The American Recovery and Reinvestment Act (ARRA) of 2009

Energy Efficiency and Conservation Block Grant Program

How to use EECBG Estimated Expected Benefits Calculator

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Outline

The purpose of this webinar is to introduce and give instructions on how to use the recently posted "Estimated Expected Benefits Calculator" for the EECBG Formula Grant Application

- Background information, inputs and assumptions in calculator
- Examples on how to use calculator
  - Energy Efficiency Retrofits
  - Financial Incentives
    - How to correctly input "Proposed Funds Leveraged" in calculator
  - Development and Implementation of Transportation Programs
    - What to do if expected benefits are blacked out in calculator
- Q&As

You can find the calculator and user guide at:
http://www.eecbg.energy.gov/solutioncenter/applicationresources/default.html

Estimated expected benefits must be provided on formula EECBG application

Attachment B1 - Amendment 000002 - Application Package - Project Activity Sheet

EECBG Activity Worksheet

Grantee: _____ Date: _____

DUNS #: _____ Program Contact Email: _____

Program Contact First Name: _____ Last Name: _____

Project Title: _____

Activity: _____ If Other: _____

Sector: _____ If Other: _____

Proposed Number of Jobs Created: _____ Proposed Number of Jobs Retained: _____

Proposed Energy Saved and/or Renewable Energy Generated: _____

Proposed GHG Emissions Reduced (CO_2 Equivalents): _____

Proposed Funds Leveraged: _____

Proposed EECBG Budget: _____

Projected Costs Within Budget: Administration: _____ Revolving Loans: _____ Subgrants: _____

Project Contact First Name: _____ Last Name: _____ Email: _____

Metric Activity: _____ If Other: _____

Project Summary: *(limit summary to space provided)*

Purpose of this Calculator: Provide uniform guidance on calculating expected benefits for project activity sheet submissions

- This calculator will ensure:
  - Accountability; to ensure that applicants are responsibly submitting the EECBG application
  - Uniformity of the reporting of estimated expected benefits on formula EECBG applications.
  - That the task is relatively simple and straightforward for applicants

- These instructions and this calculator are ONLY for the application and not reporting after project begins

- Purpose of proposed benefits on application is for strategic planning purposes; identify what are most beneficial activities

- If an applicant believes that it has an accurate methodology for calculating expected benefits on their application, then they may utilize their own methodologies.

If estimated expected benefits on application are outside of expected range, applicants may be contacted for clarification of methodologies

"Estimated Expected Benefits" on application versus "Realized Benefits" from reporting on project implementation

- The provided calculator provides "estimated expected benefits" for application ONLY
- After EECBG projects begin, participants will begin to report on "realized benefits" (e.g., actual energy saved due to EECBG project)
- These reported "realized benefits" after project implementation are the important numbers to determine the project's impact
- Applicants will not be penalized if "estimated expected benefits" differ from the "realized benefits" due to limitations of calculator

General Methodology for Creating Calculator

- Energy Savings
  - Goal: Develop multiplier **(energy saved/program $ spent)**
  - Sources:
    - Oak Ridge study of State Energy Program activities (6 of 14 eligible activities)
    - Internal EERE ("Energy Distribution" used information from "Combined Heat and Power" report)
  - Exceptions:
    - "RE on federal buildings" assumed RE generated = energy saved
    - "Capture of Methane" assumed methane captured → generated energy
  - Exclusions:
    - Five activities we could not quickly develop a relevant multiplier for; "energy savings" and "GHG emission reductions" are blacked out on calculator
      i. **Development of an EE conservation strategy**
      ii. **EE and Conservation Programs for Buildings and Facilities**
      iii. **Development and Implementation of Transportation Programs**
      iv. **Material Conservation Programs**
      v. **Other**

General Methodology for Creating Calculator

- Greenhouse gas emission reductions
  - Assume **"energy saved" = electricity saved**
  - To convert "kWh saved" to "CO_2e reductions"
    - States: EPA eGRID2007 has emission coefficients for each → use these to convert kWh saved to GHG reductions (N_2O, CO_2 and CH_4)
    - Territories: Assume use of diesel generators and use EIA data for carbon coeff. of diesel (73.15 million metric tons CO_2 /quad) to determine GHG reductions; value w/i 2% of eGRID listed diesel generators
  - For "capture of methane" account for "energy saved," amount of CH_4 captured and CO_2 released in combustion

- Jobs
  - Use guidance from Council of Economic Advisors → multiplier **$92,000/job**
  - NOTE: This calculator does not distinguish between jobs created and jobs retained; on Project Activity Sheet only enter calculator output into "Proposed Jobs Created"

Caveats and Brief Explanation for "Estimated Expected Energy Saved"

- The ORNL multipliers are **national averages** from a program review of reported State Energy Program activities → "realized" benefits will differ!!
- The multipliers vary for different activities because of the nature of the different actions taken as a result of the program's services
- Main reason is how benefits were allocated and assumptions in ORNL report
  - "Residential & Commercial Building Energy Audits" the multiplier is 0.53 mill source BTU/program $ spent
    - **Energy saved:** expected energy savings assumes that 50% of the recommended measures from the audit would be installed.
    - **$ spent:** performing audits and excludes other costs (e.g., purchasing and installing energy efficiency measures by participants that followed the audit)
  - "Energy Efficiency Retrofits" the multiplier is 0.021 mill source BTU/program $ spent
    - **Energy saved:** expected energy savings from retrofit
    - **$ spent:** based upon the program money spent on retrofitting homes (i.e., purchasing and installing energy efficient measures, weatherizing homes);

As retrofits are more capital intensive, the estimated energy savings multiplier is smaller for retrofits than audits.

Calculator Inputs

- Budget – Accuracy of accounting necessary for correct use of multipliers
  - Money coming from EECBG funds
  - Leveraged Funds: Definition below from online instructions (see Example 2 later in this presentation)
    - Additional funds for EECBG projects *are* considered "Proposed Funds Leveraged" if:
      - The EECBG funding for an activity is the seed money or used in the early stages of the activity; AND
      - The EECBG funding drew in the partner's additional funds.

      These additional funds *would qualify* as "Proposed Funds Leveraged."
    - Additional funds for EECBG *are not* considered "Proposed Funds Leveraged" if the EECBG funds are used to supplement a partner's pre-existing and ongoing activities. In this case, the estimated expected benefits would be based upon the EECBG funding *only*.

- RE plan to install

- Cubic feet of methane plan to capture

Calculator Snapshot

http://www.eecbg.energy.gov/solutioncenter/applicationresources/default.html

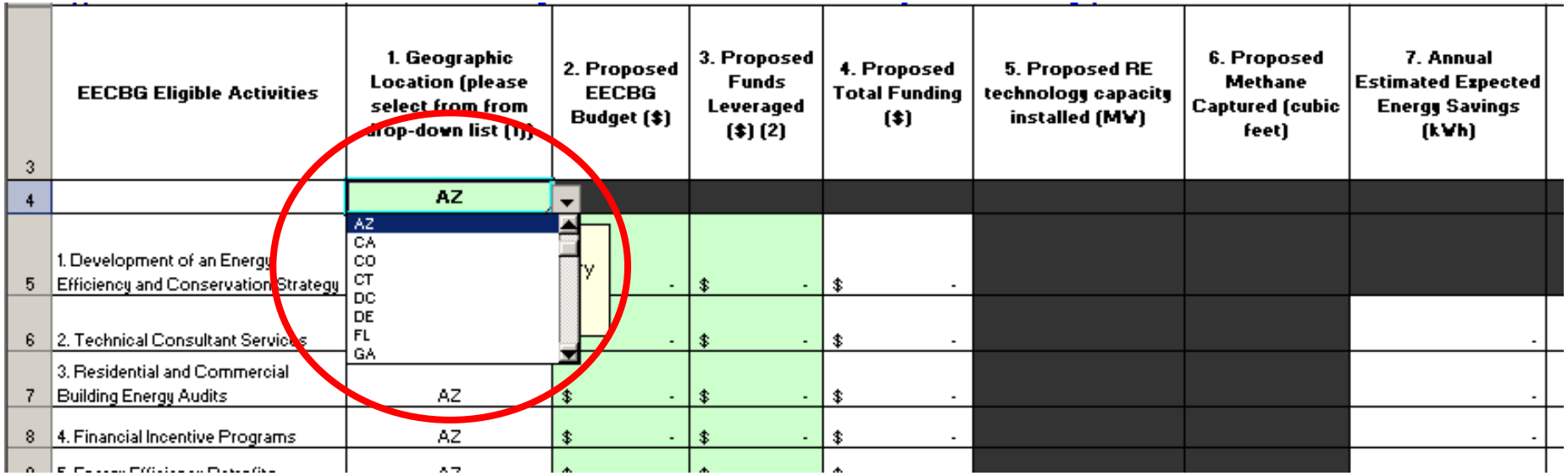
Applicants: Please insert relevant information into green boxes. For those activities that you are not funding, please leave blank.

EECBG Eligible Activities	1. Geographic Location (please select from from drop-down list (1))	2. Proposed EECBG Budget ($)	3. Proposed Funds Leveraged ($) (2)	4. Proposed Total Funding ($)	5. Proposed RE technology capacity installed (MW)	6. Proposed Methane Captured (cubic feet)	7. Annual Estimated Expected Energy Savings (kWh)	8. Annual Estimated Expected GHG Reduced (metric tons CO2e) (3)	9. Annual Estimated Expected Jobs created and/or retained
	AK								
1. Development of an Energy Efficiency and Conservation Strategy	AK	$ -	$ -	$ -					0
2. Technical Consultant Services	AK	$ -	$ -	$ -			-	-	0
3. Residential and Commercial Building Energy Audits	AK	$ -	$ -	$ -			-	-	0
4. Financial Incentive Programs	AK	$ -	$ -	$ -			-	-	0
5. Energy Efficiency Retrofits	AK	$ -	$ -	$ -			-	-	0
6. EE and Conservation Programs for Buildings and Facilities	AK	$ -	$ -	$ -					0
7. Development and Implementation of Transportation Programs	AK	$ -	$ -	$ -					0
8. Building Codes and Inspections	AK	$ -	$ -	$ -			-	-	0
9. Energy Distribution	AK	$ -	$ -	$ -			-	-	0
10. Material Conservation Programs	AK	$ -	$ -	$ -					0
11. Reduction and Capture of Methane and GHG	AK	$ -	$ -	$ -		0	-	-	0
12. Traffic Signals and Street Lighting	AK	$ -	$ -	$ -			-	-	0
13. RE Technologies on Government Building (enter funding and kW in appropriate RE tech row below)	AK								
13a. Biomass	AK	$ -	$ -	$ -	0		-	-	0
13b. Concentrating Solar Power	AK	$ -	$ -	$ -	0		-	-	0
13c. Geothermal	AK	$ -	$ -	$ -	0		-	-	0
13d. Hydropower	AK	$ -	$ -	$ -	0		-	-	0
13e. PV	AK	$ -	$ -	$ -	0		-	-	0
13f. Wind	AK	$ -	$ -	$ -	0		-	-	0
14. Other	AK	$ -	$ -	$ -					0

Example 1: Energy Efficiency Retrofits

Situation: A tribe with the majority of its population in AZ plans to use $200,000 to conduct energy efficient retrofits of low-income housing

- Select primary geographic location (AZ) from the drop-down list in column 1



3	EECBG Eligible Activities	1. Geographic Location (please select from from drop-down list (1))	2. Proposed EECBG Budget ($)	3. Proposed Funds Leveraged ($) (2)	4. Proposed Total Funding ($)	5. Proposed RE technology capacity installed (MW)	6. Proposed Methane Captured (cubic feet)	7. Annual Estimated Expected Energy Savings (kWh)
4		AZ						
5	1. Development of an Energy Efficiency and Conservation Strategy		$ -	$ -	$ -			
6	2. Technical Consultant Services		$ -	$ -	$ -			-
7	3. Residential and Commercial Building Energy Audits	AZ	$ -	$ -	$ -			-
8	4. Financial Incentive Programs	AZ	$ -	$ -	$ -			-

AZ
CA
CO
CT
DC
DE
FL
GA

Example 1: Energy Efficiency Retrofits con't

Situation: A tribe with the majority of its population in AZ plans to use $200,000 to conduct energy efficient retrofits of low-income housing

- Enter 200,000 into column 2 ("Proposed EECBG Budget")
- Report columns 7-9 into Project Activity Sheet
- Optional: attach excel copy of calculator to application (as "other attachment") to aid reviewer

EECBG Eligible Activities	1. Geographic Location (please select from from drop-down list (1))	2. Proposed EECBG Budget ($)	3. Proposed Funds Leveraged ($) (2)	4. Proposed Total Funding ($)	5. Proposed RE technology capacity installed (MW)	6. Proposed Methane Captured (cubic feet)	7. Annual Estimated Expected Energy Savings (kWh)	8. Annual Estimated Expected GHG Reduced (metric tons CO2e) (3)	9. Annual Estimated Expected Jobs created and/or retained
	AZ								
1. Development of an Energy Efficiency and Conservation Strategy	AZ	$ -	$ -	$ -					0
2. Technical Consultant Services	AZ	$ -	$ -	$ -			-	-	0
3. Residential and Commercial Building Energy Audits	AZ	$ -	$ -	$ -			-	-	0
4. Financial Incentive Programs	AZ	$ -	$ -	$ -			-	-	0
5. Energy Efficiency Retrofits	AZ	$ 200,000.00	$ -	$ 200,000			399,345	214	2

Example 1: Energy Efficiency Retrofits, Project Activity Sheet

- Below only showing information from columns 7-9 in calculator (use units of "energy saved" from calculator; "GHG reduced" only allows numbers)
- Fill in rest of Project Activity Sheet with project information

EECBG Activity Worksheet

Grantee: _____ Date: _____

DUNS #: _____ Program Contact Email: _____

Program Contact First Name: _____ Last Name: _____

Project Title: _____

Activity: _____ If Other: _____

Sector: _____ If Other: _____

Proposed Number of Jobs Created: **2** Proposed Number of Jobs Retained: _____

Proposed Energy Saved and/or Renewable Energy Generated: **399,345 kWh**

Proposed GHG Emissions Reduced (CO2 Equivalents): **214 metric tons CO_2e**

Proposed Funds Leveraged: _____

Proposed EECBG Budget: _____

Projected Costs Within Budget: Administration: _____ Revolving Loans: _____ Subgrants: _____

Project Contact First Name: _____ Last Name: _____ Email: _____

Metric Activity: _____ If Other: _____

Project Summary: *(limit summary to space provided)*

Example 2: Financial Incentives

Situation: A county in MO plans to use $100,000 of EECBG funds to start a revolving loan; the local utility has agreed to add $1,000,000 to the loan fund.

- Select primary geographic location (MO) from the drop-down list in column 1
- Enter 100,000 into column 2 ("Proposed EECBG Budget")

	A	B	C	D	E	F	G
1	Applicants: Please insert relevant information into green boxes. For those activities that you are not funding, please leave blank.						
3	EECBG Eligible Activities	1. Geographic Location (please select from drop-down list (1))	2. Proposed EECBG Budget ($)	3. Proposed Funds Leveraged ($) (2)	4. Proposed Total Funding ($)	5. Proposed RE technology capacity installed (MW)	6. Proposed Methane Captured (cubic feet)
4		MO					
5	1. Development of an Energy Efficiency and Conservation Strategy	MO	$ -	$ -	$ -		
6	2. Technical Consultant Services	MO	$ -	$ -	$ -		
7	3. Residential and Commercial Building Energy Audits	MO	$ -	$ -	$ -		
8	**4. Financial Incentive Programs**	**MO**	**$100,000.00**		**$ 100,000**		
9	5. Energy Efficiency Retrofits	MO	$ -	$ -	$ -		
10	6. EE and Conservation Programs for Buildings and Facilities	MO	$ -	$ -	$ -		

Example 2: Financial Incentives, "Proposed Funds Leveraged"

Situation: A county in MO plans to use $100,000 of EECBG funds to start a revolving loan; the local utility has agreed to add $1,000,000 to the loan fund.

From online instructions: *"For each individual Project Activity Sheet, input proposed funds leveraged ("Proposed Funds Leveraged" Column 3). Every leveraged dollar must be counted only once and assigned to only one eligible activity.*

- Determine if $1,000,000 can be entered as "Proposed Funds Leveraged into calculator
  - Additional funds for EECBG <u>are not</u> considered "Proposed Funds Leveraged" if the EECBG funds are used to supplement a partner's pre-existing and ongoing activities. In this case, the estimated expected benefits would be based upon the EECBG funding only."
  - Additional funds for EECBG projects <u>are</u> considered "Proposed Funds Leveraged" if:

YES! – The EECBG funding for an activity is the seed money or used in the early stages of the activity; AND

YES! – The EECBG funding drew in the partner's additional funds.

→ In this case, the $1,000,000 funds <u>CAN</u> be entered into "Proposed Funds Leveraged" column 3 in calculator

Example 2: Financial Incentives con't

Situation: A county in MO plans to use $100,000 of EECBG funds to start a revolving loan; the local utility has agreed to add $1,000,000 to the loan fund.

- Enter 1,000,000 into column 3 "Proposed Funds Leveraged"
- Estimated Expected Benefits will be based off total funding of $1,1000,000; report columns 7-9 into Project Activity Sheet
- Optional: attach excel copy of calculator to application (as "other attachment") to aid reviewer

EECBG Eligible Activities	1. Geographic Location (please select from drop-down list (1))	2. Proposed EECBG Budget ($)	3. Proposed Funds Leveraged ($) (2)	4. Proposed Total Funding ($)	5. Proposed RE technology capacity installed (MW)	6. Proposed Methane Captured (cubic feet)	7. Annual Estimated Expected Energy Savings (kWh)	8. Annual Estimated Expected GHG Reduced (metric tons CO2e) (3)	9. Annual Estimated Expected Jobs created and/or retained
	MO								
1. Development of an Energy Efficiency and Conservation Strategy	MO	$ -	$ -	$ -					0
2. Technical Consultant Services	MO	$ -	$ -	$ -			-	-	0
3. Residential and Commercial Building Energy Audits	MO	$ -	$ -	$ -			-		0
4. Financial Incentive Programs	**MO**	**$ 100,000.00**	**$ 1,000,000**	**$ 1,100,000**			**4,312,613**	**3,994**	**12**

Example 2: Financial Incentives, Project Activity Sheet

- Below only showing information from columns 7-9 in calculator (use units of "energy saved" from calculator; "GHG reduced" only allows numbers)
- Fill in rest of Project Activity Sheet with project information

EECBG Activity Worksheet

Grantee: _____ Date: _____

DUNS #: _____ Program Contact Email: _____

Program Contact First Name: _____ Last Name: _____

Project Title: _____

Activity: _____ If Other: _____

Sector: _____ If Other: _____

Proposed Number of Jobs Created: **12** Proposed Number of Jobs Retained: _____

Proposed Energy Saved and/or Renewable Energy Generated: **4,312,613 kWh**

Proposed GHG Emissions Reduced (CO_2 Equivalents): **3994**

Proposed Funds Leveraged: _____

Proposed EECBG Budget: _____

Projected Costs Within Budget: Administration: _____ Revolving Loans: _____ Subgrants: _____

Project Contact First Name: _____ Last Name: _____ Email: _____

Metric Activity: _____ If Other: _____

Project Summary: *(limit summary to space provided)*

Example 3: Development and Implementation of Transportation Programs

Situation: A city in VA is using $150,000 of EECBG funds to start a program to incentivize carpooling and use of bike lanes, as well as begin planning for new zoning guidelines to encourage energy-efficient development

- Select primary geographic location (VA) from the drop-down in column 1
- Enter 150,000 into column 2 ("Proposed EECBG Budget")

EECBG Eligible Activities	1. Geographic Location (please select from from drop-down list (1))	2. Proposed EECBG Budget ($)	3. Proposed Funds Leveraged ($) (2)	4. Proposed Total Funding ($)	5. Proposed RE technology capacity installed (MW)	6. Proposed Methane Captured (cubic feet)	7. Annual Estimated Expected Energy Savings (kWh)	8. Annua Expec Reduc tons (
	VA							
1. Development of an Energy Efficiency and Conservation Strategy	VA	$ -	$ -	$ -				
2. Technical Consultant Services	VA	$ -	$ -	$ -			-	
3. Residential and Commercial Building Energy Audits	VA	$ -	$ -	$ -			-	
4. Financial Incentive Programs	VA	$ -	$ -	$ -			-	
5. Energy Efficiency Retrofits	VA	$ -	$ -	$ -			-	
6. EE and Conservation Programs for Buildings and Facilities	VA	$ -	$ -	$ -				
7. Development and Implementation of Transportation Programs	VA	$ 150,000.00	$ -	$ 150,000				
8. Building Codes and Inspections	VA	$	$ -	$ -			-	

Example 3: Development and Implementation of Transportation Programs

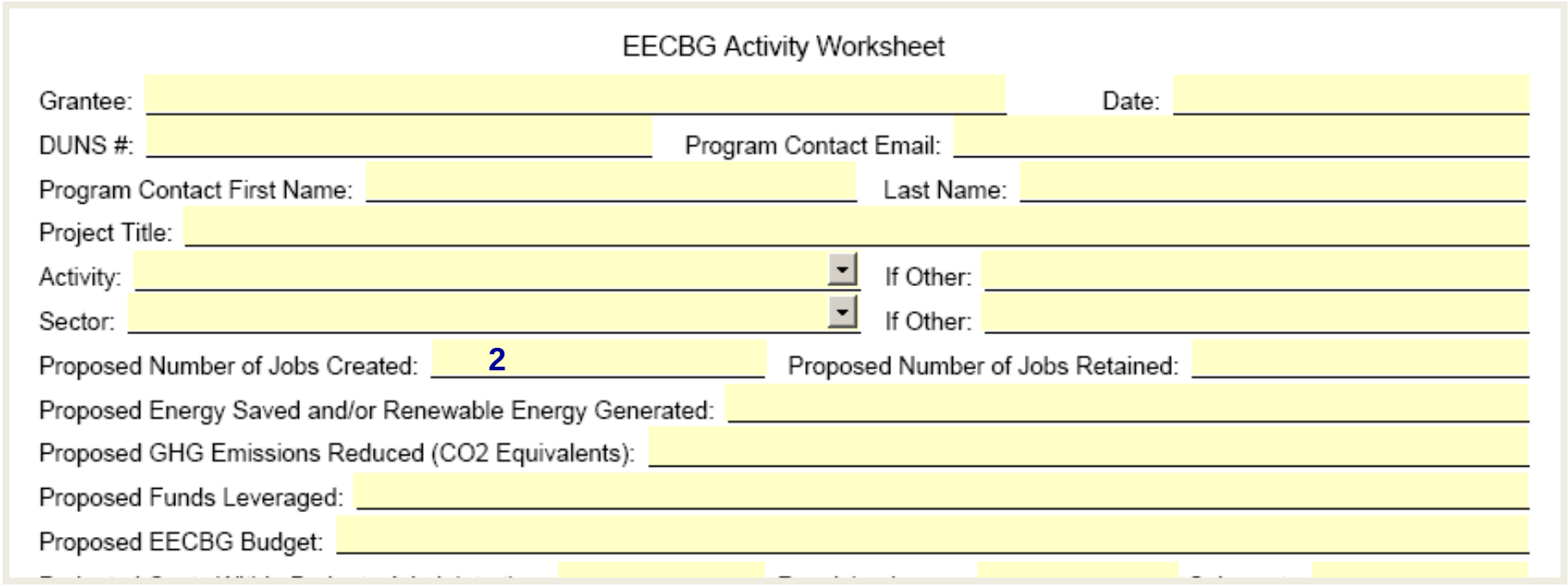
Situation: A city in VA is using $150,000 of EECBG funds to start a program to incentivize carpooling and use of bike lanes, as well as begin planning for new zoning guidelines to encourage energy-efficient development

- NOTE: Column 7, "Annual Estimated Expected Energy Savings," and column 8, "Annual Estimated Expected GHG Reduced," are blacked out in calculator --> only insert "Annual Estimated Expected Jobs created and/or retained" from column 9 into Project Activity Sheet.

EECBG Eligible Activities	1. Geographic Location (please select from from drop-down list (1))	2. Proposed EECBG Budget ($)	3. Proposed Funds Leveraged ($) (2)	4. Proposed Total Funding ($)	5. Proposed RE technology capacity installed (MW)	6. Proposed Methane Captured (cubic feet)	7. Annual Estimated Expected Energy Savings (kWh)	8. Annual Estimated Expected GHG Reduced (metric tons CO2e) (3)	9. Annual Estimated Expected Jobs created and/or retained
	VA								
1. Development of an Energy Efficiency and Conservation Strategy	VA	$ -	$ -	$ -					0
2. Technical Consultant Services	VA	$ -	$ -	$ -			-	-	0
3. Residential and Commercial Building Energy Audits	VA	$ -	$ -	$ -			-	-	0
4. Financial Incentive Programs	VA	$ -	$ -	$ -			-	-	0
5. Energy Efficiency Retrofits	VA	$ -	$ -	$ -			-	-	0
6. EE and Conservation Programs for Buildings and Facilities	VA	$ -	$ -	$ -					0
7. Development and Implementation of Transportation Programs	VA	$ 150,000.00	$ -	$ 150,000					2
8. Building Codes and Inspections	VA	$ -	$ -	$ -			-	-	0

Example 3: Development and Implementation of Transportation Programs, Project Activity Sheet

- Optional: attach excel copy of calculator to application (as “other attachment”) to aid reviewer
- Below only showing information from column 9 in calculator; for “proposed energy saved” and “proposed GHG emissions reduced” leave blank OR use own methodology to determine benefits
- Fill in rest of Project Activity Sheet with project information



EECBG Activity Worksheet

Grantee: _____ Date: _____

DUNS #: _____ Program Contact Email: _____

Program Contact First Name: _____ Last Name: _____

Project Title: _____

Activity: _____ If Other: _____

Sector: _____ If Other: _____

Proposed Number of Jobs Created: 2 Proposed Number of Jobs Retained: _____

Proposed Energy Saved and/or Renewable Energy Generated: _____

Proposed GHG Emissions Reduced (CO_2 Equivalents): _____

Proposed Funds Leveraged: _____

Proposed EECBG Budget: _____

Summary

- Online calculator provided for applicants to estimate expected benefits for application ONLY
- If applicant has methodology that is more appropriate for own specific project, then they may utilize their own methodologies.
- Estimated expected benefits are based upon national averages of the State Energy Program → Applicants' "realized benefits" (i.e., actual energy saved from EECBG project) may differ significantly from these estimates
- Applicants will not be penalized if "estimated expected benefits" differ from the "realized benefits" due to limitations of calculator
- Calculator and users guide (with instructions, background of calculator and more examples for use) for use can be found at: http://www.eecbg.energy.gov/solutioncenter/applicationresources/default.html