

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

*David Sumi, Jeff Erickson, and Karl Hausker, PA Consulting Group  
Jim Mapp, Cheryl Rezabek, and Pat Meier, State of Wisconsin, Department of  
Administration, Division of Energy*

## **ABSTRACT**

Wisconsin is implementing statewide energy efficiency programs with public benefits funds, replacing programs previously run by investor-owned utilities under Public Service Commission regulatory supervision. Called “Focus on Energy” (Focus), the programs are being run through the Division of Energy in the Wisconsin Department of Administration (WDOA) who provide direction and oversight, and are being implemented and evaluated by private firms. The programs must address a variety of legislative goals including energy efficiency and environmental benefits. Wisconsin is also implementing a Voluntary Emission Reduction Registry (established by the Wisconsin Department of Natural Resources), and is a leader among the states in developing the ability to systematically record and track voluntary multi-pollutant emission reductions statewide.

The paper describes how commercial, industrial, and agricultural energy efficiency projects will be identified, facilitated, and evaluated in a manner that meets Wisconsin's Registry requirements—as well as national/international criteria for tradable credits. In particular, the documentation of energy impacts is presented with specific attention to requirements for baseline and post-installation data. The estimation of emission factors for Wisconsin's electricity grid is also presented. The paper also includes a discussion of the public policy issues associated with participating in a statewide voluntary multi-pollutant registry, establishing a credible monetary value for the emissions reductions and ultimately attempting to trade emission reduction credits generated by a public benefits program.

## **Introduction**

Focus is administered by the 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. This Utility Public Benefits fund receives money from the utilities that is collected through utility bills. WDOA, Division of Energy, operates Focus utilizing private sector contractors for the delivery of energy efficiency products and services to accomplish its vision and mission. Online information about the Focus programs can be found at the public Focus website ([www.focusonenergy.com](http://www.focusonenergy.com)). Evaluation reports for Focus are found on the WDOA website ([www.doa.state.wi.us](http://www.doa.state.wi.us)—click on “Reference Center” then “Focus on Energy Evaluation Reports”).

Wisconsin is also implementing a Voluntary Emission Reduction Registry (established by the Wisconsin Department of Natural Resources), and is a leader among the states in developing the ability to systematically record and track voluntary multi-pollutant

emission reductions statewide. Online resources, including the Registry Handbook, can be found at the registry website ([www.dnr.state.wi.us/registry](http://www.dnr.state.wi.us/registry)).

The purpose of this paper is to describe how Focus efforts will be coordinated with the State's Registry efforts. The state anticipates that the combined efforts will add value for customers and lend credibility to the Focus program nationally—especially if credits attributable to these state efforts become tradable.

## **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. Other non-energy benefits are driven by increased health, safety, and comfort, and the economic benefits realized as a result of savings on energy bills, stimulation of economic development, and the creation of jobs.

Another significant element of the efforts of Focus on Energy beyond the implementation of energy conservation measures is the work with actors in the marketplace, manufacturers, distributors, retailers, building contractors, trade allies, and consumers to impact changes in the marketplace to “raise the bar” for practices and standards related to energy consumption technology.

## **Measurement of Energy Impacts from Focus Programs**

The energy impacts for Focus are reported in three different ways, as described below. Currently, the verified gross energy savings are being used for publicly reported impacts, while the net energy savings are used for the economic and cost-benefit analyses, as well as for calculating environmental benefits.

- **Gross energy savings** are based on applying the default energy savings values specified by the program administrator to data provided from the program administrator's program tracking systems. This value does not always match the values as reported in the program administrator's monthly reports, although it is generally very close.
- **“Adjusted gross” or “verified gross” energy savings** are based on the evaluators' review and confirmation or revision of data on number of participants, types of measures installed, and per-unit gross energy savings.
- **“Verified net” or “net” energy savings** are the savings attributed to the program based on the evaluators' estimate of net-to-gross factors that reflect free ridership, persistence of measure installation, and other behavioral elements that impact energy savings.

Table 1 below shows the gross, verified gross, and net energy impacts of the Residential, Business, and Renewable Energy program areas for energy efficiency measures implemented through December 31, 2002, as documented in their respective tracking

systems. Table 2 below shows the corresponding goals and accomplishments for Year 1 and Year 2 (First and Second Quarters) for gross energy impacts.

**Table 1. All Programs—Energy Impacts, Program to Date  
(through December 31, 2002)**

Residential Programs	Annual kWh Saved			kW Reduction			Annual Therms Saved		
	Gross	Verified Gross	Verified Net	Gross	Verified Gross	Verified Net	Gross	Verified Gross	Verified Net
Apartment and Condominium Energy Services	9,037,010	9,892,031	11,739,430	2,071	830	886	859,695	1,155,013	1,155,013
Appliance Turn In	10,519,728	13,569,330	9,549,824	2,052	1,772	1,772	0	0	0
Energy Star Products	45,859,477	46,024,747	83,782,892	6,236	6,236	7,380	114,654	114,654	114,654
Home Performance	7,210,378	7,210,378	6,809,518	4,469	4,469	4,465	487,967	473,342	374,104
Targeted Home Performance	70,086	70,086	70,086	12	12	12	23,026	23,026	23,026
Wisconsin Energy Star Homes	654,264	572,598	223,450	106	0	0	112,009	112,104	112,104
<b>Residential Programs Total</b>	<b>73,350,943</b>	<b>77,339,170</b>	<b>112,175,200</b>	<b>14,946</b>	<b>13,319</b>	<b>14,514</b>	<b>1,597,350</b>	<b>1,878,139</b>	<b>1,778,901</b>
<b>Business Programs</b>									
Agriculture	2,594,035	2,490,274	1,141,375	797	701	255	38,620		0
Existing Buildings	10,643,951	9,260,237	4,576,899	1,491	910	432	313,493	313,493	109,723
Government	1,753,073	1,525,174	753,821	189	115	55	694	694	243
Schools	9,706,475	8,444,633	4,173,784	2,546	1,553	738	1,600,036	1,600,036	560,013
Small Retail & Services	6,511,488	5,664,995	2,799,940	1,995	1,217	578	394,674	394,674	138,136
New Buildings	1,763,450	1,763,450	88,173	731	731	29	45,834	45,834	0
Pilot – Commercial	2,395,137	2,083,769	1,149,666	547	454	230	137,260	96,082	37,060
General Industrial	29,485,374	25,062,568	17,986,078	4,238	4,492	3,348	998,633	339,535	209,713
Industry of the Future	936,154	795,731	571,054	122	129	96	417,200	141,848	87,612
BP Renewables	0	0	0	0	0	0	1,024,438	348,309	215,132
Water – Waste Water	2,703,070	2,297,610	1,648,873	846	896	668	160	54	34
Pilot – General Industrial	5,270,994	4,585,765	2,530,077	614	510	258	267,808	187,466	72,308
<b>Business Programs Total</b>	<b>73,763,201</b>	<b>63,974,205</b>	<b>37,419,740</b>	<b>14,115</b>	<b>11,708</b>	<b>6,688</b>	<b>5,238,850</b>	<b>3,468,025</b>	<b>1,429,973</b>
<b>Renewable Energy Program</b>									
Renewable Energy Program	24,167	24,167	24,167	18	18	18	176	176	176
<b>Focus Total</b>	<b>147,138,311</b>	<b>141,337,541</b>	<b>149,619,107</b>	<b>29,079</b>	<b>25,045</b>	<b>21,220</b>	<b>6,836,376</b>	<b>5,346,340</b>	<b>3,209,050</b>

Note: Numbers rounded to nearest whole.

### Environmental Benefits—Avoided Emissions

A separate Focus evaluation effort estimated emission factors or rates for the electric generating plants serving Wisconsin (Meyers et al. 2001). The emission rates can be used to estimate emissions reductions or savings created by the Focus programs. The rates are shown

in Table 3. The evaluation team is currently working to update the emissions rates and to develop an emissions factor for mercury. The mercury emissions rate shown in Table 3 is taken from EPA's E-Grid 2000 database with data for the MAIN and MAPP NERC regions (U.S. Environmental Protection Agency, 1998). We also estimate emissions savings from reduced natural gas consumption on-site (rather than at the power plant). Those savings are largely in CO<sub>2</sub>. There are very small amounts of NO<sub>x</sub> and SO<sub>2</sub> in natural gas but they are not large enough to significantly affect the emissions numbers. The CO<sub>2</sub> savings from on-site therm savings are taken from EPA data.

**Table 2. Focus on Energy Program — Goals and Accomplishments, Year 1 & Year 2 (1st & 2nd Quarters)**

Program Name	Total kWh			Total kW			Total Therms		
	Goals	Results	% of Goal	Goals	Results	% of Goal	Goals	Results	% of Goal
Residential	64,528,439	73,350,943	114%	8,568	14,946	174%	2,938,532	1,597,350	54%
Business	133,659,482	73,763,201	55%	40,408	14,115	35%	8,583,848	5,238,850	61%
Renewables	5,166,449	24,167	0%	1,132	18	2%	N/A	176	N/A
<b>Total To Date</b>	<b>203,354,370</b>	<b>147,138,311</b>	<b>72%</b>	<b>50,108</b>	<b>29,079</b>	<b>58%</b>	<b>11,522,380</b>	<b>6,836,376</b>	<b>59%</b>

Note: Numbers above reflect timeline of 24 months for Goals and 18 months for Results.

**Table 3. Emissions Rates**

	By Marginal Cost	By Capacity Factor	Units
NO <sub>x</sub>	6.4	5.9	Lbs/MWh
SO <sub>2</sub>	10.8	10	Lbs/MWh
Mercury (Lbs/GWh)	37.3		Micro Lbs/MWh
CO <sub>2</sub> from electricity generation	2,400	2,035	Lbs/MWh
CO <sub>2</sub> from on-site therm savings	11.7		Lbs/Therm

Using the marginal cost emission rates and evaluation-verified *net* installed electricity savings estimates<sup>1</sup>, the Focus programs together would save 871,951 pounds of NO<sub>x</sub>, 1,471,417 pounds of SO<sub>2</sub>, over 364 million pounds of CO<sub>2</sub>, and 5.079 pounds of mercury from inception to December 31, 2002.

### The Wisconsin Voluntary Emission Reduction Registry

The Wisconsin Voluntary Emission Reduction Registry is a new voluntary program established by the Wisconsin Department of Natural Resources (DNR). It is the first time Wisconsin will systematically record and track voluntary emission reductions statewide. The Registry Handbook is available from the state either electronically (on the Registry web page) or as a printed document.

**Background.** The Wisconsin Climate Change Action Plan was published by the DNR in 1998 (AM271-98, May 1998). One of the recommendations in the action plan is that

---

<sup>1</sup> The Renewables Program savings are evaluation-verified gross, not net.

Wisconsin develops a system to provide credit to those who reduce greenhouse gas emissions early. The DNR and Wisconsin's Environmental Decade worked with state legislators to draft and sponsor 1999 Wisconsin Act 195, the voluntary emission reduction registry bill. Act 195 passed the legislature with a minimum of controversy and was unopposed. It passed in April of 2000, was signed into law on May 17, 2000, and went into effect on June 1, 2000, when it became section 285.78 of the Wisconsin Statutes. The law allows the DNR to register voluntary reductions of mercury, greenhouse gas emission reductions, and reductions in other fine particulate matter or other air contaminants. Thus, avoided emissions for NO<sub>x</sub>, SO<sub>2</sub>, CO<sub>2</sub>, and mercury are included in the registry. As described above, these are the pollutants for which estimated emission factors or rates have been estimated by the Focus evaluation for the electric generating plants serving Wisconsin. These emission factors have been accepted by the DNR.

**Table 4. Emissions Savings—Program to Date  
(April 2001 – December 2002)**

Sector	Program	Evaluation Verified Net		Emissions Reductions (Pounds)*			
		MWh	Therms	NO <sub>x</sub>	SO <sub>2</sub>	CO <sub>2</sub>	Mercury
Agriculture	Agriculture	1,141	0	7,305	12,327	2,739,301	0.043
Commercial	Existing Buildings	4,577	109,723	29,292	49,431	12,268,311	0.171
Commercial	Government	754	243	4,824	8,141	1,812,013	0.028
Commercial	Schools	4,174	560,013	26,712	45,077	16,569,230	0.156
Commercial	Small Retail & Services	2,800	138,136	17,920	30,239	8,336,046	0.104
Commercial	New Buildings	88	0	564	952	211,614	0.003
Commercial	Pilot - Commercial	1,150	37,060	7,358	12,416	3,192,802	0.043
Industrial	General Industrial	17,986	209,713	115,111	194,250	45,620,229	0.670
Industrial	Industry of the Future	571	87,612	3,655	6,167	2,395,590	0.021
Industrial	MM Renewables	0	215,132	0	0	2,517,044	0.000
Industrial	Water - Waste Water	1,649	34	10,553	17,808	3,957,688	0.061
Industrial	Pilot - General Industrial	2,530	72,308.2	16,192	27,325	6,918,191	0.094
Commercial	All	13,542	808,114	86,671	146,257	41,956,412	0.505
Industrial	All	22,736	549,517	145,511	245,550	60,995,947	0.848
Business Programs	Total	37,420	1,429,973	239,486	404,133	106,538,058	1.395
Residential	Apartments and Condos Efficiency Services (ACES)	11,124	1,153,912	71,191	120,135	40,197,484	0.415
Residential	Appliance Turn In	9,550	0	61,119	103,138	22,919,578	0.356
Residential	Energy Star Rebate	71,032	114,654	454,602	767,141	171,817,228	2.648
Residential	Home Performance with Energy Star	6,810	374,104	43,581	73,543	20,719,857	0.254
Residential	Targeted Home Performance	60	17,196	387	653	346,237	0.002
Residential	Wisconsin Energy Star Homes (WESH)	223	112,104	1,430	2,413	1,847,897	0.008
Residential	Total	98,798	1,771,970	632,310	1,067,023	257,848,280	3.683
All	Renewable Energy Program	24	176	155	261	60,060	0.001
Grand Total		136,242	3,202,119	871,951	1,471,417	364,446,398	5.079

\* Emission reductions are calculated using the marginal cost emission rates.

### Emission Reductions Eligible for the Registry

Most voluntary emission reductions are eligible to be registered. However, there are some limitations on eligible reductions. As specified in the Handbook, these limitations include:

1. *The emission reduction must be voluntary and not required by law.* Law is defined in the regulation to mean “any federal or state statute, rule, order, mandatory emission limiting condition in an air permit or other legal requirement.” A voluntary emission reduction may also be registered if it goes beyond what is required by law.

2. *The voluntary emission reduction must result from an action to reduce emissions.* It cannot be an emission reduction that just “happened.” Thus, emission reductions which result from variations in weather and/or the economy are not eligible for registration.
3. *Must be greater than 25 Tons per year of CO<sub>2</sub> or any of the other eligible emission products such as 1 Ton per year of NO<sub>x</sub>, SO<sub>2</sub>, or 1 Lb. per year of Hg.* This may require the aggregation of reductions from several sources.

In addition, the emission reduction action and the emission reduction must occur in Wisconsin. Emission reductions may be registered retroactively (if occurring after 1990 for greenhouse gases, after 1993 for air contaminants).

Further, there are two types of emission reductions. *Direct* emissions are emitted from a source or process that is owned or operated by the person responsible for the emissions. The owner or operator has control of the emission source. An example of direct emissions is the smokestack emissions from an industrial facility. *Indirect* emissions come from a source that is not owned or operated by the person responsible for the emissions. The best example of indirect emissions—and the example clearly relevant to energy impacts of Focus—is the use of electricity from the grid. Most electricity in Wisconsin is produced by large power plants that burn fossil fuels.

## **Coordinating the Registry with the Focus Program**

The Wisconsin Voluntary Emission Reduction Registry exists primarily as a database, which lists the registered emission reductions. The registry program also includes application forms, lists of quantification protocols, and rules (chapter NR 437, Wis. Adm. Code).

As described in the Registry Handbook, registering voluntary emission reductions may be relatively simple in some cases, but may be fairly complicated in others. A number of decisions must be made before registering reductions. These decisions include how to determine the baseline, how to quantify emission reductions, whether and how to verify emission reductions, how the voluntary emission reductions may be used, and what records need to be kept. The purpose of the Handbook is to provide that information and to help registrants choose the best options for them. For participants of the Focus program, assistance in registering emission reductions associated with program participation will be greatly facilitated by a Focus Program Administrator working closely with the Focus evaluation team. The evaluation team will serve an independent third party verification function.

The following outlines the steps in registering emission reductions 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 Third Party Verification of Energy Impacts**

The evaluation team implements periodic rounds of data collection and document review to estimate net energy savings for Business Programs. Each round has included telephone surveys of participants who have completed projects in the appropriate time frame. The most recent round included projects that were completed by June 30, 2002. The surveys address measure characteristics and installation, program attribution, and program process issues. Each round has also included on-site measurement at some participant sites to verify project information and provide actual measured or metered data to support impact estimates. Finally, each round has included an 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 (as reflected in Table 1, above). The gross savings adjustment factor is the ratio of evaluation verified gross savings to the tracking gross savings. The realization rate is the ratio of net verified savings to tracking system reported gross savings.

Reviews of requested project documentation are the basis for planning the engineering review of energy savings estimates. The thoroughness of received project documentation ranges widely, from a single contractor's invoice for some measures to lengthy documents with supporting electronic files. The more thorough submissions generally provided more information and data to support reported savings estimates.

As suggested above, 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. The estimation of net energy impacts normally conducted for sampled projects is, we believe, sufficient for addressing the Registry verification requirements (and will correspond to options included in *The International Performance Measurement and Verification Protocol*). As specified in the Handbook these requirements are:

- Verify ownership of the emission reduction;
- Inspect the emission reduction, carbon sequestration, or emission avoidance project to ensure that the emission reduction action was taken;
- Check to ensure that any source emission testing or other measurement was done correctly and properly;
- Make sure that the appropriate quantification protocol is used and that it is properly applied;
- Check the applicability and accuracy of any emission factors used;
- Make sure the baseline is properly determined;
- Check to see that all calculations are done correctly;
- Check to see that emission reductions are properly and accurately reported; and
- Ensure that all requirements of chapter NR 437 have been met.

In conjunction with the evaluation team, and using the evaluation's documentation of project impacts, the Focus Program Administrator will assist the participating customer with completion of the Registry forms. Appropriate documentation for the project energy impacts and emission reductions will be provided to the customer and also be retained by the Focus program (WDOA).

### **The Potential for Creating Pollution Credits via the Wisconsin Focus Program**

Stricter controls on four air pollutants are on the horizon with pressures coming at the state, national, and international levels. The likely means of achieving these stricter controls is through "cap-and-trade" systems, in which total emissions are capped, credits for pollution reductions are created, and companies trade these in a way that minimizes total compliance costs. Wisconsin's Focus program is already reducing air pollution from power plants by reducing the kWh sales of electricity and conserving natural gas. Now, with the DNR Voluntary Emission Reduction Registry, there is the potential to create and take ownership of the credits for this reduced pollution.

As the evaluator for the Focus program in Wisconsin, PA Consulting Group (contracted as PA Government Services Inc.) has briefly assessed for WDOA these opportunities. The remainder of this paper will address two relevant questions:

- What is the potential value of pollution credits that could be generated by Wisconsin's Public Benefits Focus programs?
- What are the key issues in the creation and ownership of such credits?

### **Potential Value of Focus-generated Pollution Credits**

Assuming that stricter air pollution controls are desirable and will come into being, and that the form of controls will be cap-and-trade systems, the State of Wisconsin may be able to generate a valuable asset by creating pollution credits from energy efficiency gains from its Focus on Energy program. In its first year of operation, the program has documented significant energy savings. Table 1, above, provides the cumulative energy impacts over the first one-and-a-half years of Focus. The potential value of related pollution reductions should be viewed as a multi-year stream of savings. As the program continues, and ramps up to full funding and increased effectiveness, this savings stream will grow in size.

Table 5 below gives some estimates of the potential value of pollution credits that could be generated by Focus based on a projected typical annual amount of program energy impacts (differing from the cumulative impacts shown in Table 1). The first column gives the type of emission reduction associated with the energy savings, and the second column presents the quantity of emission reduction. These quantities can be multiplied by a price for a pollution credit to produce an "Annual Value" for the credits. For 2003, the table uses current spot market prices for SO<sub>x</sub> and GHG (no market currently exists for NO<sub>x</sub> and mercury in Wisconsin). For the 2012 projection, projected prices from PA Consulting Group's "Multi-Pollutant Optimization Model" are used, based on a scenario assuming enactment of the Bush Administration's "Clear Skies" proposal for SO<sub>x</sub>, NO<sub>x</sub>, and mercury reductions. For a lower bound on mercury prices, the projections assume EPA's estimated



price of \$16,000/ton. The table also assumes a market for GHG credits with a price of \$5 – \$10/ton, up from today’s \$1 – \$2/ton.

**Table 5. Estimates of the Potential Value of Pollution Credits from Focus**

Type of Emission	Annual Emission Reduction	Spot Market Price (2003)	Annual Value at Current Spot	Projected Price (2012)	Annual Projected Value (2012)
SO <sub>x</sub> (tons)	445	\$130/ton	\$58,000	\$332 – \$392/ton	\$148,000 – \$175,000
NO <sub>x</sub> (tons)	264	N/A	N/A	\$1,767 – \$1,847/ton	\$467,000 – \$488,000
GHG (tons CO <sub>2</sub> e)	110,045	\$1 – \$2/ton	\$110,000 – \$220,000	\$5 – \$10/ton	\$550,000 – \$1,100,000
Mercury (pounds)	3.1	N/A	N/A	\$16,000 – \$120,653/lb	\$49,000 – \$371,000
Total			\$168,000 – \$278,000		\$1,200,000 – \$2,100,000

The estimate of the potential value of credits for the four pollutants in 2003 is a range of \$168,000 – \$278,000. For 2012, when markets for all four pollutants are expected to exist and prices are higher than today, the potential value is \$1.2 – \$2.1 million. Over the 10-year period 2003 – 2012, the potential value of credits is estimated at \$6 – \$10 million. All such projections are inherently uncertain but those presented here represent a very plausible set of assumptions about how future emission markets will unfold. Other scenarios are possible and could be explored.

### Key Issues in GHG Credit Creation and Ownership

WDOA’s interest in creating and taking ownership of pollution credits is well justified, given the likely high value of the pollution reductions that will result from Focus programs. WDOA has observed that, by facilitating the entry of Wisconsin pollution reductions into trading systems, it could create a significant incentive to invest in energy savings and pollution reductions, resulting in even greater benefits to the residents of Wisconsin. Three key issues in pursuing this opportunity are explored below.

**Creating and quantifying.** Experience to date with the national cap-and-trade system for SO<sub>2</sub> has focused on “direct” quantification and creation of pollution credits. EPA assigns utilities an amount of credits and continuous emission monitors on power plants record the amount of pollution. If a utility takes various “direct” steps (e.g., scrubbing coal plants or fuel switching), it may create credits, i.e., a surplus of assigned credits over actual emissions. Energy efficiency programs hold the promise of creating “indirect” pollution credits in that consumers take steps “downstream” from the power plant to reduce overall power production. Reasonably accurate measurement of such “indirect” pollution reductions raise a number of issues. These issues correspond to the Wisconsin Registry requirements discussed above, and are re-phrased below as:

- “*Baseline*” – What is the proper pre-existing quantity of emissions from which to measure to the reduction? Can the reduction in power demand be attributed to the energy efficiency program?
- “*Additionality*” – Was the reduction in power demand and/or pollution above and beyond any regulatory or other legal requirements?

- “*Leakage*” – Do the energy efficiency programs lead to any emissions increasing elsewhere? And, do the energy efficiency programs in one region merely result in an increase in electricity exports to neighboring regions, with no real change in the emissions of the local power plants?
- “*Monitoring and Verification*” – Do the reductions remain constant? How long do they last?

**Ownership.** Any creation of a pollution credit must take place in the context of a resolution of the ownership issue. A natural tension exists here between the entity that creates the indirect emission reduction (e.g., Focus program in conjunction with a program participant) and the utilities that are the ultimate source of the direct emissions. Both will want the benefit of the asset. There is a strong case to be made, as a matter of public policy, that creators of indirect emission reductions should gain ownership rights and thus receive the appropriate incentive for that activity. This issue should be prominent in shaping policy at the federal and state levels as controls on the four pollutants discussed here are tightened.

The existing Clean Air Act establishing the national cap-and-trade system for SO<sub>2</sub> allocates nearly all the pollution credits to the electric utilities. (EPA sells a small percentage in a public auction but the proceeds still go to the utilities.) Nevertheless, the Clean Air Act is explicit in stating that the pollution credits are *not* a property right.<sup>2</sup> This provision exists to ensure that the federal government can further tighten SO<sub>2</sub> emissions without creating a “taking” of property. However, this language may also prove useful if a state were to argue for ownership of an indirect pollution credit.

Regardless of how current law is interpreted on the issue of ownership, future laws can be shaped to protect the interests of entities that create indirect emission reductions. Thus, Wisconsin could join with other states in raising this issue in the coming debate in Congress over the Clear Skies proposal and its stricter controls on SO<sub>2</sub>, NO<sub>x</sub>, and mercury. Although legislation on mandatory controls on GHG is unlikely to pass soon, there are forces that shape the informal GHG market. The Bush Administration is revising the national GHG registry. The regulations on who can report what kinds of emission reductions will have an impact on who owns and sells GHG credits in the future. Wisconsin could shape this debate as well. Needless to say, fungibility—the ability to sell the credits—is also critical.

Even if utilities end up owning some or all of the credits from indirect emission reductions, Wisconsin could still ensure that the benefits of those assets flow to the public at large and not to stockholders. Regulation of utilities could control how assets are managed and sold, and what purposes they are used for. Proceeds could flow through as rate decreases or perhaps they could be used to fund additional Focus on Energy programs in a self-sustaining way.

**Resources needed.** There is clearly value to be gained in pursuing ownership of tradable pollution credits, but this must be weighed against the resources or costs needed in the pursuit. An analysis of the resources is beyond the scope of this paper, but a few observations

---

<sup>2</sup> The relevant language reads: “An allowance [i.e., SO credit] allocated under this title is a limited authorization to emit sulfur dioxide in accordance with the provisions of this title. Such allowance does not constitute a property right.” See Sec. 403(f) of the Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399 (1990) (codified as amended in scattered sections of 42 U.S.C., 29 U.S.C.).

can be made. Wisconsin already conducts extensive air emissions inventories and is evaluating the impacts of Focus programs. In addition, the State is in the process of finalizing the Voluntary Emission Reduction Registry summarized in this paper, covering a variety of air pollutants. The incremental costs of tying these together to pursue ownership of pollution credits would appear to be small. Wisconsin would also need to help shape policy at the national level, working in conjunction with other states with similar goals. This would not be a standalone effort either: Wisconsin will undoubtedly be active on multi-pollutant legislation and climate policy in any case. A commitment on the part of the Wisconsin Governor's Office and the Congressional Delegation would be the most effective means of shaping national policy in a way that protects the State's interests.

## **Concluding Thoughts**

There is an additional benefit to beginning now to carefully quantify indirect emission reductions. As multi-pollutant legislation moves forward at the federal level, Congress will need to make decisions on how to allocate the credits initially. This posed a difficult equity issue in 1990 in the creation of the SO<sub>2</sub> cap-and-trade system, and the same equity issue will loom even larger when three or more pollutants are considered for stricter controls.

The 1990 legislative history shows that Congress did a fairly good job at recognizing the efforts of those states and utilities that had already made efforts to reduce SO<sub>2</sub> emissions (i.e., Congress required smaller cuts from the "early adopters.") Congress will likely do the same under new multi-pollutant legislation: states and utilities that can demonstrate that they took action early to reduce SO<sub>2</sub>, NO<sub>x</sub>, mercury, and/or GHG emissions will be able to make a strong case to receive initial allocations of pollution credits that reflect those efforts. Wisconsin benefited from this equity judgment in 1990 and could benefit again in the coming years if it carefully documents the results of Focus on Energy and other relevant programs.

If Wisconsin wishes to pursue creation and ownership of air pollution credits, it should initiate the process of addressing the known issues proactively. The State should also start building a network of other states and federal agencies, as well as non-governmental organizations, utilities, and other businesses, with the ultimate aim of securing the potential benefits of using energy efficiency as an environmental compliance mechanism and the impact of environmental benefits across regional boundaries.

The state may also want to rank energy efficiency measures according to their ability to generate demonstrable, verifiable emission savings.

There are several unique aspects to what Wisconsin has set out to accomplish. The proposed program has a strong verification and documentation of savings protocol based on international recognized monitoring and verification programs. Using international recognized and certified procedures will provide a strong case of trading of these credits on an international scale.

Early implementation of this program will strengthen the case for the energy efficiency improvements being due to local program implementation efforts and not "spill over effects" due to the efforts of neighboring states or other national efforts. In addition, because of the early implementation of efficiency efforts in Wisconsin there may be a case that effects in other states are due to Wisconsin efforts.

Also, there are several ways that coordination between Focus and the Registry can facilitate eventual credit trading. In addition to the direct program assistance (i.e., provide information about registry, assist in completing Registry paperwork, and provide the initial

third party verification of the savings), additional services could be offered. These might include:

- Provide possible connections between potential buyers (e.g., through the state's connections with the Chicago Climate Exchange) and Focus participants.
- Provide positive public relations value for participating companies through the Focus on Energy reported accomplishments, fact sheets, case studies, press releases, etc. (which should bring more participants into the market and facilitate further emissions reduction).

Finally, one of the major ways in which Focus and the Registry can facilitate credit trading is to provide a highly visible auction block of tradable credits. Potential bidders will see what is available and the Registry will encourage other potential participants to initiate projects, list themselves on the Registry, and offer up their credits for trading.

## References

- Meyers, Stephen, Chris Marnay, and Diane Fisher (researchers at Lawrence Berkeley National Laboratory) with Jeff Erickson and David Sumi (PA Consulting Group). June 25, 2001. *Development of Emissions Factors for Quantification of Environmental Benefits (Final)*. Focus on Energy Pilot Study (Evaluation). Middleton, Wisconsin: PA Consulting Group.
- U.S. Environmental Protection Agency. 2000. "Mercury emissions rate," E-GRID 2000: *Emissions & Generation Resource Integrated Database* (with data for the MAIN and MAPP NERC regions from 1998). Available online: <http://www.epa.gov/airmarkets/egrid/factsheet.html>. Washington, DC: U.S. Environmental Protection Agency.
- Wisconsin Department of Natural Resources. May 1998. *Wisconsin Climate Change Action Plan* (AM271-98). Madison, Wisconsin: State of Wisconsin.
- Wisconsin Department of Natural Resources. "The Registry Handbook," *Wisconsin Voluntary Emission Reduction Registry*. Available online: [www.dnr.state.wi.us/registry](http://www.dnr.state.wi.us/registry). Madison, Wisconsin: State of Wisconsin.
- Wisconsin Department of Administration, Division of Energy. Wisconsin Focus on Energy. Available online: <http://www.focusonenergy.com>. Copyright 2002.
- Wisconsin Department of Administration, Division of Energy. Focus on Energy Evaluation Reports. Available online: <http://www.doa.state.wi.us/index.asp> (Reference Center, Focus on Energy Evaluation Reports). Madison, Wisconsin: State of Wisconsin, DOA's OCS Web Initiatives Section. Copyright 2001 – 2003.
- World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI). "The Greenhouse Gas Protocol: a corporate accounting and reporting standard." Greenhouse Gas Protocol Initiative (GHG Protocol). September 2001. ISBN 2-940240-18-3. Available online: <http://www.ghgprotocol.org/>. Switzerland: WBCSD and WRI. Copyright 2001.