

Climate Neutral Certification For Madison Environmental Group

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In this paper, we outline climate neutral certification, a relatively new and exciting opportunity on the local and regional levels that Madison Environmental Group should consider explore pursuing. Traditionally, certification is offered exclusively on the national level by an organization called the Climate Neutral Network, whereas smaller and medium sized businesses do not have the means or finances to apply for such certification. MEG, therefore, has the ability to create very easily and effectively a certification process for these local and regional businesses. Climate neutral certification asks businesses, whether as a whole, with regards to a specific product, or with regards to a specific event, to counter their harmful gas emissions that negatively affect the climate and the atmosphere by using reductions and offsets. MEG has the capacity to create the first certification for businesses this on the local level. The MEG should also further distinguish itself by asking local businesses for 65% reductions and 35% offsets, which, compared to the national standards of 60% reduction and 40% offsets, asks businesses to be even more environmentally committed. Certainly businesses are searching for this opportunity, especially because climate neutral certification is extremely beneficial for them in a number of ways. For example, certified businesses will have increased market share, will gain an improved corporate and PR image in the business field, and will be able to offer unique and innovative products and services that also benefit the planet. This paper outlines what MEG's climate neutral certification program could look like, as well as the benefits of MEG choosing to pursue this endeavor.

MEG's climate neutral certification process would be a five-step process. The following is a listing of each step. Steps I, IV, and V need very little explanation outside of the outline, whereas steps II and III are explained more specifically throughout the rest of our recommendation.

MEG's Climate Neutral Certification Process

- I. Formalize the relationship
 - Find the local and regional businesses interested in certification
- II. Carbon-Dioxide computation
 - Businesses can use the totally new calculator which we have devised especially for MEG's use (see recommendation for further explanation)
- III. Create an individual design portfolio
 - Businesses reduce and offset their emissions using strategies and tips that MEG can provide (see recommendation for further explanation)
- IV. Review results
 - A review board, made up of local environmentally-aware panelists, determines if the goals were accomplished
- V. Award certification
 - Certification is awarded with many benefits. Examples of this include environmental, business, and media announcements throughout Wisconsin.

Step I: Formalize the Relationship

Find interested businesses in gaining certification, establish cost of certification. Nationally the costs of gaining certification are between \$5,000 and \$10,000. MEG should offer local certification for substantially lower prices here on the local level to tap into the market that wasn't accessible to certification before.

Step II: Carbon-Dioxide Computation

Determining a company's greenhouse gas emissions can be a difficult and daunting task. The complexity of assessing baseline emissions varies, to some extent, by company. MEG should streamline this process by providing basic guidelines and calculations that apply to all companies. MEG should consider offering their clients a comprehensive worksheet for calculating general emissions (see Appendix A). The worksheet could have two sections: calculating activity data and calculating emissions data. The first section would help companies identify and quantify common activities (electricity use, natural gas use and fuel use) that generate GHG emissions. The second section would provide the emission factor, which converts the energy or fuel used in each of the activities, in an equation to calculate the emissions created. The units used in the calculations need to be consistent therefore a conversion table and additional calculations should be available in the worksheet. Ultimately, both MEG and the company can use the data, calculated in the worksheet, as a baseline for comparison and guidance.

Step III: Create an Individual Design Portfolio (Reductions & Offsets)

REDUCTIONS

Overview

By reducing carbon dioxide emissions at their source, businesses and organizations can effectively reduce costs, provide for healthier communities and differentiate their products. Additionally, businesses that take steps to reduce their emission now may be able to realize cost savings and competitive advantage if carbon dioxide emissions are regulated in the future. Due to the costs savings and overall environmental benefits of reductions, 65% of total baseline carbon emissions should be reduced, leaving the remaining 35% of emissions to be offset. It is important to note that requiring businesses which have already committed to reducing greenhouse gas may be penalized under this system. Therefore, MEG should consider allowing progressive, self-starting companies, which have already committed time and resources to carbon dioxide emission reduction techniques, to either develop alternative certification programs or to discount past reductions from their baseline emissions levels and account for these reductions in the certification process.

Business or Process Certification

Carbon neutral certification can be a time consuming and frustrating process for some businesses, therefore, MEG should consider developing two options to assist applicants with carbon dioxide emission reductions: basic and extended. A basic service package would provide the applicant with guidance and oversight, but leave the applicant to gather emission information and assess and apply emissions factors in baseline and reduction calculations. Additionally, the applicant would be responsible for choosing reduction projects and implementing such projects.

An extended service plan would include assessment, reduction recommendations, implementation recommendations, certification, and verification.

The Process

Basic

MEG's main focus during the basic application process is to provide guidance to the applicant as they gather emissions, reductions, and offset information. Following the submittal of a complete application, including detailed baseline emission analysis and reduction projects, MEG should send the application to the review board of experts for approval, denial and modification. Upon board approval, MEG should issue the certification and verify that the business is successfully implementing the certification requirements and meeting certifications standards.

Extended

Applications for companies wishing to employ MEG for extended carbon neutral services would be less comprehensive. The applicant would be required only to submit a comprehensive list of processes, facilities, suppliers, and services to MEG. MEG, or an independent contractor, would then assess the applicant's baseline emissions, analyze these emissions to develop the most cost efficient and effective reduction projects and provide implementation plans for such reduction projects. Upon approval by the applicant, the review board would then either certify, deny, or modify the application. Upon board approval, MEG should issue the certification and verify that the business is successfully implementing the certification requirements and meeting certifications standards.

Ongoing Support

Additionally, MEG should consider offering ongoing support for applicants that are committed to remaining carbon neutral for an extended time period. Because process changes, innovations, and acquisition of properties alter baseline emission level, as well as reduction capabilities, MEG can provide a value added service by reassessing and recertifying businesses on an annual basis, at a relative price reduction

Requirements

After analyzing several other carbon neutral programs, we would recommend that MEG require a 65% reduction in emissions from baseline levels. Alternative carbon neutral certification programs require anywhere from zero to 60% reductions of emissions. By requiring 65% reductions, MEG is providing businesses to make a clear commitment to environmental health. Additionally, requiring 65% reductions creates increased energy savings for certified businesses. These reductions must be long-term reductions, certified by the board.

Implementation

MEG should consider two alternatives for guiding or structuring implementation plans. Service businesses and small to medium sized production businesses should categorize their baseline emissions and emission reductions according to small, easily, identifiable groups. Specifically, some helpful categories are: energy, transportation, consumables, recycling, supplies, office equipment and buildings. These categories allow the business to quickly and easily gather information and apply emission factors to entire data sets, thereby streamlining both the application and reduction processes.

Alternatively, larger corporations should consider breaking parsing carbon emissions into broader categories such as management, manufacture, distribution, construction, and supply. Because the climate neutral process can be very time consuming and resource intensive, larger business may not want to spend 1 to 3 years analyzing every component of business to asses baseline emissions and reductions projects without any certification benefits provided along the way. Alternatively, by focusing on these broad categories, larger business can apply for certification for each category individually, until they eventually attain certification for all the business processes, while realizing all the advantages of certification for processes along the way. Ultimately MEG should consider the structure, size, and focus of each individual business, keeping in mind the MEG's expert assistance is integral to the success of the certification program.

Menu of Services

MEG can provide a menu of common reductions, attendant emissions factors, and overall reduction benefits to applicants. Some suggestions for this menu include

- 1) Energy
 - a) lighting
 1. install compact fluorescent light bulbs
 2. install motion detection and automated light sensors
 - b) heating/cooling
 1. choose appropriate office temperatures
 2. install automated systems that adjust temperature
 - c) appliance usage
 1. equipment upgrades, i.e. refrigeration, etc.
 - d) renewable energy
- 2) Office Consumables
 - a) buy recycled paper
 - b) recycled and reusable utensils
 - c) computer supplies
- 3) Building Maintenance
- 4) Manufacturing supplies
- 5) Recycling
 - a) paper
 - b) computer supplies
 - c) cans and bottles
- 6) Equipment Upgrades
- 7) Increase efficiency
- 8) Transportation

- a) offer public transportation to employees at reduced prices
- b) promote bike to work days
- c) offer benefits for hybrid cars
- d) offer telecommuting

Costs and Benefits

- 1) Costs savings
- 2) Time consuming - resolved by the extended service plan

Conferences

Reductions for conferences should be divided into indirect and direct emissions. Direct emissions are those emissions which are directly under the conference coordinator's control, including transportation, location choice, timing, water reduction and recycling. Indirect emissions are emissions which the conference coordinator may not be able to control, such as direct emissions from hotels or conference venues. Depending upon what stage of the planning process that MEG becomes involved in, either both indirect and direct emissions can be certified, or just direct emissions.

For either direct or indirect certification, the extended or basic options outlined above can be applied depending on the level of service required by the applicant. For direct emission reductions, the applicant, or MEG, must assess the baseline emissions and reduction projects for transportation, paper use (including advertising and invitations), location, resource use, recycling, and energy efficiency on site. For indirect emissions, the applicant, or MEG, can assess the baseline emissions from hotels and venues and either attempt to reduce emissions within the chosen hotels and venues or choose venues and hotels with carbon emission standards that qualify for certification by the board. (see above).

Once the application has been completed, the board will either certify, deny or notify the application, dependant on achieving a 50% reduction in emissions. The percentage requirement for reduction certification is lower for conferences than businesses due to the inability of conference coordinators to effectively reduce emissions within venue and hotel operations. By choosing certified low emission venues and hotels, coordinators are effectively reducing their emissions.

MEG can provide a menu of reductions for the conferences as well, including:

- 1) Direct
 - a) Location choice
 - 1. distance from attendees
 - 2. distance from public transportation
 - a. airports, train stations, bus depots & public transportation
 - 3. proximity of venue, hotels, eating establishments, etc.
 - b) Heating and cooling impact - by choosing a proper location and season in which to host the conference, coordinator can reduce energy impacts by
 - i. reducing the reliance on heating and cooling systems.

- c) Waste Reduction
 - d) Reduce Input (paper use)
 - 1. recycled and recyclable paper
 - 2. Soy based ink
 - 3. Condense materials
 - 4. Online registrations
 - a. reduces paper use & assists with baseline assessments
 - e) Recycle
 - 1. paper
 - 2. cans and bottles
 - f) Transportation - the coordinator can reduce impacts by researching and supporting low emission transportation options for attendees
- 2) Indirect
- a) Hotels
 - 1. List of certified hotels
 - 2. Energy efficient
 - 3. Water saver program
 - 4. Reusable products
 - 5. Efficient showerheads and toilets
 - 6. Increased maintenance to provide for efficiency
 - b) Venues
 - 1. List of certified hotels
 - 2. Energy efficient
 - 3. Water saver program
 - 4. Reusable products
 - 5. Efficient showerheads and toilets
 - 6. Increased maintenance to provide for efficiency

Following the completion of the certified event the coordinator of the certified conference must provide MEG with a signed report verifying the attainment of all reductions in the application. If the coordinator is unable to attain all reductions, they must buy additional offsets to compensate for increased emissions.

OFFSETS

Because no business will be able to reduce their greenhouse gas emission levels to zero, programs to offset emissions will have to be utilized by all parties that we certify. As stated previously, though, because the gains from offsets are somewhat less direct and concrete as those reaped from reductions, we recommend that an emphasis be placed on reductions for our certification.

For the 35% of allowable offsets, businesses will need assistance in finding organizations and programs that they can contribute to.

Finding/Choosing Offset Programs

There are many different ways to go about offsetting greenhouse gasses. Below is a fairly exhaustive list.

List of Options for Offsetting Greenhouse Gas Emissions:

I. Carbon Sequestration: Carbon Sequestration refers to any process that stores carbon, for the long-term, underground, underwater or in the biosphere.

- 1) Terrestrial Sequestration
 - a) Planting Trees/Vegetation: Plants absorb CO₂ in their natural life process. Planted vegetation naturally soaks up carbon.
 - b) Implementing farming practices that store more carbon in soil: Processes to increase soil carbon storage are currently being researched.
- 2) Oceanic Sequestration (currently in research stage)
 - a) Biomass Fertilization: Fertilizing the oceans with iron and other nutrients leads to growth of phytoplankton, which absorb carbon.
 - b) Deep Water Injections: Injecting carbon into deep ocean waters. The effects of this are not proven.
- 3) Geologic Sequestration
 - a) Underground Carbon Storage: Carbon is stored in natural, underground sites. Examples of these sites are depleted oil fields, empty gas reservoirs, etc.

II. Renewable Energy: Energy sources that do not release carbon into the atmosphere, as traditional energy sources (coal, fossil fuels) do.

- 1) Solar Energy
 - a) Passive Solar Power: Any process that increases the utilization of the sun's heat. South facing window installation and heat-absorbing tiles are examples.
 - b) Photovoltaic Energy: The system of converting the sun's energy directly into electricity using solar cells.
- 2) Wind Energy
 - a) Wind farms use turbines to convert energy from wind directly into electricity.
- 3) Geothermal Energy
 - a) Direct Geothermal Usage: Naturally heated, underground water pumped to the surface and used to heat buildings
 - b) Geothermal Power: Geothermal steam is used to create electricity.
- 4) Hydroelectric Energy
 - a) The energy from gravity powered water flow is used to directly create electricity

Not all of these options are ideal for our climate neutral certification. Ideally, the chosen offset programs should share the following characteristics:

1) Transparency

- a) The benefits of offset programs should be easily monitored and verifiable (i.e. \$X does Y that offsets Z amount of CO₂)

2) Low Cost

- a) Programs should be either fairly cheap. Seattle City Light, for example, aims for programs that cost less than \$10/tonCO₂. We would probably not have the luxury of being as picky for costs, but cost effectiveness should be a high consideration.

3) Avoidance of Other Problems

- a) Some possible offsets create problems of their own, and these should be avoided (i.e. hydroelectric power reduces CO₂, but also disrupts ecosystems, interferes with water levels, etc.)

4) Locality

- a) Programs should be in the Upper Midwest, preference given for proximity to Dane County

There are two possible approaches to finding offset programs. The first approach would be to let businesses find the programs on their own. This would be easiest for Madison Environmental Group, but would place a burden on businesses that may make the climate neutral certification more trouble than it is worth for them. We believe that the best way to find offsets would be to post a proposal board on MEG's website. This way we could call or send pamphlets to non-profits and environmentally beneficial businesses in the area explaining that we have funding to give them if they could provide us with a workable proposal to offset CO₂. Many organizations would surely jump at the chance to obtain some funding for their programs, and we could pick and choose the best proposals according to the criteria listed above. Some organizations that we could try are:

1) Utilities

a) Alliant Energy

- 1. "Second Nature" program allows customers to purchase renewable energy
- 2. "Operation ReLeaf" program sells landscape trees for discounted prices, in Iowa

b) Madison Gas and Electric

- 1. MG&E has renewable energy purchase plans

c) Wisconsin Energy

- 1. The "Rio Bravo Carbon Sequestration Project", for which W.E. is a partner, is involved in restoring forests in Belize with the purpose of carbon sequestration
- 2. W.E.'s "Power the Future" plan is looking to retire inefficient power plants and replace them with plants that emit less CO₂. The plan also directly funds some other sequestration projects

- 2) Non-Profits
 - a) Utilitree
 - 1. The “Mississippi River Valley Bottomland Hardwood Forest Restoration Project” restores hardwood forests on marginal farmland around the Mississippi.
 - 2. Utilitree is currently working on 8 other projects, mostly in the Southeast.
 - b) The Conservation Fund
 - 1. The Conservation Fund is works with companies to find carbon sequestration programs in the Upper Midwest, among other places
 - c) The Nature Conservancy
 - 1. T.N.C.’s “Midwest Forest Restoration Program” seeks to restore native forests in Indiana and Ohio with the explicit intention of carbon sequestration

These, of course, are only some of the organizations that we could contact to inquire about programs. Certainly, local universities and countless other non-profits could also be of assistance.

Step IV: Review of Results

The Review Board ("board") should consist of local, reputable scientists, environmentalists and business people. The board members should remain autonomous from MEG in order to retain the integrity of the certification and reduce the appearance of impropriety. The board should certify those applications which maintain the high standards set by MEG, including 65% carbon emissions reductions, 35% carbon offsets, 100% carbon neutrality. Additionally, the board must not certify infeasible reductions resulting from cost constraints or technical improbabilities. Each certified project must be capable of completion within the first six months following certification.

Following certification, MEG should verify that certified businesses are successfully implementing reduction projects biannually. By remaining involved, MEG provides certified businesses and the surrounding community with assurances of the programs integrity. Additionally, MEG can help certified businesses that may be struggling to successfully implement their programs.

Furthermore, MEG should require certified business to report on the overall success of the program and any problems with implementation every 6 months. The signed report shall consist of a general overview and include reporting of any variations and noncompliance with certification requirements as well as the fulfillment of requirements.

Because the offset programs are conducted by third party organizations, the board must look into the integrity of these organizations before any project is approved. This should be fairly straightforward for the board to do, because good offset programs will produce reports on their own. If the board finds that offset programs have not met the required goals for climate neutrality, the business seeking certification must take the responsibility of funding an additional project to reach a true climate neutral status.

To be fair, a business should not lose its climate neutral certification due to errors in a third party's offset program. If a business does not meet 100% neutrality because of such third party errors, it should have a grace period of 6 months to make up for the gaps caused by them. For example, take a situation in which a chosen offset program only sequesters half of the CO₂ that it predicted, and subsequently a business only offsets 80% of its total climate neutral goal. If the company then offset 120% of that goal in the next 6 month period, it can retain its certification.

Step 5: Awarding the Certification & the Benefits of Certification

As we have shown, a local climate neutral certification program offered by MEG would be an incredibly important and beneficial endeavor for both local and regional businesses as well as MEG itself. The certification offered by MEG will allow for participants to have increased market share, as well as an important means to differentiate themselves from their competitors. Through environmental, business, and media announcements, climate neutral certification can be effectively promoted. Furthermore, as a non-profit organization that works with other environmental and environmentally-aware organizations, MEG could increase its credibility locally as well. Local climate neutral certification is an innovative and unique solution that has not been presented on this level of business before, and it is an opportunity that MEG cannot afford to let go.



Appendix A: HOW TO MEASURE YOUR Company's CO₂ EMISSIONS

You need two kinds of data to calculate your organization's CO₂ emissions. For each emissions source, you need to find the appropriate "activity data" and "emissions factor" to help you apply the following equation:

$$\text{Activity Data} \times \text{Emissions Factor} = \text{CO}_2 \text{ Emissions}$$

CALCULATING ACTIVITY DATA




1. Electricity Use

(area of company's space ÷ total building area) _____ × total building usage of electricity _____ = approximate kWh used by your organization per year _____



2. Natural Gas Use

(area of company's space ÷ total building area) _____ × total building usage of electricity _____ = approximate therms used by your organization per year _____

3.  **Fuel Use**



A. Car Fuel Used in Company-Owned Vehicles

Number of miles traveled by fleet vehicles _____ ÷ average miles per gallon of company cars (or calculate each car separately) = _____ annual gallons of fuel used in company-owned vehicles



B. Car Fuel Used in Non-Company-Owned Vehicles

Ask all employees to report:

Work-related miles driven per week* _____ X distance traveled _____ X number of weeks worked by the organization per year _____ = _____ total annual work-related distance traveled by employee

Add up annual fuel use for all employees = _____ annual gallons of fuel used in non-company-owned vehicles + _____ annual gallons of fuel used in company owned vehicles = _____ total gallons of fuel used



C. Airplane Fuel Use

Ask all employees to report:

Total miles flown per year _____
Add up annual miles flown for all employees: _____ miles

**For carpooling miles divide total trip miles by number of people in car to calculate your share of miles driven.*



CALCULATING EMISSIONS DATA



Emissions From Natural Gas

annual therms of natural gas used by your organization _____ ×
 11.6 CO₂ per therm = _____ lbs. of CO₂ emissions
(1 therm = 1 ccf = 100,000 btus)



Emissions from purchased electricity

kWh of electricity used by your organization × 1.76 lbs. of CO₂
 = _____ lbs. of CO₂ emissions



Emissions from car travel

annual gallons of fuel _____ × 20lbs. of CO₂ per gallon =
 _____ lbs. of CO₂ emissions



Emissions from air travel

annual miles flown _____ × 0.64 lbs. of CO₂ per passenger-
 mile _____ = _____ lbs. of CO₂



Emissions from train, light rail, and bus

Different emissions factors are used for each mode of transport, so each is calculated separately.

Light rail:

distance traveled _____ × 0.35 lbs. of CO₂ per passenger
mile _____ = _____ lbs. of CO₂

Train:

distance traveled _____ × 0.46 lbs. of CO₂ per passenger
mile _____ = _____ lbs. of CO₂

Bus:

distance traveled _____ × 0.90 lbs. of CO₂ per passenger
mile _____ = _____ lbs. of CO₂

Total emissions:

Add the emissions from each mode of transport to obtain the total estimated emissions for all employees that completed the survey.

total emissions from survey group _____ × ratio (number of
employees in organization _____ ÷ number of employees in
survey) _____ = organization's total estimated emissions _____



Emissions from office paper use

To convert reams of paper to pounds of paper, calculate:

number of reams _____ × average weight of ream in ounces ÷
16 _____ = weight of paper in pounds _____

1. lbs. of paper discarded _____ × 1.47 lbs. of CO₂ _____ =
_____ lbs. of CO₂ equivalent** emissions

2. lbs. of paper recycled _____ × 1.82 lbs. of CO₂ _____
= _____ lbs. of CO₂ equivalent**emissions

3. total emissions _____ = sum of 1 & 2 _____

* The emissions factor you use depends on the content of the paper—virgin or recycled. If the paper has mixed content, you will need to adjust your calculation accordingly. The emissions factor also varies depending on the waste disposal method used (recycling, incineration, or landfilling).

**CO₂ equivalent is the standard unit for comparing the degree of harm which can be caused by emissions of different GHGs.

UNIT CONVERSION FACTORS

Type	Unit	Equals	Equals	Equals
Mass	1 pound (lb)	453.6 grams (g)	0.4536 kilograms (kg)	0.0004536 metric tons (tonnes)
	1 kilogram (kg)	2,205 pounds (lb)		
	1 short ton (ton)	2,000 pounds (lb)	907.2 kilograms (kg)	
	1 metric ton (tonne)	2,205 pounds (lb)	1,000 kilograms (kg)	1.102 short tons (tons)
Volume	1 cubic foot (ft ³)	7.4805 gallons (gal)	0.1781 barrel (bbl)	
	1 cubic foot (ft ³)	28.32 liters (l)	0.02832 cubic meters (m ³)	
	1 gallon (gal)	0.0238 barrel (bbl)	3.785 liters (l)	0.003785 cubic meters (m ³)
	1 barrel (bbl)	42 gallons (gal)	158.99 liters (l)	0.1589 cubic meters (m ³)
	1 liter (l)	0.001 cubic meters (m ³)	0.2642 gallons (gal)	
	1 cubic meter (m ³)	6.2897 barrels (bbl)	264.2 gallons (gal)	1,000 liters (l)
Energy	1 kilowatt hour (kWh)	3,412 Btu (Btu)	3,600 kilojoules (KJ)	
	1 megajoule (MJ)	0.001 gigajoules (GJ)		
	1 gigajoule (GJ)	0.9478 million Btu	277.8 kilowatt hours (kWh)	
	1 Btu (Btu)	1,055 joules (J)		
	1 million Btu (million Btu)	1.055 gigajoules (GJ)	293 kilowatt hours (kWh)	
	1 therm (therm)	100,000 Btu	0.1055 gigajoules (GJ)	29.3 kilowatt hours (kWh)
Other	Kilo	1,000		
	Mega	1,000,000		
	Giga	1,000,000,000		
	Tera	1,000,000,000,000		
	1 land mile	1.609 land kilometers		
	1 nautical mile	1.15 land miles		
	1 metric ton carbon	3.664 metric tons CO ₂		