



Global Energy Access Survey (The Multi-Tier Framework - MTF)

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Key Partners

MTF is a global initiative partnering with many development partners as well as donors.

CO-PARTNERS:



OTHER PARTNERS:





MTF Can Be a Tool to Track SDG7.1

“Ensure universal **access** to **affordable**, **reliable**, and modern energy for all”

ACCESS TO

Electricity:

- Capacity
- Availability

Cooking solutions:

- Cookstove/fuel

AFFORDABLE

Electricity:

- Affordability

Cooking solutions:

- Affordability

RELIABLE

Electricity:

- Reliability (outages)
- Quality (voltage)

Cooking solutions:

- Quality of fuel
- Availability of fuel

MODERN

Cooking solutions:

- Convenience
- Efficiency
- Clean

Focus on

Electricity

- Formality
- Safety

Cooking solutions

- Safety





Measuring Energy Access: The Multi-tiers



Improving attributes of energy supply leads to higher tiers of access.



MTF: Achievements to Date

Successful implementation

Bangladesh*

Cambodia

Ethiopia

Honduras

Kenya

Liberia

Myanmar

Nepal

Nigeria

Rwanda

Zambia

Niger*

Sao Tome
Principe

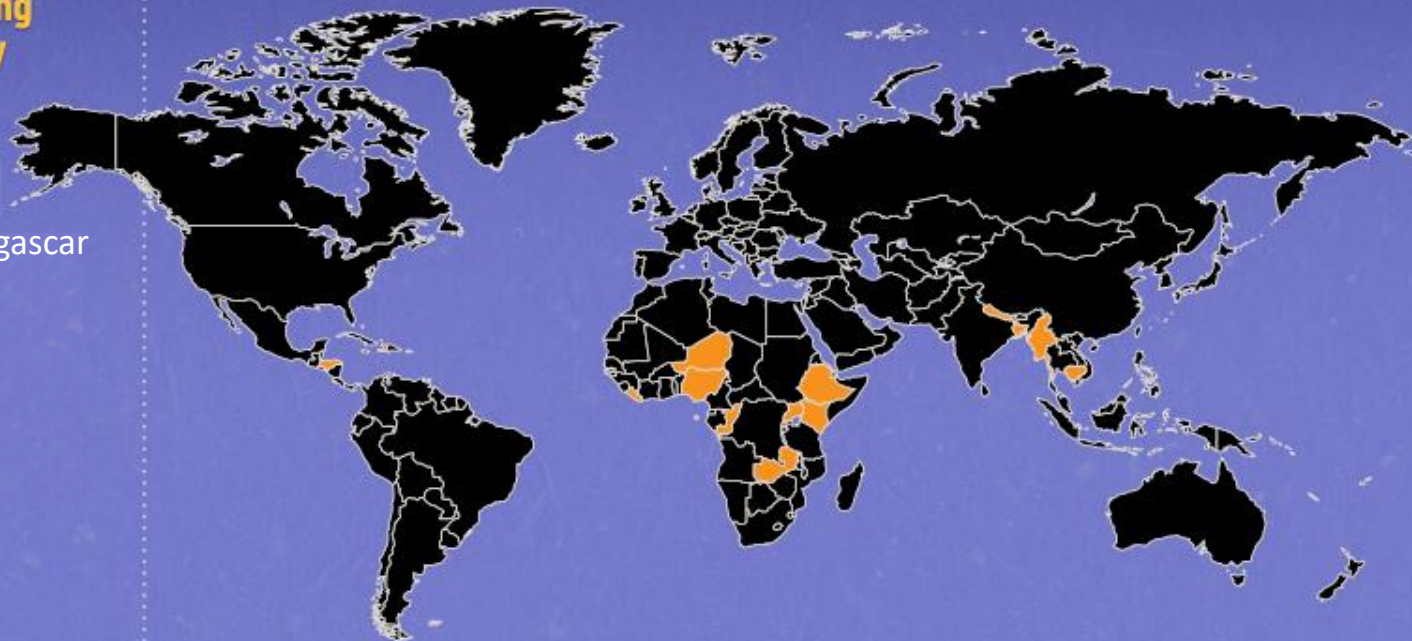
Uganda*

Ongoing survey

DRC

Haiti*

Madagascar



** Government implemented
with MTF technical support*

MTF surveys complete in 14 countries and ongoing in 3 countries.



MTF Methodology: Survey instrument and sampling strategy

- MTF team has developed the survey instrument and sampling strategy in a collaboration with the survey experts from Living Standard Measurement Survey (LSMS) team.

1 Survey instrument

- Comprehensive energy module
- Socio-economic status information for further analysis
- Willingness to pay module

2 Sampling strategy

- 2-stage stratified random sampling approach
- Stratifying variables: electrification status and locality (rural and urban)
- Sample size: 3000-4000 (3-4% at national level and 5-6% of margin of error at urban/rural)



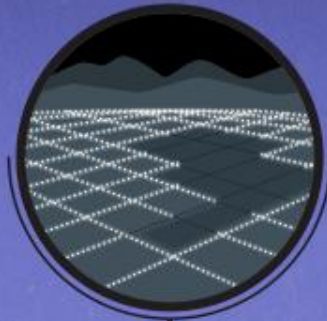
Access to Electricity



MTF Attributes for Electricity



Capacity



Reliability



Affordability



Health & Safety



Availability



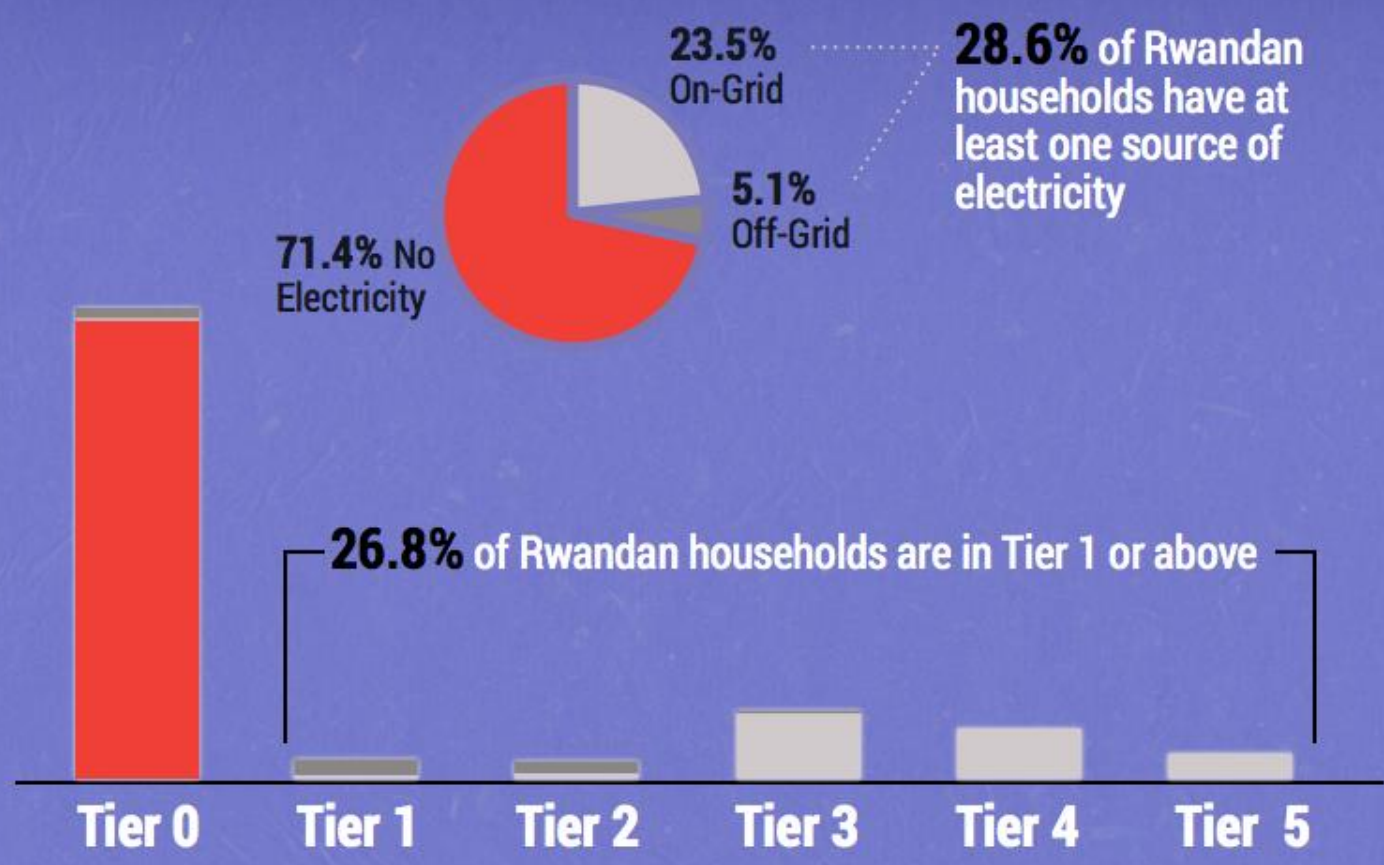
Quality



Formality

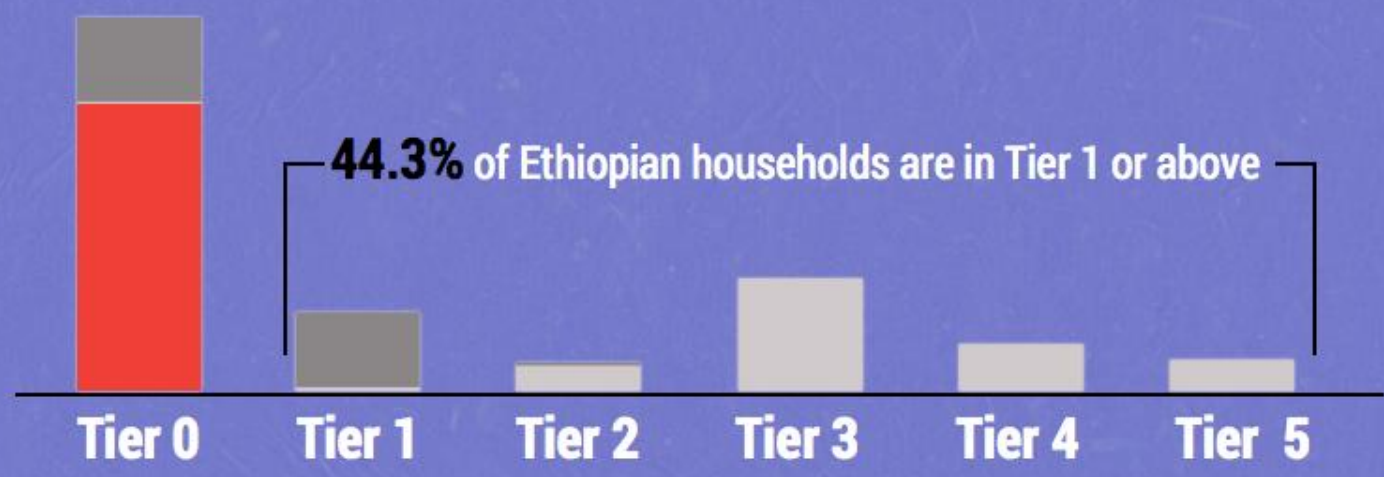
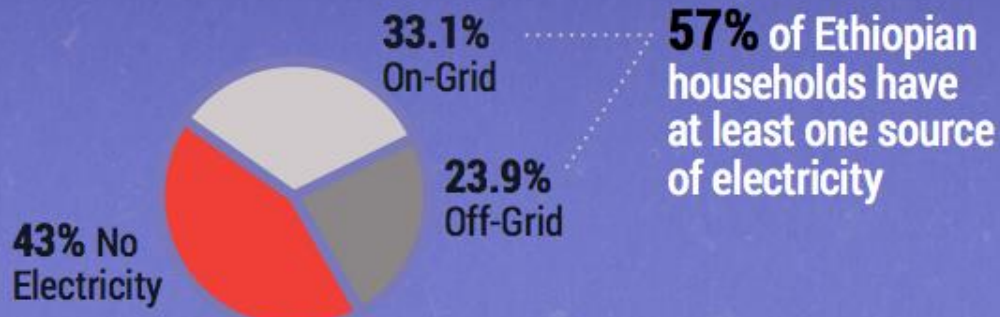
MTF measures electrification through 7 key attributes.

MTF Helps Understand the Current Status of Access to Electricity Service



-  On-Grid
-  Off-Grid
-  No Electricity

MTF Helps Understand the Current Status of Access to Electricity Service



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Two Major Policy Questions:

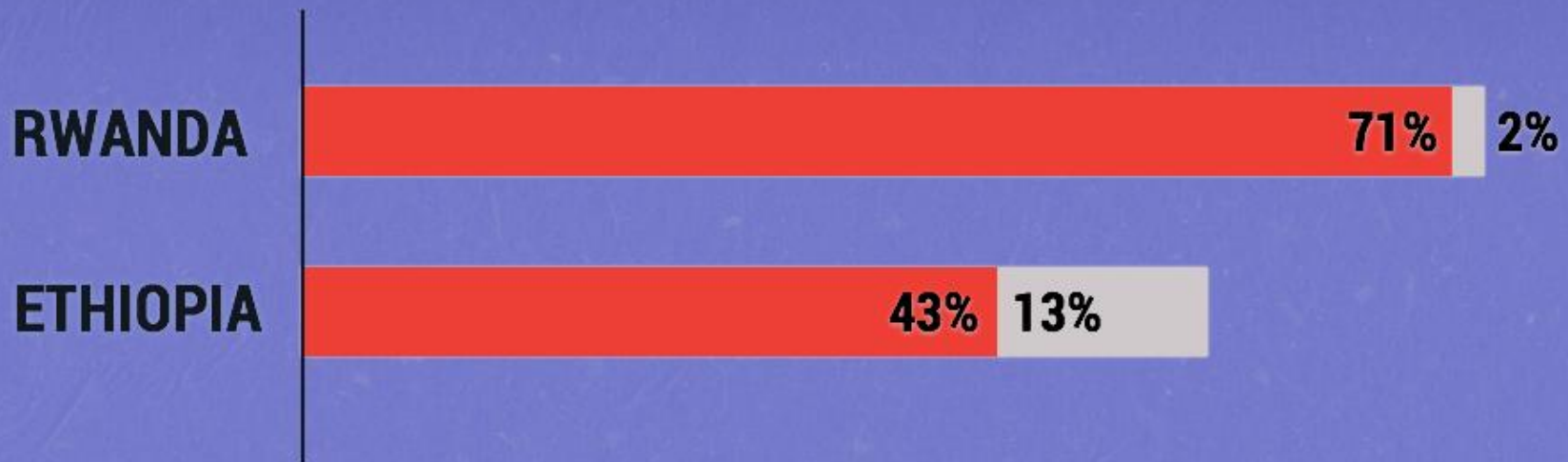
1) How to expand access to electricity?

2) How to improve the quality of electricity supply?



1. How to Expand Access to Electricity?

Majority of Tier 0 households do not have any source of electricity



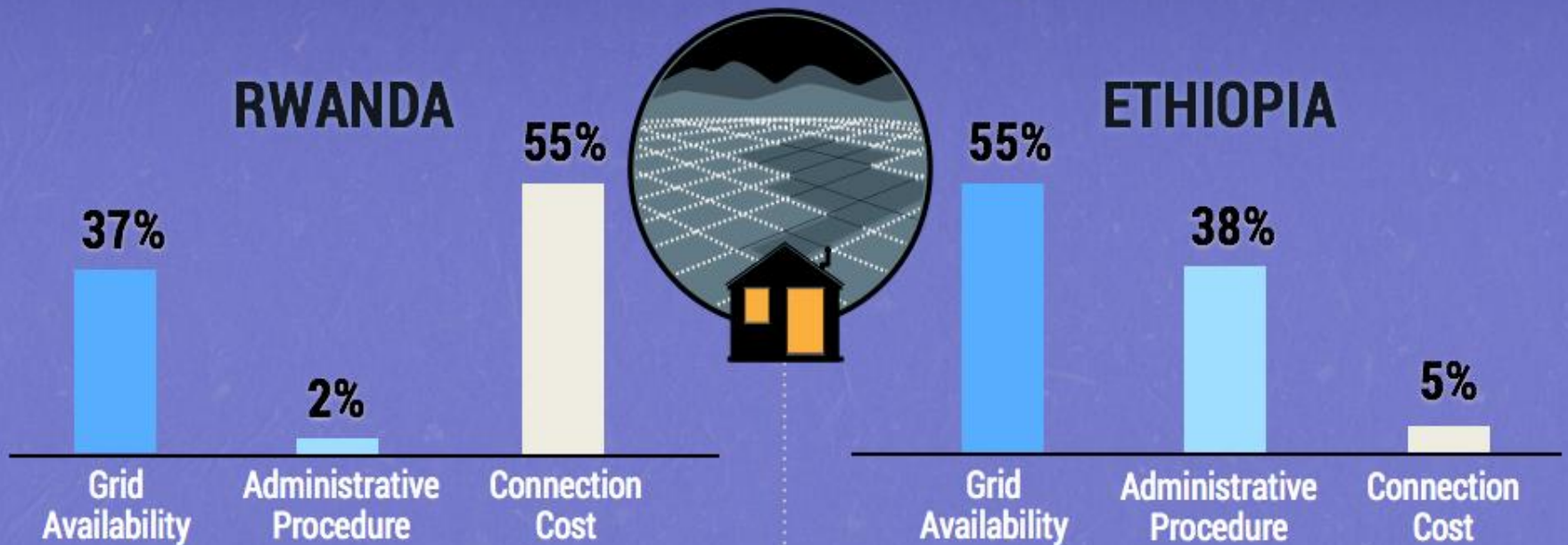
Providing electricity to Tier 0 households without any source of electricity.



Shifting Tier 0 households using off-grid solutions to higher tiers.

1. How to Expand Access to Electricity?

What are the major reasons households are not connected to the grid?



How to expand access to electricity



• Off-grid solar solution:
Pricing/financing

• Off-grid



• Mitigate household's
financial burden



• Grid densification



• Simplify the process



• Incentivize electricity
provider to connect

1. How to Expand Access to Electricity?

Willingness to pay modules provide information for effective pricing and financing of on-grid connection as well as off-grid solar solutions



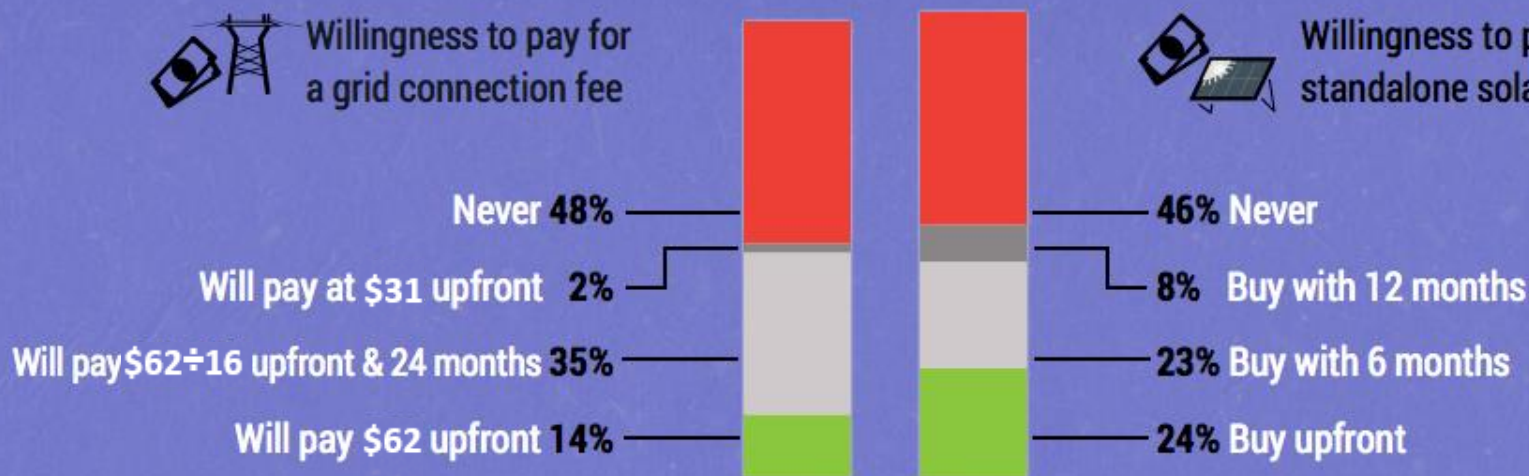
RWANDA



Willingness to pay for a grid connection fee



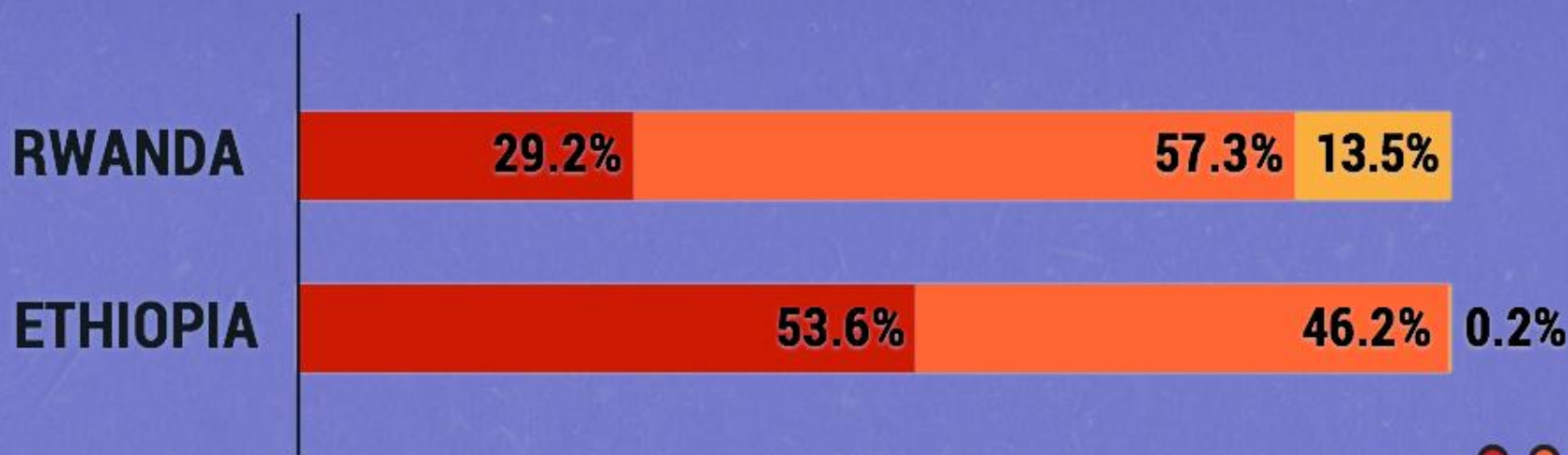
Willingness to pay for a standalone solar system



Adoption of a grid connection or standalone solar home system can be enhanced by spreading payment over time or improved access to finance.

1. How to Expand Access to Electricity?

Capacity is one of the major constraints that households with off-grid solar solutions face



T0 T1 T2

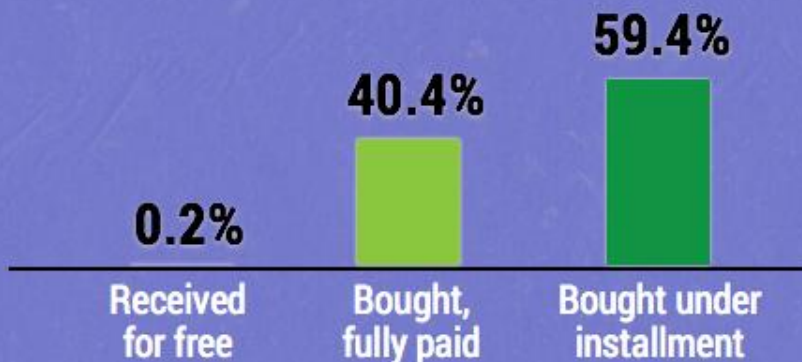
By improving Capacity constraint, 13% and 2% of Ethiopian and Rwandan households in Tier 0 can move up to higher tiers

1. How to Expand Access to Electricity?

One of the differences would be payment modality between Rwanda and Ethiopia off-grid solar market



RWANDA

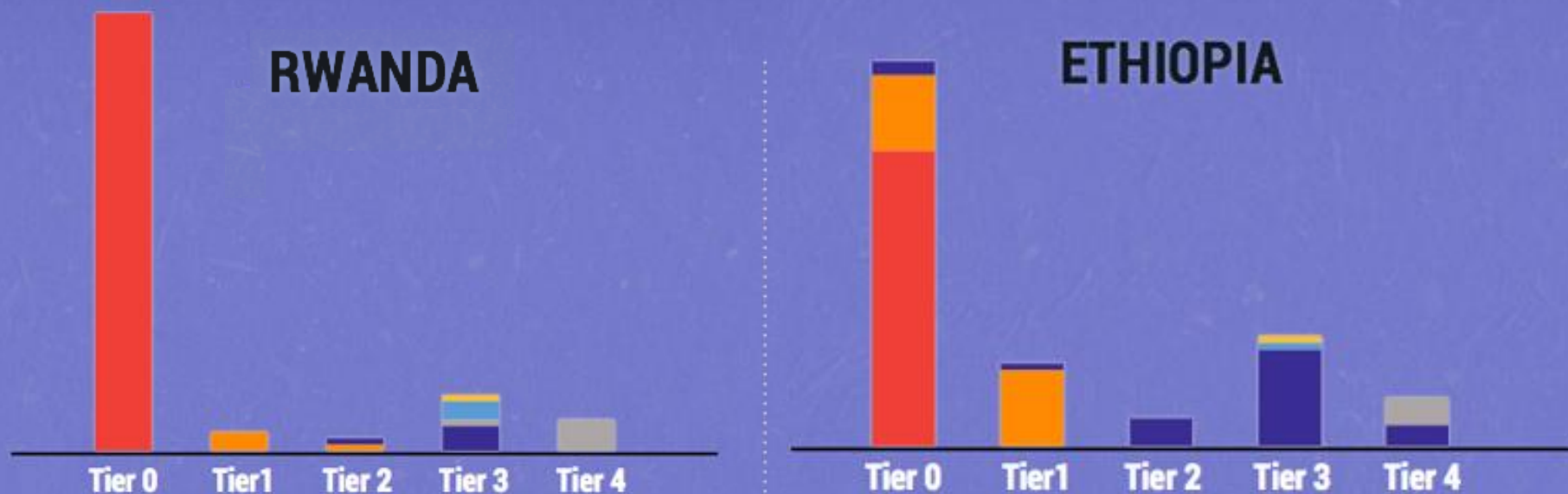


ETHIOPIA



2 How to Improve Quality of Electricity?

MTF's gap analysis identifies the constraints households are facing that prevent them from reaching a higher tier



No electricity Capacity Availability Reliability Quality Safety Formality



Access to Modern Cooking Energy Solutions



MTF Attributes for Cooking



Cooking Exposure



Convenience



Fuel Availability



Cookstove Efficiency



Safety of Primary Cookstove



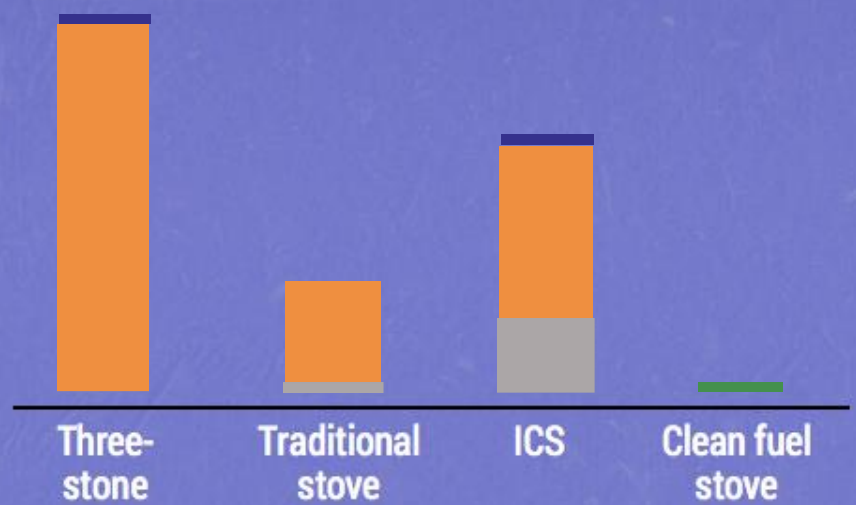
Affordability



MTF measures household cooking solutions through 6 key attributes.

MTF Provides Details of Rwanda's Access to Cooking Solutions Beyond the Binary Method of Measuring Access to Clean Fuels

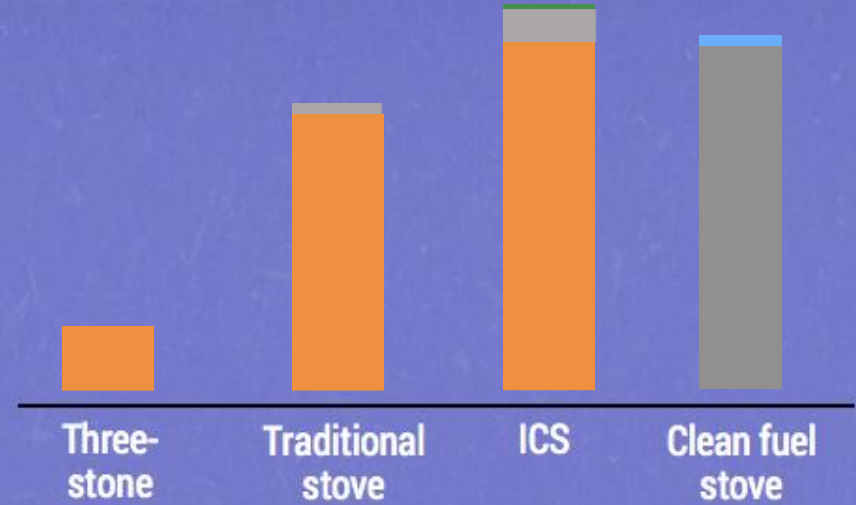
● Firewood
 ● Charcoal
 ● Other
 ● LPG/Cooking gas
 ● Other biomass
 ● Electricity



RWANDA



 **52%** of households use three-stone fires
 **99%** of country uses biomass as primary fuel

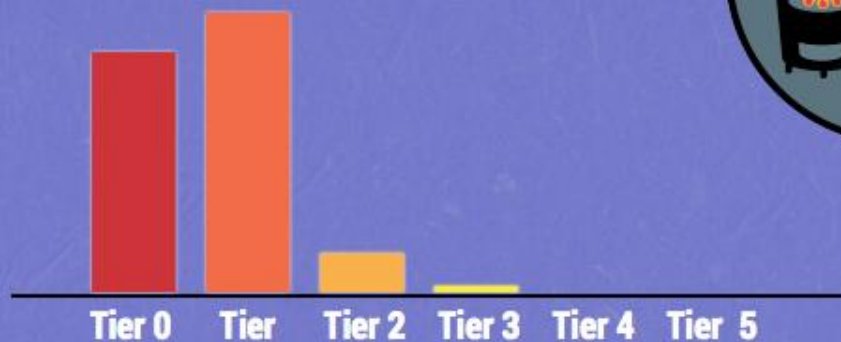
CAMBODIA



 **32.9%** of households use clean fuel stoves
 **61.6%** of households use biomass as primary fuel

MTF Provides Details of Rwanda's Access to Cooking Solutions Beyond the Binary Method of Measuring Access to Clean Fuels

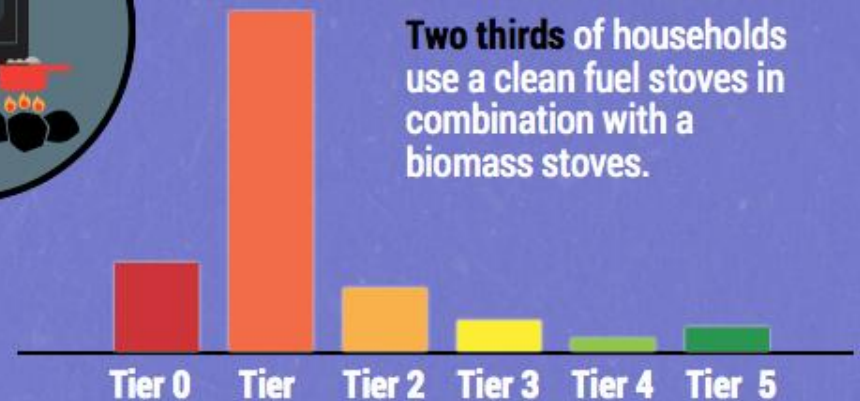
RWANDA



More than **90%** of Rwandan households are in Tier 0-1 (43% in Tier 0 and 50.7% in Tier 1)



CAMBODIA



Two thirds of households use a clean fuel stoves in combination with a biomass stoves.

Around **75%** of Cambodian households are in Tier 0-1 (15.8% in Tier 0 and 60.7% in Tier 1)
5.7% of households are in Tier 4-5.

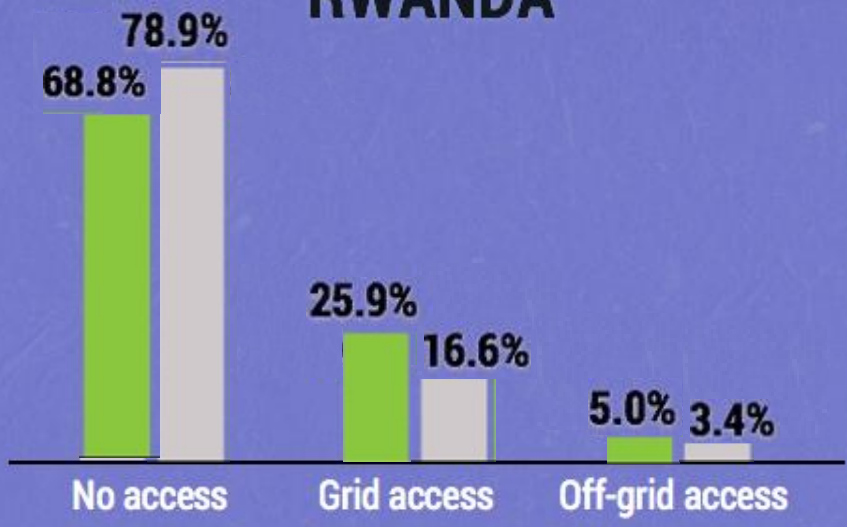
Gender Analysis



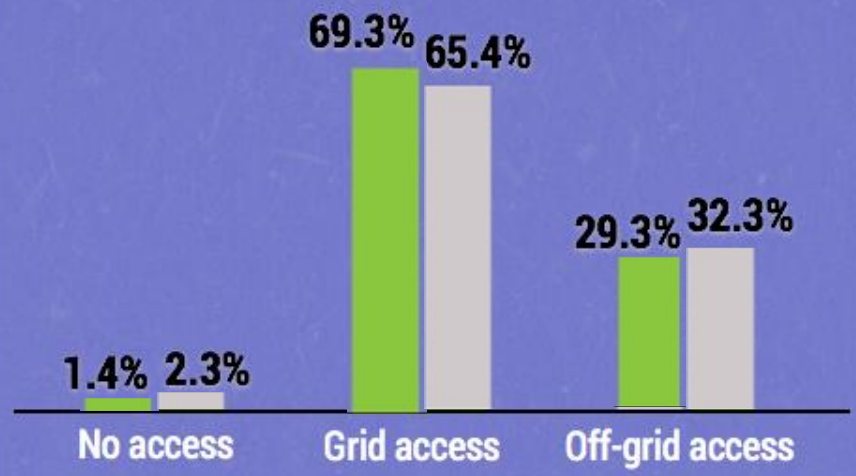
Male-headed households are more likely to be connected to the grid



RWANDA



CAMBODIA

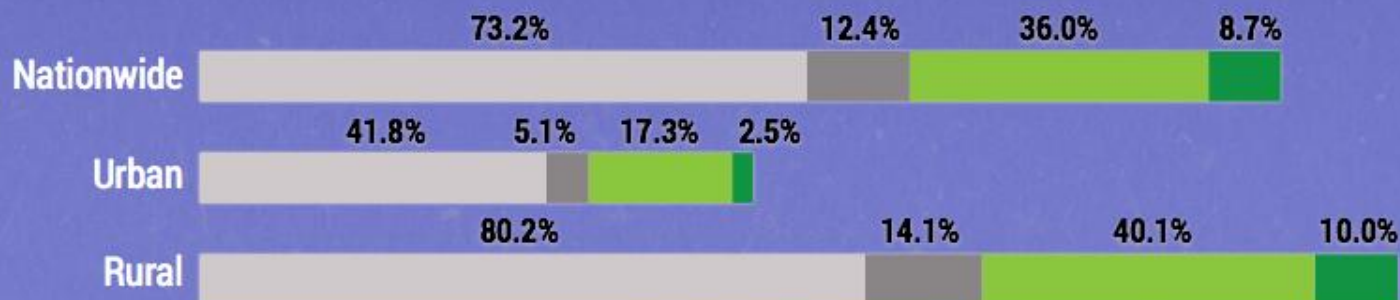


Women will benefit most from switching to more efficient and cleaner cooking solutions

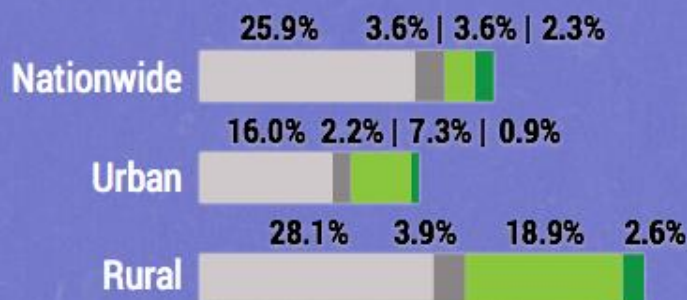






RWANDA

 Women spend twice as much time as men acquiring fuel for cooking



 Women spend more time preparing fuel than men do



-  Female (15 or older)
-  Female (under 15)
-  Male (15 or older)
-  Male (under 15)

MTF Website... Coming Soon!

<http://mtf.esmap.org/>

The screenshot shows the MTF website interface. At the top left is the MTF logo (a lightbulb with a green leaf) and the text 'MULTI-TIER FRAMEWORK'. Below it is the tagline 'Tracking progress toward sustainable energy goals'. The navigation menu includes 'Home', 'About Us', 'Methodology', 'Data', 'Innovations', 'Countries', 'Partners', and 'Contact Us'. The main content area features a video player titled 'Measuring Energy Access: The Multi-tiers' with a play button. To the right is a world map with Cambodia highlighted, showing the Cambodian flag and the text 'Cambodia'. Below the map are two donut charts: 'Electricity MTF Tier Distribution' and 'Cooking MTF Tier Distribution'. At the bottom of the map area is a button that says 'Go to country reports'. On the left side, there are two buttons: 'MTF Analysis Tool' (with a 'Compare across countries' sub-label) and 'MTF Downloads'. On the right side, there are two buttons: 'MTF Publications' (with an 'Internet' sub-label) and 'MTF News'.

Download **MTF** data and reports today by going to WBG's Energy Data site by inputting 'MTF' in its search field at:

<https://energydata.info/>



Energy Access Redefined

For more information visit

www.worldbank.org/energy/beyondconnections

#endenergypoverty

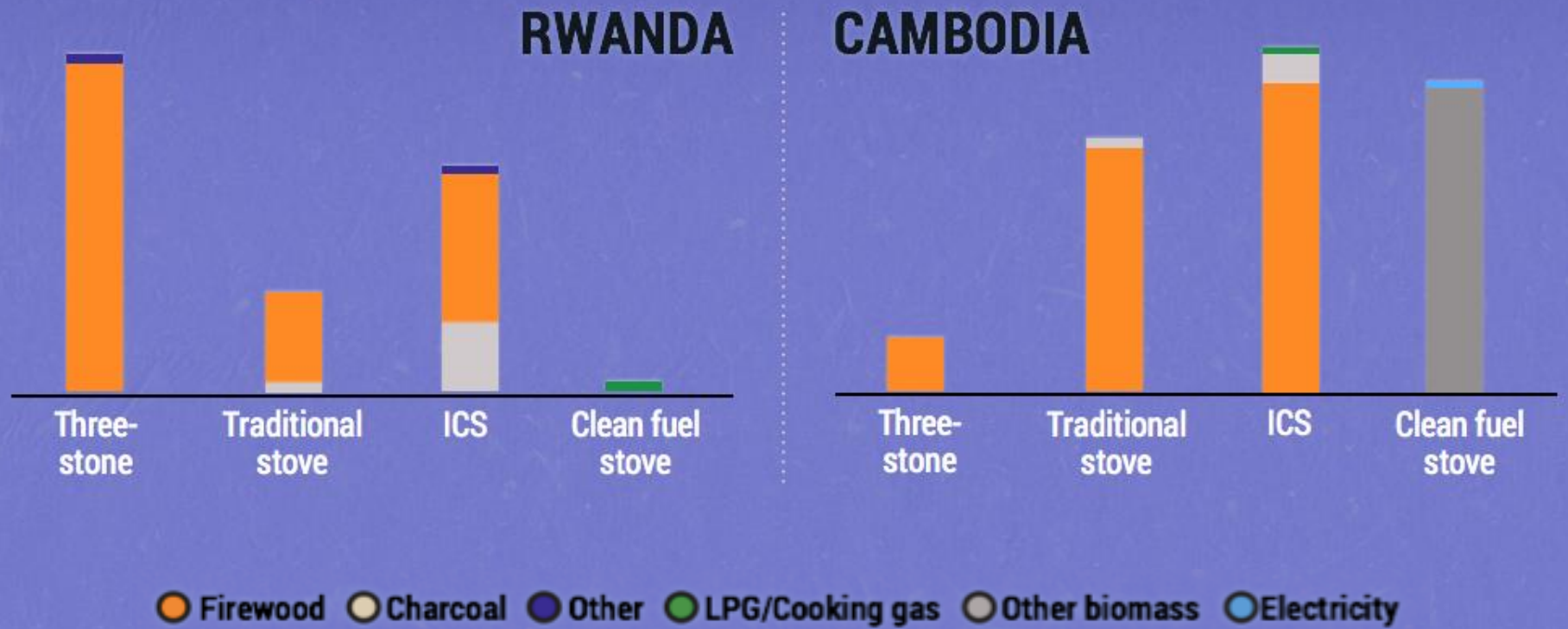
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