

5.2 Savings Summary

Savings summary provide the savings details in three categories. Calculations made in savings summary is displayed via Dashboard in graphical format. User can select any tab and view the appropriate results. For all the screens the following controls will be taken as Input:

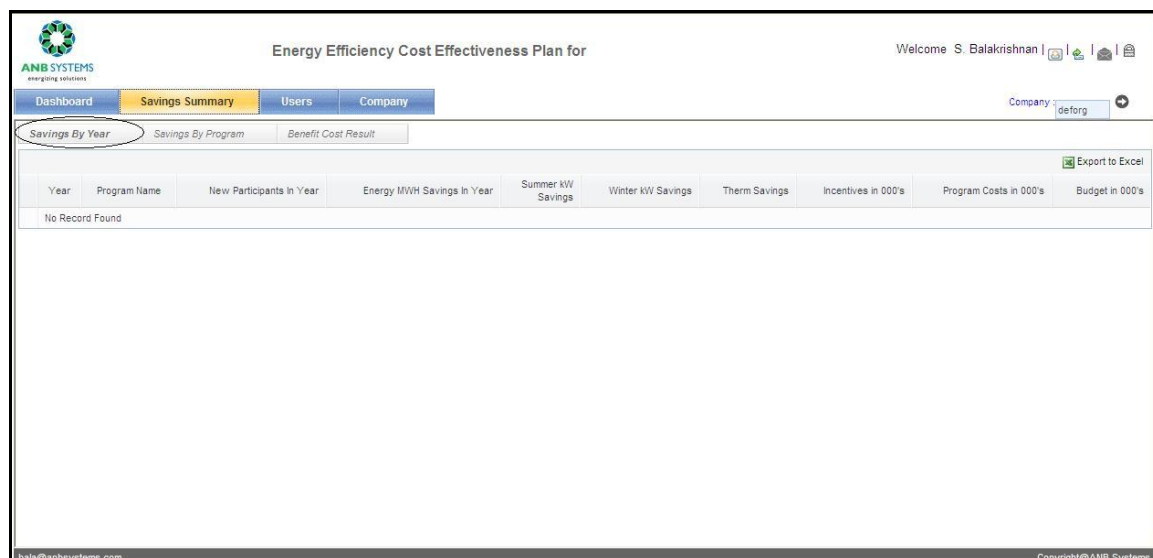
S. No	Title	Control	Description
1.	Company	Drop down	Will list all the Company values
2	Go	Image Button	Display a list of values for the selected company.

Three tabs available are:

5.2.1 Savings By Year

To view Savings By Year:

1. In EECE application, click on "Savings Summary" tab. Savings By Year screen appear and this is the default screen. This displays the list of savings records for all the years.



21. EECE Savings Summary screen (Savings By Year)

Calculation for Savings By Year

Savings by year details can be filled in the provided template in excel format.

a. New participant in year

- This provides the annual participation data. Annual participation is calculated by the sum of all Annual Participation for the programs done in a particular year.

For example:

Let us have the following programs for the year 2009 and then Annual Participation is given by:

Calculation: Sum of Annual participation of (Small Business and Tune up for 2009+ Commercial HP Cycling for 2009+ Small Business Energy Management for 2009 + Energy Star Appliances for 2009 + Government and Institutional Lighting for 2009+ Government and Institutional Lighting for 2009 + Government and Institutional Lighting for 2009 + Government and Institutional Heat Pump Conversion + Government institution Unitary Sys Conv for 2009).

Likewise, Annual Participation for all the years can be calculated.

Annual participation for each year is calculated by:

Annual New Participants * Value of Include in Portfolio

- Include in Portfolio Value:

Referring to the Program ID and if it is set as "Yes" in Include in Portfolio, it display as 1. Else it display as "0".

b. Energy MWh Savings

Energy MWh Savings = (Annual Electric Energy Savings, kWh)/1000

- Annual Electric Energy Savings is the Total Energy savings for each year.

Total Energy Savings is calculated for each year and for each program.

- Total Energy Savings = Sum of all the programs for all the years.

To calculate for each program for a particular year,

- Case1: If (measure life \leq Total Measure life+ Corresponding year- Start year), it should display the value of Annual Electric Energy Savings, kWh. Else, it displays 0.
- Case 2: If (Start year- 1+ Corresponding Measure life \geq Corresponding year) it should display 1. Else, it displays 0.

Total Energy savings= Case1* Case2

c. Summer kW Savings

Annual Electric Energy Savings is the Total Summer Demand savings for each year.

Total Summer Demand Savings is calculated for each year and for each program.

- Total Summer Demand Savings = Sum of all the programs for all the years.

To calculate for each program for a particular year,

Case1: If (measure life \leq Total Measure life+ Corresponding year- Start year), it should display the value of Summer Demand Savings, kW. Else, it displays 0.

Case 2: If (Start year- 1+ Corresponding Measure life \geq Corresponding year) it should display 1. Else, it displays 0.

Summer kW Savings= Case1* Case2

Note:

- Total Measure life is 10. (I.e. Start year is 2009 and End year is 2018. Total years are 10)
- Measure life if from 1 to 10 (i.e. No of years from 2009 to 2018)

d. Winter kW Savings

Same as Summer kW Savings calculations

e. Annual Gas Savings, therms

Gas Therm Savings is the savings for each year.

- Total Gas Therm Savings = Sum of all the programs for the respecting years.

- Case1: If (measure life \leq Total Measure life+ Corresponding year- Start year), it should display the value of, kW. Else, it displays 0.
- Case 2: If (Start year- 1+ Corresponding Measure life \geq Corresponding year) it should display 1. Else, it displays 0.

Gas Savings= Case1* Case2

f. Incentives

- Incentives for each year are given by: Program Incentive + Annual Recurring Incentive
 - Program Incentive, 000\$ for a particular year of all programs =
 $\text{Sum (Program Incentive 000\$ * Recurring Program Incentive Flag)}$
 - Program Incentive for each program in a specific year = $(\text{Program Incentive, \$ / unit} * \text{Annual Participation}) / 1000$
 - Program Incentive, \\$ / unit = One Time Per Unit Incentive (Rebate) + NPV of Incentive
 - NPV of Incentive = NPV (Discount Rate, Life of NPV of incentive)

Recurring Incentive Flag give the value 1, if Annual Recurring Per Unit Incentive > 0. Else it gives the value 0.

g. Program Cost

- Program Cost = Annual Program cost

i.e. Sum (Annual Program Cost for each year of all programs)

Annual Program Cost for each year and for each program is given by:

- $\text{Sum (Start-Up cost + Annual Fixed + Materials / Training + Unit variable * Annual Participation + Evaluation Cost) / 1000}$
 - Start Up cost: Start up cost * Include in Portfolio
 - Annual Fixed: Annual Fixed (Admin & Pgm Mgmt (FTE)) * Include in Portfolio
 - Material / Training: Materials / Training (Marketing Costs) * Include in Portfolio
 - Unit Variable: Unit variable (M&V)
 - Annual participation: Refer (a) for annual participation.
 - Evaluation Cost: Sum of Evaluation Costs for a particular program for all the years.
- Evaluation cost for a particular program in a specific year =
 $\text{Evaluation cost (M\&V) * Value of "Include in portfolio"}$

h. Budget

- Budget for a particular year = Incentives + Program Cost (for the same year)

Note: For Incentive and Program Cost calculation, refer section (d) and (e).

5.2.2 Savings By Program

To view Savings By Program:

1. In EECE application, click on "Savings Summary" tab. Click on "Savings By Program" tab. It displays the list of savings records for the entire programs done for all the years.

ID	Program Name	Total Participants	Energy Savings, MWH	Summer kW Savings	Winter kW Savings	Therm Savings	Incentives	Program Costs	Budget
No records to display.									

22. EECE Savings Summary screen (Savings By Program)

Calculation for Savings by Program

Savings by program details can be filled in the provided template in excel format.

a. Total Participants

- Total participant = Participation for each program
 - Participation= Sum of Annual Participation from start to end year for a particular Program
 - Annual Participation for a particular program in a specific year= Annual New Participants* Include in Portfolio.

b. Energy Savings, MWH

- Energy Savings, MWH= (Electric Energy Savings, kWh)/1000

- Electric Energy Savings, kWh for particular program in a specific program= Annual Electric Energy Savings, kWh* min (Life years)
- Sum (Annual Electric Energy Savings, kWh* min (Life years)) gives the Electric Energy Savings, kWh for all the years.

c. **Summer kW Savings**

- Summer kW Savings= Summer Demand Savings, kW
 - Summer Demand Savings, kW for particular program in a specific program= Summer Demand Savings, kW* min (Life years)
 - Sum (Summer Demand Savings, kW* min (Life years)) gives the Summer Demand Savings, kW for all the years.

d. **Winter kW saving**

- Winter kW Savings= Winter Demand Savings, kW
 - Winter Demand Savings, kW for particular program in a specific program= Winter Demand Savings, kW* min (Life years)
 - Sum (Winter Demand Savings, kW* min (Life years)) gives the Winter Demand Savings, kW for all the years.

e. **Therm savings**

- Therm Savings=Gas Savings, therms
 - Gas Savings, therms for a particular program existing in a specific year= Sum (Sum (Annual Gas Savings, therms for a particular program)* minimum (Life, years for the same program))

f. **Incentives**

- Program Incentives= Sum (Program Incentive for a particular Program ID from the start and end year)

For example, Lets consider the Program "Small Business and Tune up" from the year 2009 to 2018 and the ID is 1.

Then, Program Incentive = Sum (Program Incentive for Small Business and Tune up from the start and end year which has a particular ID)

- Program Incentive, 000\$ for a particular program in specific year = (Program Incentive, \$/unit*Annual Participation)/1000
- Program Incentive, \$/unit= One Time per Unit Incentive (Rebate) + NPV of Incentive

g. Program Cost

- Program Cost, 000\$ for a particular program = Sum (Annual Program Costs, 000\$ for a particular program for all the years)

Each Annual Program cost, 000\$= Sum (Start-Up cost+ Annual Fixed+ Materials/Training+ Unit variable*Annual Participation+ Evaluation Cost)/1000

h. Budget

Budget = Incentives + Program cost

Note: For Incentives and Program cost, refer (f & g)

5.2.3 Benefit Cost Result

To view Benefit Cost result:

1. In EECE application, click on “Savings Summary” tab. Click on “Benefit Cost Result” tab. It displays the list of records related to the benefit of cost.



Energy Efficiency Cost Effectiveness Plan for									
Welcome S. Balakrishnan									
Company: deforg									
Savings By Year Savings By Program Benefit Cost Result									
Program Name	Participant Test		RMI Test		TRC Test		Utility Test		
	NPV(\$)	BCR	NPV(\$)	BCR	NPV(\$)	BCR	NPV(\$)	BCR	
No Record Found									

23. EECE Savings Summary screen (Benefit Cost Result)

Calculation for Benefit Cost Result

a. Participant Test

NPV= Total Benefit – Total Cost

- Total Benefit for a program = Sum (Incentive, Participant NPV Bill Savings, Tax on Participant Bills)

- Incentive= Incentive, 000\$ for a particular program in a specific year+ NPV(Discount rate, Sum of the same program for all the years)
- Participant NPV Bill Savings, 000\$ for a particular program in a specific year= Total Annual Participant NPV Bill Savings, 000\$

Total Annual Participant NPV Bill Savings, 000\$= ((Unit Participant NPV Energy Savings, \$/kWh* Annual Electric Energy Savings, kWh) + (Unit Participant NPV Summer Demand Bill Savings, \$/kW* Summer Demand Savings, kW) + (Unit Participant NPV Winter Demand Bill Savings, \$/kW* Winter Demand Savings, kW) + (Unit Participant NPV Gas Bill Savings, \$/therm+ Annual Gas Savings, therms))/ 1000

Unit Participant NPV Energy Savings, \$/kWh=
Annual Electric Energy Savings, kWh for a particular program in a specific year= Annual Energy Savings, kWh mentioned for a program* corresponding Annual Participation

Unit Participant NPV Summer Demand Bill Savings, \$/kW =\$0.00
Summer Demand Savings, kW for a particular program in a specific year= Summer Demand Savings, kW mentioned for a program* corresponding Annual Participation

Unit Participant NPV Winter Demand Bill Savings, \$/kW=\$0.00
Winter Demand Savings, kW for a particular program in a specific year= Winter Demand Savings, kW mentioned for a program* corresponding Annual Participation

Unit Participant NPV Gas Bill Savings, \$/therm=
Annual Gas Savings, therms= Energy Savings (Therms/Unit)* corresponding Annual Participation

- Tax on Participant Bill= 0.0000%

- Total Cost = Participant cost (NPV)

- Participant cost for a particular program = Annual Participation Cost, 000\$ for the same program in the first year+ NPV(Discount rate, Sum(Annual Participant cost, 000\$ for the same program from the second year to the end year))

BCR= (Total cost = 0, Total Benefit/Total Cost)

b. RIM Test

Net Benefit: Total Benefit – Total Cost

- Total Benefit for a program = Avoided Cost

Avoided Cost for a particular program = Sum (Avoided cost, 000\$) for the same program that exist in all the years.

Avoided Cost for a particular program in a specific year= (NPV Avoided Cost Benefit for Electric Energy Savings, 000\$+ NPV Avoided Cost Benefit for Summer Demand Savings, 000\$+ NPV Avoided Cost Benefit for Winter Demand Savings, 000\$+ NPV Avoided Cost Benefit for Gas Distribution Savings, 000\$)* Net to Gross

Net to gross is the Net to gross ratio

- Total Cost = Sum (Reduced Revenues, Incentive, Program Cost)

Reduced Revenues for a particular program in a year= Total Annual Participant NPV Bill Savings, 000\$* Net to Gross

Total Annual Participant NPV Bill Savings, 000\$= ((Unit Participant NPV Energy Savings, \$/kWh* Annual Electric Energy Savings, kWh) + (Unit Participant NPV Summer Demand Bill Savings, \$/kW* Summer Demand Savings, kW) + (Unit Participant NPV Winter Demand Bill Savings, \$/kW* Winter Demand Savings, kW) + (Unit Participant NPV Gas Bill Savings, \$/therm+ Annual Gas Savings, therms))/ 1000

- Incentive: Incentive= Incentive, 000\$ for a particular program in a specific year+ NPV(Discout rate, Sum of the same program for all the years)
- Program cost for a particular program = Program Cost, 000\$ for the same program in the first year+ NPV(Discout rate, Sum(program cost, 000\$ for the same program from the second year to the end year))

Benefit Cost Ratio= (Total Cost=0, Total Benefit/Total cost)

- Total benefit = Avoided Cost
- Total Cost= Sum (Reduced Revenues, Incentive, Program Cost)

c. TRC Test

TRC Net Benefit= Total Benefit – Total Cost

- Total Benefit= Sum (Avoided cost & Tax on participant bills)

Avoided Cost:

Tax on Participant bills: Participant NPV Bill Savings, 000\$ * Tax on Participant Bills

- Total Cost= Participant Cost+ Program cost
- Participant cost for a particular program = Participant Cost, 000\$ for the same program in the first year+ NPV(Discount rate, Sum(Participant cost, 000\$ for the same program from the second year to the end year))
- Program cost for a particular program = Program Cost, 000\$ for the same program in the first year+ NPV(Discount rate, Sum(program cost, 000\$ for the same program from the second year to the end year))

d. Utility Test

Net Benefit = Total Benefit-Total Cost

- Total benefit= Avoided cost (a)

Avoided cost = (NPV Avoided Cost Benefit for Electric Energy Savings, 000\$+ NPV Avoided Cost Benefit for Summer Demand Savings, 000\$+ NPV Avoided Cost Benefit for Winter Demand Savings, 000\$+ NPV Avoided Cost Benefit for Gas Distribution Savings, 000\$)* Net to Gross

- Total Cost= Incentive, 000\$+ Program cost (b)
- Incentive= Incentive, 000\$ for a particular program in a specific year+ NPV(Discount rate, Sum of the same program for all the years)
- Program cost for a particular program = Program Cost, 000\$ for the same program in the first year+ NPV(Discount rate, Sum(program cost, 000\$ for the same program from the second year to the end year))

Benefit Cost Ratio= Total Benefit/Total cost

Note: For Total Benefit and Total Cost, refer (a) and (b)