

# THE RECOVER BETTER WITH SUSTAINABLE ENERGY GUIDE FOR AFRICAN COUNTRIES



Special Representative  
of the Secretary-General for  
Sustainable Energy for All



# The Recover Better with Sustainable Energy Guide for African Countries

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## SETTING THE SCENE

The post-COVID-19 global economic environment will be defined by a prolonged recession and high levels of unemployment as countries worldwide seek to re-ignite their economies. In the midst of the COVID-19 pandemic and ensuing economic recovery, governments have a unique, once-in-a-generation opportunity to re-set their economies and address the underlying structures that enable development and competitiveness. Leaders with both the vision and political courage needed can help their countries recover better during the economic stimulus that will take place.

In Africa, it is estimated that 565 million people still lack access to electricity. Without electricity, they lack a basic necessity for poverty alleviation and the ability to build resilience to the global health crisis. To achieve universal electricity access in Africa by 2030, we estimate that an annual investment of about USD 29 billion in electricity infrastructure is required, both for on-grid and off-grid access.

There are an estimated 900 million people in Africa without access to solutions for clean cooking. The health impact of cooking with polluting fuels means increased risk of respiratory disease and vulnerability to COVID-19, and increased exposure to the virus through the collection of firewood and other fuels. An annual investment of about USD 2 billion in clean cooking solutions is required.<sup>1</sup>

This sustainable energy guide highlights the opportunities, benefits and enablers that will help leaders guide their countries onto a more sustainable long-term development trajectory. As African countries recover better, they can also lead by example by translating their recovery actions into updated Nationally Determined Contributions (NDCs) under the Paris Agreement.

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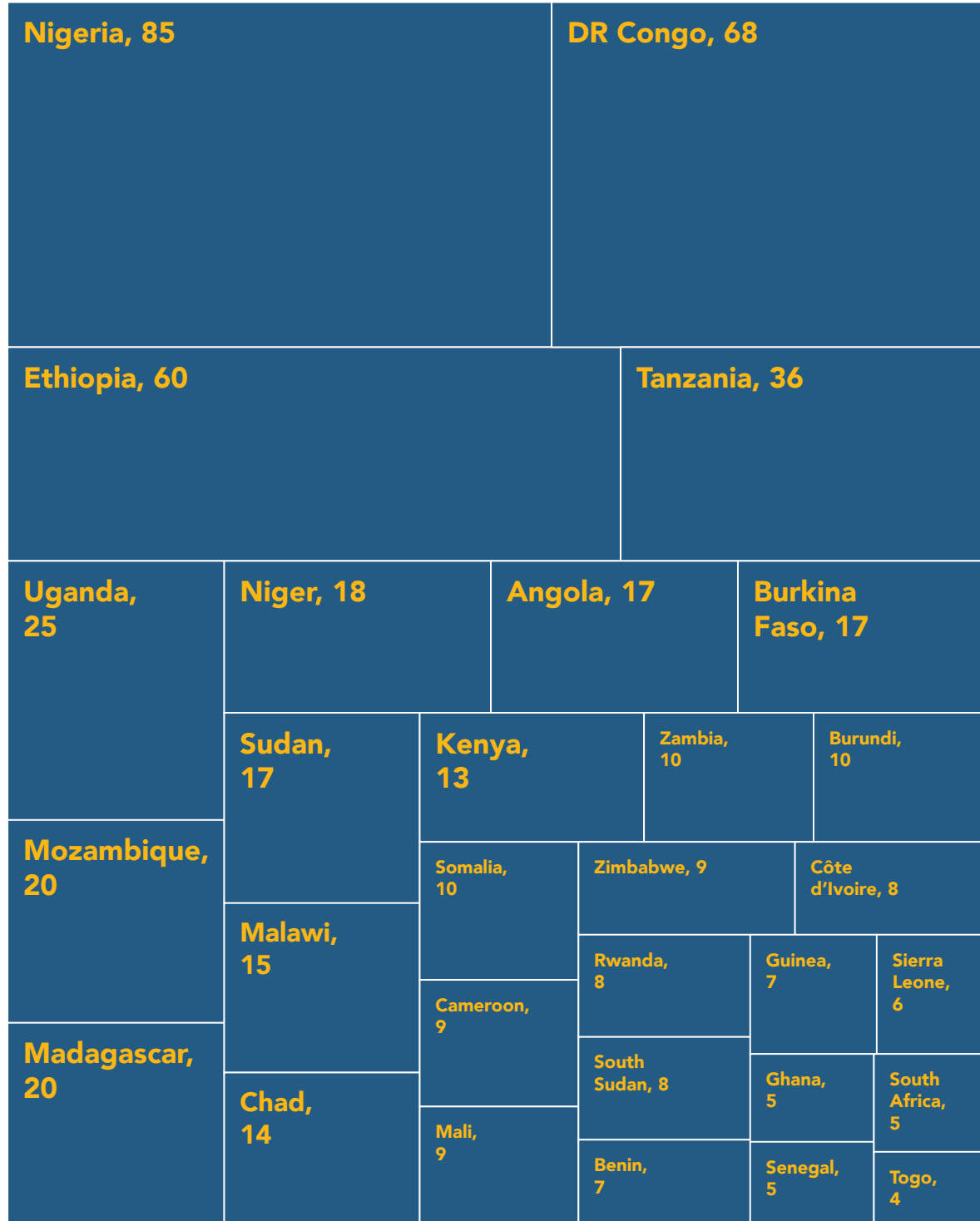
<sup>1</sup> High-Level Platform for Sustainable Energy Investments in Africa, "Scaling-up energy investments in Africa for inclusive and sustainable growth," (2019). [Link](#).

**FIGURE 1**

**Estimated number of people in Africa without access to electricity by country**

**IN AFRICA, IT IS ESTIMATED THAT 565 MILLION PEOPLE STILL LACK ACCESS TO ELECTRICITY**

Millions



**Note:** Others include Central African Republic (3mn), Mauritania (2mn), Libya (2mn), Congo (2mn), Guinea-Bissau (1mn), Namibia (1mn), Lesotho (1mn), Gambia (1mn), Botswana (1mn), Equatorial Guinea (0.4mn), Djibouti (0.4mn), Swaziland (0.3mn), Comoros (0.2mn), Gabon (0.2mn), Sao Tome e Principe (0.1mn), Cabo Verde (0.03mn), Mauritius (0.03mn) and Tunisia (0.02mn).

**Source:** SEforALL analysis

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## THE OPPORTUNITIES

The global economy of the future will be based on increasingly renewable sources of energy and more efficient uses of energy. Countries that take advantage of this moment to re-think their energy supplies will develop a competitive advantage. Countries should pursue significant investments in renewable energy, energy efficiency, clean cooking and in the local manufacturing/assembly facilities that support these.

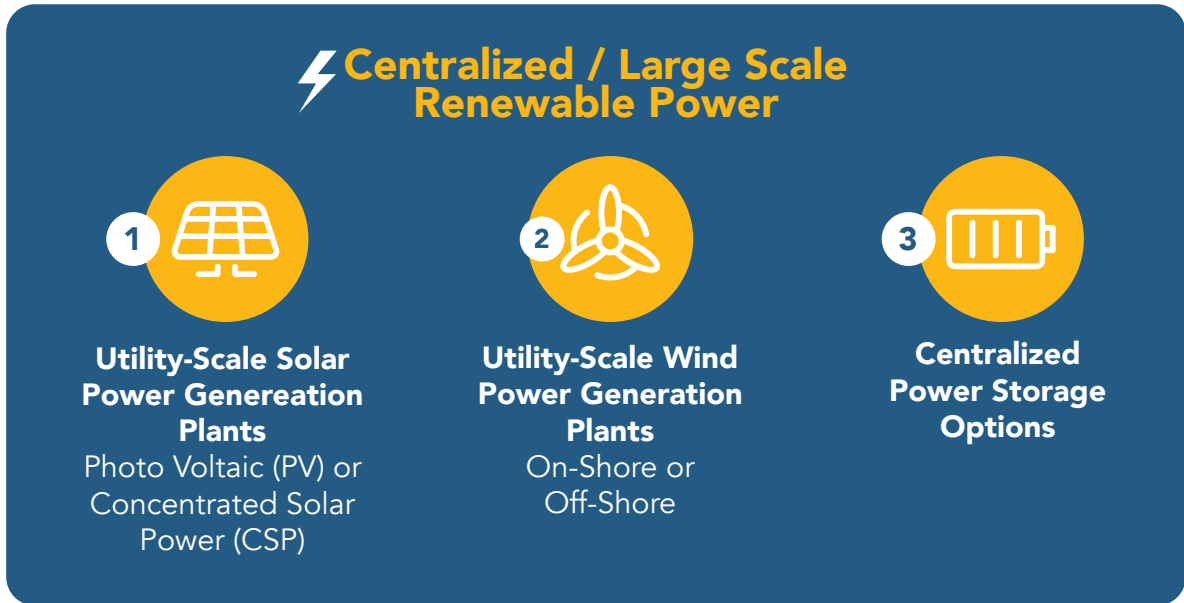
- African countries should pursue large-scale investments in renewables, including both centralized and decentralized technologies. We could imagine countries aspiring to invest 25 percent of their stimulus budgets in renewable energy (a combination of solar, hydro, wind and geothermal) (Figure 2).
- These investments should also drive the development of the up-stream value chain, so that countries also build local manufacturing or assembly of equipment and associated appliances used in renewables. We could imagine countries localize 30 percent of their associated value chain and simultaneously developing greater energy security (Figure 3).
- Governments should target direct and indirect investments to operationalize assembly plants and achieve economies of scale that can bring down the cost of renewable energy systems considerably. Direct investment includes loan guarantees or contributing capital for the upfront investment in assembly plants. Indirect investments that should be considered include reducing or eliminating import duties and value-added taxes (VAT).
- Import taxes and fees can still add approximately 50 percent to the retail cost of solar systems, even those assembled locally, due to costs from high customs, VAT, and local taxes.<sup>2</sup>
- African countries should also include support for clean cooking in their stimulus budgets, targeting cleaner fuels and the supply chains needed to support the distribution of fuels and stoves as well as public education to increase uptake.

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<sup>2</sup> Road to Nigeria's Economic Recovery (2020).

FIGURE 2

Opportunities in centralized and decentralized renewables



**GOAL**  
**25%**  
of stimulus to  
renewables

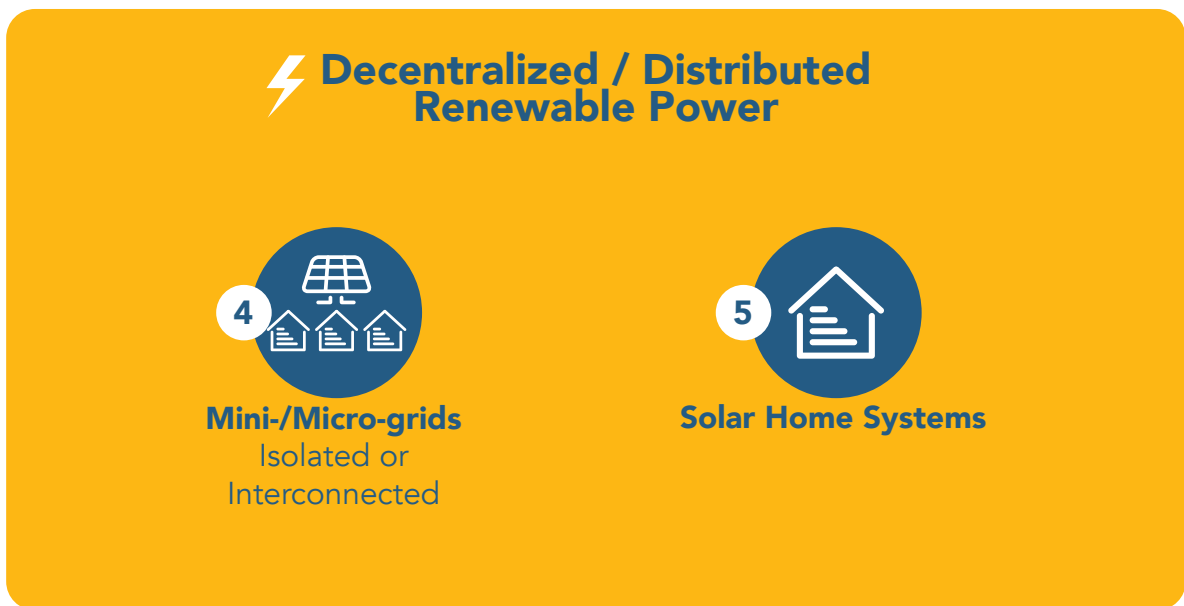
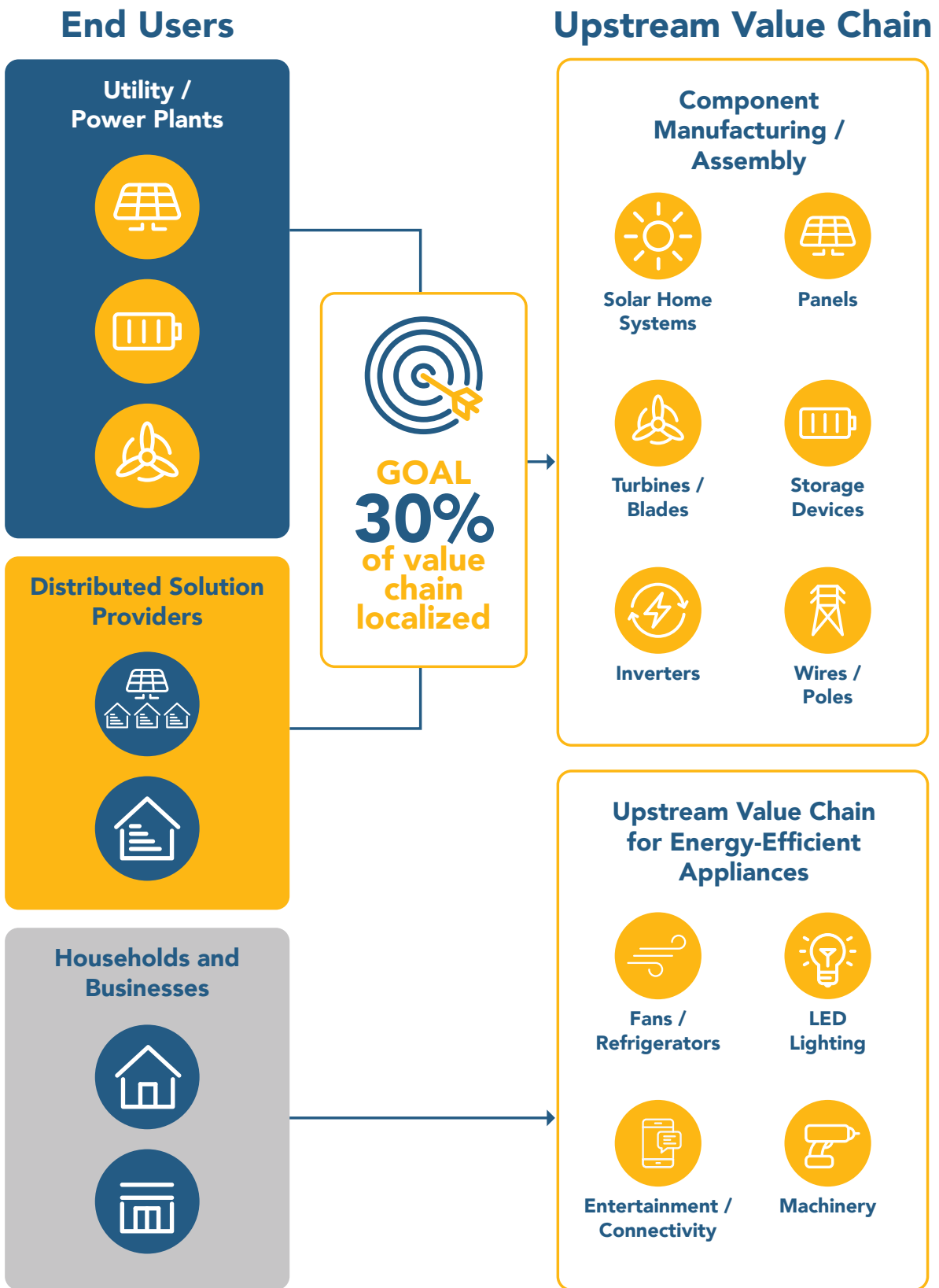


FIGURE 3

Opportunities in the upstream value chain





## THE BENEFITS

Countries that pursue the opportunities of recovering better with sustainable energy for all will achieve a range of key benefits:

- **GDP multiplier.** Investments in energy have a significant GDP multiplier that will benefit the country and its economy.
  - For every US dollar invested in the transition towards renewable energy, an additional USD 0.93 of GDP growth above business as usual is expected to occur.<sup>3</sup>
  - Providing access to modern cooking fuels to just 30 percent of those without access results in a benefit (economic, health and environment) of USD 9 for every dollar spent.<sup>4</sup>
- **Job creation.** There is significant job creation potential from both investing in renewable energy and investing in the local supply chain associated with renewable energy. Further, introducing (and enforcing) improved energy efficiency standards for buildings (and retrofitting existing buildings) will trigger the construction industry and cost less than large infrastructure investments.
  - Recovering with clean energy investment will create more jobs than investment in fossil fuels. Investments in clean energy create three and a half times the number of jobs as the same size investment in fossil fuels. In Africa, each USD 1 million invested in large-scale solar generation projects creates around 80 jobs.<sup>5</sup>
  - Every 1,000 customers connected to decentralized energy solutions (solar home systems or solar mini grids) supports approximately 25 jobs.<sup>6</sup> In Kenya, for every 1 MW of mini-grid capacity developed, approximately 800 full-time-equivalent job-years are created.<sup>7</sup>

<sup>3</sup> IRENA, Global Energy Transformation. 2019 [Link](#).

<sup>4</sup> Sopinka, A and Isabel Galiana, "Post-2015 Consensus: Energy Assessment, Copenhagen Consensus Center (2014). [Link](#).

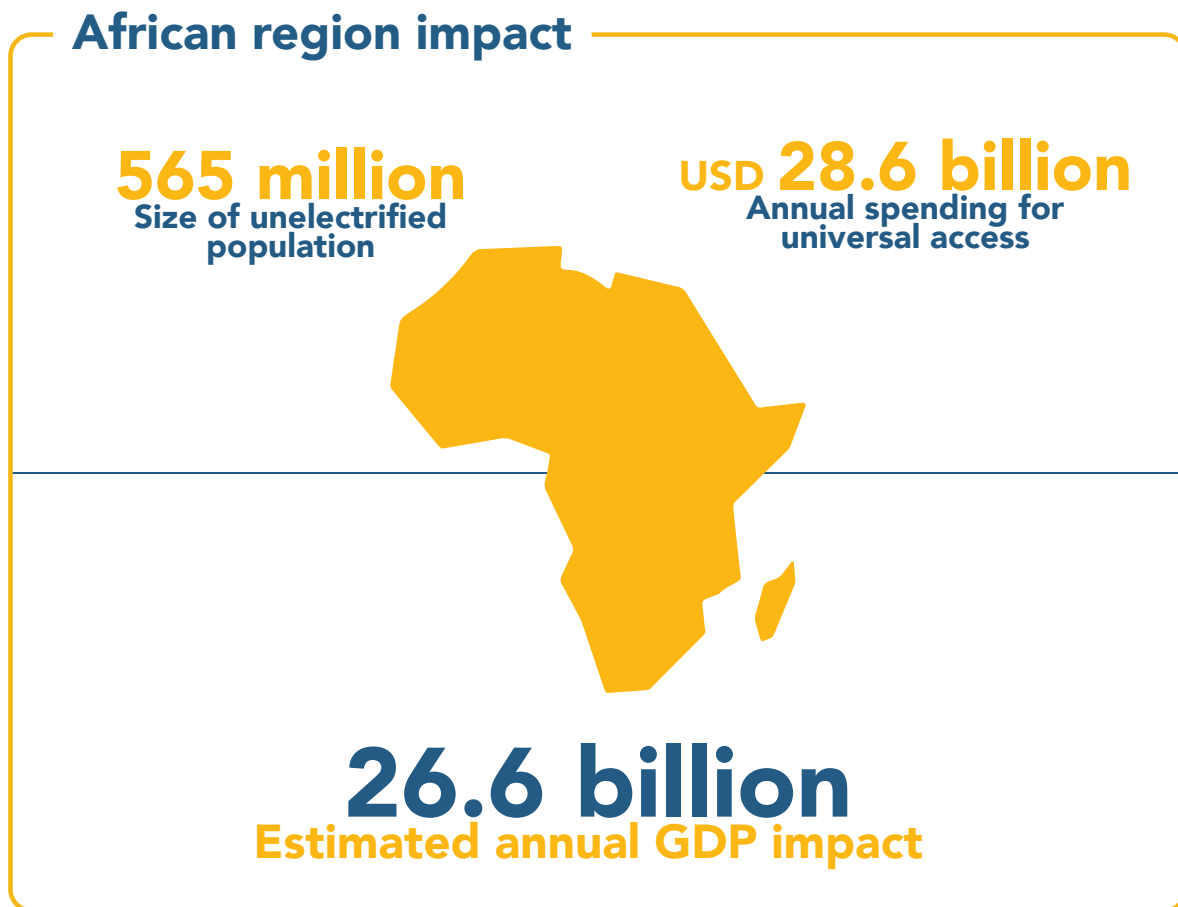
<sup>5</sup> IRENA 2016. Solar PV in Africa: Costs and Markets. September 2016.

<sup>6</sup> Power for All et al. Powering Jobs Census 2019: The Energy Access Workforce. July 2019.

<sup>7</sup> New Climate Institute. The role of renewable energy mini-grids in Kenya's electricity sector, 2019.

FIGURE 4

Estimated annual GDP impact in Africa



- An econometric study of government spending on energy technologies showed that spending on renewables creates five more jobs per million dollars invested than spending on fossil fuels.<sup>8</sup>
- For every USD 1 million invested in retrofitting buildings, 16-21 jobs are created.<sup>9</sup>
- **Cheaper energy provision.** Increasingly, renewable technologies cost the same or less than fossil fuel alternatives.
  - Levelized cost per unit of electricity from new utility-scale solar photovoltaic (PV) power plants has dropped about 90 percent over the last decade.<sup>10</sup> Renewables are now the most cost-effective source of electricity in almost every country in the world.<sup>11</sup>
- **Improved health and agricultural outcomes.** Energy investments should be targeted at countries that have not yet achieved universal energy access and

<sup>8</sup> McKinsey & Company, How a post-pandemic stimulus can both create jobs and help the climate. [Link](#), May 27, 2020.

<sup>9</sup> McKinsey & Company, How a post-pandemic stimulus can both create jobs and help the climate. [Link](#), May 27, 2020.

<sup>10</sup> Lazard: Levelized Cost of Energy and Levelized Cost of Storage 2018. [Link](#).

<sup>11</sup> Carbon Tracker, COVID-19 and the Energy Transition. [Link](#), 7 April 2020.

at specific sectors within those countries, namely health and agriculture. These countries will see significant secondary benefits in the health and agriculture sectors.

- For every USD spent by governments on health between 2008 and 2010 in 25 EU countries, it had a multiplier effect of adding USD 3.61 to GDP<sup>12</sup> and resulted in a significant reduction in morbidity and mortality. Electrified primary healthcare facilities have access to lighting and enable the use of critical medical equipment as well as safe storage for vaccines. In Chhattisgarh India, primary health clinics powered by solar energy saw an average of 62% more deliveries of children per month relative to those without solar, and 69% more in-patients.<sup>13</sup> After equipping 36 primary health clinics in Uganda with solar vaccine refrigerators, the number of functioning units capable of cooling life-saving vaccines tripled, from 32% to 96%.<sup>14</sup>
- Access to just one piece of electrical processing equipment can increase agricultural yields for smallhold farmers by 30%.<sup>15</sup> Access to energy also enables access to information for farmers on which they can base planting decisions and improve output. If developing countries had the same level of refrigeration and cold chain as the developed world, 25% of total food loss and waste in those countries could be eliminated.<sup>16</sup>
- **Improved gender outcomes.** Delivering energy access as part of a green recovery can ensure women and girls benefit.
  - Wages for women with access to energy are 59 percent higher than those without, a gain that puts women on equal footing with men.<sup>17</sup>
  - Energy access supports female employment. In South Africa, rural electrification efforts resulted in a 9 percent increase in women's employment, while the gain was statistically insignificant for men.<sup>18</sup>
  - Switching to clean cooking solutions can free up time for more productive activities and foster female entrepreneurship. In Kenya evidence shows women entrepreneurs in the clean-cooking value chain outsold men by nearly 3:1 and women who purchased clean stoves from women entrepreneurs were more likely to report consistent and correct use of their stoves.<sup>19</sup>

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<sup>12</sup> Reeves et al. *Globalization and Health* 2013, 9:43 Pg. 11.

<sup>13</sup> Ramji, Aditya et al. *Powering Primary Healthcare through Solar in India: Lessons from Chhattisgarh*. Council on Energy, Environment and Water & Oxfam India. Pg. 30, 2017 [Link](#).

<sup>14</sup> UN Foundation, *Implementation research carried out by WHO on behalf of the UN Foundation to explore the impact of a DFID-supported grant for the sustainable electrification of 36 health facilities in Ghana and Uganda focusing on maternal and newborn health services*, 2019. [Link](#).

<sup>15</sup> Efficiency for Access Coalition, *Agriculture & Energy Efficiency*. [Link](#).

<sup>16</sup> Institute for Mechanical Engineers. *A tank of cold: Cleantech leapfrog to a more food secure world*, London, England, 2014.

<sup>17</sup> Rewald, Rebecca (2017) "Energy and Women and Girls: Analyzing the Needs, Uses, and Impacts of Energy on Women and Girls in the Developing World," Oxfam Research Background Series. Pg. 23.

<sup>18</sup> Dinkelman, Taryn. "The Effects of Rural Electrification on Employment: New Evidence from South Africa." *American Economic Review*, 101 (7): 3078-3108. Pg. 3080. 2011 [Link](#).

<sup>19</sup> ESMAP, *Clean Cooking Fund Business Plan FY 2021–2024*, [Link](#).

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## THE ENABLERS

As countries seek to recover better, there are eight key dimensions that need to be established in order to ensure a successful transition and execution:

**1 Ease of doing business.** Several measures can be put in place to ensure that investments are driven as fast as possible. This includes significantly reducing red tape, reducing the number of permits required and the time it takes to get permits and waivers (if available) for renewable energy and clean cooking equipment and appliances.

- Countries that make it easier to do business increase entrepreneurship and generate jobs, incomes and government revenue.<sup>20</sup>
- In Sub-Saharan Africa, the pace of business reforms has slowed significantly, with most of the bottom 20 economies in the World Bank’s global EoDB rankings coming from the region. In gaining access to electricity, businesses in Sub-Saharan African on average pay 3,100 percent of per capita income to connect to the grid, compared to 400 percent in North Africa and the Middle East.<sup>21</sup>

**2 Robust policies and institutions in support of renewables, electrification, clean cooking and energy efficiency.** In order to effectively deliver this approach, governments need to work now to establish or empower institutions such as regulators and rural electrification agencies and ensure the right frameworks are in place to successfully drive the development of renewables, increased electrification and increased access to clean cooking.

- India is an example of a country in the global south with robust policies that enable sustainable energy. India launched its National Solar Mission in 2010, initially targeting 20,000 MW of grid-connected and off-grid solar power capacity by 2022 but revising it upward to 100 GW. It has since electrified 347 million people, equivalent to electrifying all of Nigeria 6.6 times over.<sup>22</sup>

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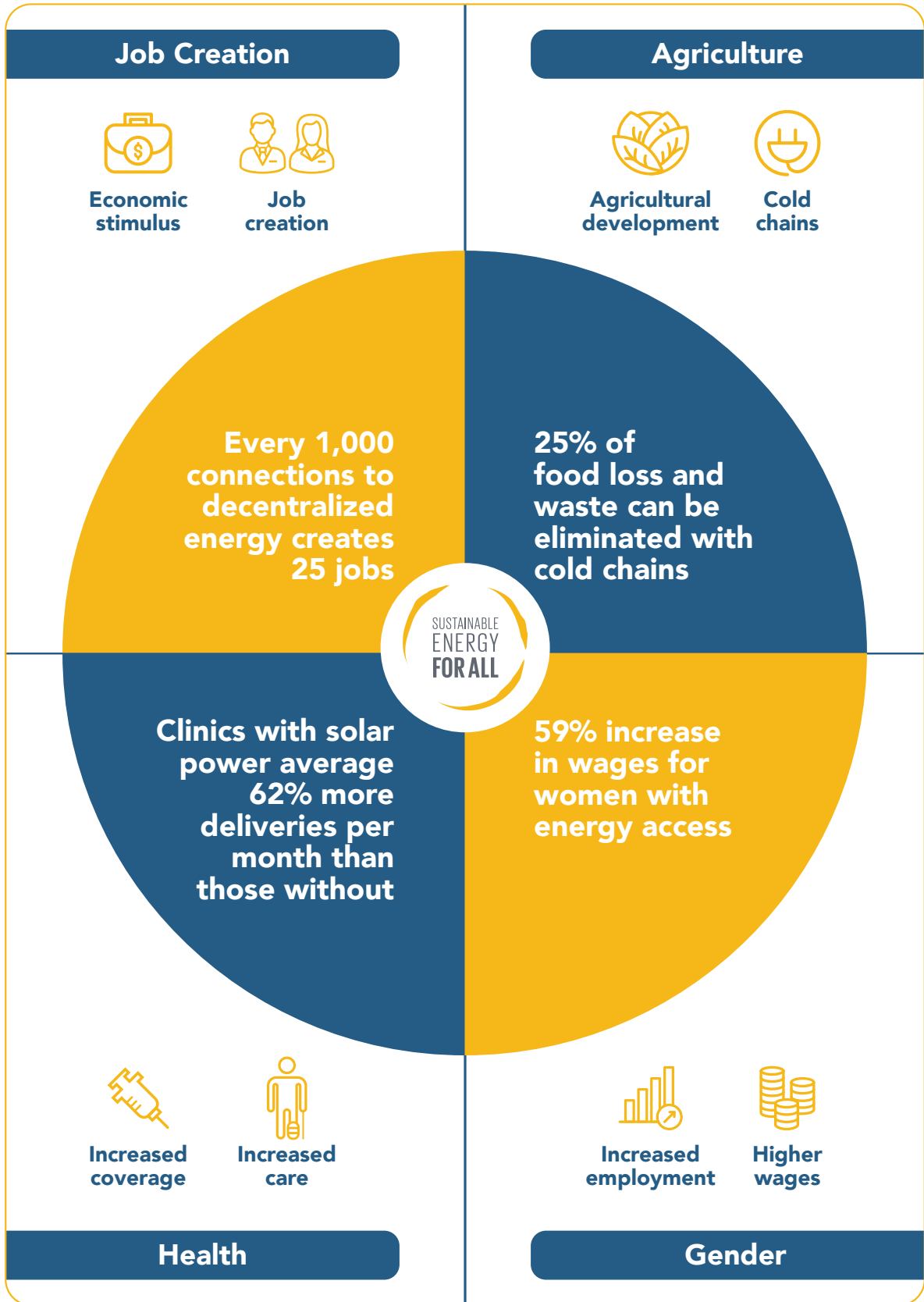
<sup>20</sup> World Bank. Doing Business 2020: Sustaining the pace of reforms 2019. [Link](#).

<sup>21</sup> World Bank. Doing Business 2020: Two Sub-Saharan African Countries among Most Improved in Ease of Doing Business 2019. [Link](#).

<sup>22</sup> Tracking SDG7: The Energy Progress Report. 2020. [Link](#).

FIGURE 5

Benefits of sustainable energy for all



- India’s consistently improving policy and regulatory framework has also led to an increase in financing, with the country seeing a jump from USD 7.8 billion in energy access finance in 2013–14 to USD 16.6 billion in 2017.<sup>23</sup>

**3 Investment in data.** Countries can support rapid investments in renewables, electrification and clean cooking through the effective provision of data. This includes information on optimal renewable sites, communities that are optimally positioned for commercial investments in electrification and adoption and impact of clean cooking solutions.

- Investment in better data that can be made public for all market actors to utilize will pay dividends over the long run. Clear indications on least-cost solutions for energy access will help pave the way for private sector developers and financiers.

**4 Move towards cost-reflective tariffs.** The natural tendency for countries will be to cut the cost of electricity, but this should be avoided at all costs. The reality is that electricity is largely consumed by wealthier residential or by industrial/commercial clients. There are ways that the poor can be protected from tariff increases, without reducing the tariff for *all* customers.

- Governments should move towards cost-reflective tariffs. Allowing cost-reflective tariffs also allows utilities to perform better and increases investments in energy access and clean energy.

**5 Elimination of fossil fuel subsidies.** Governments should take the opportunity to eliminate fossil fuel subsidies. With the price of oil the lowest it has been for 18 years, now is the time to float liquid fuel prices, which, if anything, will result in a short-term benefit for consumers.<sup>24</sup> When the price of fossil fuels rises again, governments should refrain from re-introducing the subsidy.

- With a 1.2 percent global increase in green investment and a mere 0.4 percent decrease in fossil fuel investments, valuable jobs can be created, and the world can be on track to achieve the Paris Agreement.<sup>25</sup>
- Total direct subsidies for all energy sources reached at least USD 634 billion in 2017, with 70 percent of those directed towards fossil fuels. The supply-side subsidies for renewable energy (both power generation and transport) were estimated at just USD 167 billion in 2017.<sup>26</sup>
- In 2050, it is estimated the USD 316 billion in subsidies to renewable and energy efficiency would save eight to twenty times more in reduced externalities. By 2050, as fossil fuel use is reduced more substantially, the annual benefit would increase to between USD 2.5 trillion and USD 6.3 trillion.<sup>27</sup>

<sup>23</sup> SEforALL Energizing Finance research series, 2019. [Link](#).

<sup>24</sup> Bloomberg News, 30 March 2020. [Link](#).

<sup>25</sup> Climate Analytics (2020). Climate Action Tracker: Update, April 2020.

<sup>26</sup> IRENA 2020 – Energy Subsidies Evolution in the Global Energy Transformation to 2050, [Link](#).

<sup>27</sup> IRENA 2020 – Energy Subsidies Evolution in the Global Energy Transformation to 2050.

- In an example of a large oil and gas nation that recognizes the need for a better use of its public finances during this pandemic and economic recovery, Nigeria has removed its fuel subsidy.<sup>28</sup>

**6 Declare a moratorium on new coal-fired power.** For power generation, new investments in renewables are more economical than new investments in coal; over half of all coal plants currently in operation cost more to run than building new renewables.<sup>29</sup>

- In China, 70 percent of the operating coal fleet costs more to run than building new onshore wind or utility-scale PV.<sup>30</sup>
- According to new global analysis, the health and environmental benefits of exiting coal vastly outweigh the costs. By 2050, a coal exit can save 1.5 percent of global economic output, equivalent to USD 370 for every person on earth.<sup>31</sup>

**7 Investment in energy efficiency.** Investment in energy efficiency creates jobs and is the cheapest way to reduce emissions.

- Every USD 1 million invested in retrofitting buildings to improve energy efficiency building will create approximately 16-21 jobs.<sup>32</sup>
- Between 2017 and 2037 more than half of the new buildings that will exist in 2060 will be constructed, two-thirds of them in countries without building codes.<sup>33</sup> Stimulus programmes that promote energy efficient buildings are necessary and can create green jobs immediately.
- Energy efficiency can deliver 40 percent of the CO<sub>2</sub> abatement necessary to achieve the Paris Agreement.<sup>34</sup>

**8 Investment in people to ensure access to jobs.** If governments really seek to take advantage of the job creation potential of recovering better, there should be concurrent investments in human capital in order to ensure that there is a talent pool that can meet the needs as local industries are established. Technical, business and entrepreneurship training are all necessary to localize industry and meet the needs of what could be a sizeable domestic market. Governments also need to invest in the people within their institutions tasked with developing and implementing energy programmes. This includes but is not limited to regulators, state-owned utilities, and implementing agencies and ministries.

<sup>28</sup> Premium Times, “Fuel subsidy gone forever in Nigeria – NNPC GMD”, April 7, 2020. [Link](#).

<sup>29</sup> Carbon Tracker: How to waste over half a trillion dollars: The economic implications of deflationary renewable energy for coal power investments. [Link](#).

<sup>30</sup> Carbon Tracker: How to waste over half a trillion dollars: The economic implications of deflationary renewable energy for coal power investments. [Link](#).

<sup>31</sup> Potsdam Institute for Climate Impact Research. Coal Exit Benefits Outweigh its Costs. 2020 [Link](#)

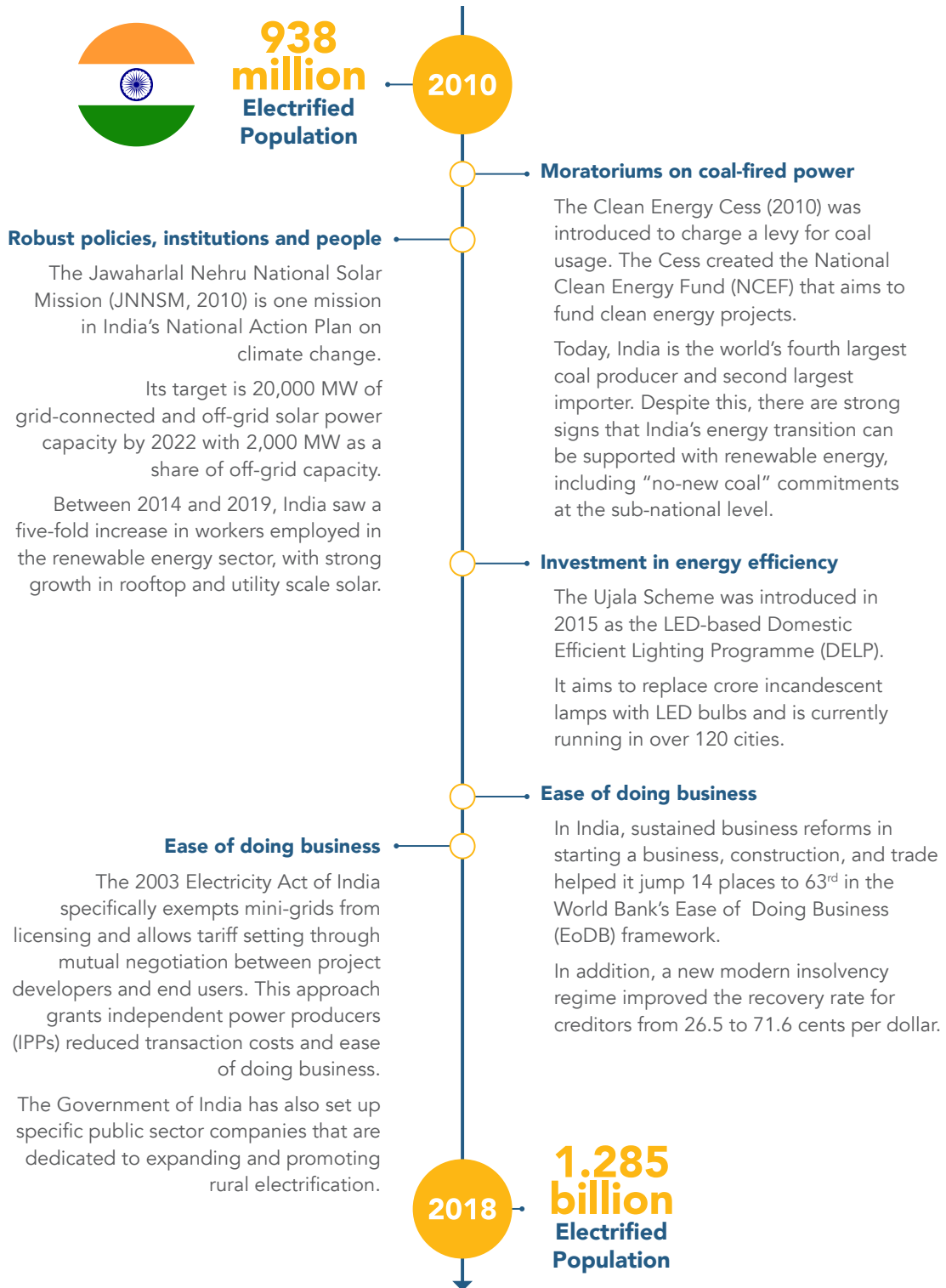
<sup>32</sup> McKinsey & Company, “How a post-pandemic stimulus can both create jobs and help the climate” [Link](#), May 27, 2020.

<sup>33</sup> World Green Building Council, Global Status Report, 2017.

<sup>34</sup> IEA. Energy Efficiency, 2018: Analysis and Outlook to 2040.

FIGURE 6

India's enabling environment: A snapshot of energy access progress in India



 **India has electrified 347\* million people in the last 8 years** 

\* This leave 68 million in India still unelectrified.



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## TAKING THE RIGHT NEXT STEPS

The benefits of recovering better with sustainable energy for all are clear: a demonstrable return on investment, a more resilient economy, healthier people and a cleaner environment.

Governments across Africa are taking unprecedented steps to respond to the immediate health and economic impacts of COVID-19. Today's decisions will impact tomorrow's ability to recover better over the long term. There are important measures governments can take to recover better by delivering sustainable energy for all while also growing resilient economies and creating new green jobs. Moreover, every investment to recover better reflects greater ambition towards the Paris Agreement that can be reflected in the 2020 review of Nationally Determined Contributions (NDCs).

These ideas can be turned into action with committed leadership and drive towards greater long-term competitiveness. Governments in Africa can begin by providing a whole-of-government mandate to prioritize and implement the enabling measures necessary to recover better. This includes empowering Ministries of Finance, Budget and Planning to make the necessary investments in sustainable energy projects that create jobs and that can jump-start their economies.

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## REFERENCES

Bloomberg News (2020). Oil Crashes to 18-Year Low With Broken Market Drowning in Crude, 30 March 2020.

Carbon Tracker (2020a). COVID-19 and the Energy Transition: Crisis as midwife to the new, April 7, 2020. <https://carbontracker.org/covid-19-and-the-energy-transition/>

Carbon Tracker (2020b). How to waste over half a trillion dollars: The economic implications of deflationary renewable energy for coal power investments.

Climate Analytics (2020). Climate Action Tracker: Update, April 2020.

Climate Trends (2019). Winds of Change: No New Coal States of India. December 2019. Available: <https://indiaclimatedialogue.net/2019/12/06/indian-states-signal-beginning-of-no-new-coal/>

Clean Cooking Alliance. <https://www.cleancookingalliance.org/country-profiles/focus-countries/5-india.html>

COBENEFITS Project. <https://www.cobenefits.info/resources/future-skills-and-job-creation-through-renewable-energy-in-vietnam/>

Dinkelman, Taryn. 2011. "The Effects of Rural Electrification on Employment: New Evidence from South Africa." *American Economic Review*, 101 (7): 3078-3108.

Efficiency for Access Coalition, Agriculture & Energy Efficiency.

Energy Efficiency Services Limited India. <https://www.eeslindia.org/content/raj/eesl/en/home.html>

Government of India, Ministry of Petroleum and Natural Gas. <https://www.pmu.gov.in/about.html>

Hans, F et al (2020). The Mongolian Electricity Sector in the Context of International Climate Mitigation Efforts, *The New Climate Institute & GIZ*, March, 2020. Available: [https://newclimate.org/wp-content/uploads/2020/03/Decarbonization\\_Pathways\\_Mongolia.pdf](https://newclimate.org/wp-content/uploads/2020/03/Decarbonization_Pathways_Mongolia.pdf)

High-Level Platform for Sustainable Energy Investments in Africa, "Scaling-up energy investments in Africa for inclusive and sustainable growth," (2019)

IEA (2020). Sustainable Recovery, World Energy Outlook Special Report. Paris.

IEA (2019 & 2020). Clean Energy Transitions Programmes Annual Reports 2018 and 2019. Paris.

IEA (2018). Energy Efficiency, 2018: Analysis and Outlooks to 2040. Paris.

IRENA (2018). Global Energy Transformation: A Roadmap to 2050. Abu Dhabi.

IRENA (2020). Energy Subsidies: Evolution in the Global Energy Transformation to 2050. Abu Dhabi.

IRENA (2017). Renewable Energy Benefits: Leveraging Local Capacity for Solar PV. Abu Dhabi.

IRENA (2016). Solar PV in Africa: Costs and Markets. September 2016. Abu Dhabi.

IRENA. <https://islands.irena.org/>

IRENA (2019). <https://www.irena.org/publications/2019/Jun/Renewable-Energy-and-Jobs-Annual-Review-2019>

Jaiswal, Anjali and Madhura Joshi (2019). Five-Fold Increase in Clean Energy Jobs in 5 Years: India, NRDC, 14 July 2019. <https://www.nrdc.org/experts/anjali-jaiswal/5-fold-increase-clean-energy-jobs-5-years-india>

Lazard (2018). Levelized Cost of Energy and Levelized Cost of Storage 2018

McKinsey & Company, Post-COVID Stimulus – Green or Grey? Discussion document, April 2020.

New Climate Institute (2019). The role of renewable energy mini-grids in Kenya's electricity sector. NO42/6/2100-R&R (Vol-VIII) Government of India, Ministry of Power, 17 April 2020, [https://powermin.nic.in/sites/default/files/webform/notices/Draft\\_Electricity\\_Amendment\\_Bill\\_2020\\_for\\_comments.pdf](https://powermin.nic.in/sites/default/files/webform/notices/Draft_Electricity_Amendment_Bill_2020_for_comments.pdf)

Potsdam Institute for Climate Impact Research (2020). Coal Exit Benefits Outweigh its Costs, press release March 23, 2020. <https://www.pik-potsdam.de/news/press-releases-coal-exit-benefits-outweigh-its-costs>

Power for All, Schneider Electric Foundation, Rockefeller Foundation (2019). Powering Jobs Census 2019: The Energy Access Workforce. July 2019.

Reeves et al (2013). Globalization and Health 2013, 9:43. PG. 11

Renewable Energy and Energy Efficiency Partnership (REEP). <https://edison.bgfz.org/>

Rewald, Rebecca (2017) "Energy and Women and Girls: Analyzing the Needs, Uses, and Impacts of Energy on Women and Girls in the Developing World," Oxfam Research Backgrounder Series

Rockefeller Foundation & Rocky Mountain Institute (2020). SDG-7 Digital Platform: analysis of ROI on Electrification Investment at Different Levels, April 2020.

Sopinka, A and Isabel Galiana, Post-2015 Consensus: Energy Assessment, Copenhagen Consensus Center (2014).

Sustainable Energy for All (2020). Recover Better with Sustainable Energy for All, 2020.

Sustainable Energy for All (2020). Mapping Energy Access to other Development Impacts, 2020.

UN Foundation (2019), Implementation research carried out by WHO on behalf of the UN Foundation to explore the impact of a DFID-supported grant for the sustainable electrification of 36 health facilities in Ghana and Uganda focusing on maternal and newborn health services. (2015-2019).

UNDP (2018). De-risking Renewable Energy Investment: Off-Grid Electrification.

World Bank (2019). Doing Business 2020: Two Sub-Saharan African Countries among Most Improved in Ease of Doing Business, World Bank, October 24, 2019: <https://www.worldbank.org/en/news/press-release/2019/10/24/doing-business-2020-two-sub-saharan-african-countries-among-most-improved-in-ease-of-doing-business>

World Bank (2019b). Doing Business 2020: Reforms Boost India's Business Climate Rankings; Among Top Ten Improvers for Third Straight Year, World Bank, October 24, 2019: <https://www.worldbank.org/en/news/press-release/2019/10/24/doing-business-india-top-10-improver-business-climate-ranking>

World Green Building Council (2017). Global Status Report 2017.

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