

# **BUSINESS MODELS AND ENABLING BUSINESS ENVIRONMENTS**

*Mini Grids for Half a Billion People*



**WORLD BANK GROUP**  
Energy & Extractives

5<sup>th</sup> Mini Grid Action Learning  
Event and Summit  
Global Technical Conference on  
Mini Grids  
June 26, 2019

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### **Four complementary strategies to create an enabling business environment**

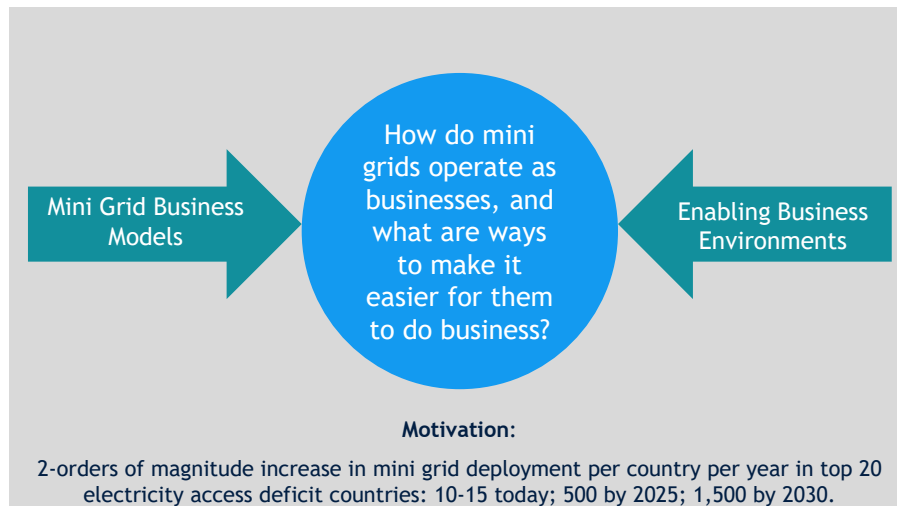
1. Standardized, pre-approved templates
2. Technology platforms
3. Delegation to avoid multiple layers of oversight
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### **The bottom line**

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**Session Topic:**  
Business Models and Enabling Business Environments



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The topic of our session is really two interconnected concepts: mini grid business models – understanding how mini grids do business – and cutting red tape to make it easier for mini grid businesses to be established and operate. The questions are: How do mini grids operate as businesses, and what are ways to make it easier for them to do business?

The motivation for this session, as with the other sessions today, is to identify ways to scale up the deployment of mini grids by two orders of magnitude in each of the 20 countries with the highest electricity access deficit by 2030 – from 10-15 per country per year to 500 by 2025 to 1,500 per country per year by 2030.


**Panelists**




**James Knuckles**  
Consultant,  
ESMAP  
World Bank



**Tatia Lemondzhava**  
Energy Specialist,  
ESMAP  
World Bank




**Mungai Kihara,**  
Chief Renewable  
Energy Officer,  
Renewable Energy  
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**Syeeda Yeasmeen Meer**  
Manager (Investment),  
Renewable Energy,  
Infrastructure  
Development Company  
Limited (IDCOL),  
Bangladesh

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To help us unpack and answer these questions, we have three distinguished panelists joining me today:

- Tatia Lemondzhava, Energy Specialist with the World Bank, who will describe an evolution at the global level in mini grid technologies and business models;
- Mungai Kihara, Chief Renewable Energy Officer at Kenya’s Ministry of Energy, who will present on what roles the private sector plays in developing mini grids in Kenya, and
- Syeeda Yeasmeen Meer, an investment manager for renewable energy at IDCOL, who will present on IDCOL’s experience with different mini grid business models and the business environment in which they operate in Bangladesh.
- I work with ESMAP’s Global Facility on Mini Grids, and will kick things off by describing a bit about what we mean by business models and enabling business environments, and then I’ll highlight a few innovations that we’ve come across that can help make it easier for mini grid developers to set up and run their businesses.

## Business Models: What are they?

There is no universally accepted definition, but it can be helpful to think about these 4 areas:

Business Model Element	Question	Examples
Customer	Who are the customers?	<ul style="list-style-type: none"><li>• Main grid as a customer</li><li>• A-B-C model</li></ul>
Value Proposition	What services (and products?) does the mini grid provide	<ul style="list-style-type: none"><li>• Tier 4 or 5 electricity</li><li>• Efficient appliances</li></ul>
Value Chain	<ul style="list-style-type: none"><li>• What is the generation technology?</li><li>• Who designs, builds, owns, operates, and maintains the mini grid (portfolio)?</li></ul>	<ul style="list-style-type: none"><li>• Solar hybrid, hydro, etc.</li><li>• Split asset model</li><li>• Portfolio approach</li></ul>
Monetization	How does the mini grid generate revenue?	<ul style="list-style-type: none"><li>• Pay-as-you-go electricity</li><li>• Financing for appliances</li></ul>

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So, what do we mean when we say business models?

**There is no universally accepted definition.** Many people use the term "business model" to talk about different ownership models, such as private sector or public sector approaches to mini grid development. Others have used the term to talk about new technologies like smart meters, or providing on-bill financing for income-generating machines and household appliances. The term has also been used in the context of the types of customers a mini grid serves -- for example, including an anchor customer alongside households and businesses.

**For this session, each panellist will be interpreting the term business model in the way that best suits their particular context. But in general, it can be helpful to think about mini grids in terms of four areas:** who are their customers? What services (and maybe also products like income-generating appliances) do they sell? What is the value chain in terms of who designs, builds, owns, operates, and maintains the mini grid, and is it just one mini grid or a portfolio of mini grids? And, how does the mini grid earn money – prepayment for electricity, financing for appliances, etc.

## Business Models: Why are they important?

Three reasons why understanding mini grid business models is important:

For All Stakeholders	For Developers and Suppliers	For Policymakers and Regulators
<p>To track the industry's evolution</p> <p><u>Example:</u> 1<sup>st</sup> → 2<sup>nd</sup> → 3<sup>rd</sup> Generation Mini Grids</p>	<p>To identify areas for innovation</p> <p><u>Example:</u> <b>Customer:</b> Households → "ABC"</p> <p><b>Value Proposition:</b> kWh → kWh + machines</p> <p><b>Value Chain:</b> One-off → Portfolio</p> <p><b>Monetization:</b> Cash to dealers → PAYG via mobile money</p>	<p>To develop enabling environments</p> <p><u>Example:</u> Policies and regulations that accommodate different business models and their evolution over time</p>

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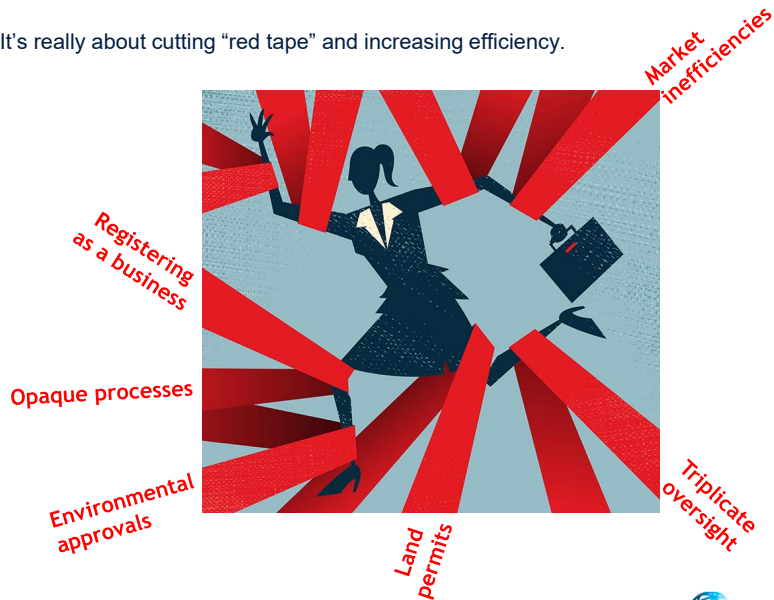


Why is it important to think about mini grid business models?

- Can help governments and development partners track evolution of the industry over time and anticipate where it is headed (Tatia's presentation)
- Can help developers innovate – move from households to ABC; move from selling electricity to selling electricity and appliances; move from developing one-off projects to developing portfolios of mini grid projects; move from collecting cash each month to prepayment or pay-as-you-go by mobile money.
- Can help policymakers and regulators understand how mini grids operate so that they can develop policies and regulations that are flexible enough to accommodate different models.

## Enabling Business Environment: What is it?

It's really about cutting "red tape" and increasing efficiency.



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What do we mean by enabling business environments? Mini grid developers must navigate an often complex and obfuscated path of permits, regulations, and contracts as they build, own, and operate their mini grids. Sometimes more than 20 clearances are needed before a company can start operating a business. An enabling business environment is therefore one that makes it easy for developers – and financiers – to invest in mini grids by reducing this “red tape”. There are many strategies to create enabling business environments, and we will touch on just a few here today.

## Enabling Business Environment: Why is it important?

Why is an enabling business environment important?



*“We’re not willing to commit millions of dollars of capital to mini grids in countries where it’s just too difficult to set up and run a mini grid business.”*

*~ Typical reason given by financiers and developers about where to invest.*

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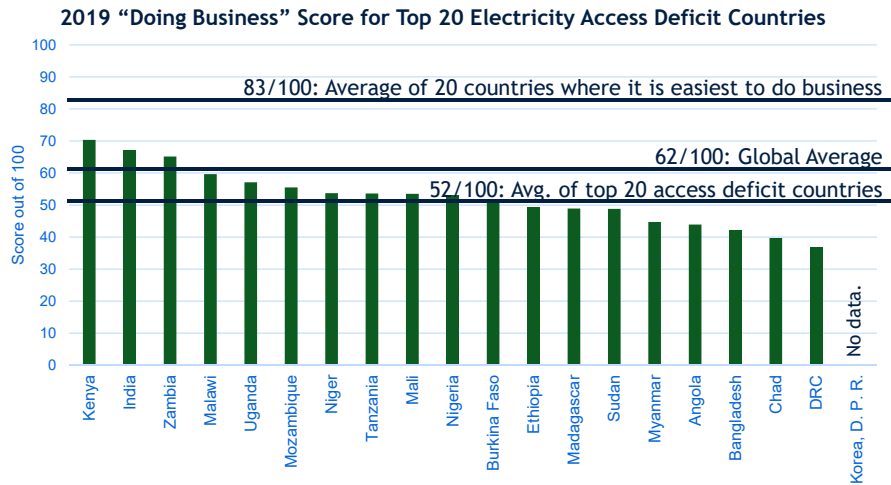


Why is an enabling business environment important?

Each approval, review, permit, license, or other bureaucratic process constitutes a risk and cost to the mini grid business. Developers and financiers will not be able to scale up their mini grid investments in countries where it is difficult to set up and operate a mini grid business. Private sector players—both investors and developers—will need business-enabling environments that give them confidence to invest. They will be putting their money into assets with 10- to 20-year lives and earn a return on investment only if the business of selling electricity is profitable. However, in our conversations with investors and developers, a common theme emerges, which can be summarized as: ***“We’re not willing to commit millions of dollars of capital to mini grids in countries where it’s just too difficult to set up and run a mini grid business.”***



## Enabling Business Environment: Where are we today?



Source: World Bank Doing Business: <http://www.doingbusiness.org/en/data>

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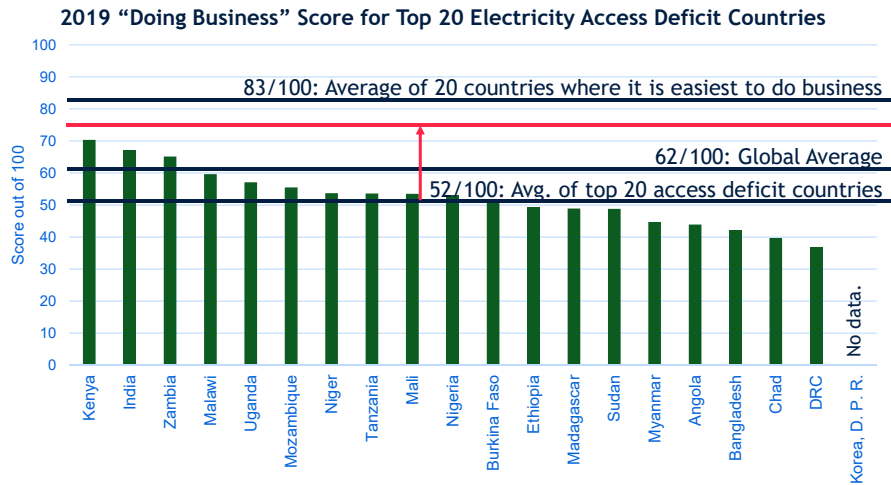
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So where are we today, in terms of making it easy to do business in countries that will need a large number of mini grids? This graph shows the ease of doing business score in the 20 countries with the largest populations without access to electricity. Collectively, these countries represent 80 percent of the global population that does not have access to electricity.

The average score across the top 20 energy access deficit countries is 52 out of 100. The global average is 62 – all but 3 of the top 20 electricity access deficit countries have a score below the global average. The 20 countries where it is easiest to do business have an average score of about 82 out of 100.

## Enabling Business Environment: Where are we today?

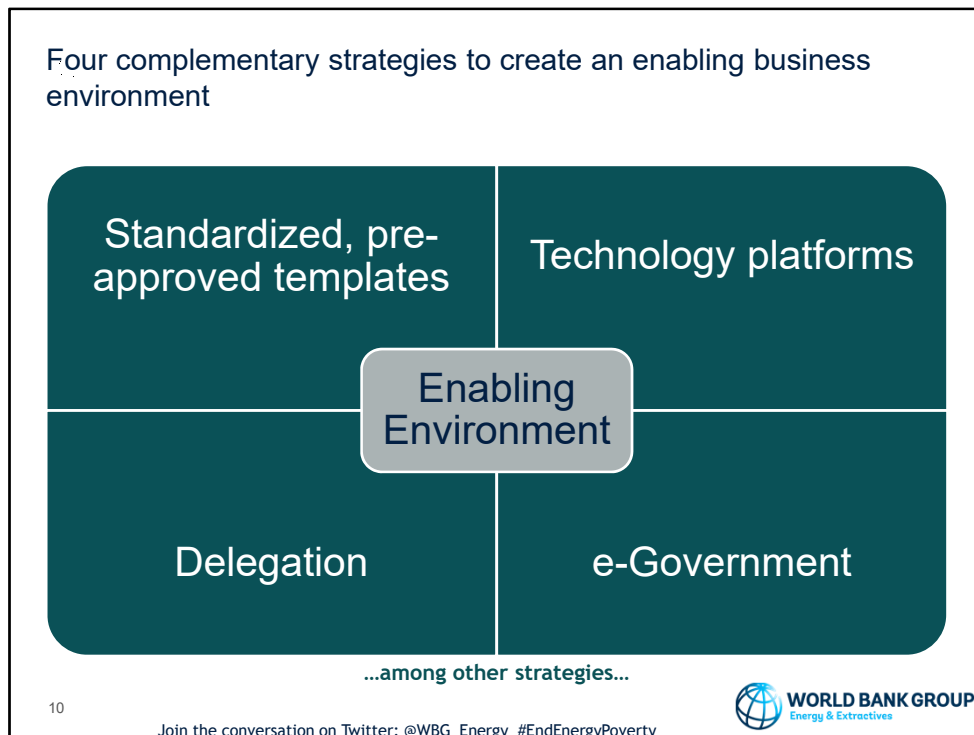


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By 2030, our objective is to raise the average Doing Business score of the top 20 electricity access deficit countries from 52 to 75 out of 100.



How can we achieve this objective? There are many strategies to cut red tape and make it easier to do business. ESMAP has identified four complementary approaches that are already being implemented in some countries today.

1. Develop standardized pre-approved templates for key bureaucratic processes that affect mini grids.
2. Establish or promote technology platforms to connect developers with investors and suppliers and to run large-scale mini grid tenders.
3. Eliminate multiple layers of oversight by delegating authority to a single entity when no formal regulator for mini grids exists.
4. Set up e-government services to reduce overhead cost for business registration, land and building permits, and environmental approvals.

## 1. Standardized, pre-approved templates

The image displays three standardized templates used in the energy sector:

- Nigeria ESMS:** A flowchart detailing the Environmental and Social Management System process. It includes stages like 'SITES SELECTION', 'PROPOSE ACCEPTANCE WITH THE PROGRAM', 'DESIGN VERIFICATION FOR SITES', and 'CONSTRUCTION & OPERATION'. Each stage lists specific tasks and responsibilities.
- Tanzania PPA:** A 'STANDARDIZED POWER PURCHASE AGREEMENT FOR PURCHASE OF ELECTRIC ENERGY FROM A GENERATION FACILITY CONNECTED TO THE MAIN GRID'. It shows a template for an agreement between a Buyer and a Seller, with a 'DATED' field.
- Asset Transfer Template (Under preparation by ESMAP):** A 'TEMPLATE Agreement Between the Mini-Grid Owner: and the Utility/Discom: for the Transfer of Mini-Grid Assets to the Utility/Discom and the Compensation Due to the Mini-Grid Owner'.

A large blue 'Examples' watermark is overlaid on the bottom right of the slide.

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Standardized templates have the potential to significantly reduce the costs of bureaucracy. Three examples that we've come across are:

1. standardized environmental and social management system for when mini grid developers must obtain environmental approvals. This is currently being used in Nigeria.
2. standardized power purchase agreements for when mini grid developers intend to sell electricity to the main grid. This is currently in use in Tanzania.
3. standardized asset transfer agreements for when mini grid developers intend to sell their eligible assets to the main utility. This is currently being prepared by ESMAP.

The first template simplifies the process for obtaining approval of the developer's environmental and social management system – it reduces costs for the developer AND for government agencies that oversee environmental and social issues. The last two templates help mini grid developers negotiate with the national utility on more even and transparent terms. The last two templates should only be used in countries where contracts are enforceable. All three templates should only be used after they been approved by the relevant government authority, and all three templates share the disadvantage that they are not tailored to the specific needs and characteristics of individual projects or deals.

## 2. Technology Platforms

The image displays a screenshot of the Odyssey Energy Solutions platform. The interface is divided into several sections: a top navigation bar, a main content area with multiple panels, and a detailed 'Sample Project' view at the bottom. The 'Sample Project' view features a 'Baseline System Load' chart with a y-axis ranging from 0 to 18 and an x-axis from 0 to 22. The chart shows a complex load profile with multiple colored areas representing different components. To the right of the chart, there are several data points and a 'Download Data Series' button. The background of the main interface shows various project portfolios, including 'NW Kenya Portfolio', 'Rajasthan Projects', and 'Village Microgrids, N Tanzania'. A large blue 'Example' watermark is overlaid on the top right, with the URL <https://www.odysseyenergysolutions.com/> below it. At the bottom right, there is a logo for the Rural Electrification Agency (REA) and the World Bank Group Energy & Extractives division. A Twitter link is provided at the bottom center: 'Join the conversation on Twitter: @WBG\_Energy #EndEnergyPoverty'.

A technology platform takes data that developers input about their mini grid projects, standardizes them, and makes them available to investors and suppliers. The goal is to help investors finance mini grid portfolios and to help developers secure financing and attractive deals from component suppliers. The platform can also be used for large-scale tenders of mini grid projects and portfolios by standardizing how developers' projects are presented for evaluation.

The best example of this type of platform that we've seen so far is Odyssey, which is being used to run the mini grid tender for Nigeria Electrification Project implemented by Nigeria's Rural Electrification Agency, with support from the World Bank.

The main advantage of a platform like this is that it increases market efficiencies:

- Reduces transaction costs for developers, suppliers, and financiers;
- Increases efficiency and transparency for large-scale tenders

The main disadvantage of relying on a single platform is that any technical issues or internet outages become problems for the whole market. Use of an online platform may also pose privacy concerns for some developers and investors, and may crowd out small-scale community-led projects.

### 3. Delegating oversight to a single entity

Option	Advantages	Disadvantages	Examples
Local government	<ul style="list-style-type: none"> <li>• More accessible to developers and customers</li> <li>• Enforcement of regulation may be easier given the physical presence of the regulator in the community</li> </ul>	<ul style="list-style-type: none"> <li>• Potential lack of resources to be an effective regulator</li> <li>• Potential for different rules in different jurisdictions impedes large portfolios</li> </ul>	Community agreements used in Haiti, Nigeria, and Myanmar
REA or grant-giving agency	Complex interfaces between agencies can be avoided if the subsidizing agency also acts as regulator (caveat: other gov. entities still may have authority over certain aspects)	<ul style="list-style-type: none"> <li>• Potential lack of resources to be an effective regulator</li> <li>• May lead to conflict of interests</li> </ul>	Bangladesh (IDCOL), Mali (AMADER)

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In countries where different government agencies might have authority over mini grid regulatory issues like tariffs or service and technical standards – often in countries without a formal electricity regulator – mini grid developers risk facing multiple layers of government oversight, which slows their development and adds significant costs. To avoid this, governments can formally delegate regulatory oversight to a single entity. The two most common options are the local government and a government agency that provides grants or subsidies to mini grid developers (e.g., a Rural Electrification Agency).

The local government approach is the basis of community agreements in Myanmar, Haiti, and Nigeria. The grant-giving government agency approach is in use in Bangladesh with IDCOL, and in Mali with AMADER, among other countries.

For either of these options to be successful, there must be a clear legal delegation of authority to the government entity or local government, and the entity to whom authority has been delegated must explicitly state which laws and regulations will take precedence over its own authority.

## 4. e-Government Initiatives

The image displays three examples of e-Government initiatives:

- Nigeria:** A screenshot of the National e-Government Strategies website. It features a colorful graphic with the text "e-Gov" and "CHANGE ADAPT EVOLVE".
- Kenya:** A screenshot of the eCitizen website. It shows a woman sitting at a desk with a laptop, and text that says "Apply for Government services ChapChap! Now available across all devices! Create an account".
- Ghana:** A screenshot of the Government of Ghana website. It features a green header with "HOME ABOUT GHANA GOVERNANCE MEDIA CENTER" and a section titled "FORUM ON E-GOVERNANCE LAUNCHED".
- India:** A screenshot of the Ministry of Electronics & Information Technology (MeitY) website. It shows a navigation menu and a section titled "e-Governance Infrastructure" with various service tiles like "Aadhaar-Digital Biometric Identity Infrastructure", "Digital Locker", "Government Procurement - Government e-Marketplace (GeM)", and "GI Cloud (MeghRa)".

Examples

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e-Government initiatives provide citizens and businesses with a way to interact with government agencies online – ideally in a way that is also mobile-friendly, where this is appropriate. Various e-Government tools are in use in many countries around the world. India, Kenya, and Nigeria are recent examples from countries where mini grids are expected to play an important role in reaching universal access to electricity. Earlier this month, Ghana launched its first public forum on e-Government.

For mini grid developers, the idea is to make it easy for them to find the latest forms, rules, regulations, and policies online – ideally through a one-stop shop specific to mini grids – as well as apply for licenses, registrations, permits, etc. online, and receive the decision – with an explanation of the outcome – online.

The main advantage for developers is that it speeds up many processes that would normally take days or weeks to do in person. The main advantage for the government is that it ensures developers are using the right forms and following the right processes, and it centralizes all submissions to facilitate review.

The main disadvantage is that it requires security and data protection on both ends (government and citizen or business) and a way to verify the information submitted, and these may not (yet) be possible in some countries or with some local governments.

## The Bottom Line

Simplifying and streamlining the environment in which developers do business paves the way for business model innovation and makes the mini grid market more attractive to the private sector. This means more mini grids providing more access to affordable electricity to more people at a faster pace.

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The bottom line is this: Simplifying and streamlining the environment in which developers do business paves the way for business model innovation and makes the mini grid market more attractive to the private sector. This means more mini grids providing more access to affordable electricity to more people at a faster pace.



## Discussion Questions

1. What new business models are you seeing emerging in your country?
2. What are the most burdensome rules, regulations, policies, or other requirements that the private sector faces when trying to develop or operate mini grids in your country?
3. What are some of the strategies in place to make it easier for the private sector to do business in your country?

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## CONTACTS

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**Thank you.**