

# Distilling action-oriented insights from E+ consultations with energy business companies

## A report of the E+ TWG

P. Gutman and K. Van Dexter, 6/20/2013

### Executive Summary<sup>1</sup>

#### About Energy+

In late 2011 the government of Norway (GoN) launched Energy+ (E+), an international energy and climate initiative to fund energy access (EA), renewable energy (RE) and energy efficiency (EE) in low-income developing countries. By mid-2013 the GoN, through E+, had pledged some US\$200 million to foster EA and RE in several developing countries, and the ambition is to develop Energy+ into a full-fledged international partnership with resources and strategies to make a major contribution to the transformation of the global energy sector toward universal access and low-carbon emissions.

#### About the Energy+ Technical Working Group

In late 2010 the GoN asked WWF's U.S. Policy shop to convey and manage an Energy+ Technical Working Group (E+ TWG) to advise on the design and deployment of the Energy+ initiative. Since then the E+ TWG has mobilized a network of experts to advise E+ on EA, RE and EE strategies and to facilitate the dialogue between E+ and other donors, financial institutions, governments, businesses and civil society.

**The Energy+ approach** includes (a) the intention of moving from project financing to energy-sector transformation financing, (b) a focus on fostering private-sector investment, (c) the use of results-based payments, and (d) government-to-government funding agreements based on a three-phase program cycle: readiness, putting in place enabling conditions and scaling up implementation.

**The E+ business consultations:** During 2011 and 2012 E+ conducted four consultations with energy business companies, one each in Washington, D.C., USA; Nairobi, Kenya; Guangzhou, China; and New Delhi, India. Each consultation gathered between 40 and 70 high-level managers of renewable energy and related businesses to discuss success stories, challenges and opportunities that renewable energy businesses face in developing countries, and the possible added value of Energy+. An instant polling system was used to collect participants' reactions to some 70 questions.

**This paper's content and purpose:** This report reviews the responses collected in the four E+ business consultations and compares them with five different business models used to discuss the businesses' investment cycle and with 12 recent surveys and studies that address the issue of how to mobilize private-sector investment in EA, RE and EE, including perspectives from business organizations, energy agencies and energy experts. The purposes of this exercise are (a) to map what the business sector says about barriers to private investment in EA, RE and EE in developing countries; and (b) to compare these findings with what E+ is doing so far, in order to identify additional areas or approaches that E+ may be interested in pursuing.

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<sup>1</sup> We gratefully acknowledge comments to previous drafts from Morgan Bazilian, David Reed, Dan Riley and Eric Usher

**Finding 1: On barriers to business investment in EA, RE and EE:** Our four consultations and the surveys and studies here reviewed all offer quite a similar picture of the EA, RE and EE scaling-up conundrum that has been around for some time now. Scaling up private investment in EA, RE and EE in developing countries faces not one but many barriers, and addressing them will require varied yet probably coordinated solutions.

We have organized the hundreds of responses collected in the four consultations into six major clusters of barriers, according to which stakeholders would need to lead the solution to overcome these barriers: (a) government policy barriers, (b) financing barriers, (c) information barriers, (d) market development barriers, (e) capacity barriers, and (f) infrastructure and technology barriers.

Some of these groups point to well-known issues, such as government policy barriers (e.g., lack of national policies that give strong priority to energy access and renewable energy) and financing barriers (e.g., lack of adequate financing in terms of amounts, rates, maturity and risk-sharing mechanisms). Other barrier groups highlight issues that may have received less attention thus far, such as market development barriers (e.g., lack of at-scale business models for energy access in rural areas) and capacity barriers (e.g., limited capacity among key stakeholders to understand, appraise and make mainstream EA, RE and EE).

**Finding 2: On matching barriers to the leading stakeholders that should address them:** As stated in the previous finding, different barriers may necessitate different stakeholders to lead the solution. For example, if governments lack the will or capacity to overcome policy barriers to EA, RE and EE, other stakeholders may not be able to do much about it. Something similar could be said of financing barriers that should be addressed by both public and private financial and investment institutions. In turn, other barriers, such as market development, information and capacity barriers, may require other stakeholders to lead the search for solutions, beginning with the business sector itself and including, among others, technical and academic institutions, local businesses, social entrepreneurs, civil society organizations, and more.

Moreover, when we move from discussing scaling up renewable energy in general to discussing how to scale up off-grid energy access among the rural poor of developing countries, more specific barriers and new leading actors may come to the forefront. In this particular regard, most of the surveys' participants agreed that there is a lack of viable business models to scale up energy access among the poor in rural areas of developing countries. Granted, there are good examples of small-scale, off-grid and mini-grid rural energy projects, but no scaling up or replication model has emerged thus far. Governments, financial institutions and the energy-business sector are all necessary players in this search, but perhaps the key to laying the foundation of the business model for energy access in rural areas is the experience of social entrepreneurs, local small businesses and the local communities themselves, because they are more attuned to the needs, challenges and opportunities of doing business at the bottom of the pyramid.

**Finding 3: On new approaches that E+ may want to undertake:** Thus far, the dominant approaches to fund EA, RE and EE in developing countries used by E+ partners have been the following:

- A traditional development aid approach: government-to-government, bilateral agreements in which the donor government grants a certain amount of money to the recipient country government over a five-year period, coupled with an innovative three-phase program cycle and with most payments tied to results (results-based aid).
- Smaller investments in (a) a project incubator for local RE businesses, managed by the Asian Development Bank; (b) policy research and development; and (c) communication and consultations with governments, businesses and civil society organizations.

A comparison of the above E+ partnership investment strategy and the outcomes of the barriers survey reveals several other approaches that could complement the current government-to-government E+ focus, so as to better address barriers to private investment in EA, RE and EE beyond a government's reach. For example:

- **Regarding financial barriers:** To engage more systematically with international financial institutions to explore and support innovative financial approaches that can address some of the financial barriers that the private sector is concerned with, in terms of risk reduction, loan maturation and early access to financing.
- **Regarding market barriers:** To engage with businesses, business associations, experts and energy-sector agencies to explore and support new business models to deliver energy access at scale.
- **Regarding market barriers to energy access in rural areas:** To engage, learn from and support social entrepreneurs, local small businesses and local community organizations as part of the solution to scaling up energy access among the rural poor.
- **Regarding the need of coordinated solutions:** Because promoting investment at scale in EA, RE and EE will require overcoming a variety of barriers and mobilizing many different stakeholders, there is a premium on better coordination. E+ could partner with other stakeholders at both the national and international levels to find innovative coordination, communication and information platforms that could facilitate the process without becoming additional burdens. At the country level E+ is promoting the creation of energy registries, and it would be worthwhile to explore opportunities for parallel initiatives at the regional or global level.

## **Introduction**

### **The E+ Partnership and the E+ Technical Working Group**

The International Energy and Climate Initiative–Energy+ was launched in October 2011 by the United Nations Secretary-General and the Norwegian Prime Minister. Energy+ supports efforts to achieve universal access to sustainable energy and reduce greenhouse gas emissions in developing partner countries by scaling up access to renewable energy sources and increasing energy efficiency.

Fifty-five countries and institutions have thus far joined the Energy+ Partnership, and by mid-2013 E+ had mobilize some US\$200 million to foster EA and RE in five developing countries. Besides these country-to-country funding agreements, E+ also participates in multi-donor programs such as FARE in India and SARI in South Africa and partners with other funding programs, such as the Asian Development Bank, the Dutch-German EnDev, the Clinton Foundation and the European Investment Bank/UNEP Renewable Energy Platform. Last but not least, E+ collaborates closely with the UN’s Sustainable Energy for All and with many other energy and climate initiatives, including the European Union Energy Initiative, the Scaling Up Renewable Energy Program and the Energy Sector Management Assistance Program.<sup>2</sup>

The E+ Technical Working Group (E+ TWG) was created in late 2010 at the request of the Norwegian government to help lay the conceptual and operational foundations for the Energy+ Initiative. Currently the E+ TWG acts as a shifting network of technical experts from a wider range of partner organizations and is managed by a small “core team”—in essence an outposted part of the Energy+ Secretariat, hosted by the WWF-U.S. Policy Program in Washington, D.C. Since its inception, the E+ TWG has produced a stream of reports to advise E+ on EA, RE and EE strategies and has facilitated the dialogue between E+ and other donors, financial institutions, governments, businesses and civil society.

### **The E+ Business Consultations**

One major focus of E+ is how to scale up private investment in energy access, renewable energy and energy efficiency. Hence, beginning in late 2011 E+ conducted four consultations with energy business companies in Washington, D.C., USA (November 2011); Nairobi, Kenya (March 2012); Guangzhou, China (October 2012); and New Delhi, India (November 2012). Each consultation brought together between 40 and 70 high-level managers of renewable energy and related businesses. Garten Rothkopf, a Washington, D.C.-based energy consulting firm, organized and moderated the consultations, which consisted of (a) short presentations by the participants on success cases, (b) an open discussion of challenges and opportunities that renewable energy businesses face in developing countries, and (c) a discussion of the added value of Energy+. Additionally, an instant polling system collected the participants’ reactions to questions posed by the moderator about market regulation, project models, risks, finance and operational issues. Garten Rothkopf produced four reports based on the consultations and an additional report that compares the results of the instant polling exercises in the four consultations.<sup>3</sup>

This report analyzes the responses collected in the four E+ business consultations and compares them with the existing literature on how to leverage private and public investment for energy access (EA), renewable energy (RE) and energy efficiency (EE) in developing and developed countries. The purposes of this exercise

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<sup>2</sup> For more information on the Energy+ Partnership, please visit [http://www.regjeringen.no/en/dep/ud/campaigns/energy\\_plus.html?id=672635](http://www.regjeringen.no/en/dep/ud/campaigns/energy_plus.html?id=672635).

<sup>3</sup> For a copy of these documents, please contact Dan Riley at [Daniel.Riley@wwfus.org](mailto:Daniel.Riley@wwfus.org).

are (a) to map what the business sector says about barriers to private investment in EA, RE and EE in developing countries; and (b) to compare these findings with what E+ is doing so far, in order to identify additional areas or approaches that E+ may be interested in pursuing. Following is the breakdown of the report, by section:

- Section 1 presents the opinions of the participants in the four business consultations, grouped into six clusters by type of barrier: (a) government policy barriers, (b) financing barriers, (c) information barriers, (d) market development barriers, (e) capacity barriers, and (f) infrastructure and technology barriers.
- Section 2 compares these six clusters of barriers and five different business models that are used in the literature to discuss the process of business investment in EA, RE and EE.
- Section 3 presents findings of 11 other surveys and studies that address the issue of how to mobilize private-sector investment in EA, RE and EE, including perspectives from business organizations, energy agencies and energy experts.
- Section 4 presents some ideas for E+ and the E+ TWG to engage E+ partners and stakeholders in collaborative efforts to mobilize private funding to address some of the barriers to EA, RE and EE discussed in the previous sections.

## **Section 1. Analyzing Businesses' Assessment of Barriers to Private-Sector Investment in EA, RE and EE in Developing Countries**

### **1.1. Key Messages of This Section**

In Table 1 below we organize the hundreds of responses collected in the four business consultations into six groups. The six groups are designed to facilitate the identification of which stakeholder would need to lead a solution. The six groups are (a) government policy barriers, (b) financing barriers, (c) information barriers, (d) market development barriers, (e) capacity barriers, and (f) infrastructure and technology barriers.

Some of these groups point to well-known issues, such as government policy barriers (e.g., lack of national policies that give strong priority to energy access and renewable energy) and financing barriers (e.g., lack of adequate financing in terms of amounts, rates, maturity and risk-sharing mechanisms). Other barrier groups highlight issues that may have received less attention thus far, such as market development barriers (e.g., lack of at-scale business models for energy access in rural areas) and capacity barriers (e.g., limited capacity among key stakeholders to understand, appraise and make mainstream EA, RE and EE).

Table 1 uses consultation participants' language verbatim, so in some cases the barriers are worded as nothing more than barriers (e.g., "Lack of standardized contracts"), and in other cases they are worded as intervention opportunities to overcome barriers (e.g., "Establishment of free trade zones"). A clear message from these E+ business consultations is that there is not just a single barrier to private investment in EA, RE and EE in developing countries. Many such barriers exist that require varied yet probably coordinated solutions. One surprise of this review is the low priority that business representatives gave to technology research and development barriers, even though in the past technology innovation was a key driver of cost reductions in RE. The four consultation reports and 11 cases seldom highlight technology R&D as a priority area, either as a barrier (inadequate or too little technology R&D) or as an opportunity (to invest more in technology R&D). We have two theories to explain this: (a) surveys and studies start with an interest in nontechnology barriers; and (b) most of these consultations and studies are from 2010 through the present, when worldwide renewable energy manufacturers have experienced a period of overcapacity that may focus businesses' attention more on market breakthroughs and less on technology breakthroughs.

Although more than 200 business representatives attended these consultations with E+, we do not claim that their answers are statistically representative, so in Sections 2 and 3 we compare these answers to other approaches and studies that address the same issue.

**Table 1: Businesses' Assessment of Barriers to Investments in Energy Access, Renewable Energy and Energy Efficiency in Developing Countries**

E+ Private-Sector Consultation November 8, 2011 Washington, D.C., USA	E+ Private-Sector Consultation March 5-6, 2012 Nairobi, Kenya	E+ Private-Sector Consultation October 18, 2012 Guangzhou, China	E+ Private-Sector Consultation November 7, 2012 New Delhi, India
<b>A. GOVERNMENT POLICY BARRIERS</b> Including, for example, lack of long-term national energy plans, lack of stable energy-sector policies, lack of regulatory frameworks that allow for independent power producers, and lack of consistent countrywide implementation of energy policies			
Unstable regulatory and legal environment	Inappropriate institutional frameworks	Strong political will and robust government support necessary for development of EA, RE and EE	Public support for EA, RE and EE undermined by inconsistent implementation
Regulatory and market structures are inhospitable to independent power producers	Lack of stable, predictable policy environment and supportive regulatory regime	Import tariffs and countervailing duties on RE products greatly reduce market competition	Feed-in tariff payment levels and payment delays change from state to state
Lack of policy stability	Presence of subsidies to traditional sources of energy	Long-term sustainable incentive system would help unlock private investment	Conflicting policies implemented by the government
Lack of a well-developed long-term national energy plan	High tariffs on the import of renewable energy equipment	Establishment of free trade zones in developing countries can accelerate investment by foreign manufacturers and developers of EA, RE and EE	Conflicting agendas among ministries
Lack of long-term contracts			Failure of states to adhere to national guidelines on RE certificates (RECs)
			Fossil fuel subsidies and other energy pricing practices distort the entire energy market and hinder RE
			Cumbersome public approval of EA, RE and EE projects severely impedes growth

**Table 1 (cont.)**

<p align="center"><b>B. FINANCING BARRIERS</b></p> <p align="center">Including, for example, lack of adequate financing in terms of both maturity and cost, lack of risk-reduction arrangements, and lack of support for early project development</p>			
High risk-return ratio for entering developing countries' markets	Limited access to capital	High early-stage development costs and risks; RE developers often struggle to meet financiers' strict requirements, and investors are unwilling to lend at appropriate terms and costs	Barriers to obtaining appropriate financing for many EA projects result in high costs
Need to dedicate public funds to develop and support access to finance on appropriate size, terms and rates along the supply chain, including innovative public-sector tools that reduce the cost of capital and extend maturities	Difficulty securing long-term financing	Small scale of many RE projects contributes to a high cost of financing and a lack of funding	Local banks weary of overexposure and reluctant of international financiers' entering more volatile developing markets
Ineffective financial options and unstable financial arrangements	Lack of guarantees, contributions or other financial schemes for early-stage financing	Risks inherent to EE projects, including credit default risks, performance risks, and a lack of baseline and performance data, make it difficult to obtain loans from commercial banks	Difficult access to risk capital in a sector where technology changes rapidly
Need for stable, long-term financial arrangements and innovative models that address concerns over terms of loans and unsustainably higher interest rates for access to financing	Lack of early project development support/funding to be allocated to feasibility studies that would enable investors to properly evaluate the potential risks and revenues associated with renewable investments, particularly small-scale projects	Need for new sources dedicated to financing RE exports and project contracts	Financiers not equipped to handle the various financing structures, such as the pay-as-you-go models, that are often used on off-grid RE projects
		High early-stage development costs and nonpayment risks	
Lack of support for feasibility studies conducted prior to project implementation	High early-stage project development costs	RE projects often struggle to meet banks' strict requirements	Banks are hesitant to fund new business models and technologies
		Investors unwilling to risk the funding at appropriate terms and costs required for EA, RE and EE	

**Table 1 (cont.)**

**C. INFORMATION BARRIERS**

Including, for example, lack of communication between the public and private sectors, limited engagement with local partners and communities, and limited access to business-relevant information

<p>Breakdown in communication between the public and private sectors</p>	<p>Lack of relevant information, including access to resource maps, assessments of market demand and plans for grid expansion, and information on direction of policy and energy planning</p>	<p>Many rural consumers lack awareness of RE options; need to educate local communities on RE, adapt business models to local budgetary needs and conditions, and provide necessary training on how to operate and maintain RE technologies</p>	<p>Creation of open databases on EA, RE and EE could provide more clarity on policies and other important information (e.g., an index of project approval timelines would allow developers to compare regions and regulatory bodies and to timely address burdensome regulatory processes)</p>
<p>Need to engage the local community and leverage local partnerships throughout every stage of the project cycle; long-term focus on sustainability achieved by integrating the community into the project cycle</p>		<p>Access to information on the direction of policy and energy planning enables the private sector to better evaluate and control risks associated with potential investments in EA, RE and EE projects</p>	
		<p>Access to information on both the demand and supply sides of project financing and equipment procurement and technical services contributes to efficiency and facilitates matching business partnerships and allocating resources for energy access projects</p>	

**Table 1 (cont.)**

<p align="center"><b>D. MARKET DEVELOPMENT BARRIERS</b></p> <p align="center">Including, for example, lack of innovative business models for rural energy markets, lack of product standards and lack of standardized contract processes</p>			
Lack of product standards reduces consumer confidence in new RE products	Lack of standardized contracts and streamlined processes, such as long-term power purchase agreements (PPAs), that would reduce delays and transaction costs	EA and RE developers should target markets where RE possesses cost competitiveness (e.g., off-grid and local renewable energy sources)	Businesses are lacking innovative models for rural EA and RE at scale
Lack of standardized PPAs increases transaction costs	Need to leverage local partnerships at early stage of project development in order to navigate complex licensing and permitting procedures, understand local markets, and add element of credibility as developers seek funding	Project developers should work with rural consumers to adapt business models to local budgetary needs and conditions through product and technology innovation	Focus should be on rural communities, creating a private sector among the poor so that the business models are aligned with needs of rural local communities and project design addresses rural communities' needs
	Bundling a number of small projects to secure good managers and access to carbon credit financing	Standardized performance criteria for energy efficiency projects and MRV procedures could mitigate risks associated with nonpayment and incentivize energy service companies (ESCOs) to enter markets	Partnerships between EA project developers and other complementary industries; telecommunications, consumer electronics, and fast-moving goods such as water and agriculture products could serve as particularly powerful strategies
		Lack of scale of RE projects contributes to a high cost of financing and a lack of funding	Standardized models for bidding processes could help reduce uncertainty and costs and would facilitate banks' assessment of project risk

**Table 1 (cont.)**

<b>E. CAPACITY BARRIERS</b> Including, for example, lack of technical capacity and lack of management and enforcement capacity in governments			
Limited technical capacity at all levels (government, financial institutions, power companies, manufacturing)	Lack of local management and technical expertise among small-scale entrepreneurs	Absence of management capacity in governments; lack of enforcement, coupled with corruption, leads to poor implementation of policies at the local level	Policies are often not implemented consistently or enforced uniformly across states, due to the weakness of the central government
Lack of local innovation	Lack of technical support available for RE products		Lack of countrywide enforcement undermines the effectiveness of federal policies
			Institutional support at the local level enables consumers to lead the development of more sustainable energy solutions
			Governments need to be able to monitor and measure the success of incentives in order to identify the policies that do and don't work
<b>F. INFRASTRUCTURE AND TECHNOLOGY BARRIERS</b> Including, for example, lack of grid infrastructure to accommodate renewable energy and lack of appropriate technology solutions for some market segments			
Lack of infrastructure to accommodate renewable energy	Lack of support for off-grid projects		
Lack of investment in piloting new technologies	Development of supporting infrastructure and policies around particular renewables (e.g., Kenyan government investment in a geothermal development company)		

## Section 2. Comparing Businesses' Demands and Energy-Sector Conceptual Models

### 2.1. Key Messages of This Section

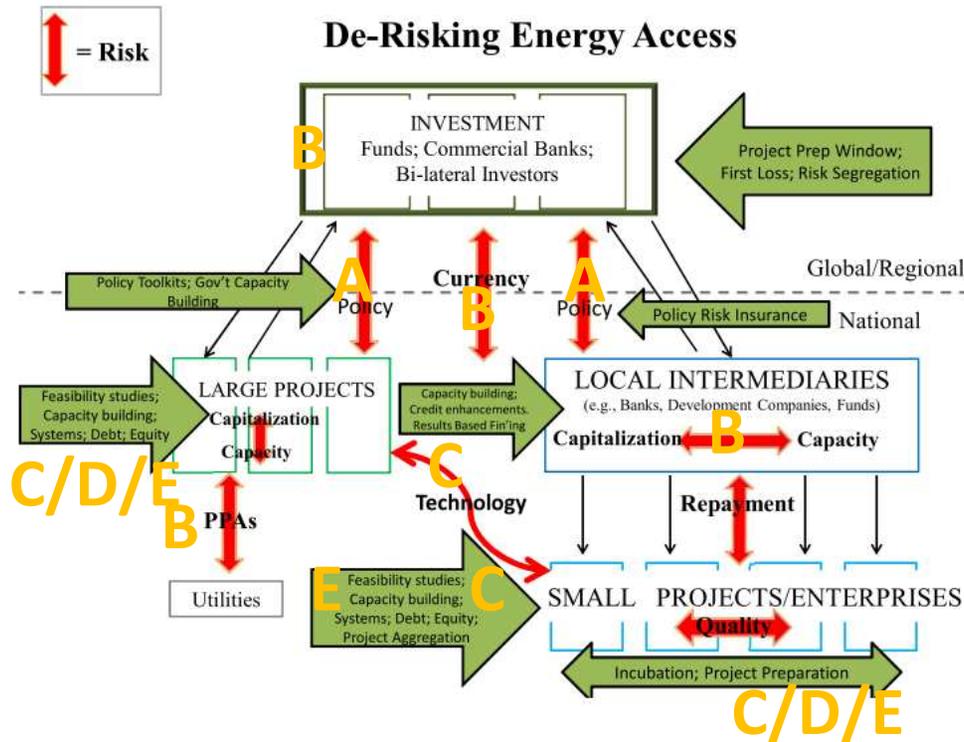
Below we present several business models that have been used to identify where barriers exist or where support is needed to foster private investment in renewable energy. We compare these models to the list of barriers and needs identified by private-sector representatives in the four E+ consultations, as shown in Table 1. The models that best capture the challenges raised by the four E+ private-sector consultations seem to be

- Model A, the “De-Risking Model,” which focuses on how to de-risk energy access investment for both large and small businesses
- Model C, the “Government-Level Perspective on Mitigation Investment, Including Renewable Energy Model,” which focuses on assessing barriers and selecting interventions to address them
- Model D, the “Innovation Cycle Approach Model,” which combines both a project-center perspective and a sector-center perspective

Model B, the “Renewable Energy Life-Cycle Model,” is too aggregate to be useful in this type of discussion, and Model E, the “Sustainable Financing Continuum Model,” takes an individual project perspective that looks only at financial barriers.

In general, business cycle models seem of limited use to discuss barriers to scaling up private investment in EA, RE and EE, because most of them take a single-project perspective when many barriers (e.g., policy barriers) are systemic or sector-wide, not project specific.

Model A: De-Risking Model (Source: Christine Eibs-Singer, E+Co.)



**Barriers identified by the E+ private-sector consultations that the model seems to address:**

**A. GOVERNMENT POLICY BARRIERS**

- Lack of long-term national energy plans
- Lack of stable energy-sector policies
- Lack of regulatory frameworks that allow for independent power producers
- Lack of consistent countrywide implementation of energy policies

**B. FINANCING BARRIERS**

- Lack of financing in terms of both maturity and cost
- Lack of risk-reduction arrangements
- Lack of support for early project development

**C. INFORMATION BARRIERS**

- Lack of communication between the public and private sectors
- Limited engagement with local partners and communities
- Limited access to business-relevant information

**D. MARKET DEVELOPMENT BARRIERS**

- Lack of innovative business models for rural energy markets
- Lack of product standards
- Lack of standardized contract processes

**E. CAPACITY BARRIERS**

- Lack of technical capacity
- Lack of management and enforcement capacity in governments

**Barriers identified by the E+ private-sector consultations that the model may not address:**

**F. INFRASTRUCTURE AND TECHNOLOGY BARRIERS**

- Lack of grid infrastructure to accommodate renewable energy
- A.** Lack of appropriate technology solutions for some market segments

**Model B: Renewable Energy Life-Cycle Model** (Source: Scaling Up Renewables, World Economic Forum, 2011)

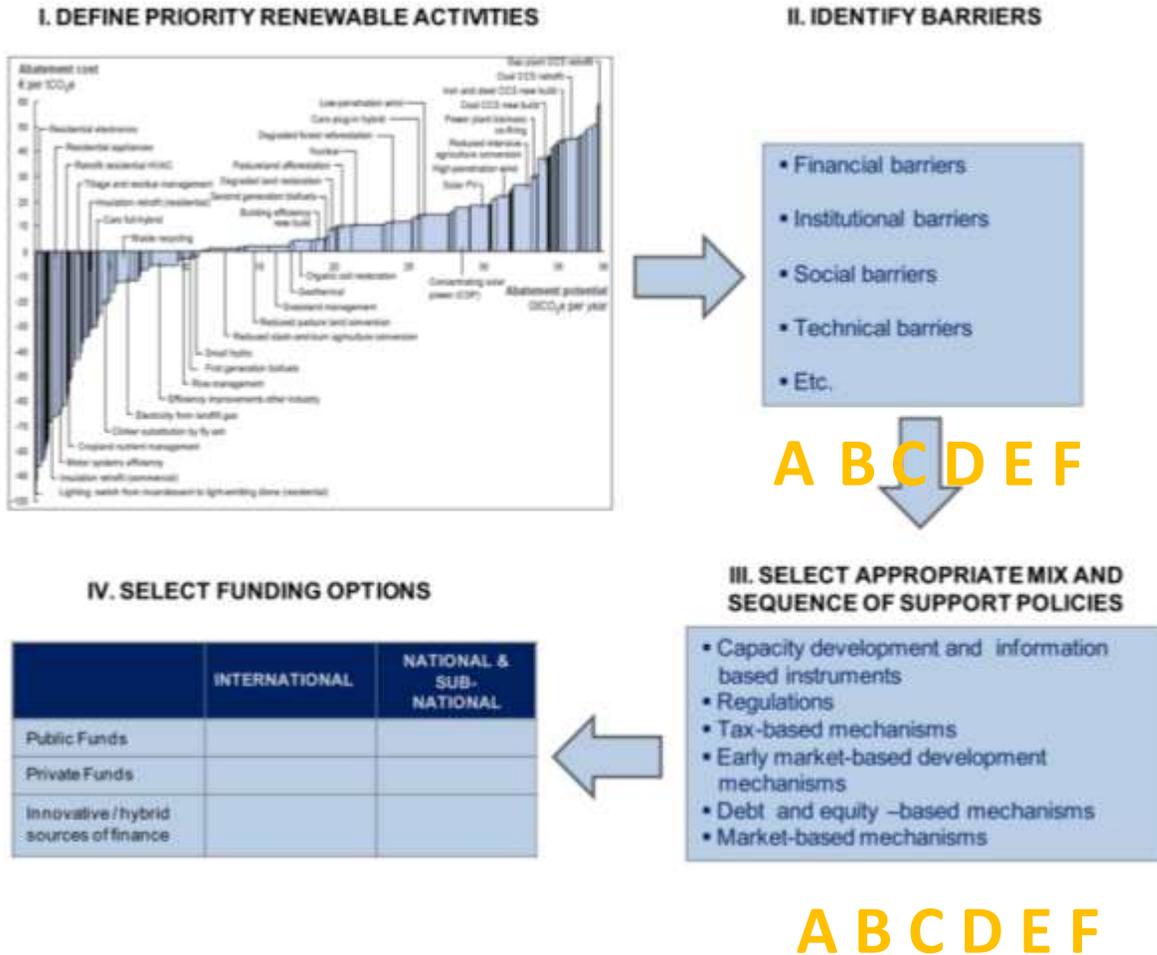


**Barriers identified by the E+ private-sector consultations that the model seems to address:**

- A. GOVERNMENT POLICY BARRIERS
- B. FINANCING BARRIERS
- C. INFORMATION BARRIERS
- D. MARKET DEVELOPMENT BARRIERS
- E. CAPACITY BARRIERS
- F. INFRASTRUCTURE AND TECHNOLOGY BARRIERS

This model offers links to all clusters of barriers identified in the E+ business consultations, but it is too aggregate to allow links to the more detailed level of barriers, as Model A does.

**Model C: Government-Level Perspective on Mitigation Investment, Including Renewable Energy Model** (Source: Deutsche Bank Group (2011) “GET FIT Plus: De-Risking Clean Energy Business Models in a Developing Country Context”)



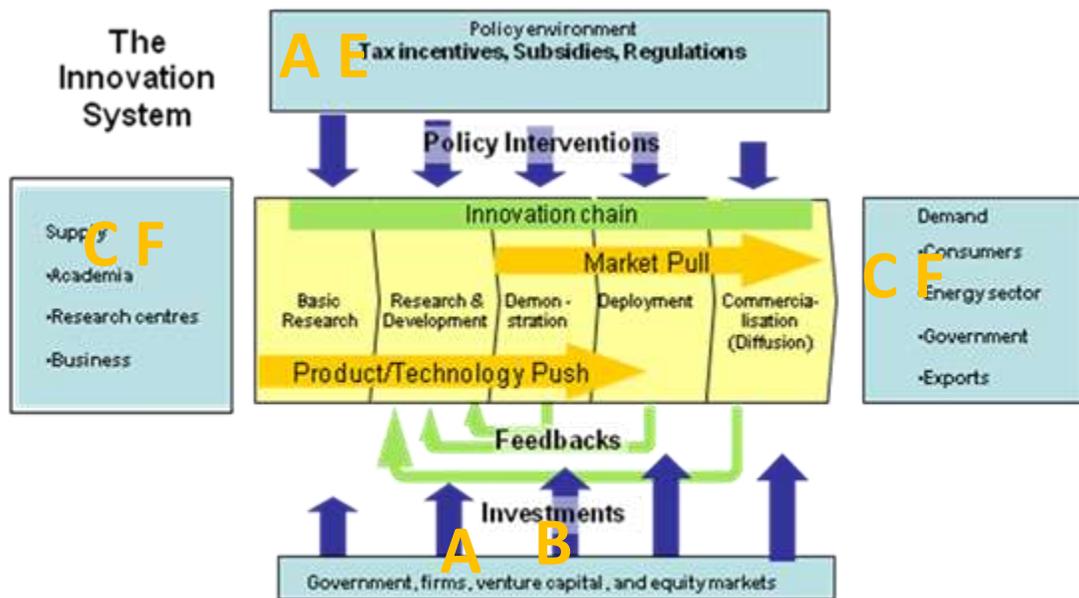
**Barriers identified by the E+ private-sector consultations that the model seems to address:**

A. GOVERNMENT POLICY BARRIERS  
B. FINANCING BARRIERS  
C. INFORMATION BARRIERS  
D. MARKET DEVELOPMENT BARRIERS  
E. CAPACITY BARRIERS  
F. INFRASTRUCTURE AND TECHNOLOGY BARRIERS

This model offers links to all clusters of barriers identified in the E+ business consultations, but it is too aggregate to allow links to the more detailed level of barriers, as Model A does.

Notice that this model could be easily disaggregated by expanding steps II, III and IV.

**Model D: Innovation Cycle Approach Model** (Source: M. Grubb, from Kick the Habit—A UN Guide to Climate Neutrality)



**Framework conditions:** macro economic stability, education and skills development, innovative business climate, IP protection etc.  
A C D E

**Barriers identified by the E+ private-sector consultations that the model seems to address:**

**A. GOVERNMENT POLICY BARRIERS**

- Lack of long-term national energy plans
- Lack of stable energy-sector policies
- Lack of regulatory frameworks that allow for independent power producers
- Lack of consistent countrywide implementation of energy policies

**B. FINANCING BARRIERS**

- Lack of adequate financing in terms of both maturity and cost
- Lack of risk-reduction arrangements
- Lack of support for early project development

**C. INFORMATION BARRIERS**

- Lack of communication between the public and private sectors
- Limited engagement with local partners and communities
- Limited access to business-relevant information

**D. MARKET DEVELOPMENT BARRIERS**

- Lack of innovative business models for rural energy markets
- Lack of product standards
- Lack of standardized contract processes

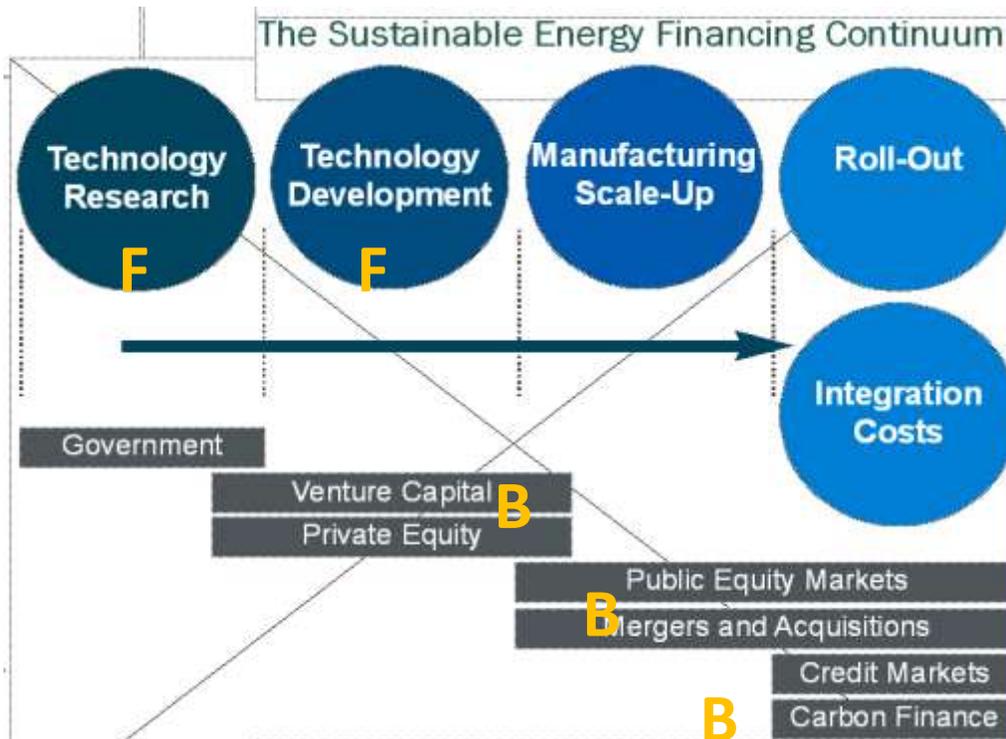
**E. CAPACITY BARRIERS**

- Lack of technical capacity
- Lack of management and enforcement capacity in governments

**F. INFRASTRUCTURE AND TECHNOLOGY BARRIERS**

- Lack of grid infrastructure to accommodate renewable energy
- Lack of appropriate technology solutions for some market segments

Model E: Sustainable Financing Continuum Model (Source: Based on UNEP/SEFI, 2010)



**Barriers identified by the E+ private-sector consultations that the model seems to address:**

**B. FINANCING BARRIERS**

- Lack of adequate financing in terms of both maturity and cost
- Lack of risk-reduction arrangements
- Lack of support for early project development

**F. INFRASTRUCTURE AND TECHNOLOGY BARRIERS**

- Lack of grid infrastructure to accommodate renewable energy
- Lack of appropriate technology solutions for some market segments

**Barriers identified by the E+ private-sector consultations that the model may not address:**

This model focuses on financing issues, so it does not attempt to address many of the issues raised by the E+ private-sector consultations, including

**A. GOVERNMENT POLICY BARRIERS**

**C. INFORMATION BARRIERS**

**D. MARKET DEVELOPMENT BARRIERS**

**E. CAPACITY BARRIERS**

## Section 3: A Comparison with Other Perspectives

### 3.1. Key Messages of This Section

This section presents other surveys and studies that directly or indirectly address the issue of how to mobilize private-sector investment in EA, RE and EE in developing countries. In Tables 2, 3 and 4, we summarize 11 recent reports. Table 2 presents perspectives from business organizations, Table 3 presents perspectives from energy agencies and Table 4 presents perspectives from energy experts.<sup>4</sup>

The four E+ partnership business consultations and the 11 cases reviewed in this section strongly agree on the main barriers to scaling up private investment in EA, RE and EE in developing countries and what should be done to address them. Although perspectives and emphases vary among the surveys, reports, consultations and analyses, most concur that we need national policies that give strong priority to energy access and renewable energy, adequate financing, new business models for energy access, and capacity building.

These studies also agree with the E+ consultations in that this is not a case of a single barrier to private investment in EA, RE and EE in developing countries. Many such barriers exist, and by the same token there is no single silver bullet that can solve it all. Some approaches seem to narrow the number of barriers, because they either begin with a narrower quest (e.g., financing early business development) or use a catchall term such as “risk” or “risk reduction” that acts as a proxy for the long list of barriers (e.g., policy risk, exchange risk, market risks, financial risk, etc.). Overall, there are no big surprises in the diagnosis. Consultations, surveys and studies all offer quite a similar picture of the energy-sector conundrum, one that has been around for some time now. But, while there are few novelties in the diagnosis of the problems, there certainly are new proposals of solutions that merit consideration.

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<sup>4</sup> Please note that these tables simplify and summarize in a few lines the main findings from reports that range from 40 to 1,400 pages.

**Table 2. Perspectives from Business Organizations**

<b>World Economic Forum (WEF) (2011) “Scaling Up Renewables. Developing Renewable Energy Capacity—Addressing Regulatory and Infrastructure Challenges in Emerging Markets”</b>	
This report focuses on “regulatory and grid infrastructure challenges that currently affect the development of renewable energy and highlights actions required by governments, utilities and developers for successful large-scale deployment.” It does not discuss financial challenges.	
<b>Barriers to private-sector investment</b>	<b>Ways to address them</b>
<b>Government/governance</b> <ul style="list-style-type: none"> <li>• Absence of long-term planning with specific implementation plans for renewable energy capacity targets creates uncertainty and undermines government credibility</li> <li>• Lack of coordination between relevant authorities and lack of consistent countrywide implementation of energy policies</li> <li>• Government and regulatory bodies do not always communicate effectively with each other, thereby causing confusion among developers and delays in project approval</li> </ul>	<ul style="list-style-type: none"> <li>• Build comprehensive energy strategies and policies with generation targets for particular technologies; longer-term success could then be ensured by combining these with implementation review and enforcement plans</li> <li>• Consider appropriate options and undertake regulatory reform; for governments, this should include steps to speed up decision making and improve interagency coordination and transparency of the entire process; it could also include development of “one-stop shops” or regulatory focal points for private developers that, in turn, could align with regulators through the formation of renewable energy associations</li> <li>• Create more certainty and clarity through the appointment of an independent regulator to oversee the electricity market</li> <li>• Comprehensively assess and periodically review the renewable resource potential; this can also be linked to reviews of the country-level strategic plan</li> <li>• Commission work to actively identify weaknesses in current grid infrastructure and consider the attributes of renewable energy in future infrastructure developments</li> <li>• Review existing and undertake new, focused capacity-building programs within government and regulatory organizations; this would support all the above points and could be linked to programs to raise public awareness</li> </ul>
<b>Market development and communication</b> <ul style="list-style-type: none"> <li>• Lack of common or consistent contracting arrangements for renewable energy developers</li> <li>• The structure of electricity markets, with one dominant player preventing private developers from conducting business on a level playing field</li> </ul>	
<b>Infrastructure and human capacity</b> <ul style="list-style-type: none"> <li>• Limited grid infrastructure in the areas where renewable resources are most abundant presents current and future barriers to increased generation</li> <li>• Many government bodies and regulators face shortages of experienced staff familiar with the renewable energy industry; this has led to a high level of risk aversion and slow processing of permit applications</li> </ul>	

**Table 2. Perspectives from Business Organizations (cont.)**

World Business Council on Sustainable Development (WBCSD) (2012) “Business Solutions to Enable Energy Access for All”	
<p>The WBCSD has launched the Access to Energy Initiative to help businesses and other key stakeholders understand how to maximize businesses’ contributions to access to energy. This publication is the first output of the WBCSD initiative and discusses the roles, opportunities and risks of businesses, as well as how to maximize businesses’ contributions to access to energy. It also provides a host of business examples.</p>	
Barriers to private-sector investment	Ways to address them
<ul style="list-style-type: none"> <li>• Poor regulatory and investment climate in many countries</li> <li>• Fragmented and immature markets and lack of information</li> <li>• Lack of knowledge and capacity</li> <li>• Dispersed rural populations</li> <li>• Solutions may vary with the local context, limiting replication potential</li> <li>• High levels of real or perceived risk, including               <ul style="list-style-type: none"> <li>○ Political/country risk (e.g., risk of appropriation, breach of contract, war, civil unrest)</li> <li>○ Policy risk (e.g., change of policy, failure to implement plans)</li> <li>○ Currency risk/foreign exchange fluctuations</li> <li>○ Commercial counterparty risk (e.g., nonpayment by a major contract party, such as a national utility)</li> <li>○ Revenue risk (e.g., low demand, widespread nonpayment by customers)</li> <li>○ Performance risks (e.g., technology performance, outages)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Establish enabling policy frameworks: well-designed and stable policy and regulation are critical for facilitating business participation in the energy sector and the expansion of access to energy; policymakers need to focus on prioritizing energy access in national development planning, improving the investment climate and implementing enabling measures to promote primary energy access solutions</li> <li>• Business model innovation for three main types of energy access solution: (a) electricity grid extension, (b) distributed/renewable energy systems, and (c) products and appliances</li> <li>• Promote partnerships: (a) public-private partnerships; (b) partnerships to develop new business models; (c) partnerships for financing access projects; (d) coalitions for advocacy and action; (e) partnerships to strengthen businesses’ RE associations and civil society coalitions for EA, RE and EE; (f) partnerships in energy value chains working toward sustainability; (g) multi-stakeholder platforms to facilitate dialogue among civil society organizations, the private sector and the government on sustainable energy; and (h) multi-stakeholder platforms on sustainable energy to collaborate regionally</li> <li>• Public finance to catalyze business investment</li> <li>• PPA model: investments in core infrastructure, investment incentives, provision of finance and support for development of low-carbon technologies</li> </ul>

**Table 2. Perspectives from Business Organizations (cont.)**

<p><b>Global Sustainable Electricity Partnership Survey (2011) “Strengthening Public-Private Partnerships to Accelerate Global Electricity Technology Deployment—Recommendations from the Global Sustainable Electricity Partnership Survey”</b></p> <p>This report presents the results of a survey of approximately 60 leading practitioners from the private, public and civil society sectors. The yielded information and supporting case studies identify policy and project characteristics that establish an attractive financial risk-reward atmosphere to bring low-carbon electricity projects to completion.</p>	
<p><b>Recommendations of the survey</b></p>	
<ul style="list-style-type: none"> <li>• Establish a formal national energy development plan with a strong legislative framework and a clearly defined public-private partnership strategy</li> <li>• Provide assured cost recovery and profit potential for investors by creating national energy plans backed by legislation and regulation that establish a commitment to the promotion of low-carbon technologies</li> <li>• Provide stable, sufficient funding for research, development, and demonstration and deployment (RD&amp;D) of a wide range of emerging clean electricity technologies</li> <li>• Maximize benefits brought to communities from new and expanded electrification</li> <li>• Optimize the private sector’s ability to bring many financing alternatives for electricity projects and to design, construct, operate and maintain them</li> <li>• Set electricity development goals and timetables for long-term technology deployment under national energy plans</li> <li>• Sustain strong partnerships with effective communication, well-defined roles and responsibilities, and continuous commitment</li> <li>• Secure income through use of PPAs with the private sector for greatest certainty regarding long-term investments</li> <li>• Increase the alignment of public-, private- and civil society-sector practitioner efforts</li> </ul>	
<p><b>Deutsche Bank Group (2011) “GET FiT Plus: De-Risking Clean Energy Business Models in a Developing Country Context”</b></p> <p>The GET FIT concept was inspired by the theory that feed-in tariffs (FiTs) could serve as an effective policy structure for both public and private investment and knowledge transfer from the developed world. FiTs are the most prevalent national renewable energy policy globally and have driven rapid renewable energy scale-up in key markets.</p>	
<p><b>Barriers to private-sector investment</b></p> <p>Lack of renewable energy strategies that have transparency, longevity, certainty and consistency (TLC)</p>	<p><b>Ways to address them</b></p> <p>The types of support envisioned under GET FiT are a combination of public money for renewable energy incentives, risk mitigation strategies such as international guarantees and insurance, and coordinated technical assistance to address nonfinancial barriers and create an enabling environment for project development</p>

**Table 3. Perspectives from Energy Agencies**

<p><b>International Energy Agency (2010) “Money Matters: Mitigating Risk to Spark Private Investments in Energy Efficiency”</b></p> <p>The foci of this study are financial and risk barriers to private investment in energy efficiency. It references several case studies in middle-income developing countries, including China, India and Thailand.</p>		
<p><b>Barriers to private-sector investment</b></p> <ul style="list-style-type: none"> <li>• Market organization</li> <li>• Price distortions</li> <li>• Split incentives</li> <li>• Lack of information</li> <li>• Transaction costs</li> <li>• Institutional biases</li> <li>• Product availability</li> <li>• Regulatory policy</li> </ul>		<p><b>Ways to address them</b></p> <ul style="list-style-type: none"> <li>• Increase data gathering, information sharing and training, including creating a platform for continuous public-private dialogue</li> <li>• Focus on tools that reduce the perceived risk of EE projects, and use financial instruments that guarantee EE projects address such risk perception</li> <li>• Implement an international monitoring and evaluation protocol for EE</li> <li>• Complete additional work needed to determine the best combination of financial and other instruments</li> </ul>
<p><b>International Institute for Applied Systems Analysis (IIASA) (2012) “Global Energy Assessment” (GEA)</b></p> <p>IIASA’s GEA is the largest recent review of the world’s energy sector. It was six years in the making, with 500 contributors and 200 reviewers from academia; business; and governmental, intergovernmental and nongovernmental organizations. It includes extensive modeling of the world’s possible energy futures and references a massive report published in late 2012 that “examines (a) major global challenges and their linkage to energy; (b) the technologies and resources available for providing adequate modern and affordable forms of energy; (c) the plausible structures of future energy systems most suited to addressing the century’s challenge; and (d) the policies and measures, institutions and capacities needed to realize sustainable energy futures.”</p> <p>GEA does not discuss barriers to or opportunities for private-sector investment. Instead it takes a normative approach and addresses the necessary public policies to achieve different energy targets. Below we summarize the GEA policy recommendations regarding (a) ensuring universal access to modern energy, (b) scaling up renewable energy, and (c) scaling up energy efficiency.</p>		
<p><b>Policies to promote EA</b></p> <p><u>Essential:</u></p> <ul style="list-style-type: none"> <li>• Political priority and government commitment</li> <li>• Carefully designed subsidies (grants for grids, microfinancing for appliances, subsidies for clean cookstoves)</li> <li>• Capacity building (create enabling environments: technical, legal, institutional, financial)</li> <li>• Regulations and standards</li> </ul>	<p><b>Policies to promote RE</b></p> <p><u>Essential:</u></p> <ul style="list-style-type: none"> <li>• Externality pricing (GHG pricing key to rapid development of renewables)</li> <li>• Capacity building (expertise needed for new technologies)</li> </ul> <p><u>Complementary:</u></p> <ul style="list-style-type: none"> <li>• Regulations and standards (FIT and RE portfolio standards can complement GHG pricing)</li> <li>• Carefully designed subsidies (tax credits for R&amp;D or production/FIT premiums can complement GHG pricing)</li> </ul>	<p><b>Policies to promote EE</b></p> <p><u>Essential:</u></p> <ul style="list-style-type: none"> <li>• Externality pricing (cannot achieve dramatic efficiency gains without prices that reflect full costs)</li> <li>• Capacity building (expertise needed for new technologies)</li> <li>• Regulations and standards (eliminate less efficient technologies every few years)</li> </ul> <p><u>Complementary:</u></p> <ul style="list-style-type: none"> <li>• Carefully designed subsidies and financial instruments (low-cost loans, third-party financing, pay-as-you-save schemes, etc.)</li> </ul>

**Table 3. Perspectives from Energy Agencies (cont.)**

**International Renewable Energy Agency (IRENA) (2012) “Handbook on Renewable Energy Nationally Appropriate Mitigation Actions (NAMAs) for Policy Makers and Project Developers”**

This report reviews how NAMAs can support the scale-up of renewable energy in developing countries.

<b>Barriers to investment in RE</b>	<b>Ways to address them</b>
<ul style="list-style-type: none"> <li>• Imperfect market conditions thwart the progress of RE</li> <li>• Subsidies for fossil fuels</li> <li>• High up-front investment costs for capital-intensive RE</li> <li>• Scarcity of technology-specific know-how and qualified manpower</li> <li>• Lack of awareness and insufficient information on RE</li> <li>• Relative lack of readily available and comprehensive data sets for high-quality planning</li> <li>• High up-front capital costs for investors</li> <li>• Lack of adequate financing options</li> <li>• Limited potential for foreign direct investment</li> <li>• Roles and responsibilities of the specific entities are often poorly defined</li> <li>• Traditionally, regulations governing power generation protect monopolistic, centralized and vertically integrated producers and make the introduction of REs difficult</li> <li>• Ambiguity in grid access connection rules increases the risk for independent power producers (IPPs)</li> <li>• Lack of consultation between relevant stakeholders</li> <li>• Impeding administrative procedures</li> <li>• Excessive land use (solar and wind) and association with direct environmental impacts</li> <li>• Potential displacement and resettlement of people as a result of building large dams for hydropower</li> <li>• Associated losses of natural habitats as well as natural and human heritage sites</li> </ul>	<ul style="list-style-type: none"> <li>• As “carrots,” or incentives, these barriers take the form of grants and tax allowances for potential RE investors to undertake activities that otherwise wouldn’t have occurred. As “sticks,” or penalties, the barriers take the form of taxes, charges or fees that would be levied on conventional energy. Budget-neutral incentives would require the combination of a carrot and a stick. For example, FiTs financed by a consumer levy would be budget neutral.</li> <li>• Market-based incentives in the context of REs. Most of these are Renewable Energy Certificates (RECs), which are mandatory quotas for the purchase of renewable electricity in compliance markets. A special form of market-based incentives is carbon market mechanisms, through which RE projects generate tradable emission credits for renewable energy targets, that utilities using fossil energies can buy to comply with their GHGs emission caps. Non-market-based incentives are related to governmental actions.</li> <li>• Non-monetary incentives can take the form of mandatory grid access for RE operators, technical assistance to operate the technology, labeling of the power produced by RE, regulations (e.g., building codes) requiring RE or EE installations, etc.</li> </ul>

**Table 3. Perspectives from Energy Agencies (cont.)**

**Renewable Energy Policy Network for the 21st Century (REN21) (2013) “Renewables Global Futures Report 2013”**

This report is REN21’s annual review of the state of and trends in renewable energy. The 2013 report focuses on the future of renewable energy as elicited by a wide consultation that included interviews with approximately 170 industry experts, technology experts, executives, researchers, visionaries, policymakers, finance experts and utility managers in 15 countries. It covers a large number of issues, and we quote below only from Chapter 3, titled “Investment Futures: Flows, Investors, and Business Models.”

**On future investment flows**

According to the report, “In developing countries, finance experts saw a continued need for multilateral finance. . . . But beyond multilateral finance, a number of finance experts also pointed to a ‘broadening and deepening’ of finance sources in developing countries. A broader base of institutions, sources, and types of finance will emerge, including institutional investors, manufacturers, project developers, and other forms of foreign direct investment. And more finance will go to countries beyond the current major recipients (i.e., Brazil, India and China), to include those countries currently considered ‘second tier’ and ‘third tier.’”

The often-cited risk of utility power purchase agreements not being honored (also called power off-take risk) will continue to be a major concern, ,according to one expert in the report. But policy learning and finding new ways to reduce investment risks, including new types of structured investment funds and guarantee schemes, will be crucial to this deepening. Experts foresaw guarantee funds for power purchase agreements, construction risk mitigation and higher levels of equity from local investors. One expert projected that developing-country governments themselves would provide public equity in renewable energy projects in order to share risks and leverage private finance.

**On new business models**

- **Third-party energy services.** Third parties and utility companies will install, own and operate solar photovoltaic systems on behalf of residents or building owners. A variety of companies will offer leasing and vendor-finance options.
- **Utility business models.** Utilities will offer on-the-bill financing for end-user investments. Utilities will use smart metering to create new consumer power-pricing models that offer rates based on time of use, capacity, reliability and degree of curtailment allowed, among other characteristics.
- **Community and cooperative ownership.** Local communities and cooperatives will invest in renewable energy systems under joint-ownership models that also reflect new social models for energy services. Such models are already in practice, and experts said in the report that they foresaw much wider use of community and cooperative models in the future.
- **Industry and retailer involvement.** Industrial firms and retailers whose businesses depend on high levels of reliability will sign long-term power purchase agreements with renewable energy generation companies for guaranteed availability and stable long-term pricing.
- **Rural energy services.** In rural areas of developing countries, many new business models will emerge for provision of energy services, building on existing models and business activity. One expert noted in the REN21 report that “renewable energy companies [operating in rural areas] will more and more see themselves in the role of ‘energy service’ companies” rather than technology providers. African experts said in the report that they foresaw a host of new business models bringing lower costs in the future that would spur rural use of renewable energy.

**Table 4. Perspectives from Experts**

<p><b>Ballesteros, A., et al. (2012) “Keys to Achieving Universal Energy Access Series: Implementation Strategies for Renewable Energy Services in Low-Income, Rural Areas,”</b> WRI, Stichting Doen</p> <p>This report is the first in a series of three that focuses on expanding the delivery of affordable, renewable energy in developing countries. It describes the core business strategies employed by a group of socially oriented energy enterprises and organizations working to provide distributed renewable energy services to low-income, rural communities. The report provides examples of how these strategies were implemented.</p>	
<p><b>Barriers to investment in EA</b></p> <p>Lack of adequate business models regarding</p> <ul style="list-style-type: none"> <li>• Consumer needs, preferences and capacity to pay</li> <li>• Demonstrating the value of a new technology or energy service</li> <li>• Building consumer trust in the product and in the supply chain</li> <li>• Designing financing schemes that fit consumer energy budgets</li> </ul>	<p><b>Ways to address them</b></p> <p>Possible innovative business models:</p> <ul style="list-style-type: none"> <li>• One-stop shop model</li> <li>• Financial institution partnered with enterprise model</li> <li>• Umbrella partnership model</li> <li>• Franchise/dealership model</li> <li>• Brokering model</li> <li>• Pay-as-you-go model</li> </ul> <p>Four core strategies common to successful business models:</p> <ul style="list-style-type: none"> <li>• Understanding consumer needs, preferences and capacity to pay</li> <li>• Demonstrating the value of a new technology or energy service delivery model</li> <li>• Building and maintaining consumer trust in the product and in the supply chain</li> <li>• Designing financing and payment schemes that fit within consumer energy budgets</li> </ul>
<p><b>Sullivan, R. (2011) “Investment-Grade Climate Change Policy: Financing the Transition to the Low-Carbon Economy,”</b> IIGCC–IGCC–UNEP FI</p> <p>This report has two objectives: (a) to contribute to policymakers’ understanding of the factors that institutional investors consider when investing in areas such as renewable energy and energy efficiency; and (b) to set out what institutional investors see as investment-grade climate change and clean energy policy that would support significant low-carbon, clean energy investment.</p>	
<p><b>Areas of concern for institutional investors in EA, RE and EE</b></p> <ul style="list-style-type: none"> <li>• Policy or other type of support is in place</li> <li>• Whether the investment is financially attractive relative to other investments both inside and outside the energy sector</li> <li>• The expected duration or longevity of the policy framework</li> <li>• The maturity of the technologies involved</li> <li>• Whether governments are likely to change policies or incentives in a way that affects existing investments</li> </ul>	<p><b>Ways to address them</b></p> <p>In order to attract private-sector investment, governments need to ensure that</p> <ul style="list-style-type: none"> <li>• Relevant public policies are in place</li> <li>• The policies are well designed</li> <li>• The effectiveness of the institutions charged with implementing these policies; in particular, relevant regulatory or oversight bodies should have appropriate resources and the ability and authority to ensure that climate change and related energy policies are effectively implemented</li> </ul>

## Section 4. Distilling Action-Oriented Insights from E+ Consultations with Energy Business Companies

As already stated, the four E+ partnership business consultations and the other studies reviewed above strongly agree on the main barriers to private investment in EA, RE and EE in developing countries and what should be done to address them. Although perspectives and emphases vary among the surveys, reports, consultations and analyses, most concur that we need national policies that give strong priority to energy access and renewable energy, adequate financing, new business models for energy access, and capacity building.

Regarding who holds the key to solving the barriers, an interesting point is that different barriers necessitate that different actors spearhead the solution. For example, regarding government policy barriers, if governments lack the will or capacity to overcome the barriers, stakeholders may not be able to do much to overcome them. Something similar could be said of financing barriers that should be addressed by both public and private financial and investment institutions. But there are also other types of barriers, such as market development, information and capacity barriers, that call for other actors: the business sector itself, technical and academic institutions, local businesses, social entrepreneurs, civil society organizations, and others, as depicted in Table 5 below.

**Table 5. Different Barriers May Require Different Stakeholders to Address Them**

<b>Barriers to private investment in EA, RE and EE in developing countries</b>	<b>Stakeholders that are necessary to lead in addressing the barriers</b>	<b>Stakeholders that should/could collaborate to address the barriers</b>
A. GOVERNMENT POLICY BARRIERS	<ul style="list-style-type: none"> <li>• National government</li> </ul>	<ul style="list-style-type: none"> <li>• All other major stakeholders, including the public and private energy sectors, consumer CSOs, social entrepreneurs, and NGOs</li> </ul>
B. FINANCING BARRIERS	<ul style="list-style-type: none"> <li>• National and international financial institutions, both public and private</li> <li>• National and international development banks</li> <li>• National and international investment funds</li> <li>• International donors</li> <li>• Microfinancing CSOs</li> </ul>	<ul style="list-style-type: none"> <li>• All other major stakeholders, including the government, energy-sector firms, consumer CSOs, social entrepreneurs and NGOs</li> </ul>
C. INFORMATION BARRIERS	<ul style="list-style-type: none"> <li>• National and international energy agencies</li> <li>• Business and trade chambers</li> <li>• Technical and training institutions</li> <li>• Energy access–focused CSOs and NGOs</li> </ul>	<ul style="list-style-type: none"> <li>• All other major stakeholders, including the government, consumer CSOs and NGOs</li> </ul>
D. MARKET DEVELOPMENT BARRIERS	<ul style="list-style-type: none"> <li>• Energy-business sector</li> <li>• Social enterprises and local small businesses</li> </ul>	<ul style="list-style-type: none"> <li>• All other major stakeholders, including governments, financial institutions, consumer CSOs and NGOs</li> </ul>
E. CAPACITY BARRIERS	<ul style="list-style-type: none"> <li>• National and international energy agencies</li> <li>• Business and trade chambers</li> <li>• Technical, academic and training institutions</li> <li>• Energy access–focused CSOs and NGOs</li> </ul>	<ul style="list-style-type: none"> <li>• All other major stakeholders, including the government, public and private energy sectors, consumer CSOs, and NGOs</li> </ul>

F. INFRASTRUCTURE AND TECHNOLOGY BARRIERS	<ul style="list-style-type: none"> <li>• National government</li> <li>• National and international financing institutions</li> <li>• Public and private energy sectors</li> <li>• Technical and academic institutions</li> </ul>	<ul style="list-style-type: none"> <li>• All other major stakeholders, including consumer CSOs, social entrepreneurs and NGOs</li> </ul>
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We turn now to how to use the previous discussion to identify lines of work that E+ may want to pursue with both current and potential partners. As depicted in Table 6, the following are thus far the dominant approaches of E+'s donor partners to fund EA, RE and EE in developing countries:

- A traditional development aid approach: government-to-government, bilateral agreements in which the donor government grants a certain amount of money to the recipient country government over a five-year period, coupled with an innovative three-phase program cycle and with most payments tied to results (results-based aid).
- Smaller investments in (a) a project incubator for local RE businesses, managed by the Asian Development Bank; (b) policy research and development; and (c) communication and consultations with governments, businesses and civil society organizations.

A comparison of the above E+ partnership investment strategy and the outcomes of the barriers survey reveals several other approaches that could complement the current government-to-government E+ focus, so as to better address barriers to private investment in EA, RE and EE beyond a government's reach. For example:

- **Regarding financial barriers:** To engage more systematically with international financial institutions to explore and support innovative financial approaches that can address some of the financial barriers that the private sector is concerned with, in terms of risk reduction, loan maturation and early access to financing.
- **Regarding market barriers:** To engage with businesses, business associations, experts and energy-sector agencies to explore and support new business models to deliver energy access at scale.
- **Regarding market barriers to energy access in rural areas:** To engage, learn from and support social entrepreneurs, local small businesses and local community organizations as part of the solution to scaling up energy access among the rural poor.
- **Regarding the need of coordinated solutions:** Because promoting investment at scale in EA, RE and EE will require overcoming a variety of barriers and mobilizing many different stakeholders, there is a premium on better coordination. E+ could partner with other stakeholders at both the national and international levels to find innovative coordination, communication and information platforms that could facilitate the process without becoming additional burdens. At the country level E+ is promoting the creation of energy registries, and it would be worthwhile to explore opportunities for parallel initiatives at the regional or global level.

**Table 6. Barriers to Scaling Up Private Investment in EA, RE and EE: E+ Funding Approaches as of Mid-2013 and New Opportunities**

Barriers to private investment in EA, RE and EE in developing countries	E+ funding approaches as of mid-2013	New opportunities
A. GOVERNMENT POLICY BARRIERS	<ul style="list-style-type: none"> <li>• Six government-to-government partnership agreements that grant funds to increase energy access through RE with the aim to trigger energy-sector changes</li> </ul>	
B. FINANCING BARRIERS	<ul style="list-style-type: none"> <li>• Support for international discussion of new approaches to financing EA, RE and EE through the E+ Technical Working Group, by commissioning studies and other initiatives</li> </ul>	<ul style="list-style-type: none"> <li>• Engage with international financial institutions to explore jointly and/or support innovative financial approaches that can address some of the financial barriers that the private sector is concerned with in terms of risk reduction, loan maturation and early access to financing</li> </ul>
C. INFORMATION BARRIERS	<ul style="list-style-type: none"> <li>• Organized consultations with energy-sector businesses, government agencies and technical experts</li> </ul>	<ul style="list-style-type: none"> <li>• Partner with other stakeholders at both the national and international levels to find innovative coordination, communication and information platforms that can facilitate the process without becoming an additional burden; at the country level E+ is promoting the creation of energy registries, and it would be worthwhile to explore opportunities for parallel initiatives at the regional or global level.</li> </ul>
D. MARKET DEVELOPMENT BARRIERS		<ul style="list-style-type: none"> <li>• Engage with businesses, business associations, experts and energy-sector agencies to explore jointly new business models to deliver energy access at scale</li> <li>• Learn from and support social entrepreneurs, local small businesses and local community organizations as part of the solution to scaling up energy access among the rural poor</li> </ul>
E. CAPACITY BARRIERS	<ul style="list-style-type: none"> <li>• Funding for a small RE business incubator facility managed by the Asian Development Bank</li> </ul>	
F. INFRASTRUCTURE AND TECHNOLOGY BARRIERS		