



USAID
FROM THE AMERICAN PEOPLE



Clean Energy Emission Reduction (CLEER) Web Tool

**Resources to Advance LEDS Implementation
(RALI)**

Implementer: ICF

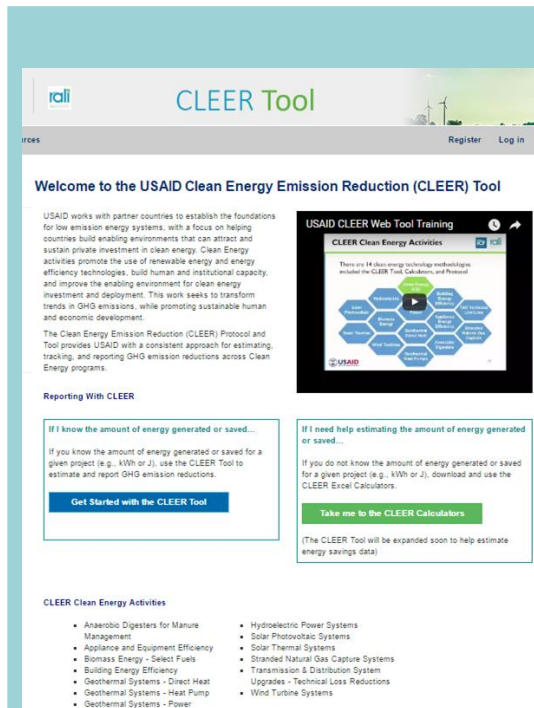
December 5, 2017

- Overview of RALI
- Overview of CLEER Tool
 - Objective
 - Tool Capabilities
 - Clean Energy Technologies Covered
 - Features
- CLEER/BUR Exercise



- Supports technically rigorous development and implementation of Low Emission Development Strategies
- Focus on providing tools and technical assistance to USAID and developing country partners

Who We Are: RALI Activities



CLEER Tool

Welcome to the USAID Clean Energy Emission Reduction (CLEER) Tool

USAID works with partner countries to establish the foundations for low emission energy systems, with a focus on helping countries build enabling environments that can attract and sustain private investment in clean energy. Clean Energy activities promote the use of renewable energy and energy efficiency technologies, build human and institutional capacity, and improve the enabling environment for clean energy investment and deployment. This work seeks to transform trends in GHG emissions, while promoting sustainable human and economic development.

The Clean Energy Emission Reduction (CLEER) Protocol and Tool provides USAID with a consistent approach for estimating, tracking, and reporting GHG emission reductions across Clean Energy programs.

Reporting With CLEER

If I know the amount of energy generated or saved...
If you know the amount of energy generated or saved for a given project (e.g., kWh or J), use the CLEER Tool to estimate and report GHG emission reductions.

Get Started with the CLEER Tool

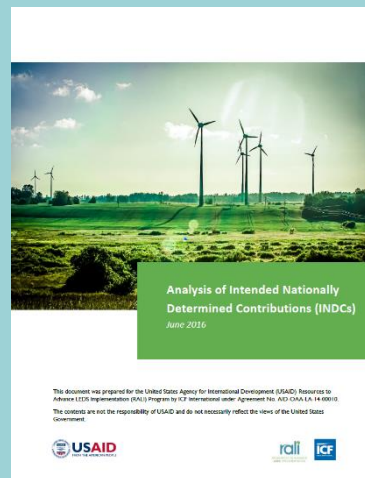
If I need help estimating the amount of energy generated or saved...
If you do not know the amount of energy generated or saved for a given project (e.g., kWh or J), download and use the CLEER Excel Calculators.

Take me to the CLEER Calculators

(The CLEER Tool will be expanded soon to help estimate energy savings data)

CLEER Clean Energy Activities

- Anaerobic Digesters for Manure Management
- Appliances and Equipment Efficiency
- Biomass Energy - Select Fuels
- Building Energy Efficiency
- Geothermal Systems - Direct Heat
- Geothermal Systems - Heat Pump
- Geothermal Systems - Power
- Hydroelectric Power Systems
- Solar Photovoltaic Systems
- Solar Thermal Systems
- Standalone Natural Gas Capture Systems
- Transmission & Distribution System
- Upgrades - Technical Loss Reductions
- Wind Turbine Systems



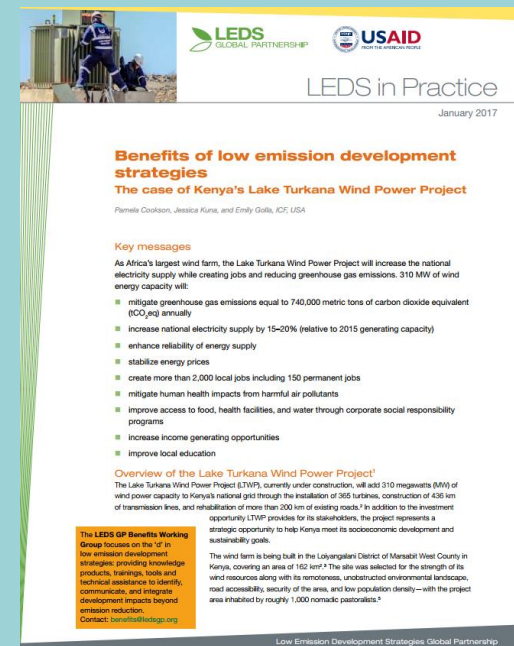
Analysis of Intended Nationally Determined Contributions (INDCs)
June 2016

This document was prepared for the United States Agency for International Development (USAID) Resources to Advance LEDS Implementation (RALI) Program by ICF International under Agreement No. AID-CMA-LA-14-00010. The contents are not the responsibility of USAID and do not necessarily reflect the views of the United States Government.

USAID ICF



NDC PARTNERSHIP
ACCELERATING CLIMATE AND DEVELOPMENT ACTION



LEDS in Practice
January 2017

Benefits of low emission development strategies
The case of Kenya's Lake Turkana Wind Power Project

Patricia Cookson, Jessica Kuna, and Emily Gable, ICF, USA

Key messages

As Africa's largest wind farm, the Lake Turkana Wind Power Project will increase the national electricity supply while creating jobs and reducing greenhouse gas emissions. 310 MW of wind energy capacity will:

- mitigate greenhouse gas emissions equal to 746,000 metric tons of carbon dioxide equivalent (CO₂e) annually
- increase national electricity supply by 15-20% (relative to 2015 generating capacity)
- enhance reliability of energy supply
- stabilize energy prices
- create more than 2,000 local jobs including 150 permanent jobs
- mitigate human health impacts from harmful air pollutants
- improve access to food, health facilities, and water through corporate social responsibility programs
- increase income generating opportunities
- improve local education

Overview of the Lake Turkana Wind Power Project¹

The Lake Turkana Wind Power Project (LTPWP), currently under construction, will add 310 megawatts (MW) of wind power capacity to Kenya's national grid through the installation of 365 turbines, construction of 436 km of transmission lines, and rehabilitation of more than 200 km of existing roads.² In addition to the investment opportunity LTPWP provides for its stakeholders, the project represents a strategic opportunity to help Kenya meet its socioeconomic development and sustainability goals.

The wind farm is being built in the Lokung'at District of Marsabit West County in Kenya, covering an area of 162 km². The site was selected for the strength of its wind resources along with its remoteness, unobstructed environmental landscape, road accessibility, security of the area, and low population density—with the project area inhabited by roughly 1,000 nomadic pastoralists.³

The LEDS GP Benefits Working Group focuses on the "G" in low emission development strategies, providing knowledge products, training, tools and technical assistance to identify, communicate, and integrate development impacts beyond emission reduction.

Contact: ben@lowemission.org

Low Emission Development Strategies Global Partnership

Clean Energy Emission Reduction (CLEER) Tool

NDC Implementation Support

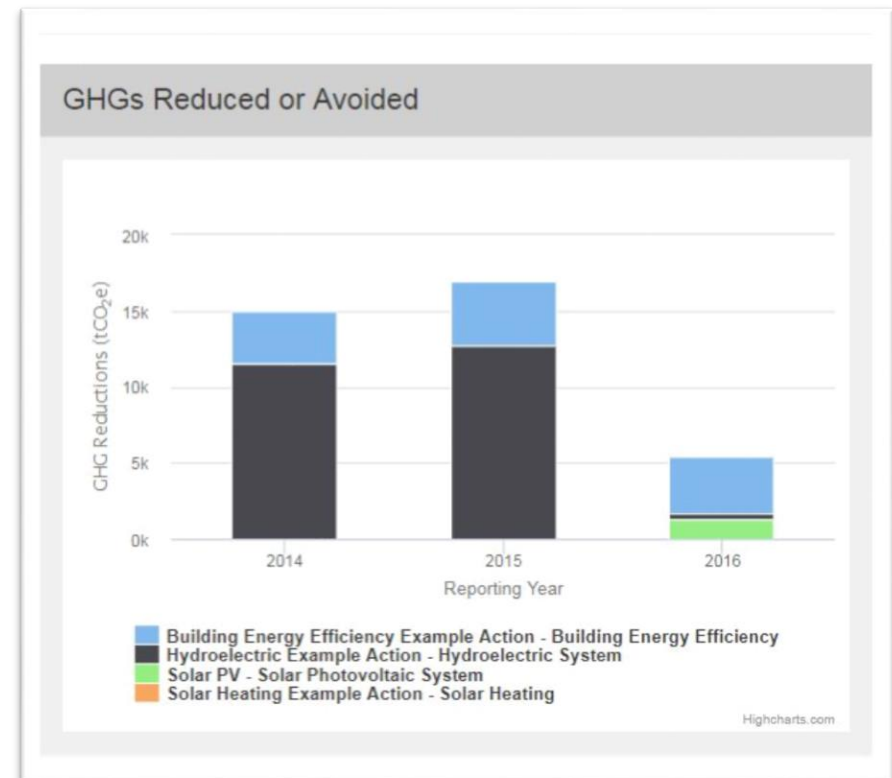
Technical Assistance and Best Practices



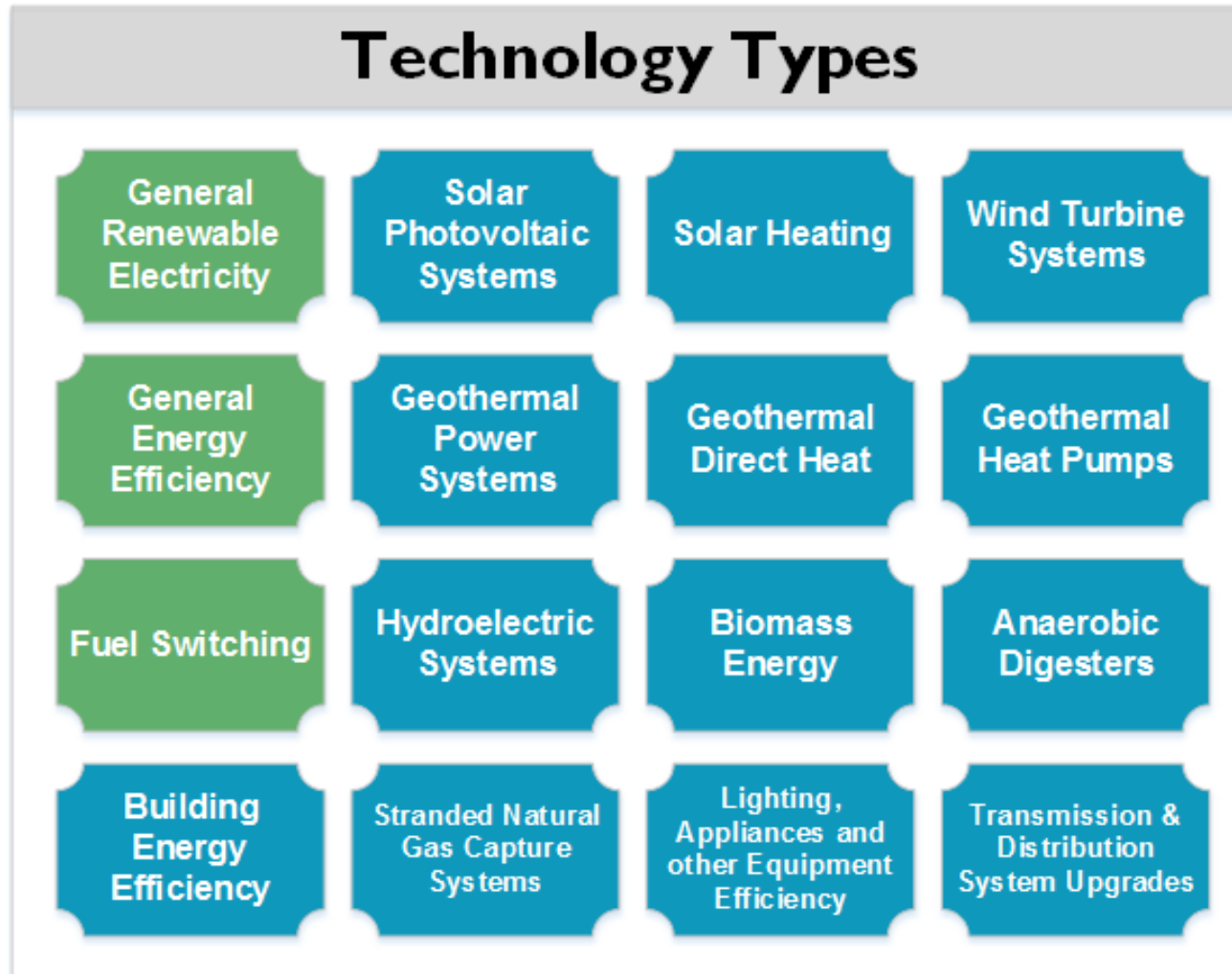
The screenshot shows the homepage of the USAID Clean Energy Emission Reduction (CLEER) Tool. At the top, there is a navigation bar with links for Home, Policy, Technologies, and Support & Resources. Below the navigation bar, on the left, is a registration section titled 'Register Today!' with a 'Register Here' button. Below that is a section for 'Already a Member?' with input fields for 'Email Address' and 'Password', a 'Forgot your password?' link, a 'Sign in' button, and a 'Remember me' checkbox. On the right, there is a large banner image of solar panels with the text 'Welcome to the USAID Clean Energy Emission Reduction (CLEER) Tool' overlaid. The banner also features logos for USAID, ICF, and rali.

- Increase understanding of GHG impacts of clean energy activities
- Assist project implementers to easily estimate and report GHG impacts

- Calculate annual:
 - GHG emissions reduced or avoided
 - Energy generated from renewable actions
 - Energy savings from energy efficiency actions
 - Cost savings from energy efficiency actions
- Project
 - GHG emissions reduced or avoided to 2030



CLEER Clean Energy Technologies



- **Simple** and **user-friendly** calculations
- Requires basic **activity information** (e.g., location, activity type) and **technology specifications** (e.g., installed capacity, avoided fuel type)
- **Default data** are embedded into calculations
- **Step-by-step** questions

My Dashboard View Quick Start Guide!

My Projects

[Join Project](#) [+ Create Project](#)

Name	Role	Period of Performance	Actions
CLEER Tutorial Mechanism	Owner	2014 - 2019	31
EE department	Owner	2015 - 2020	10
Planned Actions	Owner	2015 - 2020	109
Projection 2B	Owner	2012 - 2020	4
Projection 2B	Owner	2012 - 2020	4

Showing 1 to 5 of 10 entries [Previous](#) [1](#) [2](#) [Next](#)

My Alerts

13

Alert Type	Open Items
User Requests	No response needed at this time
Action Approvals 13	Ready for Approval
Notifications	No response needed at this time

My Groups

[Join Group](#) [+ Create Group](#)

Name	Role	Owners
test municipality	Owner	User1 Testers
Training Group	Member	CLEER Help
USAID/Economic Growth, Education and Environment (E2) Bureau	Owner	User1 Testers CLEER Help

Showing 1 to 3 of 3 entries [Previous](#) [1](#) [Next](#)

My Reports

[View All](#) [+ Create Report](#)

Name	Type
All by Country	Full Data Extract
All by Group	Full Data Extract
All by IM	Full Data Extract
All by Technology	Full Data Extract
annual report test	Annual GHG Emissions Reduction

Showing 1 to 5 of 20 entries [Previous](#) [1](#) [2](#) [3](#) [4](#) [Next](#)

CLEER Tool and BUR Template Exercise

Two-step exercise to support BUR development:

1. CLEER Tool

- Estimate the GHG emissions reduced/avoided by 2030 for the projects in the Energy Self-Supply Action Plan

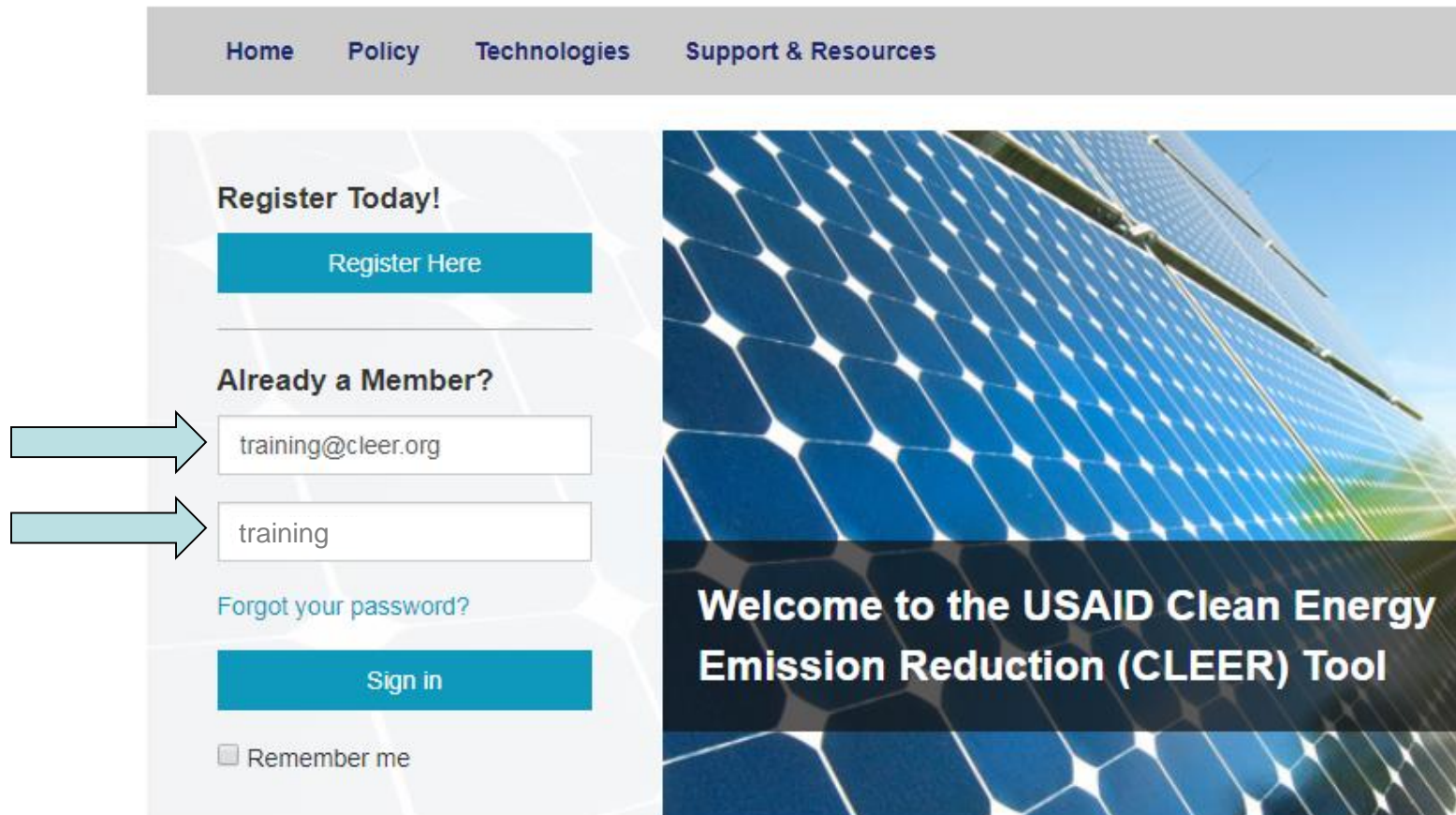
2. BUR Template

- Review the factsheet and fill in the Mitigation Action section of the BUR template
- Include GHG reduction information from CLEER Tool

Getting Started with the CLEER Tool

Log-In for CLEER Tool

Visit: www.cleertool.org



The screenshot shows the CLEER Tool login page. At the top is a navigation bar with links: Home, Policy, Technologies, and Support & Resources. Below this is a login section on the left and a large banner on the right. The login section includes a 'Register Today!' button, an 'Already a Member?' section with email and password input fields (highlighted by arrows), a 'Forgot your password?' link, a 'Sign in' button, and a 'Remember me' checkbox. The banner on the right features a background image of solar panels and the text: 'Welcome to the USAID Clean Energy Emission Reduction (CLEER) Tool'.

Home Policy Technologies Support & Resources

Register Today!

Register Here

Already a Member?

training@cleer.org

training

[Forgot your password?](#)

Sign in

☐ Remember me

Welcome to the USAID Clean Energy Emission Reduction (CLEER) Tool

Create a Project

[About CLEER](#)[Dashboard](#)[Community](#)[Policy](#)[Technologies](#)[Support & Resources](#)[1](#)[My Account](#)

My Dashboard

[View Quick Start Guide!](#)

My Projects ?

[Join Project](#)[+ Create Project](#)

Name	Role	Period of Performance	Actions
Asia LEDS Forum Training	Owner	2010 - 2020	2

[Previous](#) [1](#) [Next](#)

My Alerts 1

Alert Type**Open Items**[User Requests](#)

No response needed at this time

[Action Approvals 1](#)[Ready for Approval](#)[Notifications](#)

No response needed at this time

My Groups

[Join Group](#)[+ Create Group](#)

You have not created or joined any Groups.

My Reports

[View All](#)[+ Create Report](#)

You have not created any reports.

Create a Project

Edit a Project

[Help](#)[Save and Return to Summary](#)

*indicates required field

Summary Information

Project Name * ?

Asia LEDS Training

Project ID ?

Project Number ?

Value ?

\$

USD

Start Date * ?

01/01/2017

End Date * ?

12/31/2021

Currency (if applicable) ?

USD-United States dollar

Description

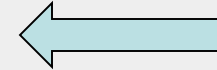
Create a Project

Reporting Information

If you are creating a Project for testing or training purposes, do NOT assign it to a USAID Group. Either assign it to the Training Group or leave this field blank.

To which USAID Group does this Project report? ?

Training Group ▼



Add Owners and Contributors

Project Owners ?

Account, Training ✕

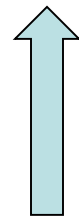


Project Contributors ?

Filter / Select Users

Cancel and Go Back

Save and View Summary



Add a Renewable Energy Action

About CLEER Dashboard Community Policy Technologies Support & Resources

1 My Account ▾

Asia LEDS Training

★ Owner

Project Details

Group: Training Group

Project ID:

Project Number:

Project Value (USD): \$0.00

Period of Performance: 2017 - 2021

Currency (if applicable): USD

Description:

Owners: Training Account

Contributors: None

Edit Project

Delete Project

GHGs Reduced or Avoided

Highcharts.com

Actions 0

+ Add Action

Actions are individual projects associated with the Project that yield a single clean energy result (e.g., solar photovoltaic mini-grid). Select "Add Action" to create a new Action under this Project.

Add a Renewable Energy Action

Create an Action

[Help](#)[Save and Continue](#)

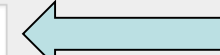
*indicates required field

Enter Action Details

Action Name *



Technology Type * ?



Region * ?



Country * ?



Project Partner(s) ?

Description

What would you like to do next? (choose one and select "Save and Continue")*

Save and estimate
Annual GHG Emission
Reductions

Save and estimate
Projected GHG Emission
Reductions

Save and return to
Action Details

[Help](#)[Save and Continue](#)

Site-Specific Capacity Factor

Enter Energy Data for the Action

Select Projection Start Year

2017

What type of energy is replaced by the renewable electricity system?

Direct Fuel Consumption

Electricity (Grid)

Electricity (Generator)

No Previous Energy

Do you know the amount of electricity generated by the system? *

Yes – I know the amount of electricity generated

No – I need help estimating the amount of electricity generated

How much generation capacity was installed or operational in the Projection Start Year ?

100

Generator Capacity Units

MW

Does the system have a tracking mount? ?

Yes

No

Do you want to use a country average capacity factor or site-specific capacity factor? ?

Country Average Capacity Factor

Site-Specific Capacity Factor

Enter Latitude ?

North/South

--Select--

Enter Longitude ?

East/West

--Select--

How is the system connected to the electricity grid? ?

On Grid - Central Utility Generation

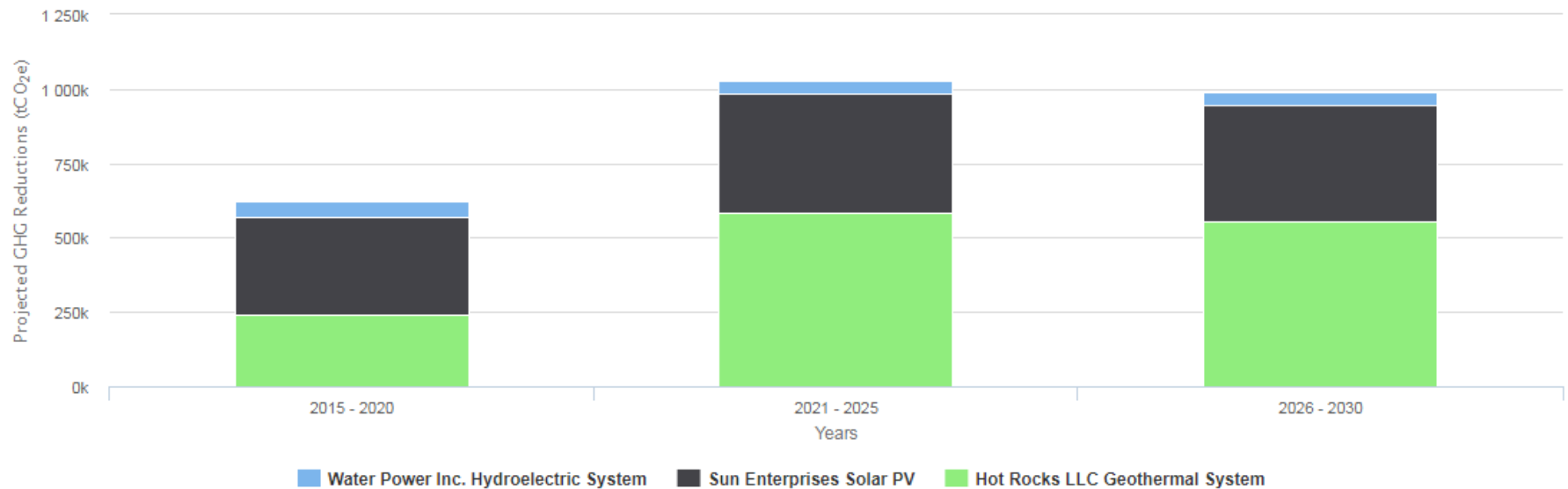
On Grid - Distributed/Microgrid



Results from the CLEER Tool Exercise

Expected Results from CLEER

Projected GHG Emission Reductions by Action



Highcharts.com

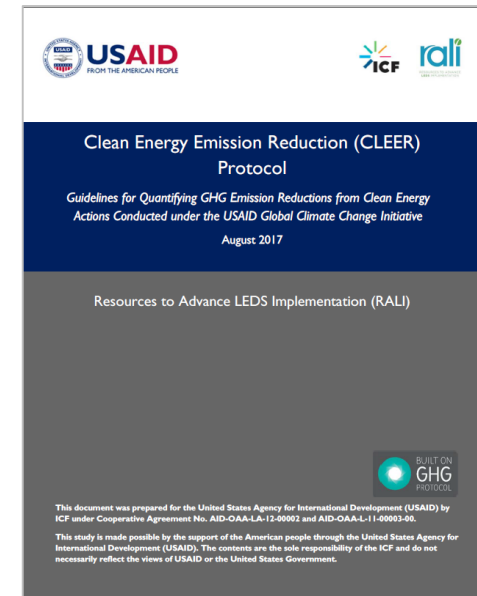
Expected Results from CLEER

Projected GHG Emission Reductions

Period	Emissions Reduced (tCO ₂ e)
2015 through 2020	621,630.65
2021 through 2025	1,026,669.67
2026 through 2030	987,551.12
Total GHGs Reduced / Avoided from Year of Implementation through 2030	2,635,851.44

Provides the underlying accounting framework and equations that support the user-friendly calculators and web tool

- CLEER Accounting Approach
- Methodologies
 - ✓ List of data needs
 - ✓ Sources of default data
 - ✓ Step-by-step equations
 - ✓ Designed to be clear, easy to follow, & universal
- Default Data tables



<https://www.cleertool.org/Files/Calculators/RALI-Protocol-August-2017.pdf>

Methodology and data information can be found in the
CLEER Protocol.



Hydroelectric Systems
Page 74

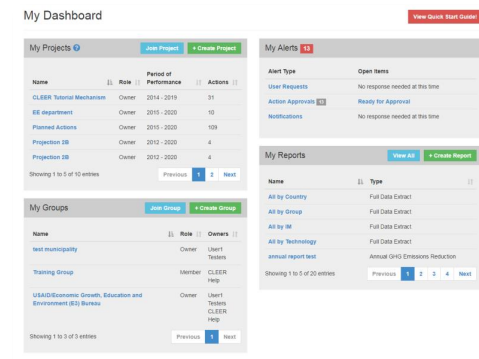
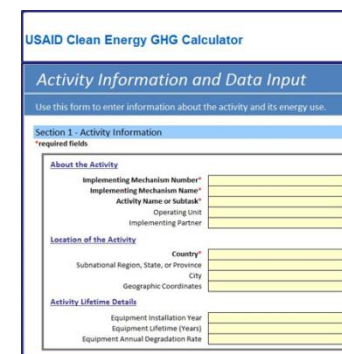


Geothermal Power
Systems
Page 81



Solar Photovoltaic
Systems
Page 53

- **CLEER Web Tool** – www.CLEERtool.org
For additional information or assistance:
CLEERHelp@icf.com
- **CLEER Excel Calculators** – 16 technology-specific Calculators, and GHG Projections Calculator
- **CLEER Protocol** – General accounting principles, guidelines, and methodologies
- **User Guide** – Step-by-step instructions for using CE Calculator and technology-specific calculators

USAID Clean Energy GHG Calculator

Activity Information and Data Input

Use this form to enter information about the activity and its energy use.

Section 1 - Activity Information

About the Activity

Implementing Mechanism Number*
Implementing Mechanism Name*
Activity Name or Subtask*
Operating Unit
Implementing Partner

Location of the Activity

Country*
Subnational Region, State, or Province
City
Geographic Coordinates

Activity Lifetime Details

Equipment Installation Year
Equipment Lifetime (Years)
Equipment Annual Degradation Rate





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