

Using The ePB GHG Calculation Tool



Energy Efficiency & Renewable Energy





New ePB GHG Calculation Tool: Schedule 4g

- New Schedule 4g worksheet in the ePB Excel-based data upload template
- Enables comparison of estimated GHG reductions for different projects or scenarios
- Automatically calculates the GHG emissions from each of the ECMs that are part of the ESPC
- Automatically indicates whether emissions are Scope 1 (combusted on site e.g. natural gas) or Scope 2 (combusted offsite, e.g., electricity generation)



GHG Emissions Data Sources

- ePB GHG tool uses the same methodology to estimate emissions as the *Annual Energy Management Data Report* (version 13-1 for FY 2022 reporting)
 - https://www.energy.gov/eere/femp/articles/annual-energy-management-data-report
 - Reporting instrument used by top-tier Federal departments and agencies for reporting aggregated data for comprehensive reporting of energy use, costs, square footage, etc.
- The *Data Report* workbook converts energy consumption reported in native units to Btu and uses coefficients from EPA and other sources to estimate emissions of:
 - Carbon dioxide (CO_2), Global Warming Potential (GWP) = 1
 - Methane (CH₄), GWP = 25x = carbon dioxide equivalent (CO₂e)
 - Nitrous Oxide (N_2O), GWP = 298x = CO_2e (in kilograms or metric tons)
- Follows CEQ's Federal Greenhouse Gas Accounting and Reporting Guidance
 - https://www.sustainability.gov/pdfs/federal_ghg%20accounting_reporting-guidance.pdf
 - References EPA's GHG Emission Factors Hub (https://www.epa.gov/climateleadership/ghg-emission-factors-hub)
- Electricity factors in ePB tool are static (do not account for future grid decarbonization)
 - Emissions & Generation Resource Integrated Database (eGRID) (https://www.epa.gov/egrid)
 - ePB tools uses eGRID2020 baseload factors for regional electricity generation (released January 27, 2022)



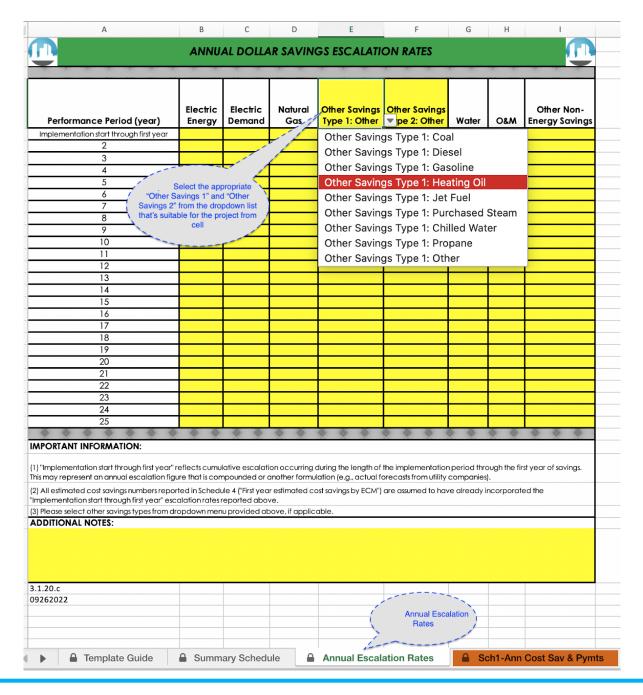
Overview of Using the ePB GHG Tool: Schedule 4g

- Tool can be used with either the ePB calculating or non-calculating template
 - Calculating template: enter ECM-level information and receive more accurate ECM-specific GHG estimates
 - Non-calculating template: you may choose to enter project-level information only;
 the tool will provide project-level GHG estimates for one eGrid region
- Key template inputs required
 - ECM technology type and title (Schedule 2a)
 - Other fuel types if applicable (Escalation Rates Schedule)
 - Annual estimated energy savings by resource (Schedule 4)
 - eGrid Region (Schedule 4g the GHG tool)



GHG Tool Inputs

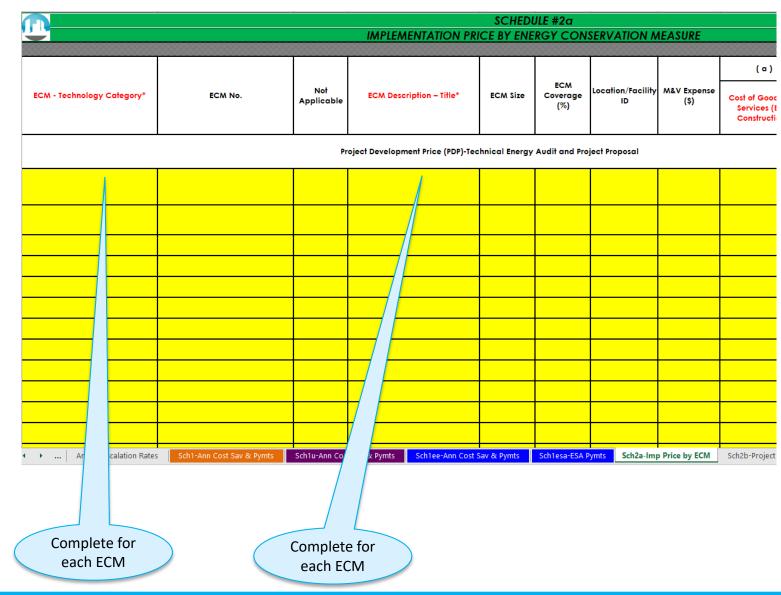
- Required inputs for using the GHG tool
 - Escalation rates schedule: indicate "other" fuel types if applicable
 - Schedule 2a: enter each ECM technology category and description
 - Schedule 4: enter estimated annual resource savings for each ECM
 - Schedule 4g: Choose eGrid region for each ECM





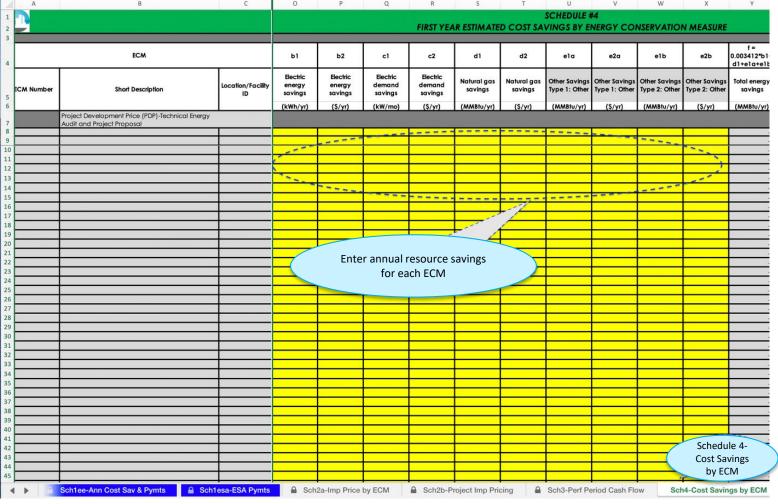
GHG Tool Inputs

- Required inputs for using the GHG tool
 - Escalation rates schedule:
 Indicate "other" fuel types if applicable
 - Schedule 2a: enter each ECM technology category and description – you do not need to enter ECM costs to use the tool
 - Schedule 4: enter estimated annual resource savings for each ECM
 - Schedule 4g: Choose eGrid region for each ECM





- Required inputs for using the GHG tool
 - Escalation rates schedule:
 Indicate "other" fuel types if applicable
 - Schedule 2a: enter each ECM technology category and description
 - Schedule 4: enter estimated annual resource savings for each ECM*
 - Schedule 4g: Choose eGrid region for each ECM

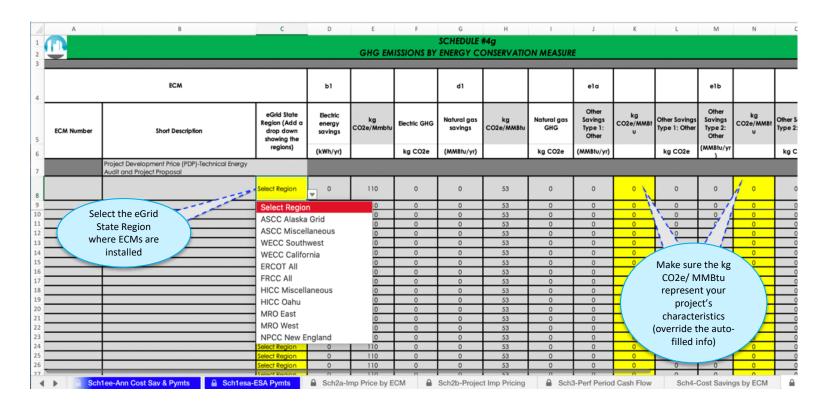


* NOTE: You can also calculate project-level GHG savings only by either entering your project-level savings in an ECM row on Schedule 4, or by using the non-calculating template and entering just the project-level savings in the "Totals" row at the bottom of Schedule 4



GHG Tool Inputs

- Required inputs for using the GHG tool
 - Escalation rates schedule:
 Indicate "other" fuel types if applicable
 - Schedule 2a: enter each
 ECM technology category
 and description
 - Schedule 4: enter estimated annual resource savings for each ECM
 - Schedule 4g: Choose eGrid region for each ECM
 - Optional: customize emissions factors for other savings types





ePB Template - GHG Tool - Schedule/Tab 4g

Grey cells are pre-populated based Choose eGrid State Region on the savings information entered to determine GHG on Schedule 4 emissions for electricity

CO₂(e)- kg/MMBtu includes CO₂, CH₄ and N₂O

Flexibility to enter custom CO₂(e)-kg/MMBtu for other resources

Calculates annual
Scope 1, Scope 2 and
total CO2e reductions

	▲										other resources									
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		/	SCHEDULE #4g GHG EMISSIONS BY ENERGY CONSERVATION MEASUI E																	
	ЕСМ		b1	7			d1			ela			elb			f = 0.003412"b1+ d1+e1a+e1b	h			
ECM Number	Short Description	eGrid State Region (Add a drop down showing the	Electri enerr y savir gs	cc	kg D2e/Mmbtu	Electric GHG	Natural gas savings	kg CO2e/MMBtu	Natura gas GHG	Other Savings Type 1: Other	kg CO2e/MMBtu	Other Savings Typ: 1: Other	Other Savings Type 2: Other	kg CO2e/MMBtu	Other Savings Type 2: Other		Water savings	Annual Scope 1 CO2e Reductions	Annual Scope 2 CO2e Reductions	Annual Total CO2e Reductions
		regions)	(kV h/yr)			kg CO2e	(MMBtu/yr)		kg CO2e	(MMBtu/yr)		kg CO2e	(MMBtu/yr)		kg CO2e	(MMBtu/yr)	(Kgal/yr)	kg CO2e	kg CO2e	kg CO2e
	Project Development Price (PDP)-Technical Energy Audit and Project Proposal																			
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		WECC Southw			110	0	0	53	0	0	0	0	0	0	0	-	0	0	0	0
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		Select Region	0		110	0	0	53	0	0	0	0	0	0	0	-	0	0	0	0
		Select Region	0	+	110	0	0	53	0	0	0	0	0	0	0	-	0	0	0	0
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