CLEER TOOL Exercise: Distributed Energy Policy

Instructions: The purpose of this exercise is to familiarize users with the CLEER tool by estimating the potential greenhouse gas (GHG) reductions of a distributed renewable energy policy over the equipment lifetime. For this exercise, users should do the following:

1. Read the project description.
2. Create a "Project" and "Action" in the CLEER Tool, following 7 steps below.
3. Compare your estimate of emissions avoided/reduced with the value at the end of this exercise.

Project Description: USAID partners have been supporting the government of Vietnam with implementing a policy that encourages the use of distributed renewable energy through subsidies and incentives for consumers and utilities. To estimate the capacity of new renewable energy resulting directly from the policy, the USAID implementing partner conducted modelling that assessed the number of homes and buildings likely to install photovoltaic (PV) due to the policy, average rooftop area available per unit type, likely size of each individual installation per unit type, and various other factors. Based on the results of the modeling, the implementing partner estimated that the policy would likely result in the installation of 500 MW of rooftop solar arrays to commercial and residential buildings across the country by January 2025, which would avoid using electricity from the grid. The project implementers are tasked with estimating the projected greenhouse gas (GHG) emissions avoided through 2050 from the installation of 500 MW of rooftop solar arrays.

Create Your Practice Project and Action

STEP 1: On your dashboard, navigate to "**My Projects**", and select [+ Create Project] to create a new project. Enter in the details of the project on the following page.

Summary Information	
Project Name * ❓	Distributed Energy Policy Example
Project ID ❓	
Project Number ❓	
Value ❓	$ 0.00 USD
Start Date * ❓	01/01/2020
End Date * ❓	01/01/2025
Currency (if applicable) ❓	VND-Vietnamese dong
Description	USAID partners have been supporting the government of Vietnam with implementing a policy that encourages the use of distributed renewable energy. It is estimated that the policy will result in the installation of 500 MW of rooftop solar arrays to commercial and residential buildings across the country by January 2025, which would avoid using electricity from the grid. The project implementers are tasked with estimating the projected greenhouse gas (GHG) emissions avoided through 2050 from the installation of 500 MW of rooftop solar arrays.

At the bottom of the page, select **Save and View Summary** to go to project dashboard.

STEP 2: On your project dashboard, navigate to the "**Actions**" button and select **+ Add Action**

STEP 3: On the **Create an Action** page, start by entering the name of the Action (example below), technology type, and the geographic details. Choose "**Save and estimate Projected GHG Emission Reductions**", and then click "**Save and Continue**" to navigate to the data input page.

Enter Action Details	
Action Name *	Vietnam Distributed Solar
Technology Type * ❔	Solar Photovoltaic System ⌄
Region * ❔	Asia ⌄
Country * ❔	Vietnam ⌄
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**

STEP 4: On the first **Data Input** page, enter the projection start year. You also have the option to make specific changes in the project's assumptions by selecting "Custom Projection." To continue with the default factors and assumptions, select "Default Projection," and then click **Save and Review Results** to navigate to the next page.

Select a Projection Start Year	
Select a Projection Start Year * ❔	2025 ⌄
Would you like to create projection using default values where the impact of the action remains constant each year, or would you like to input custom values because you expect the impact to change over time (e.g., grow)? * ❔	**Default Projection** **Custom Projection**
Go Back	**Save and Review Results**

Fill in Your Data Input Responses

STEP 5: On the second **Data Input** page, enter the details of the project using the ones provided below to see how the tool estimates GHG emission reductions for this solar project. Note that many of the questions will not appear until you have answered the previous question.

Enter Energy Data for the Action

Select Reporting Year *	2025 ⌄

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 Reporting Year * ❓	500
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

How is the system connected to the electricity grid? * ❓

On Grid - Central Utility Generation	**On Grid - Distributed/Microgrid**

Go Back	**Save and Review Results**

At the bottom of the page, select **Save and Review Results** to review your data inputs and results.
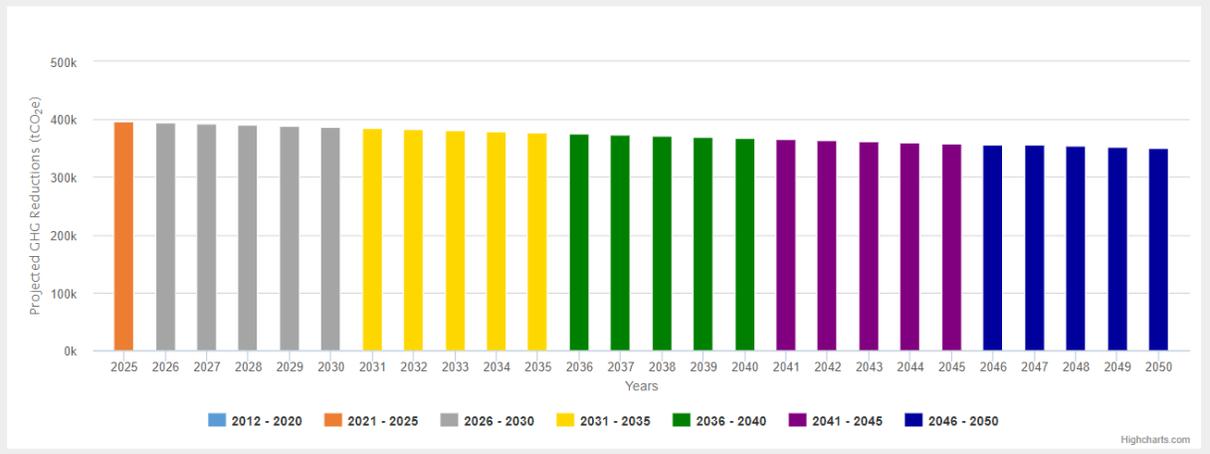

Check Your Results!

STEP 6: On the Review Inputs and Results page, at the bottom of the **Calculator Summary** box, you will see the GHG reduction estimate for year 1 of this action along with the energy saved or generated in the highlighted in green. Select **Review Projection Summary** to view a chart and table projecting the reductions to 2050.

Click **Download** to export results for each year to Excel. From this spreadsheet, you can sum the GHGs reduced annually over the required number of years to produce the result for EG.12-7.

Summary of Data Input

What type of energy is replaced by the renewable electricity system?	Electricity (Grid)
How much generation capacity was installed or operational in the Reporting Year in MW?	500.00
Do you know the amount of electricity generated by the system?	No – I need help estimating the amount of electricity generated or fuel replaced
How is the system connected to the electricity grid?	On Grid - Distributed/Microgrid
Does the system have a tracking mount?	No
Do you want to use a country average capacity factor or site-specific capacity factor?	Country average capacity factor

Calculator Summary

	Default Values	Alternate Values ❷
Emission Factor – (gCO$_2$e/kWh) ❷About Factors	563.80	
Line Loss Savings – %:	6.76	
Capacity Factor – %:	14.98	
Operational Days Per Year – (Days):	365	

Recalculate

Action Emissions Reduction Estimate: 396,834.77 tCO$_2$e
Energy Saved or Generated: 656,251,750.00 kWh

Data Assumptions

Document all assumptions, data sources, or comments regarding the action or any of the data used for the estimation.

Go Back

Review Projection Summary

Action Projected GHG Reductions

Projected GHG Emission Reductions

Period	Emissions Reductions (tCO$_2$e)
2012 - 2020	0.00
2021 - 2025	396,834.77
2026 - 2030	1,954,608.92
2031 - 2035	1,906,229.91
2036 - 2040	1,859,048.34
2041 - 2045	1,813,034.58
2046 - 2050	1,768,159.71
Total GHGs Reduced/Avoided from - 2050	**9,697,916.23**

	A	B	C	D	E	F	G	H
1	Period	Emissions Reduced (tCO2e)						
2	2012	0.00						
3	2013	0.00						
4	2014	0.00						
5	2015	0.00						
6	2016	0.00						
7	2017	0.00						
8	2018	0.00						
9	2019	0.00						
10	2020	0.00						
11	2021	0.00						
12	2022	0.00						
13	2023	0.00						
14	2024	0.00						
15	2025	396,834.77						
16	2026	394,850.60						
17	2027	392,876.34						
18	2028	390,911.96						
19	2029	388,957.40						
20	2030	387,012.61						
21	2031	385,077.55						
22	2032	383,152.16						
23	2033	381,236.40						
24	2034	379,330.22						
25	2035	377,433.57						
26	2036	375,546.40						
27	2037	373,668.67						
28	2038	371,800.33						
29	2039	369,941.33						
30	2040	368,091.62						
31	2041	366,251.16						
32	2042	364,419.90						
33	2043	362,597.80						
34	2044	360,784.82						
35	2045	358,980.89						
36	2046	357,185.99						
37	2047	355,400.06						
38	2048	353,623.06						
39	2049	351,854.94						
40	2050	350,095.67						
41	Action Name	Vietnam Distributed Solar						
42	Technology Type	Solar Photovoltaic System						
43	Projection Start Year	2012						

Finalize and Report Action Results

STEP 7: After finalizing the results, navigate to your **Action Home** by selecting "**Submit Projections for Approval**" or clicking on the Action name.

Projected GHG Emission Reductions

<div style="float:right">View Projection</div>

Years	Projected Emission Reductions (tCO$_2$e)
2012 - 2020	0.00
2021 - 2025	396,834.77
2026 - 2030	1,954,608.92
2031 - 2035	1,906,229.91
2036 - 2040	1,859,048.34
2041 - 2045	1,813,034.58
2046 - 2050	1,768,159.71
Total GHGs Reduced/Avoided from 2012 - 2050	9,697,916.23
Status: Submitted	**Last Edited:** 8/17/2022 12:58:36 PM

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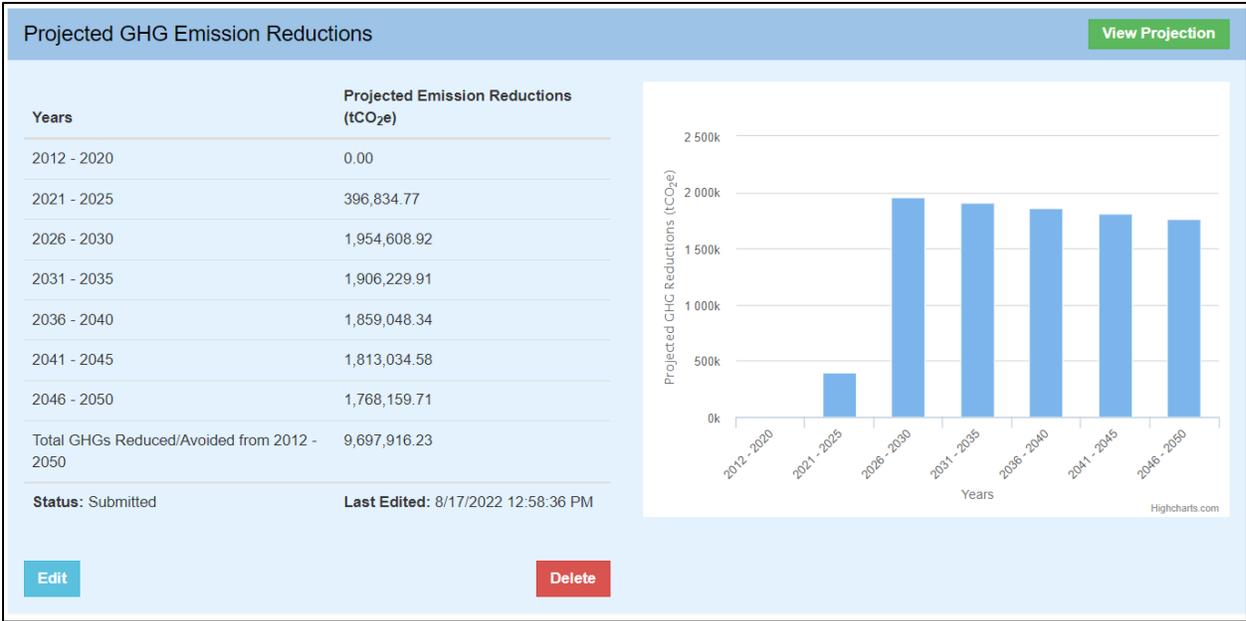
Additional Materials

For more information on CLEER and its capabilities, please visit the Support and Resources page. This page provides a user guide, the CLEER Protocol, a CLEER factsheet, Excel calculators, and more.