

Exercise 5: FICAM (60 mins)

FICAM or the Financial and Cost Assessment Model supports comprehensive financial analysis for technologies and enables a user to come up with capital requirements, financial ratios (e.g., NPV, IRR, etc.). A user can evaluate contribution of the alternative technology choices. This is relevant particularly when existing technologies have to be replaced and a comparison is needed with the baseline technology. The model is an open source excel based tool. The tool can be used for both mitigation and adaptation technologies. In its existing state, the tool already lists some technologies and the user can define other technologies if they do not fall in this list.

For the purpose of this exercise the groups would be organised according to countries.

Steps in the exercise:

Problem context: *The government wants to diffuse the Solar PV Roof Top Systems through the market for households. There a few suppliers however it is largely believed that due to high costs of these systems they have not achieved much success and many suppliers are planning to close down. The government is therefore keen to provide different supports for the solar systems but not sure what is the minimum level of support that would be required. We have been invited as a consultant / expert to advise on the portfolio of financial measures that can be provided to ensure that these Solar PV Roof Top Systems become financially attractive.*

1. Open the FICAM excel tool provided to you.
2. The model has already included information on current state of Solar PV Roof Top Systems in terms of the following - Capital Costs, Discount Rates, Electricity Prices, Capacity Utilisation, Debt Equity structuring, Tax Rates, etc. (Annex I provides these Parameters)
3. Cells in yellow can be used to change inputs.
4. Read the results in the 'Auto Summary Report' and try to interpret the results of installing 30 MW of Roof Top Solar PV that are supposed to replace about 15 MW of Oil based power generation.
 - 4.1. Look at the current model assumptions given in Annex I
 - 4.2. What can you say about the financial viability of Solar PV in the current policy environment?

Hint : What is the IRR Project, IRR Equity and NPV of this replacement?
 - 4.3. What is the total Mitigation Cost (USD/ tonnes)?
 - 4.4. Go to the Worksheet titled '**Assumptions**' and make the following changes.
 - 4.4.1. Put a CER price: 20 and again examine the financial viability by going to Results page
 - 4.4.2. Change the life of technology by opening Solar PV page and examine the change in results

4.4.3. Now go to the results page and change from Scenario 1 to 2, 3, and then 4. Examine how the financial viability changes

4.4.4. Based on the changes can you recommend a minimum set of changes in following to achieve an IRR project of 22%

- CER Price
- Cost of Electricity
- Discount Rate
- Capital Grants per unit

Assume you are an official from Ministry of Finance and your main concern is outgo on grants and subsidies

Hint : See right on Solar PV sheet item 2

Annex I Assumptions for Solar PV based

Parameter	Unit	Value
Cost Model: General Parameters		
Technology Capacity	MW	30
Life of Technology	years	15
Cost Model: Capital and O&M		
Equipment and Construction Cost	USD Million/MW	4
Planning	USD Million/MW	0.1
Fixed O&M Cost	USD/ MW	0.1
Variable O&M Cost	USD/ MWh	5
Cost Fuel		
Capacity utilisation	%	35
COST & FINANCIAL MODEL: ADDITIONAL INPUTS		
Cost of Electricity	USD /MWh	100
FINANCIAL MODEL: OTHER PARAMETERS		
Gestation Period	years	1
Capital Grants per unit	USD per MW	100,000
Annual operating subsidies per unit	USD per MWh	20

[illegible]