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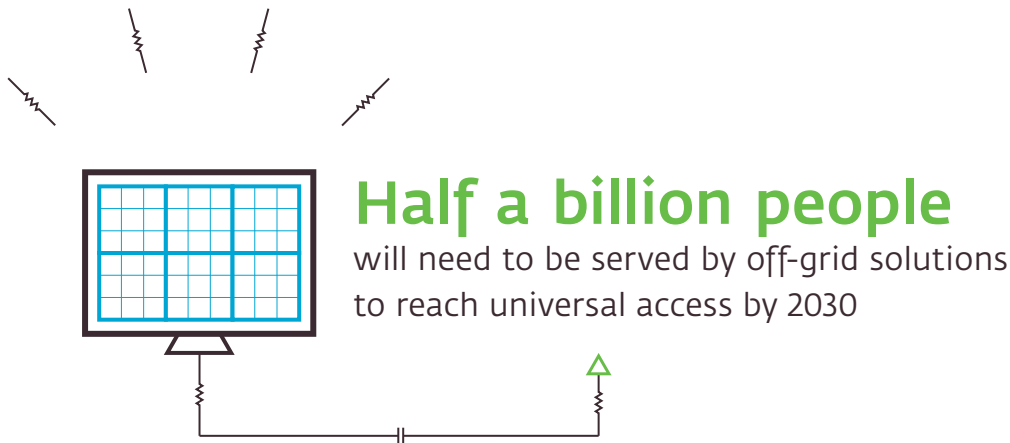
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## 1. Proactive governance

Implement coherent energy policy that facilitates energy access



### 1.1 Overview

Access to energy is an issue of equity. It is one of the basic foundations on which governments can ensure a fair, inclusive and stable economic and social life for their citizens. Jurisdictions that today benefit from a high level of energy access owe that to state-led action that regarded energy access as a public good, and often subsidized costs that could not be met through market economics.

It is no surprise, then, that the predominant model of service delivery in the past has been government-led programs of centralized grid-based generation and distribution of electricity. This strategy has found widespread success in many jurisdictions, allowing most developed countries to officially reach 100 percent electrification rates for their citizens.

However, reliance on this model alone has left over a billion people globally in the dark. In many cases, grid extension is touted as an economically viable solution but existing grid capacity is not taken into consideration resulting in system constraints and black outs. Off-grid electrification based on renewable sources must now be employed on a massive scale in order to help fill this gap. The IEA estimates that approximately half of the billion people without electricity

today will need to be served by off-grid solutions if we are to reach the global target of universal access to modern energy by 2030.<sup>26</sup> Small, modular renewable energy technologies and systems have become increasingly affordable and private sector actors are lining up to provide these energy solutions.

Realizing the potential of these alternative options for energy provision will require a number of policy shifts. To date, energy infrastructure and policy has been largely focused on grid-connected systems. As a consequence, these systems have become privileged by default, and there is an urgent need to redress the balance. So while grid extension coupled with grid decarbonization policies merit attention, national energy policies concerning off-grid technologies are of particular concern.

The off-grid space currently sits outside the scope of most regulatory authorities, and off-grid initiatives are largely left to fend for themselves in terms of economics, planning, regulation and enabling strategies. Strong policy support with clear goals and targets for access to modern energy services is required to create an unprecedented opportunity for the world's poorest people to become active participants in their economic destiny.

26. IEA. (2011) Energy for all: Financing access for the poor. Retrieved from: [http://www.worldenergyoutlook.org/media/weowebsite/energydevelopment/weo2011\\_energy\\_for\\_all.pdf](http://www.worldenergyoutlook.org/media/weowebsite/energydevelopment/weo2011_energy_for_all.pdf)



## 1.2 Seven actions required to create a policy environment that enables energy access

### 1.2.1 Clearly delineate responsibility between government departments

A significant barrier to progress in achieving energy access is the issue of distributed responsibility within government. It is vital that responsibilities for planning and implementation are clearly defined and assigned, that co-operation frameworks are established, and that the priorities of relevant departments are coordinated. Industry groups, end-users, financiers and technologists should also have one clearly-defined point of access to government decision-making bodies.

Mali provides a good example of how this can be achieved. The Malian government designated the Agency for the Development of Domestic Energy and Rural Electrification (AMADER) as the central authority for rural electrification. AMADER established its Intersectoral Coordination Committee (CCI) to deal with all questions relating to AMADER's general rules, and the allocation of permits and funding. Every government ministry whose work contributes to reducing poverty gets a seat on the CCI committee. Also represented are rural energy users, including domestic consumers, retailers and farmers, and representatives

of rural elected councils. The CCI committee acts as a facilitator, creating and supporting links between the various governmental and private structures, local authorities, development players and the not-for-profit sector.<sup>27</sup>

It is worth noting that unclear lines of responsibility can have an effect on energy access in the developed world too. In Canada, a lack of clarity in communication and process has exacerbated the problems of off grid communities. Consider that in the province of British Columbia, a First Nations group initiating an energy project must manage provincial and federal regulations in addition to the strategic priorities of BC Hydro, necessitating overlapping work throughout the process.<sup>28</sup>

### 1.2.2 Coordinate between sectors

When making decisions about the scope and priority of projects such as grid extension, micro-grid installation, stand-alone solar and so on, governments too frequently act unilaterally. Experience shows that successful off-grid projects receive input, from the very earliest planning stages, from end-users, small enterprises, utilities, financiers, technology companies, and local government authorities. An example is provided by India's Clean Energy Access Network (CLEAN), which forms a coherent group of energy access

27. Masse, R. & Watchueng, S. (201). Multi-sectoral coordination and rural electrification in Africa. African Association for Rural Electrification. Retrieved from : [http://www.club-er.org/images/slideHomePage/Bleu%20CoordMultiSect\\_GB\\_BD.pdf](http://www.club-er.org/images/slideHomePage/Bleu%20CoordMultiSect_GB_BD.pdf)

28. Kekiunusqs (Sayers, J.). (2015). B.C. First Nations Energy Toolkit. B.C. First Nations Clean Energy Working Group. Retrieved from: <https://www.cleanenergybc.org/wp-content/uploads/2016/04/BC-FN-Toolkit.pdf>

stakeholders that, among other things, interacts with the country's Ministry of New and Renewable Energy. Though only established in 2015, it has already been influential in persuading the Indian government to include energy access as a priority sector for loans (see sidebar).

Mali also provides an example here. The Malian Multisectoral Committee for Energy was formed in 2004 from 12 ministerial departments, NGO representatives, consumer associations, chambers of commerce and industry, and energy trade associations. Multisectoral action has attracted more than 60 energy service companies to the sector in Mali. Malian government initiatives such as this have helped boost rural electrification rates in Mali from 1 percent in 2000 to 15 percent just ten years later.<sup>27</sup>

The role of government should be to facilitate and motivate connections within the energy sector to ensure provision of the highest quality energy access possible for the highest number of people on a cost-efficient and financially sustainable basis, recognizing historic bias against rural and difficult-to-reach populations.

### 1.2.3 Use external resources and metrics to reach clearly-defined goals

Successes achieved in locations such as Mali and India have not simply been a result of special, favorable circumstances or resources within those countries. These governments have purposefully tapped into the external expertise available to them through working with multilateral institutions and NGOs and – as a by product – attracted private sector interest and finance to implement their plans.

It is a simple fact that no government has all the expertise it needs to implement such an ambitious agenda. When it comes to implementation, a number of different bodies besides supra-national organizations are on hand to help direct government decision-making. One useful resource is the Global Tracking Framework (GTF) created by the UN Sustainable Energy for All (SE4ALL) program.<sup>29</sup> GTF was co-developed with the IEA to be the definitive global energy access measurement tool.

The GTF measures access across eight areas covering energy supplies and services, household and community energy services and employment-based metrics. It also recognizes

## India's energy planning initiative

In June 2016, India's Ministry of New and Renewable Energy published a National Policy for Renewable Energy-based Micro and Mini Grids. This consultation document outlines proposals to deploy 10,000 renewable energy-based micro and mini-grid projects in parts of the country that lack any (or any reliable) electricity access. The document discusses proposed solutions and implementations for consideration at the State level, and encourages collaboration with energy service companies and private investors. The plan is to create 500 MW of capacity, with a view to establishing electricity access for a portion of the 237 million Indians who have none.

India is already carrying out grid extension projects. The new document aims to spur investment in off-grid programs by delineating the scope of the grid extension program. It identifies 14,204 villages that will be served by grid extension and 3,449 that will need off-grid generation infrastructure.

The paper suggests collaborations between energy service providers, banks, public sector groups, and village-level leaders and administrators are key to successful implementation, and proposes that State Nodal Agencies, which deal with renewable energy on a state level, could provide a suitable single point of access for coordinating project implementations and soliciting stakeholder input.<sup>34</sup>

29. Practical Action. (n.d.) Measurements and definitions. Retrieved from: <http://policy.practicalaction.org/policy-themes/energy/total-energy-access/measurements-and-definitions>

30. Jairaj, B. (201). Shining a light on electricity governance. World Resources Institute. Retrieved from: [http://www.wri.org/sites/default/files/wri12\\_report\\_4c\\_egi\\_outcomes.pdf](http://www.wri.org/sites/default/files/wri12_report_4c_egi_outcomes.pdf)

31. Reiche, K., Tenenbaum, B. & Torrese de Mastle, C. (2006). Electrification and regulation: Principles and a model law. World Bank Group Energy and Mining Sector Board. Retrieved from: <http://siteresources.worldbank.org/INTENERGY/Resources/EnergyPaper18.pdf>

the benefits of decentralized systems in providing a variety of energy services.<sup>28</sup> The need for a nuanced understanding of energy service delivery to align with local, regional, national and international agendas must be part of the ongoing dialogue. A have/have-not dichotomy misses many key aspects, particularly the quality of services as they relate to human health, community well-being and economic development.<sup>7</sup>

The use of advanced energy access metrics, alongside greater integration of energy access agendas between local, regional, national and international agencies, can sharpen energy access efforts worldwide. Capacity-building together with co-ordination between the various public-sector levels can both benefit the efficacy of electrification projects and have wider benefits.

Another useful tool is the World Resources Institute's (WRI) Electricity Governance Initiative (EGI).<sup>30</sup> This has helped 10 countries in assess their national electricity governance and possible improvements. The EGI toolkit, which is tailored to the sector, is a guided research tool that allows partners to develop a common language with policymakers, proactively engage in decision-making in the sector and provide suggestions and options to overcome governance gaps that are found during the assessment process.

Additionally, we recommend the Electrification and Regulation Principles developed for the World Bank.<sup>31</sup> This report presents a set of regulatory principles that are simple and easy to comply with, discusses whether energy projects should be delegated or contracted out depending on the type of entity involved and the need for affordable, achievable quality standards. The report also contains detailed examples of emerging regulatory practices and suggests the elements necessary for a legal framework.

#### 1.2.4 Ensure decision transparency

Both long term strategic planning and short term regulatory and policy decisions must be transparently made and communicated effectively to all concerned parties. Everyone in the sector needs to know what government policy and actions will be, and as far in advance as possible. Investments in off-grid systems, for instance, can be severely impacted

by sudden centralized investment. As a 2007 report from the knowledge-sharing SEEP Network stated, "Energy lending and markets for energy services and products can be adversely impacted, if not decimated, by a national electricity grid extension, if such initiatives go forward unannounced to the energy service market or a government initiates a fully subsidized technology giveaway program."<sup>32</sup> In 2003, the government of the Dominican Republic initiated a give-away program for home solar systems that almost destroyed the commercial solar market in one province. A spectacular fall-off in home solar installations in Bangladesh in 2016 has been partly attributed to "an unplanned expansion of grid-based electricity by Rural Electrification Board."<sup>33</sup> A better example has been shown by the Indian government, which in 2016 announced transparent plans for grid extension in some regions and commitment to off-grid installations in others (see sidebar).<sup>34</sup>

#### 1.2.5 Incentivize off-grid electricity

Energy subsidies aimed at providing access require careful consideration, and need to be implemented in ways that do not adversely affect the end-user.<sup>35</sup> Options for using renewable off-grid electricity services are now sufficiently robust and affordable that they can compete with traditional technologies like kerosene lamps in the absence of subsidies. Kerosene has long been subsidized in many developing world energy markets, and it now makes sense for electric lighting technologies to be treated similarly, especially since they can reduce the adverse health effects of burning kerosene while delivering a superior service to end-users in terms of the amount of light provided.

While it makes sense for governments to incentivize energy use so that the uptake of clean, renewable sources of energy is not unfairly hindered, the exact form subsidies should take is a complicated matter.<sup>36</sup> Subsidies are useful when supply and demand are out of sync, and when a lack of income and resources prevents individuals or communities from achieving an accepted minimum standard of living. The shortcomings of subsidies are well-documented: they can skew a market away from maximum operational efficiency and can, in many cases, fail to help those most in need.

32. Morris, El., Winiecki, J., Chowdhary, S. & Cortiglia, K. (2007). Using Microfinance to expand access to energy services. USAID. Retrieved from: [pdf.usaid.gov/pdf\\_docs/Pnadm641.pdf](http://pdf.usaid.gov/pdf_docs/Pnadm641.pdf)

33. NTVOnline. (2016). Six million solar home system bid faces setback. Retrieved from: <http://en.ntvbd.com/bangladesh/41581/Six-million-solar-home-system-bid-faces-setback>

34. Indian Ministry of New and Renewable Energy, SPV Division. (2016). National policy for renewable energy based micro and mini grids. Retrieved from: [http://mnre.gov.in/file-manager/UserFiles/draft-national-Mini\\_Micro-Grid-Policy.pdf](http://mnre.gov.in/file-manager/UserFiles/draft-national-Mini_Micro-Grid-Policy.pdf)

35. UNESCO. (2008). Reforming energy subsidies. Retrieved from: [www.unep.org/pdf/pressreleases/reforming\\_energy\\_subsidies.pdf](http://www.unep.org/pdf/pressreleases/reforming_energy_subsidies.pdf)

36. GIZ. (2009). Energy Subsidies: Why, when and wow? A think piece. Retrieved from: <https://www.giz.de/expertise/downloads/gtz2009-en-energy-subsidies-a-think-piece.pdf>

WRI has recommended that governments change existing subsidy for kerosene, for example, to a subsidy based on lighting.<sup>37</sup> This facilitates consumer choice and stimulates innovation. Subsidies also need to be accessible through more streamlined application processes in order to make them easier to claim. The Indian government has recently implemented direct benefit transfer cash payments to kerosene users in some districts.<sup>38</sup> This measure has been shown to reduce kerosene use, undermine the profitability of kerosene sales and give users the option of using other technologies.

Small-scale operators often need flexibility in this area, with an ability to tailor their product offering to their customers' requirements and ability to pay. Kenya's feed-in tariff policy is an example of positive action: it now promotes the introduction or increased use of privately owned renewable-energy power plants or hybrid systems.<sup>39</sup> It is worth noting that the implementation of such measures involved Kenya's Electricity Regulatory Board, an autonomous, independent regulator with a wide-ranging mandate for consumer and environmental protection, and approval of financial agreements.<sup>40</sup>

### 1.2.6 Establish appropriate duties and levies

It can be tempting for a government in a developing nation to see newly established business sectors as opportunities to raise much-needed funds through taxation. Many nations have long charged severe import duties on renewable energy and micro-generation equipment. However, this has had only short-term benefits for governments as the imposition

of duties pushes up prices, limiting the market and hampering long-term sector growth.

Lighting Africa has argued that the strategic setting of import duties is an area where "government actions can propel a portion of the consumers who are now in the poverty market into the commercial market." Its concern is with customs duties on solar lanterns but the same is true in several areas of the energy access market.<sup>41</sup>

There is good reason to charge import duty in some cases – when local manufacturers rely on import duties to keep their overseas competitors in check, for example. Often manufacturers based outside the country will be able to source cheaper raw materials, and an import tax can level this playing field, giving locally owned and operated manufacturers of energy infrastructure a better chance to contribute to the local economy through job creation and payment of taxes. It is worth noting that Vietnam's success in rural electrification was built on import tax exemption for goods which could not be produced domestically. Measures included four years of corporation tax exemption and a government obligation to purchase all electricity generated from renewable sources.<sup>42</sup>

Value-added tax (VAT) provides another good example of the need for well thought-out, transparent and long-lasting policies as sudden imposition or repeal can have an enormous effect on the affordability of consumer goods in the energy value chain. In Kenya, a 16 percent VAT levy was introduced on imported renewable energy products in 2013 and then lifted in 2014 causing prices to fluctuate rapidly. SunnyMoney

37. Bairiganjan, S., Cheung, R., Aglipay Delio, E., Fuente, D., Lall, S. & Singh, S. (2010). Power to the people: Investing in clean energy for the base of the pyramid in India. World Resources Institute. Retrieved from: [www.wri.org/sites/default/files/pdf/power\\_to\\_the\\_people.pdf](http://www.wri.org/sites/default/files/pdf/power_to_the_people.pdf)
38. DNAIndia. (2016). Government to transfer kerosene subsidy directly to bank accounts from April 1. Retrieved from: [www.dnaindia.com/money/report-govt-to-transfer-kerosene-subsidy-directly-to-bank-accounts-from-april-1-2161484](http://www.dnaindia.com/money/report-govt-to-transfer-kerosene-subsidy-directly-to-bank-accounts-from-april-1-2161484)
39. Van Landeghem, L. (2016). Private sector engagement: The key to efficient, effective energy access for refugees. Moving Energy Initiative. Retrieved from: <https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/2016-05-19-mei-private-sector-engagement-landeghem.pdf>
40. Institute of Economic Affairs. (2015). Situational analysis of energy industry, policy and strategy for Kenya. Retrieved from: <https://www.africaportal.org/dspace/articles/situational-analysis-energy-industry-policy-and-strategy-kenya>
41. Lighting Africa. (2012). Policy report note – Ghana. Retrieved from: [http://www.ecowrex.org/system/files/documents/2012\\_policy-report-note-ghana\\_lighting-africa-ifc.pdf](http://www.ecowrex.org/system/files/documents/2012_policy-report-note-ghana_lighting-africa-ifc.pdf)
42. Nam, P.K., Quan, N.A. & Binh, Q.M.Q. (2012). Investment incentives for renewable energy in Southeast Asia: Case study of Viet Nam. International Institute for Sustainable Development. Retrieved from: [http://www.iisd.org/pdf/2013/investments\\_incentives\\_viet\\_nam.pdf](http://www.iisd.org/pdf/2013/investments_incentives_viet_nam.pdf)
43. Meza, E. (2014). Kenya rescinds VAT on solar products. PV Magazine. Retrieved from: [https://www.pv-magazine.com/2014/06/11/kenya-rescinds-vat-on-solar-products\\_100015379/](https://www.pv-magazine.com/2014/06/11/kenya-rescinds-vat-on-solar-products_100015379/)
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45. Shahzad, K. (2016). Federal budget 2016-17: Custom duty of LED lights, solar panels slashed. Daily Pakistan. Retrieved from: <https://en.dailypakistan.com.pk/business/federal-budget-2016-17-custom-duty-on-led-lights-solar-panels-slashed/>
46. CLASP. (n.d.). Our mission. Retrieved from: <http://clasp.ngo/WhoWeAre/AboutUs>
47. Global LEAP. (n.d.). The Global LEAP awards. Retrieved from: <http://globalleap.org/awards/>
48. Lighting Global. (n.d.). Our impact. Retrieved from: <https://www.lightingglobal.org/about/our-impact/>
49. Murphy, D. & Sharma, A. (2014). Scaling up access to electricity: The case of Lighting Africa. World Bank Group. Retrieved from: <http://documents.worldbank.org/curated/en/804081468200339840/pdf/88701-REPF-BRI-PUBLIC-Box385194B-ADD-SERIES-Live-wire-knowledge-note-series-LW20-New-a-OKR.pdf>
50. Erboy Ruff, Y., Mahendru, V., Sebellin, P., Johnson, P. & Jacobsen, A. (2016). Quality standards for energy access: How international standards can support off-grid electrification in developing countries – webinar transcript. Clean Energy Solutions Center. Retrieved: <https://cleanenergysolutions.org/sites/default/files/documents/2016-05-11-transcript.pdf>

welcomed this change – as it made their imported products more affordable – but local manufacturers pointed out that the measure made their position more difficult (see sidebar).<sup>43</sup>

Finally, problems can occur when duties are charged on financial transactions such as those that take place on mobile phone networks. In Kenya, the Finance Act of 2012 introduced a 10 percent excise duty on transaction fees for all money transfer services provided by mobile phone providers, banks, money transfer agencies, and other financial service providers.<sup>44</sup> When the sector depends on mobile micro-payments – as many rural energy access businesses surely will – levies on transaction fees may kill larger tax opportunities presented by established, thriving businesses.

### 1.2.7 Establish appropriate quality standards

Direct experience of equipment that suffers frequent breakdowns or even terminal failure shortly after installation or reports of injury will put energy access programs in jeopardy across a region. A few stories of poor quality goods and accidents can have a chilling effect on even the most promising market. So, while every effort should be made to encourage technological innovation and entrepreneurship, it is vital that the government acts to define and uphold quality standards in products that enter the energy access market.

There are several leads to follow here which advocate for energy efficiency standards, quality standards, and labels for appliances, lighting, and off-grid energy systems in the

developing world. CLASP has worked in over 50 countries on six continents since 1999, helping governments structure and evaluate policies and programs for energy efficiency.<sup>46</sup> The Global Lighting and Energy Access Partnership (Global LEAP)'s flagship awards competition annually identifies the world's most efficient off-grid appliances.<sup>47</sup> Lighting Global has verified the quality of more than 100 products from 30 manufacturers, enabling 29 million people to have their basic lighting needs met by quality-verified solar lighting products.<sup>48</sup>

The Kenyan government has adopted a quality standard for solar lighting that was developed by Lighting Africa but adopted as international standard by the International Electrotechnical Commission (IEC).<sup>49</sup> Such standards are vital to counter market spoilage caused by poor customer experiences. IEC has standards for a wide variety of electricity access-related issues: micro-grid design, micro-grid optimization, energy metering, installation, testing and operation, integration with a main grid and others.<sup>50</sup>

Certification can also be branded onto quality-verified products, which can drive sales. It is worth noting that competition between energy access enterprises – especially those backed by investors hungry for profits – can sometimes result in poor quality installation, equipment or operation techniques, and so government-mandated quality standards should be clear and communicated to business communities at the earliest possible point in discussions of energy access opportunities. There should also be provisions for inspection, and for penalties for non-compliance.

## Import versus domestic manufacture – the role of tariffs

Many developing world countries are facing a dilemma when it comes to the manufacture of solar PV panels. Though it is desirable to support domestic manufacture, which creates jobs, the difficulties encountered in the market mean this can slow deployment of solar energy generation infrastructure.

Making low-cost solar panels relies on cheap electricity and large capital investments, because it benefits from economies of scale. For this reason, the global market for solar PV panels is dominated by large-scale Chinese manufacturers that receive significant government support. The Chinese output has been so large that China has been accused of dumping cheap solar panels into global markets to crush competitors. This has resulted in many countries imposing weighty anti-dumping tariffs on imports of Chinese PV panels. In an effort to avoid these tariffs, Chinese manufacturers have built

factories in developing countries such as Vietnam, creating local jobs and stimulating the economy.

Aware of the need to stimulate solar energy access projects, some governments have now removed all import duties from solar equipment and reduced import tariffs on related products. However, this adversely affects local manufacturers, who struggle to compete with cheap imports.

Strategies to resolve this problem include reducing import duties on parts only and encouraging investment in local assembly facilities. Pakistan, for instance, has reduced duty on the import of parts for LED lights from 20 percent to five percent. This is designed to stimulate local manufacturing while simultaneously facilitating growth in the renewable energy market.<sup>45</sup>