectives. Growing investor participation in impact performance research will unlock further ability to disaggregate and segment analysis by key contextualizing variables.

2. Synthesized, standardized reporting structures can reduce the reporting burden, especially for investees.

Many impact investors have their own reporting processes and instruments that generally require the regular collection of many data points directly from their investees — or even from end stakeholders. Investees must often expend resources and staff time to collect and report these data. Requesting additional metrics risks further exacerbating the reporting burden on investees; investors themselves also face multiple requests for impact performance information from field-builders and LPs. These burdens can be reduced by first leveraging common, standardized indicator sets, such as the IRIS+ Core Metrics Sets, to streamline the information collected among co-investors. Further, integrating impact performance metrics into routine data collection, alongside investors' other financial reporting requirements, can enable investees to embed data collection and reporting into their existing reporting functions.

Nearly universally, investors emphasized that interpreting impact performance results requires careful attention to context and nuance.

Growing investor participation in impact performance research will unlock further ability to disaggregate and segment analysis by key contextualizing variables.

More investors establishing more rigorous impact management practices will grow the impact performance dataset, enabling deeper insights into the drivers of impact performance.

3. Routine, comprehensive data collection is essential for annualized performance analysis.

Impact investors' impact measurement and management processes are at various stages of development; for many, collecting data annually on impact outputs and outcomes remains an important first step. Reporting annualized impact requires baseline data from the prior year against which change may be assessed. In cases where investors or investees do not have this data, investors cannot track annual change for a given metric. Several respondents indicated intent to begin collecting baseline data for some metrics not previously reported in an effort to participate more fully in future iterations of this research. More investors establishing more rigorous impact management practices will grow the impact performance dataset, enabling deeper insights into the drivers of impact performance.

4. Investors place competing demands on the process and instrument for data collection.

While some investors suggested the Team simplify data collection with a shorter questionnaire and higher-level metrics, others preferred to share more detailed information, particularly granular, tailored impact metrics and additional context. Naturally, this tension raises the challenge of crafting a focused, yet comprehensive questionnaire that maintains, at its heart, the context in which investments are made. Moving forward, the Research Team will require respondents to report certain key metrics, leaving others optional. The Team will also explore ways to simplify the data collection tool to maintain a clear, efficient process.

5. Producing standardized, aggregated impact performance data requires standardized assumptions.

Investors often reported estimating key data points — such as kilowatt hours of energy saved or percent savings on energy-related expenditures — using proxy indicators, extrapolating based on assumptions to drive these calculations. To assess results in aggregate, the Research Team performed additional calculations using assumptions detailed in the 'How Much' section (page 19). Looking ahead, the Research Team intends to reduce the number of metrics that require study respondents to make their own assumptions, instead leveraging standardized assumptions to the extent possible.

Conclusion

Impact is central to the identity and practice of impact investing, yet to date, little information is available about impact results. This study begins to address this significant knowledge gap by addressing both sets of research questions posed earlier: is aggregate and comparable impact performance research possible and, if so, what social and environmental results are associated with impact investors' activities?

This effort has elevated key insights on the potential of this type of research and performance results among participating impact investors:

- **Impact investments can be differentiated from each other on the basis of impact.** Through the feasibility components of this effort, the Research Team determined that it is possible to analyze impact results across investments in a comparable way — and thus it is possible, especially as this effort continues to scale, to integrate impact considerations more fully into investment screening, diligence, and management.
- **Contextualizing results is key to reliable, rigorous analysis of impact performance.** Performance results, naturally, vary based on impact objectives, target stakeholders, and geography of the investment. This context also comes into play when assessing the different types and levels of impact among various products or services as well as different investment features, such as investment instrument. In order to compare results in a meaningful way, this context must therefore be woven into the analytic methodology itself.
- **In the clean energy access sector, impact investors' results reflect their objectives of generating both social and environmental benefits through their investments.** Participants in this study described two common sets of motivations for their activities: to improve access to affordable and clean energy and to improve energy efficiency — and thus reduce energy consumption and offset harmful emissions. Their reported results demonstrate progress toward effecting change on both fronts; together, respondents facilitated access to clean energy for 2.4 million individuals around the world and reduced GHG emissions by 3.9 million metric tons over a one-year period.

Additional research questions

This effort represents strong progress toward addressing knowledge gaps about impact performance results, yet naturally raises several additional research questions for further exploration:

- **What drives impact performance results?** Given the relatively small sample size, specific drivers of strong impact performance results could not be ascertained. A more robust sample, however, could enable future research to explore how different impact measurement and management processes, investment decisions, and sector-specific activities correlate to and contribute to impact results. Additionally, analysis of a larger sample size could help to identify and articulate mechanisms to enhance the efficiency with which impact is created relative to the amount of capital invested.
- **What relationship exists, if any, between impact and financial performance?** Using a larger dataset, additional analysis could explore how impact and financial results interrelate, including when tradeoffs do and do not exist and what factors may drive these potential tradeoffs.
- **What negative results are associated with impact investing activities?** This study focused on the positive results associated with impact investing but did not explore potential negative consequences of impact investment. Additional analysis could investigate the possibility of these negative effects, alongside an estimation of the net impact of impact investing.
- **How can impact be assessed at the fund or portfolio level, and what will the results show?** While this study explored investment-level impact performance, many investors also invest indirectly, through funds or other intermediaries. Some investors also manage multiple funds, which further complicates portfolio-level aggregation. Insight into the nature of this type of data aggregation and the resulting impact performance figures would further enhance transparency in the market.

APPENDIX 1.

List of participants and advisors

The GIIN would like to recognize the contributions of the following organizations who shared impact performance data for and guidance throughout this study:

AlphaMundi Group
Blue Haven Initiative
Grassroots Capital Management / Caspian Impact
Investment Advisors
CDC Group Plc
FMO
Fondaction
IDB Invest
Insitor Management
LGT Impact
responsAbility
SJF Ventures

The Research Team would also like to thank the following organizations who, in addition to study participants, provided industry insights and guidance throughout this process:

AHL Venture Partners
Athena Capital Advisors
Calvert Impact Capital
DOEN Participaties
DWS Group
Enclude
Gray Ghost Ventures
International Finance Corporation
Nuveen, a TIAA Company
Treehouse Investments
Triodos Investment Management
UBS

Key terms

The following definitions were provided to respondents in the questionnaire:

IMPACT RISKS

Evidence risk: The probability that the evidence on which the strategy is based is not good evidence that the expected impact will occur.

External risk: The probability that external factors disrupt our ability to deliver the expected impact.

Execution risk: The probability that the activities are not delivered as planned and do not result in the desired outputs.

Stakeholder participation risk: The probability that the expectations and/or the experiences of stakeholders are misunderstood or not taken into account.

Drop-off risk: The probability that the expected impact does not endure.

Unexpected impact risk: The probability that significant unexpected positive and negative impact is experienced by people and the planet.

Efficiency risk: The probability that the expected impact could have been achieved with fewer resources or at a lower cost.

Contribution risk: The risk that your contribution leads to a worse effect than would otherwise have occurred.

CONTRIBUTION STRATEGIES

Signal that impact matters: choose not to invest in or to favor certain investments that, if all investors did the same, would ultimately lead to a ‘pricing in’ of effects on people and planet by the capital markets more broadly. Some people think of this as ‘values alignment’.

Engage actively: use expertise and networks to improve the environmental/societal performance of businesses. Engagement can include a wide spectrum of approaches — from dialogue with companies to investors taking board seats and using their own team or consultants to provide hands-on management support (as often seen in private equity). While a significant dialogue with companies, including about environmental, social and governance factors, is a normal part of the fund management process, the phrase ‘engage actively’ reflects a strategy that involves, at a minimum, significant proactive efforts to improve businesses’ effects on people and the planet.

Grow new or undersupplied capital markets: anchor or participate in new or previously overlooked opportunities to enable businesses to generate impact. This may involve seeking out non-traditional illiquidity, complexity or perception of disproportionate risk, which some investors may do in pursuit of financial alpha. In public equities, bonds or infrastructure, an investor might move from holding mainly well-subscribed issuances (which is just a signaling strategy) to participating in a higher proportion of undersubscribed issuances.

Provide flexible capital: recognize that certain types of businesses will require acceptance of disproportionate risk-adjusted financial return in order to generate certain kinds of impact. For example, creating a new market for previously marginalized populations can require very patient capital that cannot offer a commercial financial return.

STAGES OF BUSINESS

Seed/start-up: Business idea exists, but little has been established operationally; pre-revenues.

Venture: Operations are established, and company may or may not be generating revenues, but does not yet have positive EBITDA.

Growth: Company has positive EBITDA and is growing.

Mature: Company has stabilized at scale and is operating profitably.

Below, other items frequently referenced throughout the report are also defined.

CLEAN ENERGY ACCESS NETWORKS

Clean Cooking Alliance: A public-private partnership led by the United Nations Foundation that seeks to create a global and inclusive market for clean cookstoves and mobilize national and donor-level commitments to achieve universal adoptions of clean cookstoves and fuel. It provides grants for research and initiatives, advocates for international standards in the stove manufacturing industry, and coordinates knowledge management on the use of clean cookstoves. More information can be found here: www.cleancookingalliance.org.

Global Off-Grid Lighting Association (GOGLA): GOGLA is the global association for the off-grid solar energy industry. Comprising 150 members, GOGLA supports the building of sustainable markets and profitable businesses that deliver high-quality, affordable off-grid electricity products and services to consumers globally. GOGLA focuses on building market intelligence, knowledge-sharing, advocacy, and creating and promoting industry standards. More information can be found here: www.gogla.org.

ENERGY PRODUCTS/SERVICES

Grid-based energy system: Large-scale energy systems that rely on an electrical power grid and enable energy systems to store energy when production exceeds consumption and returns to the grid when production falls below consumption. The electrical grid delivers electricity from producers to consumers to connect consumers to energy and consists of generating stations (to produce electric power), electrical substations (to control electrical voltage), high-voltage transmission lines (to deliver power to collective demand centers), and distribution lines (to connect power to individual customers and businesses).

Off-grid utility: An approach to access electricity that does not rely on a utility for power, such as electrical grid infrastructure, but instead uses stand-alone systems, such as solar home systems or mini- or micro-grid systems.

Solar home system: A stand-alone photovoltaic system that provides power to remote or rural off-grid households. This renewable energy system fulfills basic energy needs and provides sufficient energy for lighting and the use of basic home appliances, such as radios and televisions. The solar energy is captured with photovoltaic solar panels — generally installed on rooftops or in open land — that convert the sunlight into electricity.

Mini- or micro-grid systems: A set of decentralized, off-grid electricity distribution systems — often including electricity generators and energy storage systems — that supply energy to consumers. These operate at a smaller scale than do grid-based energy systems and provide electricity via a grid that can operate in isolation from a national electricity network.

End-user financing for purchase/lease of energy

access: Provision of financing options — for example, via microcredit — specifically to enable end-consumers to purchase or lease energy products or services. Products financed through this model vary widely, from energy efficient home products to fuel-efficient vehicles, among others.

Waste-to-energy services: A renewable energy technology that converts traditional waste into clean, renewable energy through incineration, thus reducing the volume of waste. The heat generated through this process can be used directly for heating or electricity generation.

OTHER

‘Dirty’ energy: Energy reliant on the burning of fossil fuels, such as coal, natural gas, and oil, which create emit significant amounts of GHGs in the process, such as CO₂ and methane.

Extremely poor individuals: Individuals living in abject or absolute poverty, defined by the UN as “a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education, and information”. All individuals living in extreme poverty fall below the poverty line, which is set at the national level.

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United Nations, Household Size and Composition Around the World 2017, (United Nations, 2017).

To estimate total population:

United Nations Population Division, (UN Department of Economic and Social Affairs, 2019).

To estimate population lacking electrification:

IEA, Sustainable Development Goal 7: Access to electricity (IEA, 2017).

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World Resources Institute, CAIT Climate Data Explorer (WRI, 2018).

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About the Global Impact Investing Network

This report is a publication of the Global Impact Investing Network (GIIN), the leading global champion of impact investing, dedicated to increasing the scale and effectiveness of impact investing around the world. The GIIN builds critical market infrastructure and supports activities, education, and research that help accelerate the development of a coherent impact investing industry.

Research

The GIIN conducts research to provide data and insights on the impact investing market and to highlight examples of effective practice.

thegiin.org/research

Impact Measurement and Management (IMM)

The GIIN provides tools, guidance, trainings, and resources to help investors identify metrics and integrate impact considerations into investment management.

thegiin.org/imm

Membership

GIIN Membership provides access to a diverse global community of organizations interested in deepening their engagement with the impact investment industry.

thegiin.org/membership

Initiative for Institutional Impact Investment

The GIIN Initiative for Institutional Impact Investment supports institutional asset owners seeking to enter, or deepen their engagement with, the impact investing market, by providing educational resources, performance research, and a vibrant community of practice.

thegiin.org/giin-initiative-for-institutional-impact-investment

Roadmap for the Future of Impact Investing

Interested in helping to build the field of impact investing? The GIIN's *Roadmap for the Future of Impact Investing: Reshaping Financial Markets* presents a vision for more inclusive and sustainable financial markets and articulates a plan for impact investing to lead progress toward this future. To download the Roadmap and find more information about opportunities to get involved, visit roadmap.thegiin.org.

Additional GIIN Research

The GIIN conducts research to provide data and insights on the impact investing market and to highlight examples of effective practice. The following selection of GIIN reports may also be of interest:

Since 2011, the GIIN has conducted an **Annual Impact Investor Survey** that presents analysis on the investment activity and market perceptions of the world's leading impact investors.



The **Impact Investing Benchmarks** analyze the financial performance of private debt, private equity/venture capital, and real assets impact investing funds.



Lasting Impact: The Need for Responsible Exits outlines impact investors' approaches to preserving the positive impact of their investments after exit.



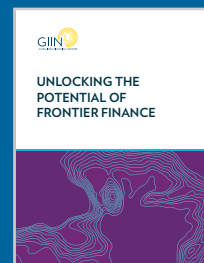
The **Business Value of Impact Measurement** demonstrates how investors and their investees use social and environmental performance data to improve their businesses.



The State of Impact Measurement and Management Practice surveys investors on their approaches to impact measurement and management.



Unlocking the Potential of Frontier Finance describes common features of frontier finance investments, challenges they face, and potential solutions to advance the market.



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