

Wisconsin's Approach to Quantifying Emission Reductions: Coordinating the Focus on Energy Program with the Wisconsin Voluntary Emission Reduction Registry

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**Wisconsin Voluntary Emission Reduction Registry
Technical Workshop**

Objectives of the Presentation

This presentation summarizes how Focus on Energy projects can be coordinated and evaluated in a manner that meets Wisconsin's Registry requirements—as well as potential national/international criteria for tradable credits

- **An example of energy savings and emission reduction calculations is also provided – based on an actual Registry Application submission by the Division of Energy, Dept. of Administration**

The Statewide Public Benefits EE Program

Focus is administered by the Wisconsin Department of Administration (WDOA), Division of Energy, with funding for Focus provided by the Utility Public Benefits fund created by the Wisconsin State Legislature in 1999 as part of their Reliability 2000 initiative

- **Online information about the Focus programs can be found at the public Focus website (www.focusonenergy.com)**
- **Evaluation reports for Focus are found on the WDOA website (www.doa.state.wi.us—click on “Reference Center” then “Focus on Energy Evaluation Reports”)**

Benefits of the Focus Programs

There are a number of impacts that the state of Wisconsin realizes as a result of the efforts of Focus on Energy

- **The most direct of these are energy impacts—the energy savings realized through the implementation of energy conservation measures and increased reliability through electric generation demand reduction**
- **Other impacts associated with the program are environmental benefits—in particular the reduced electric generation emissions**

Example Quarterly Energy Impacts

The following table shows the total energy and dollars saved by Focus participants from the energy efficiency improvements installed during the most recent quarter (April 1–June 30, 2003) and for the program to date (since June 1, 2001)

- Energy savings are realized each year that the energy efficiency measure remains in place, which typically ranges from 7 to 20 years
- The annual verified gross savings of all the measures installed during the indicated time—taken from program administrators' tracking records and verified by evaluators—have been summed to determine the annual kWh and therms saved

Annual Verified Gross Tracked Energy Savings and Dollars Saved

	Annual kWh Saved*	Annual Dollar Value of kWh Saved	Annual Therms Saved*	Annual Dollar Value of Therms Saved	Number of Participants
Year 2, Quarter 4 (April 1–June 30, 2003)					
Total Saved	45,497,849	\$2,981,369	1,935,380	\$1,331,345	
Business	28,068,650	\$1,505,530	1,493,861	\$954,420	634
Residential	17,408,722	\$1,474,519	441,519	\$376,925	25,561
Renewable Energy	20,477	\$1,321	N/A	N/A	14
Program to Date (June 1, 2001–June 30, 2003)					
Total Saved	267,862,185	\$18,361,702	9,212,996	\$7,865,135	
Business	136,860,935	\$7,340,867	6,371,894	\$5,439,686	2,934
Residential	127,289,813	\$10,781,447	2,841,102	\$2,425,449	212,298
Renewable Energy	3,711,437	\$239,388	N/A	N/A	41

* Based on verified gross savings data.

Environmental Benefits—Avoided Emissions

The most significant environmental benefit of Focus is the reduction of emissions from burning coal and natural gas at power plants and the reduction of emissions from the burning of natural gas by utility customers

- **Sulfur oxides (SO_x), nitrogen oxides (NO_x), mercury (Hg), and carbon dioxide (CO₂) are the emissions of greatest concern due to their negative impact on health, natural resources, and capital investments**
- **The following table shows the pounds of these emissions that will be avoided annually due to the energy efficiency improvements installed by Focus participants¹**

¹*Development of Emissions Factors for Quantification of Environmental Benefits (Final Report)*. PA Consulting Group. June 25, 2001

Annual Reduction in Emissions from Power Plants and Utility Customers (June 1, 2001–June 30, 2003)

	Nitrogen Oxides (NOx) (lbs)	Sulfur Oxides (SOx) (lbs)	Carbon Dioxide (CO₂) (lbs)	Mercury (Hg) (lbs)
Total Reduction	1,806,448	2,893,464	750,735,004	9.986
Business	939,629	1,478,480	403,068,377	5.102
Residential	843,066	1,374,900	338,759,178	4.745
Renewable Energy	23,753	40,084	8,907,449	0.138

* Based on verified gross savings data

Steps in Registering for a Focus Participant

- (1) Identify Focus project(s) where the customer has interest in the Registry**
- (2) Gather baseline data (e.g., billing records)**
- (3) Calculate the energy impacts (evaluation team will help review for Registry compliance)**
- (4) Complete the project (i.e., install the measure(s))**
- (5) Program Administrator helps the customer do the simple Registry form**

Evaluation will prepare the required independent, third party documentation of the energy impacts and associated avoided emissions (as per the Registry guidelines)

Independent 3rd Party Verification of Energy Impacts

The evaluation team implements periodic rounds of data collection and document review to estimate verified gross and net energy savings for Focus programs

- Telephone surveys of participants
- On-site measurement at some participant sites to verify project information and provide actual measured or metered data to support impact estimates
- Engineering review of program documentation on how the energy savings were calculated

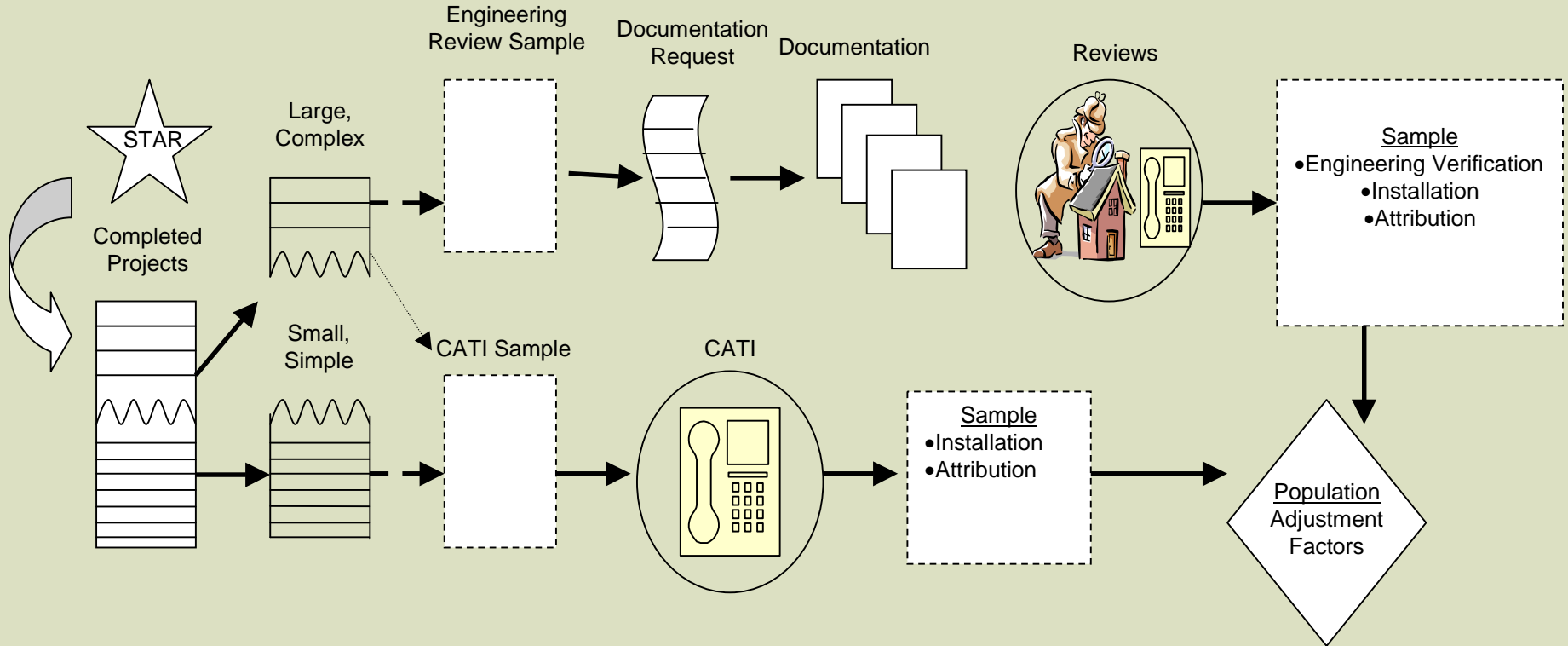
The results of surveys, on-site data, and engineering review are combined to create the gross savings adjustment factor and realization rates

How will the Evaluation Coordinate with Registering?

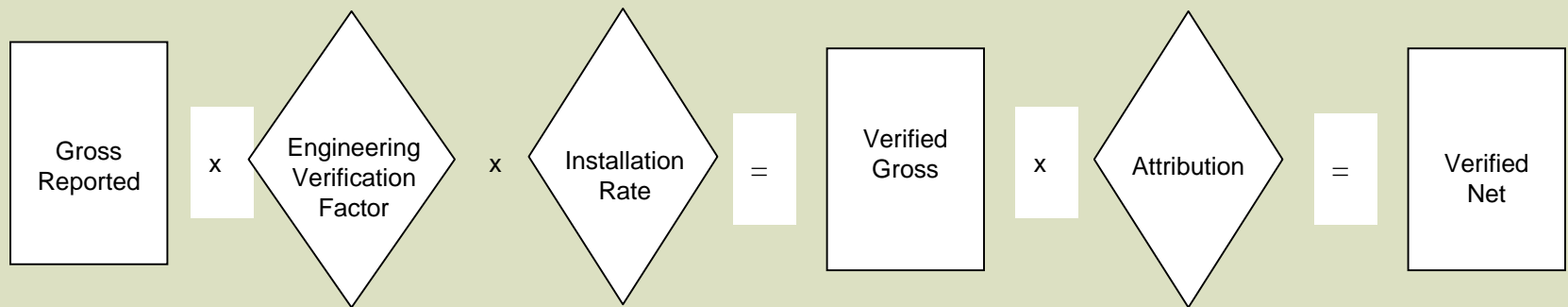
For Focus participants who also want to register indirect avoided emissions the evaluation team will need to gather baseline data and calculate the energy impacts in accordance with the Registry requirements

What this will mean is that Focus participant projects to be registered will be *sampled with certainty* in the periodic rounds of Focus impact evaluation activities

Impact Analysis Process



Impact Adjustment Factors



Verification

From documentation

- Algorithm / calculation approach ok?
- Parameters reasonable?
- Result matches STAR?

From end user/onsite

- Installed?
- How much?
- Parameters

From end user/vendors

- Attribution

Engineering only
Engineering & CATI

Energy Savings from CFL Bulbs

Measure	Number Rebated *	Instal- lation Rate =	Number Installed *	kWh Saved /Bulb =	Total kWh Saved
Instant CFL Rebate	42,215	76%	32,084	66	2,117,514
Mail-In CFL Rebate	63,323	78%	49,392	66	3,259,858
Total	105,538		81,475		5,377,372

Emissions Avoided from CFL Bulbs

Pollutant	Emission Rate lb/MWh *	Annual MWh Saved	Emissions = Avoided (lbs)
NO _x	6.4		34,415.18
SO ₂	10.8		58,075.62
CO ₂	2400		12,905,693.22
Hg	0.0000373	5,377	0.20
VOC	0.041		220.47
CO	0.4		2,150.95
PM10	0.2		1,075.47
Lead	0.000106		0.57