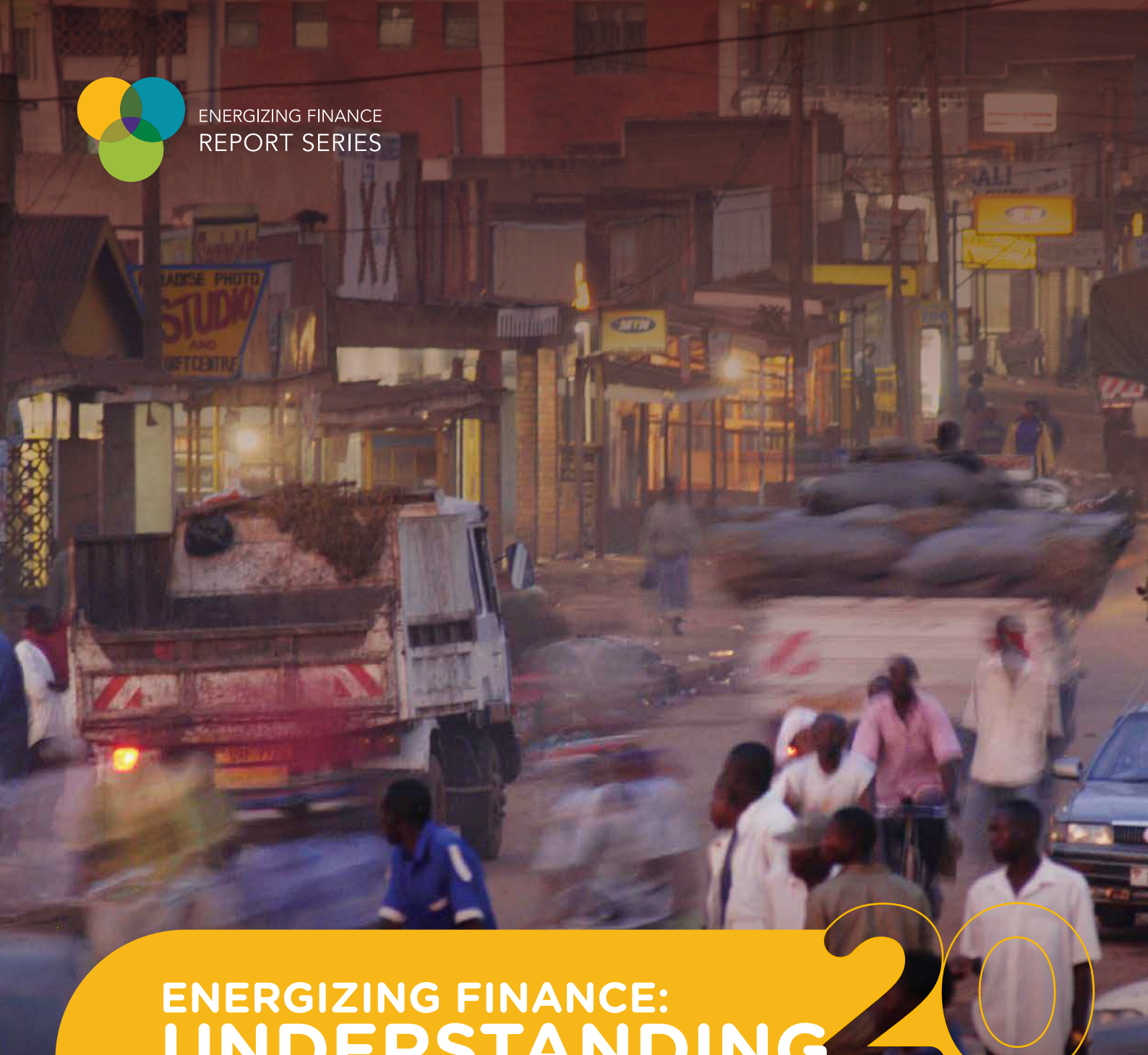




ENERGIZING FINANCE  
REPORT SERIES



# ENERGIZING FINANCE: UNDERSTANDING THE LANDSCAPE

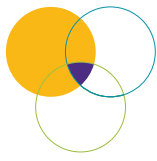
# 2018

## EXECUTIVE SUMMARY



CLIMATE  
POLICY  
INITIATIVE





## EXECUTIVE SUMMARY

Access to sustainable energy underpins many aspects of a healthy, sustainable economy. It is a child's ability to turn on lights to study at night and connect to the internet, a family's ability to cook indoors without inhaling smoke, and a business's ability to operate and grow, creating jobs and opportunities.

Recognizing this, governments worldwide have set global targets for energy access in Sustainable Development Goal 7, which aims to ensure "universal access to affordable, reliable, sustainable and modern energy for all" by 2030. Today, with twelve years to go to achieve the goals, almost one billion people still lack electricity and almost three billion people lack access to clean cooking (Tracking SDG7: The Energy Progress Report 2018).

There are proven technologies and business models that can increase access to clean, affordable and reliable energy to help achieve the goals and spur sustainable development. However, financing these projects and enterprises continues to be a persistent challenge.

Sustainable Energy for All's [Energizing Finance series](#) is the first, and only, in-depth attempt to capture multiple years of data on investment for the two key areas of energy access: electrification and clean cooking. It focuses on public and private finance commitments in 20 developing countries — known as the high-impact countries — that together are home to nearly 80% of those living without access to sustainable energy (See Map ES 1 and Map ES 2). Building upon the first [2017 report](#) that examined financing flows during 2013-14 (averaged annually), this latest report updates these

findings with energy access finance commitments from 2015-16, meaning that, for the first time, policy makers and investment leaders can begin to track progress, or lack thereof, in scaling up finance for energy access since agreement on the Sustainable Development Goals.

**OVERALL, INVESTMENTS IN BOTH ELECTRICITY AND CLEAN COOKING CONTINUE TO FALL FAR SHORT OF WHAT IS NEEDED TO CLOSE THE ENERGY ACCESS GAP. IN SOME COUNTRIES, INVESTMENT HAS DROPPED BY 50% FROM THE PREVIOUS REPORTING PERIOD. MORE NEEDS TO BE DONE, PARTICULARLY FOR AND BY THOSE COUNTRIES WHERE INVESTMENTS HAVE INCREASED ONLY INCREMENTALLY OR NOT AT ALL, SUCH AS SOME COUNTRIES OF FOCUS IN SUB-SAHARAN AFRICA. THE GLOBAL COMMUNITY CAN, HOWEVER, LOOK TO THE FEW BRIGHT SPOTS WHERE GAINS HAVE BEEN MADE TO FURTHER SCALE UP AND TARGET FINANCE FOR ENERGY ACCESS WHERE IT IS NEEDED MOST, AND LEARN LESSONS FROM THEIR APPARENT SUCCESS.**

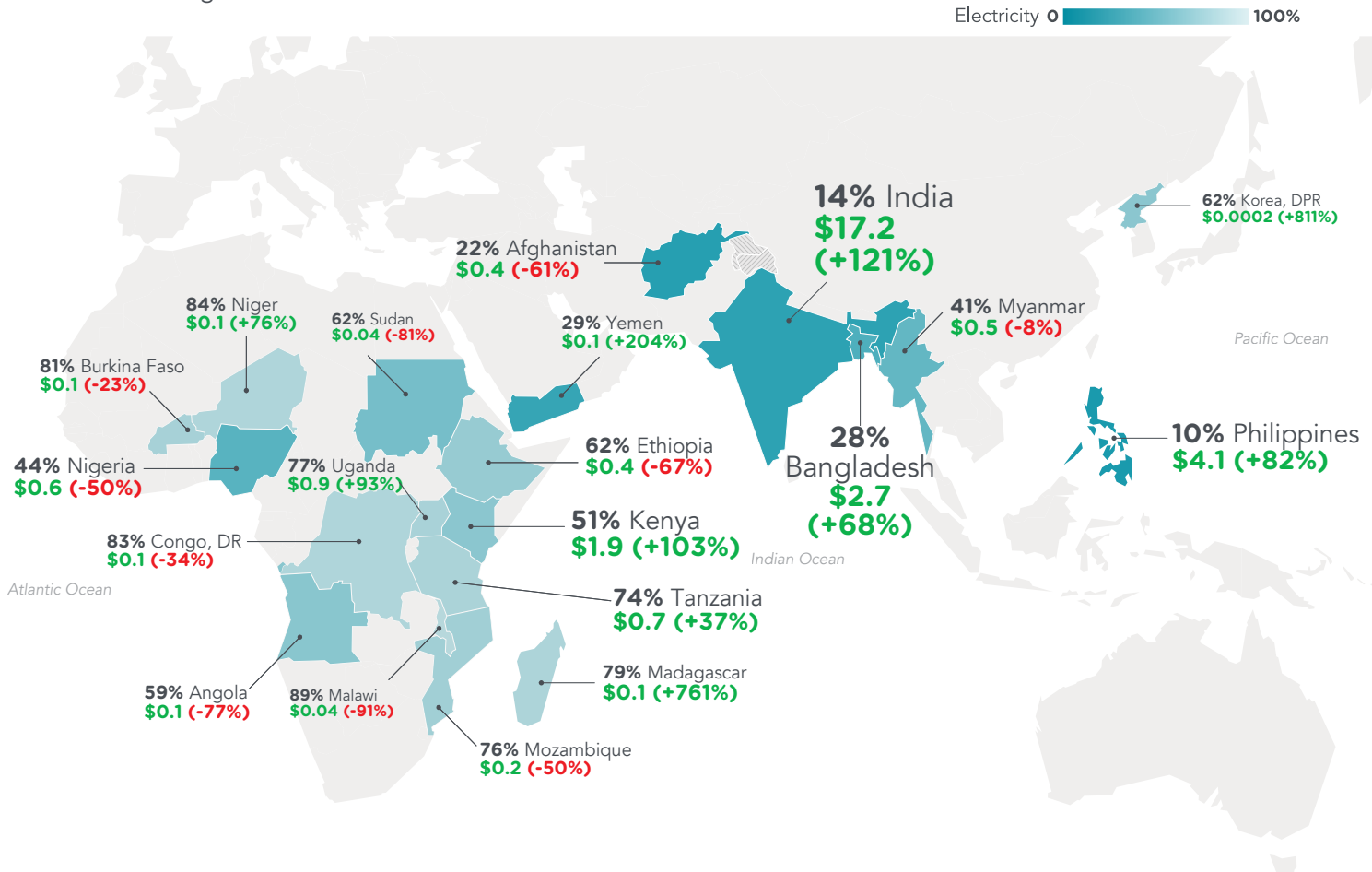




## MAP ES 1

### Finance for electricity access in the 20 high-impact countries

Percentage of population without access to electricity, total finance tracked in 2015-16 (in USD billion) and changes from 2013-14



Source: Access figures based on World Bank Indicators.

## ELECTRICITY FINDINGS

**WHILE THERE HAS BEEN A DRAMATIC AND ENCOURAGING INCREASE IN ELECTRICITY ACCESS INVESTMENTS OVER THE LAST FOUR YEARS OVERALL IN THE 20 HIGH-IMPACT COUNTRIES, THE ELECTRIFICATION INVESTMENT GAP REMAINS LARGE WHERE IT IS MOST NEEDED AND ITS URGENCY IS INTENSIFYING.**

Globally, for the 20 high-impact countries, there was a 56% increase in overall electrification finance commitments, from USD 19.4 billion in 2013-14 to USD 30.2 billion in 2015-16 (see Figure 2.1 for an illustrative depiction of providers, instruments, geographies, recipients, uses, sectors, and access).

International finance for energy access overall remained steady between 2013-14 and 2015-16, at an average of USD 11.7 billion committed per year. While international public finance declined to USD 8.8 billion in 2015-16 from USD 10.5 billion in 2013-14, international private finance more than doubled from the 2013-14 amount to reach USD 2.9 billion in 2015-16.

Domestic private finance, largely located in India, however, increased threefold from 2013-14, and represents roughly half of all electricity access finance flows tracked. This finding corroborates the case study analysis of India (see ES Box 1).

Despite the overall increase in electricity finance, the total amount committed falls well short of the estimated USD 52 billion per year (IEA 2017) needed to provide electricity to all by 2030. At USD 30.2 billion per year, this means we are only reaching just over half of this goal, and with each passing year, falling further behind.

Investment **heavily favors non-residential customers** (e.g. industrial, commercial, and public sector) over residential customers. Just over a quarter of all electricity finance in the high-impact countries – roughly 28%, or USD 8.6 billion – is being used to support new or improved access for residential consumers of electricity. The major share, on the other hand – 72% of finance – is going toward expanding electricity supply to non-residential consumers, and to support wider growth in the economy.

**POLICYMAKERS AND INVESTMENT LEADERS SHOULD BE ASKING WHETHER INVESTMENT IS FLOWING TO THE APPROPRIATE TECHNOLOGIES AND CONSUMERS TO MEET UNIVERSAL CLEAN ENERGY ACCESS GOALS.**

In terms of technologies, more than half of the finance for electricity committed in 2015-16 (USD 16.2 billion, or 54%) was channeled into grid-connected renewable technologies, with finance for solar PV increasing dramatically by nearly five times. While this is good news, the global community may be concerned to note that investment in grid-connected fossil fuel plants accounted for USD 8 billion a year, or 27% of finance for electricity in 2015-16, doubling the 2013-14 levels.

**Figure ES 2**

Sources of finance for electricity across the 20 HICs (USD billion)

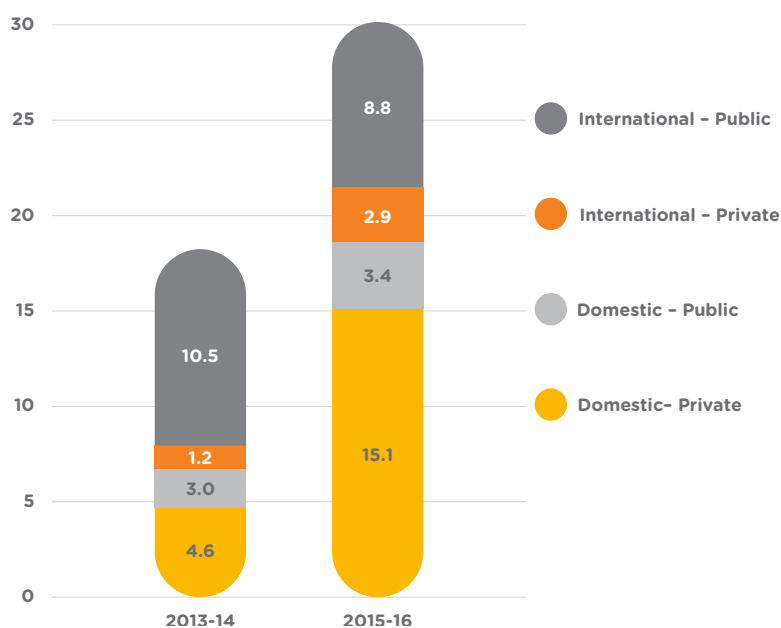
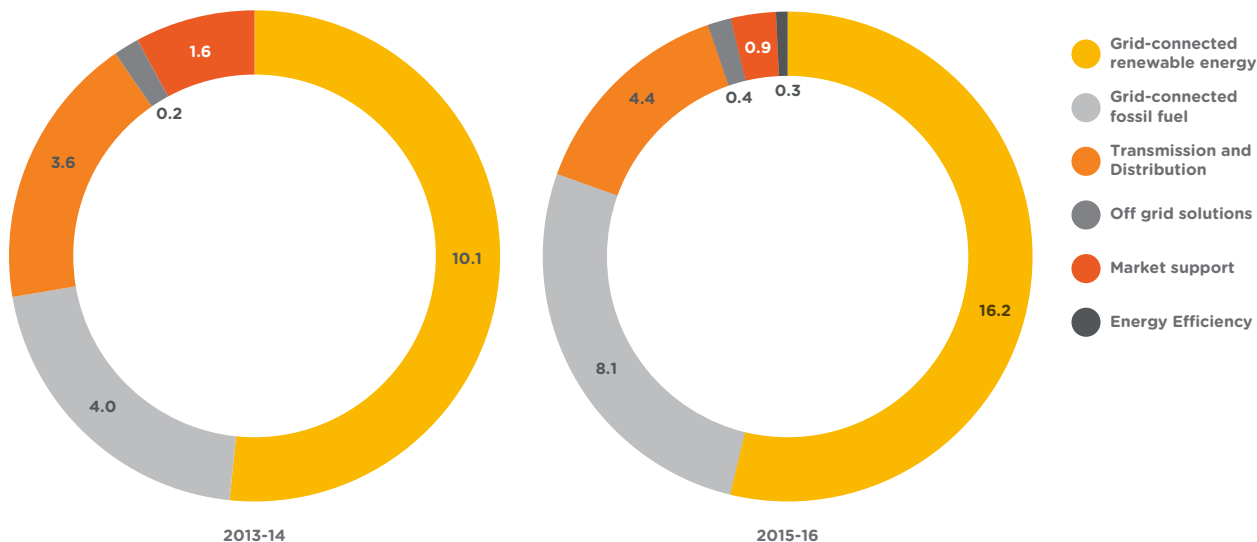


Figure ES 3

Share of finance for electricity by technology type (USD billion)



Note: Grid connect nuclear investments are excluded, as no investments were identified in 2015-16.

**Coal plants, in particular, received two and a half times as much investment in high-impact countries,** growing from USD 2.8 billion in 2013-14 to USD 6.8 billion in 2015-16, when 17 coal plants were financed across the 20 high-impact countries. Philippines, India and Bangladesh are the top three countries receiving financing commitments for coal with Kenya coming in fourth due to one large investment commitment (USD 1 billion) in 2015-16. While fossil fuel energy-based projects contribute to increasing electricity into grids, they do little to address access for those beyond and below the power lines, and these facilities lock in high-carbon assets for 30 years or more. The benefits they may bring in terms of energy access are countered by the negative impacts on human health and their contributions to global climate change. They also pose a “stranded asset risk” to the global financial system, due to increased environmental scrutiny and long-term climate risks.

Investments in off-grid solutions (OGS) also require a close examination; a **growing number of policy makers and experts consider OGS to be among the most cost-effective and quickest ways of providing ener-**

**gy access, especially in rural terrains.** It is therefore encouraging to see that finance commitments for off-grid solutions, including mini-grid technologies, nearly doubled between 2013-14 and 2015-16, growing from USD 210 million to USD 380 million per year on average. While a positive trend, these investments remain a small portion (1.3%) of the total finance tracked.

This low level of finance for OGS is substantiated by the report’s findings on finance for the quality and availability of electricity access, as defined by the Multi-Tier Framework (MTF). The largest portion of finance commitments for residential electricity access (96%, or an annual average of USD 8.2 billion), supported a medium or higher tier of electricity access (Tiers 3, 4, and 5) in 2015-16 – i.e. it provided at least enough electricity to sustain medium power appliances and guaranteed a minimum of eight hours of electricity supply a day. Very little finance was allocated to Tiers 1 and 2, the lower access tiers associated with basic energy connections. It is these basic energy connections, often off-grid or decentralized solutions, that can represent an important step forward for increased quality of life and bring electricity access relatively quickly and cost-effectively to rural communities.

**THERE IS A PERSISTENT GEOGRAPHICAL IMBALANCE IN THE DISTRIBUTION OF FINANCE FLOWING FOR ENERGY ACCESS, WITH SUB-SAHARAN AFRICA FALLING FURTHER AND FURTHER BEHIND.**

The 2013-14 analysis showed that about 60% of the total finance flows over that period went to three countries in Asia: Bangladesh, India and Philip-

pines. In 2015-16, Kenya joined this small group, driven by investment in a large coal plant, with the four countries receiving a collective average of USD 26 billion a year, or 86% of the annual finance commitments for electricity access.

On the other hand, each of the other 16 high-impact countries<sup>2</sup> mostly located in Sub-Saharan Africa<sup>2</sup> received less than USD one billion in annual commitments. These countries are home to more than 460 million people without any access to electricity. Seven of these countries (Afghanistan, Angola, Ethiopia, Malawi, Mozambique, Nigeria and Sudan) reported a decline of more than 50% in their electricity finance.

## BOX ES 1

### Case Study Analysis: India

#### **A DEEP DIVE IN INDIA: A BRIGHT SPOT FOR ELECTRICITY ACCESS, WITH INCREASING PRIVATE FINANCE DRIVEN BY STRONG RENEWABLE ENERGY TARGETS AND PUBLIC SUPPORT**

India presents an interesting case study for electricity access finance. The case study analysis on India shows a tremendous increase in private domestic investments by corporations and project developers, from USD 1.6 billion a year in 2013-14 to USD 10 billion a year in 2015-16, substantiating the findings of the report's global analysis. Of this amount, about 87% of investment in 2015-16 was allocated to grid connected solar and wind projects. In parallel, commitments to eight coal powered plants in 2015-16 were identified, of which only one commitment was made by a private sector company. However, India has stated there are no further coal-based capacity additions on

top of those that are already under construction to meet its energy demand through 2022.

In April 2018, India's Ministry of Power announced that 100% of its villages, comprising 85% of its population, had gained some form of access to electricity under a national rural electrification program.

While 22 million households (roughly 130 million people) still remain without access to electricity, the marked increase in electricity access finance, especially for renewable sources and the resulting increase in energy access, is notable. To fill the remaining electricity access gap, India needs to utilize well-calibrated, multi-pronged approaches to efficiently use centralized and off-grid electricity technologies, the latter of which is particularly critical.

Largely driven by India's aggressive policy target of 175GW of renewable energy generation by 2022 and the private sector's growing certainty around renewable technologies with more predictable cash flows, India represents a bright spot in the energy access landscape that other countries can learn from.

**A STRONGER UNDERSTANDING OF WHERE FINANCE IS COMING FROM AND HOW IT IS BEING CHanneled MAY OFFER CLUES FOR THE GLOBAL COMMUNITY LOOKING TO BETTER TARGET ELECTRICITY ACCESS FINANCE IN FUTURE YEARS.**



These trends confirm that Sub-Saharan Africa, with an already low share of commitments, is falling even further behind. The IEA forecasts that 95% of the additional investment in electricity required to achieve universal electrification – or approximately USD 50 billion per year – will need to be in Sub-Saharan Africa. However, only 17% (or USD 5 billion) of total electricity finance occurred in Sub-Saharan Africa in 2015-16. This is a USD one billion decrease from the previous reporting period (2013-14).

Furthermore, even the finance that is reaching Sub-Saharan Africa appears to be supporting dirtier forms of energy. The majority of finance commitments in Sub-Saharan Africa supported fossil fuels plants (USD 1.6 billion per year on average), predominantly coal-powered (90%), in Kenya, Nigeria and Tanzania. At the same time, large scale, grid-connected renewable energy saw a USD 2 billion decrease in Sub-Saharan Africa between 2013-14 and 2015-16.

Right now, a small handful of providers is responsible for the majority of electricity finance. China remains the single largest provider of bilateral finance for electricity, accounting for 23% of total international finance to high-impact countries in the 2015-16 reporting period, up 2% from 2013-14. China's investments are second only to the group of multilateral financial institutions that together provide one third of total finance for electrification. **China also committed 20% of all fossil-fuel related electricity investments, an increase of USD 1 billion compared to 2013-14.**

Based on case study analyses of India and Indonesia (see Box ES 1 and Box ES 2), there is evidence that domestic public budgets have played a key role in unlocking greater finance overall, including from the private sector and from international sources, both public and private. Efficiently using these budgets in a way that can both leverage investment from other sources, but also be phased down, will be critical to long-term sustainability.

However, this report shows evidence that the very sources of finance that are considered by experts as most efficient for unlocking greater capital – that is, concessional development finance sources – are decreasing rather than increasing at this critical stage along the path to SDG7. Concessional development finance for electrification decreased by 7% to USD 4.8 billion. The drop was concentrated in the South Asia region, which saw a 38% decrease compared to 2013-14, while concessional finance for Sub-Saharan Africa increased by 7% to USD 1.8 billion in 2015-16. Debt, at around USD 15 billion a year in 2015-16, remained the predominant mode of providing finance for electricity access – 53% of total finance, compared to 66% in 2013-14.

**CLEAN COOKING FINDINGS**

**FINANCE FOR CLEAN COOKING REMAINS ABYSMALLY LOW AND HAS ACTUALLY DECREASED OVER TIME.**



The report's analysis shows that finance for clean cooking dropped 5% from USD 32 million in 2013-14 to USD 30 million in 2015-16. This investment is a tiny percentage of the USD 4.4 billion annual investment needed by 2030 to address a problem faced by three billion people, highlighting the pressing need for dedicated and accelerated action. (See Figure 2.16 for an

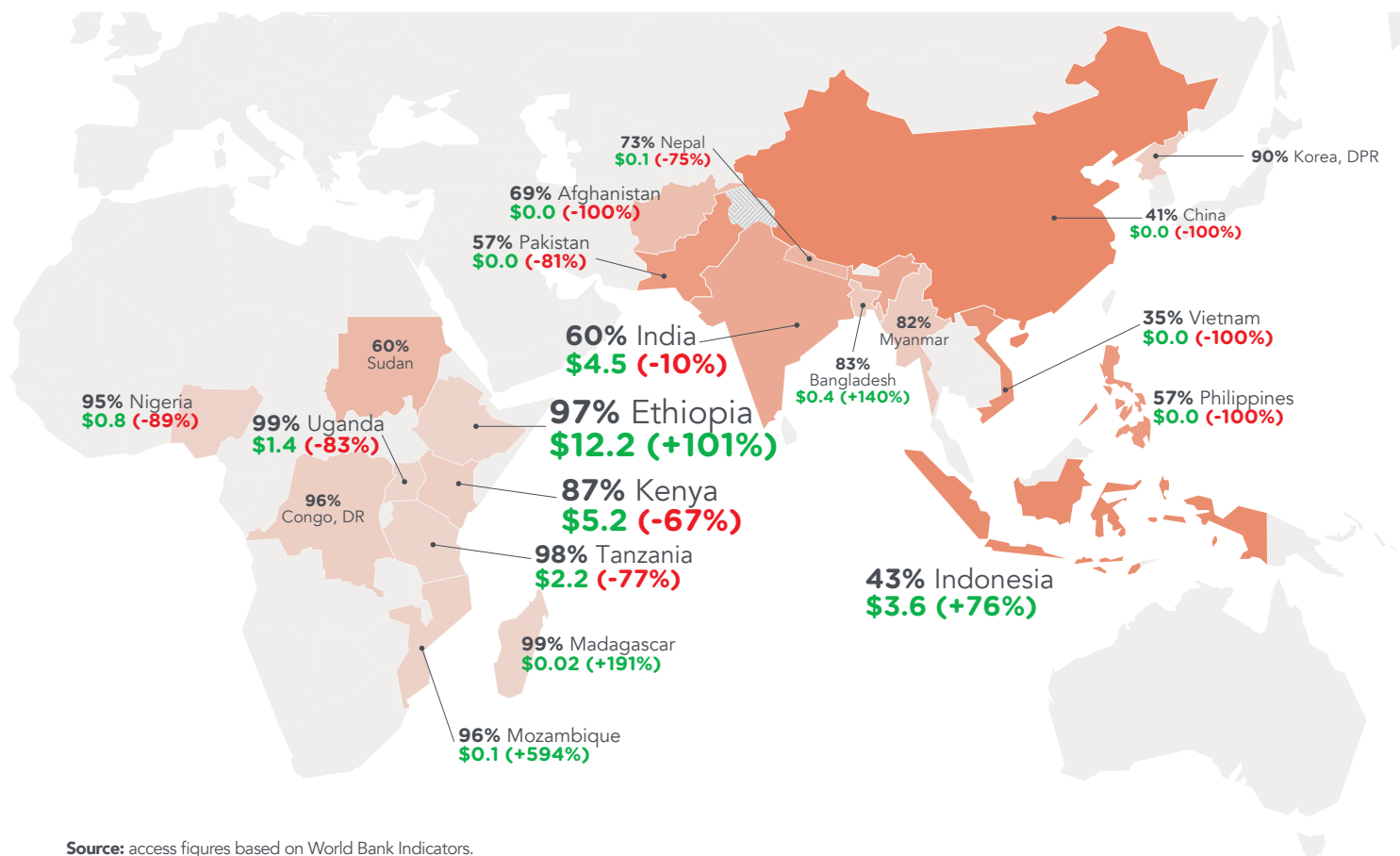


## MAP ES 2

### Finance for clean cooking access in the 20 high-impact countries

Percentage of population without access to clean cooking, total finance tracked in 2015-16 (in USD million) and changes from 2013-14

Clean fuels and technologies for cooking 0 100%



Source: access figures based on World Bank Indicators.

illustrative depiction of providers, instruments, geographies, recipients, uses, sectors, and access.)

The 5% decrease is in spite of increasing global awareness of the health and climate benefits of clean cooking technologies and fuels, which may have translated to an increase in the number of total clean cooking transactions; these rose from 119 in 2013-14 to 178 in 2015-16. The majority of the related commitments financed biogas digesters (55%), followed by improved biomass cookstoves (27%).

Nearly all finance for clean cooking originated from international sources (92%), a similar portion and amount as in 2013-14 (94%). The public sector remains the largest source of financing (69% of total finance), with private finance increasing from 19% in 2013-14 to 31%

in 2015-16. Nearly all public funding was committed in the form of grants, while equity investments were the predominant instrument of private actors.

Sub-Saharan African countries received most of the funding (72%, or USD 22 million) tracked in 2015-16, largely going to Ethiopia and Kenya. Several countries with low access to clean cooking solutions, such as the Democratic Republic of Congo, Madagascar and Mozambique, received very little to no funding.

In addition to accelerated action on clean cooking, there is also an important role for greater transparency and better data on finance in this sector. Overall, while methodology and data sources have improved since the first (2013-14) review of clean cooking finance, the flows tracked in the report through the

## BOX ES 2

### Case Study Analysis: Indonesia

#### A DEEP DIVE IN INDONESIA: HOW GOVERNMENT SUBSIDIES CAN ACCELERATE ACCESS TO CLEAN COOKING FUELS.

In Indonesia, government subsidies have been crucial to accelerate the adoption of LPG cooking solutions in millions of households spread across thousands of islands, replacing kerosene as the main cooking fuel, and resulting in important health and carbon benefits. As part of a countrywide cooking fuel conversion program that started in 2007 to

phase out kerosene and other traditional cooking methods, the Indonesian government spent an annual average of USD 1.8 billion on subsidies to support LPG use over the 2015-16 period. The program reduced kerosene use from a 36.6% share in 2007 to 3.8% in 2016 and increased LPG use from a 10.6% share in 2007 to 72.4% in 2016.

The analysis of clean cooking financing in Indonesia shows the crucial importance of domestic public budgets, which, in some cases, may far outweigh spending by international partners or the private sector captured in this global analysis. In fact, between 2013 and 2016, just USD 9.3 million was identified as committed by international partners for clean cooking solutions in Indonesia, mainly for biogas digesters and advanced biomass stoves.

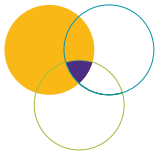
global tracking methodology still represent a likely underestimation of the global finance for clean cooking; this field is impacted by a severe lack of investment data and complex methodological issues, resulting in the underrepresentation of two key areas: domestic public subsidies for liquid fuels used for cooking, and the LPG supply chain. A different picture emerges when looking at the country level, as evidenced by the Indonesia case study.

#### CONCLUSION

Overall, finance for sustainable energy access is still not on track to meet universal energy access needs. Indeed, with each passing year, the gap between investment needed and investment committed is getting bigger. There is increasing urgency for action on clean cooking and off-grid solutions for residential consumers, especially in Sub-Saharan Africa.

These findings should serve as a sobering reality check and be an urgent call to action to the global community as well as countries themselves to further scale up targeted action and finance for energy access in those high-impact countries where financing

needs are falling behind. Urgent actions include setting ambitious national targets that give the private sector confidence to invest – particularly in underserved countries, increasing domestic investment in energy access solutions, accelerating policy reform to create markets for energy access solutions, increasing concessional finance across the board, putting more into off-grid solutions, and creating a community of practice to address data and tracking gaps.



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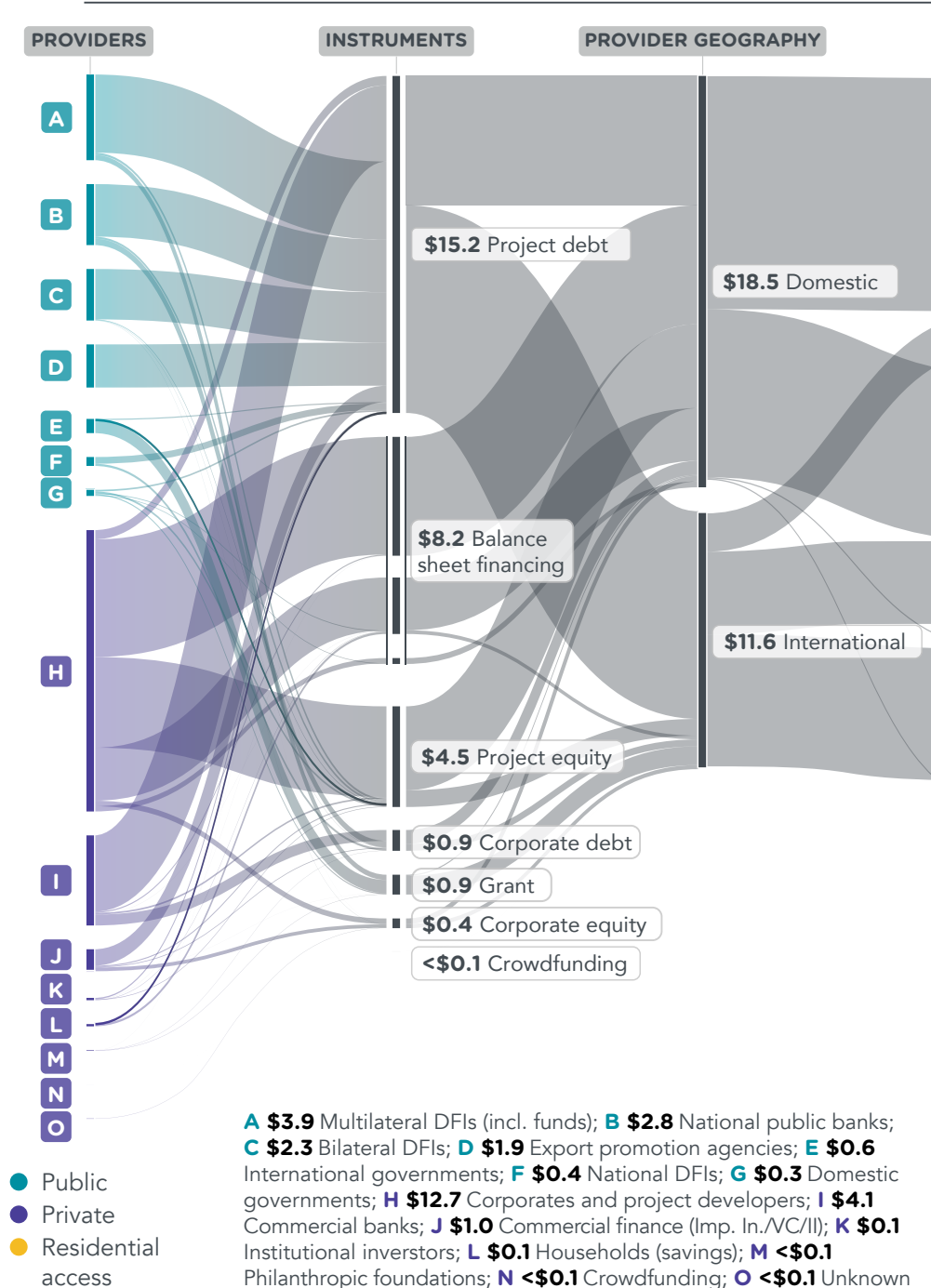
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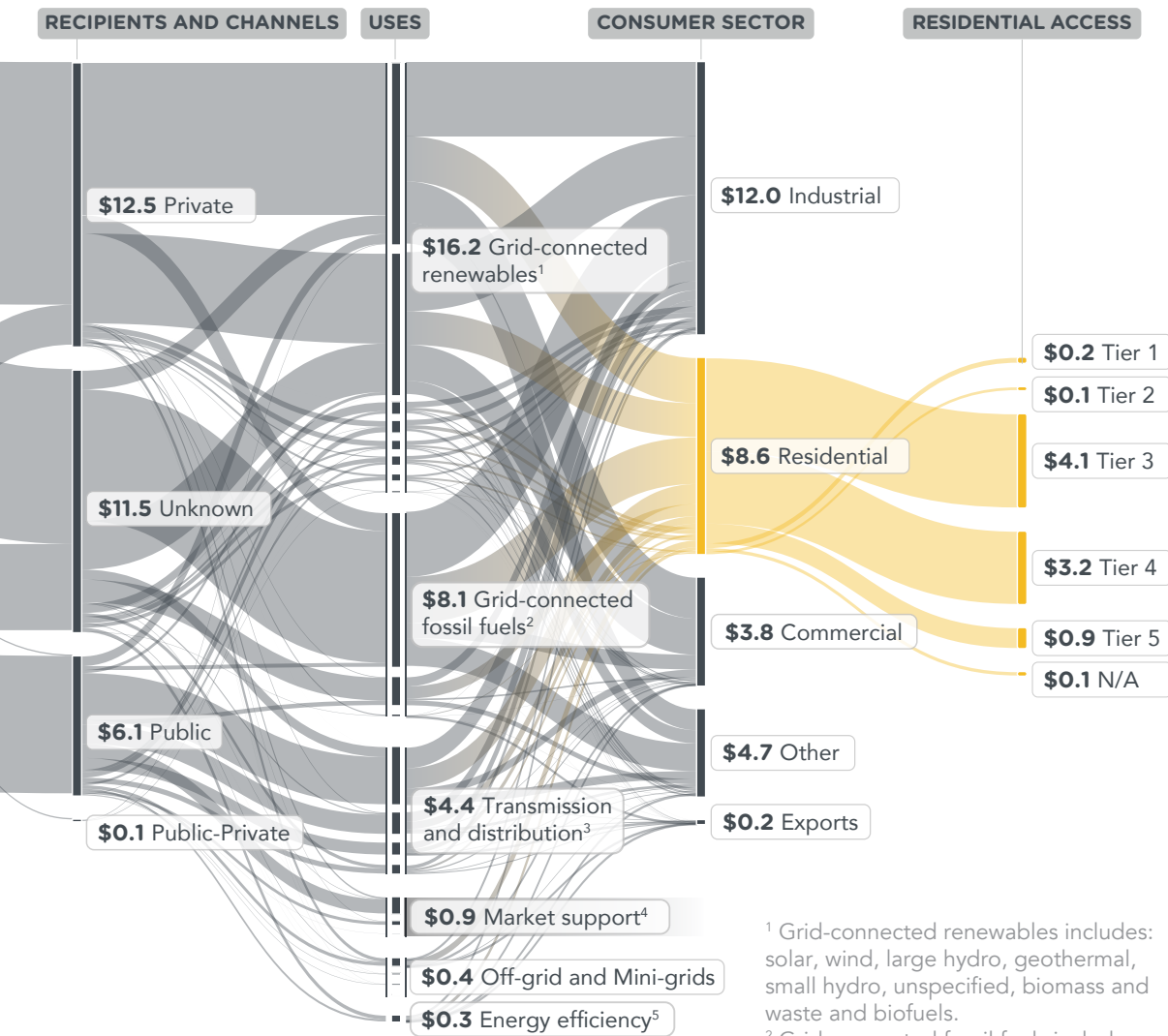
## Annex A1

### Finance for electricity in 2015-16

Average Annual Finance for Electricity Access Committed in 2015 and 2016 in High-Impact Countries (\$, Billion).



**\$30.2BN**  
Total committed per year



<sup>1</sup> Grid-connected renewables includes: solar, wind, large hydro, geothermal, small hydro, unspecified, biomass and waste and biofuels.

<sup>2</sup> Grid-connected fossil fuels includes: coal, gas and oil

<sup>3</sup> Transmission and distribution includes: Transmission, Distribution, Unspecified T&D

<sup>4</sup> Market support flows were not assigned to any specific consumer sector

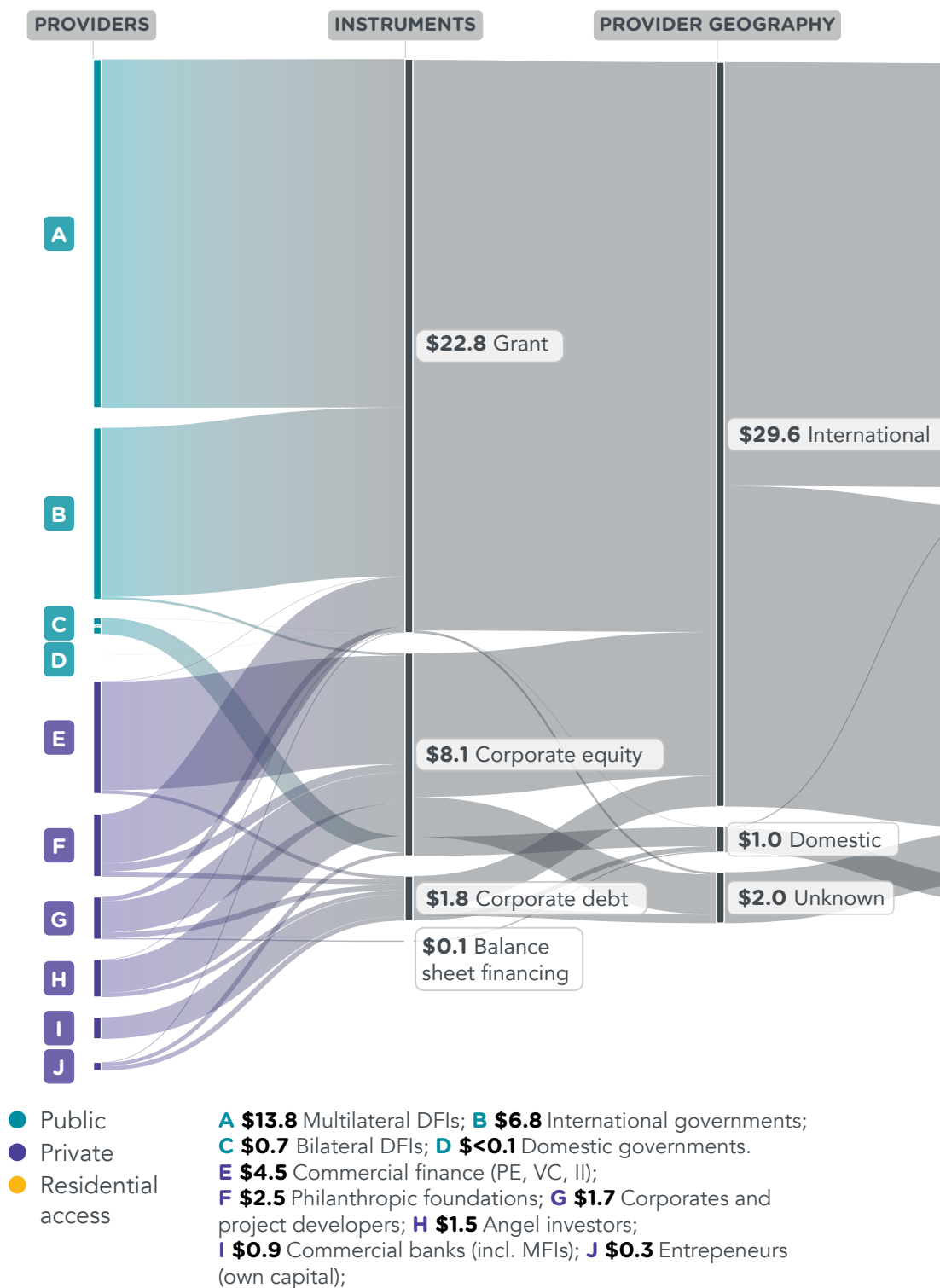
<sup>5</sup> Energy efficiency flows for residential consumptions were not assigned to any specific tier

NB: Values may not add up due to rounding

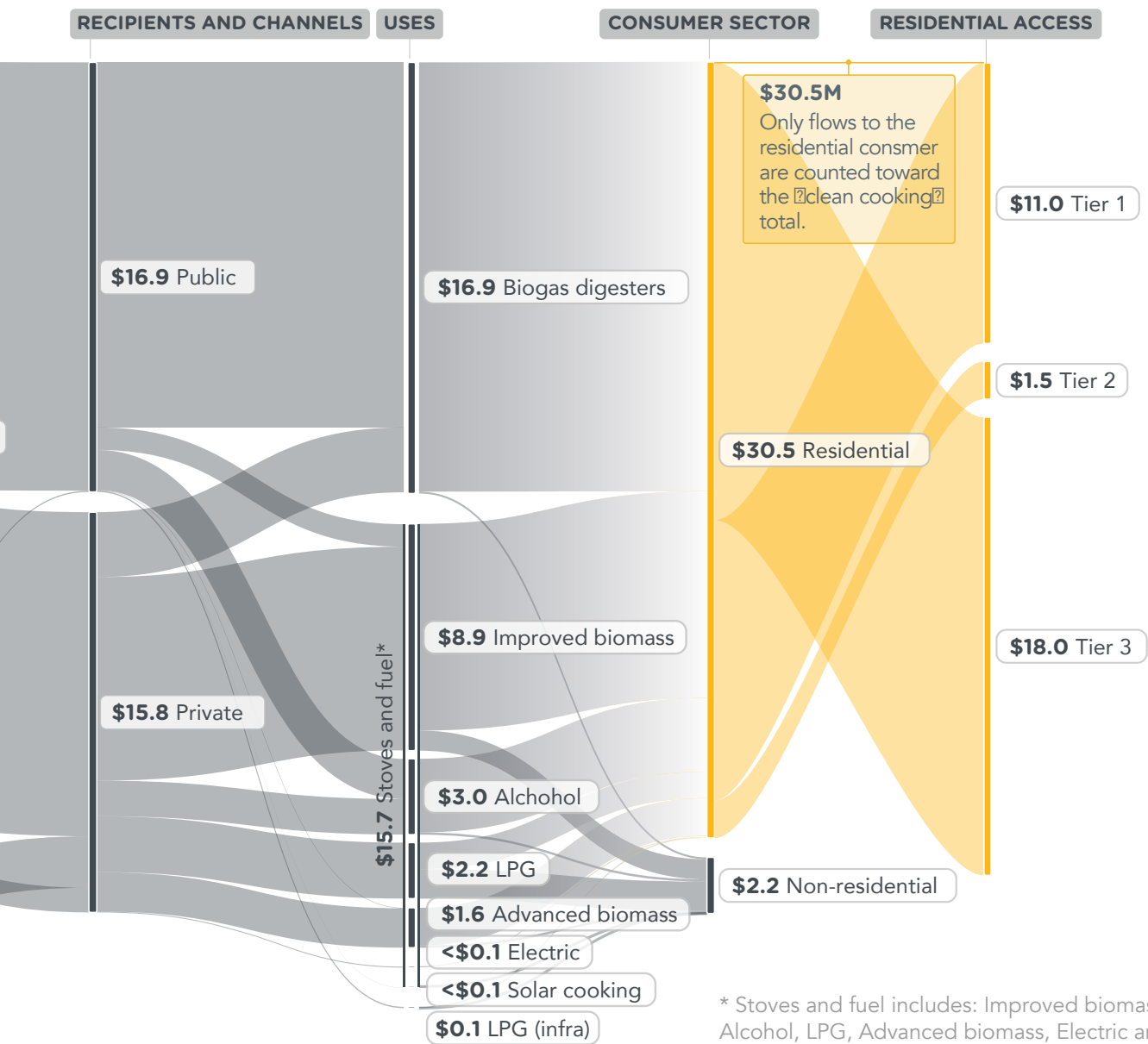
## Annex A2

### Finance for clean cooking in 2015-16

Average annual finance for clean cooking access, committed in 2015 and 2016 in high-impact countries (\$, million).



**\$32.7M**  
Total committed per year



\* Stoves and fuel includes: Improved biomass, Alcohol, LPG, Advanced biomass, Electric and Solar cooking.

NB: Values may not add up due to rounding



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