

From village to nation

# BOTTOM-UP METHODOLOGIES EXPLORING NATIONAL-SCALE ENERGY ACCESS

## Attributes of the PPEO methodologies

<b>Gender mainstreaming from beginning to end</b> 	<b>Listening to and amplifying stakeholder voices</b> 	<b>Assessing inclusion as a key measure of success</b> 
<b>Integrating energy options across on-grid, off-grid, and clean cooking</b> 	<b>Starting with community-level needs and priorities</b> 	<b>Holistic approach to energy for households, productive uses, and community services</b> 

## 2016

### Community led

#### Starting point

12 communities across Bangladesh, Kenya, and Togo.

#### Methods

Resource mapping, surveys, focus groups, estimating costs for a range of viable solutions.

#### Analysis

Energy demand profiles, preferences, and willingness-to-pay disaggregated by gender.

#### Adjust

Iterations applied to the model to create least-cost balance of networked (grid or mini-grid) versus stand-alone solutions.

#### Result

Community-level plans of least-cost, preferred technology options for electricity and clean cooking.

## 2017

### Affordable service provision

#### Starting point

Representative sample of 95 settlements in Bangladesh, Kenya, and Togo.

#### Inputs

Community energy demand profiles from PPEO 2016 + national maps of energy resources + satellite view of the settlement pattern = least-cost technology options for 95 settlements.

#### Adjust

Extrapolate and adjust least-cost technology options to the national scale.

#### Result

Estimates of the technology mix and total costs of universal energy access at the national level.

## 2018

### For everyone, everywhere

#### Starting point

6 case study programmes (2 cooking, 2 off-grid electricity, 2 grid electricity) from across Asia, Latin America and sub-Saharan Africa.

#### Methods

Data, interviews, workshops from the community to the national level.

#### Analysis

Before and after situational analyses; assessment of programme elements including policy, finance, supply and demand, as well as outcomes for scale and inclusion.

#### Results

Scores for inclusivity and scale for each programme.

## 1. Recognize

Recognize energy needs at home, for earning a living and in the wider community.

## 2. Measure

Measure energy services not just supplies.

## 3. Prioritize

Prioritize and finance decentralized electricity and clean cooking solutions.

## 4. Acknowledge

Acknowledge the roles of government, private sector, and civil society as part of a multi-stakeholder approach.

The road to 2030

# CHALLENGING CONVENTION TO REACH UNIVERSAL ENERGY ACCESS

What's already happening

Remaining challenges to reach SDG7

**133 MILLION**

people were served by off-grid renewables in 2016, a six-fold expansion over five years.<sup>1</sup>

**ANOTHER 612 MILLION**

people should be best reached by off-grid renewables by 2030.<sup>2</sup>

**19,000**

mini-grids have been installed in 134 countries and territories.<sup>3</sup>

**ANOTHER 210,000**

mini-grids are needed, serving 490 million people by 2030.<sup>3</sup>

**\$40 MILLION**

was invested in clean cooking companies in 2017.<sup>4</sup>

**\$4.4 BILLION**

is required to achieve universal access to clean cooking by 2030.<sup>2</sup>

**\$30.2 BILLION**

of electrification finance was dedicated to 20 high-impact countries in 2015-16.<sup>5</sup>

**ONLY 1.3%**

went to off-grid solutions. Almost all finance went to electrify non-residential consumers.<sup>5</sup>

## Call to action



### Plan

- Include the voices of the energy-poor to guide priorities for national planning.
- Focus on the energy services people need, going beyond household supply to include requirements for threshing and grinding crops, water pumping, street lighting, and energy for businesses, schools, and clinics.
- Produce integrated plans for grid and off-grid, and for clean cooking.



### Finance

- Invest more public money in off-grid and clean cooking, developing institutional structures, expertise, and incentives to spend this money more effectively.
- Provide capital that meets the needs of small-scale energy entrepreneurs, especially women.
- Focus on making energy access affordable, linking this with agriculture and enterprise support.



### Deliver

- Expand off-grid renewable energy solutions, which are generally cheaper and quicker to scale up, with a focus not just on supply, but also demand, finance, and enabling policies.
- Empower women as consumers and entrepreneurs and pursue inclusion proactively in all programmes.
- Develop and enforce supportive government policies as well as public funding to encourage the private sector to reach the energy-poor.

<sup>1</sup> IRENA (2019) *Off-Grid Renewable Energy Solutions To Expand Electricity Access: An Opportunity Not To Be Missed*, Abu Dhabi: International Renewable Energy Agency

<sup>2</sup> IEA, IRENA, UNSD, WB, and WHO (2019) *Tracking SDG 7: The Energy Progress Report 2019*, Washington, DC: World Bank

<sup>3</sup> ESMAP (2019) *Mini Grids for Half a Billion People: Market Outlook and Handbook for Decision Makers*, ESMAP Technical Report 014/19, Washington, DC: World Bank

<sup>4</sup> Clean Cooking Alliance (CCA) (2019) *2019 Clean Cooking Industry Snapshot* Washington, DC: CCA

<sup>5</sup> SEforALL (2018) *energizing Finance: Understanding the Landscape 2018*, Vienna and Washington, DC: SEforALL

## Routes to scale

# CLEAN COOKING

## Call to action



### Plan

Raise levels of national ambition and commitment, mainstreaming gender, with strong leadership. Create an enabling environment. Monitor and report on scale and inclusion for all Tiers of access.



### Finance

Ensure better, increased and gender-sensitive financing for consumers and entrepreneurs to build markets as well as address affordability. Incentivize reaching the 'last mile'.



### Deliver

Activate markets with women as leaders. Take proactive steps to meet the needs of the rural, wood-burning majority.

# 5 HOURS

spent by women per day,  
approximately, to collect and  
prepare fuel and cook

# 51%

of people in our case study  
communities wanted to switch  
to an entirely clean solution

## What she has



A choice of fuels which are cheap or free and easy to use, but also time-consuming and polluting.

## What matters to her



To save time



To save money by  
using less fuel



Fuel that's  
easy to light

## Barriers to inclusion

### Affordability

The upfront cost of buying an improved stove and fuel may be high.

### Social and cultural constraints

She may have poor access to consumer finance, linked to not owning assets or lacking a savings and credit history. She may be cautious to change traditional cooking methods.


### Bargaining power

She may not have control over household decisions about the purchase of costly household items.

### Lack of awareness

She may not be aware of the benefits to herself, her family, and the environment of cooking with improved stoves and clean fuels.

practicalaction.org  
ppee0@practicalaction.org.uk

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# Practical ACTION

## Routes to scale

# ELECTRICITY

## Call to action



### Plan

Recognize the potential for decentralized electricity access and plan for a balanced, integrated approach across grid extension, mini-grids, and stand-alone systems for households, community services, and enterprises, taking into account women's specific needs.



### Finance

Find innovative ways to subsidize electrification across grid, mini-grid, and off-grid delivery, to ensure inclusivity and affordability while minimizing market distortion.



### Deliver

Deliver in ways which equally prioritize metrics for inclusion as well as scale from the very beginning, in order to ramp-up action that ensures no one is left behind.

The majority of households had Tier 0 or 1 electricity access, but aspire for **TIER 2 OR TIER 3**



Household electric lighting was the top priority in **10 OF 12 COMMUNITIES**



Energy for powering schools, pumping water, processing crops, and for household lighting is **PRIORITIZED BY WOMEN**



Of the costs of actual provision nationally, average willingness to pay is **<50%**



## Barriers to inclusion

### Gender blindness

'Gender-neutral' approaches to programme design, delivery, and financing reinforce patterns of discrimination that prevent women from benefiting from electricity equally to men.

### Cross-sectoral efforts

Unless they are linked to agriculture, water, education, and other initiatives, energy interventions miss opportunities to save time and money and to create transformational change.


### Enabling environment

Without a balanced consideration of not just supply but also elements of demand generation, policy, and finance, the transformational potential of electricity access for men and women will not be realized.

### Affordability

Without pro-active efforts, energy access will remain beyond the financial means of the poorest, and remote areas will not be reached.

practicalaction.org  
ppee@practicalaction.org.uk

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