Clean Water Action Council

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SPRING 2019

Climate Change

Think Global, Act Local in Northeast Wisconsin

Introduction by CWAC President Dean Hoegger

President Donald Trump recently escalated his denial of global warming with a Tweet in which he quoted a noted climate change skeptic who stated that climate change is "fake science." Yet, according to the government's *National Climate Assessment,* we are already feeling its impacts in the U.S. The President's response was, "I don't believe it." The Pentagon and the intelligence community have also released reports that warn climate change poses a threat to national security.

In August of 2016, the EPA released *What Climate Change Means for Wisconsin* and the WDNR co-authored *Wisconsin's Changing Climate: Impacts and Adaptation*. Both note we will see more negative than positive impacts on human health and the environment. Clearly, it is time to prepare for climate change, and it is time to reduce our personal impacts on global warming. Learn more about climate change in NE Wisconsin in this issue.

Merchants of Doubt are Losing Their Battle with Climate Change

By Charlie Frisk

"Doubt is our product," a cigarette executive once observed, "since it is the best means of competing with the 'body of fact' that exists in the minds of the general public.

This is a story about two guys named Fred Singer and Fred Seitz. Both men began their lives as highly respected physicists, and both were instrumental in the Manhattan Project to develop the atomic bomb. Unfortunately, they spent the latter decades of their careers using their reputation to get very wealthy as hired guns for the industry.

Seitz and Singer started their pseudo-science careers working for the tobacco industry. Seitz received $45 million from the R.J. Reynolds Corporation to conduct "research" to create doubt that cigarette tar causes cancer. Singer worked for both Phillip Morris and the Tobacco Institute on creating doubt that second-hand smoke had any deleterious effects.

They both moved on from their work with tobacco companies to work for the power industry trying to create doubt that sulfur dioxide from burning coal was the major cause of acid rain. After that failed attempt, they worked for the CFC industry trying to convince the public that the thinning ozone layer was caused by volcanoes rather than the indiscriminate use of CFCs. Seitz and Singer have been on the wrong side of every scientific debate they have weighed in on, but there is always another corporation ready to hire them.

More recently they have been the two scientists best known for being "global climate change deniers".

The scientific consensus that global climate change is happening and is driven primarily by human activities is about as close to 100% as scientists ever get on anything. The 'deniers' have never been more than a dozen individuals, and they have all been paid employees of either the power industry or conservative think tanks. In the case of Singer and Seitz, they were almost always receiving paychecks from both. Seitz recently passed away, Singer is still working for the Heartland Institute, a right wing think tank funded by Exxon and the Koch brothers.

Upton Sinclair said, "It is difficult to get a man to understand something when his salary depends on his not understanding it." Most of the hired guns don't even try to understand real science; they accept that they are paid shills for the power industry.

Most deniers have no actual training in climate or meteorology. These deniers have done almost no original scientific research on any of the issues they weighed in on, their focus surrounds writing opinion papers attacking the research and opinions of the real climate scientists. Those that did conduct research didn't get their work peer-reviewed. All legitimate research is subjected to peer review, an exhaustive examination of their research by their scientific peers to determine if the research is without bias or errors. An unwillingness to submit their research to peer review is an admittance that their research would not withstand the rigors of the review.

So, how can a few individuals, most of whom have been on the wrong side of every scientific debate, have such an impact on public opinion? To start, they have huge amounts of money behind them. In the case of Singer and Seitz, their experience in the Manhattan project gave them contacts in the highest levels of government and industry. George H.W. Bush referred to Singer and Seitz as "my scientists".

Secondly, the press bends over backward to present both sides of an issue. Even if there are thousands of scientists who believe that climate change is happening, and only a handful of deniers, the press presents it as if there is a robust scientific debate over the issue. Then, we have news stations such as Fox News that only present the viewpoint of the deniers.

Fortunately, it appears that the "merchants of doubt" are losing their battle for the minds of the public. A recent study by the Yale Program on Climate Change Communication found that 73% of Americans believe in climate change, and 72 % believe it is personally important to them. Just a few years ago those statistics were hovering around 50%. The Yale study determined that the extreme weather events of the past few years are most responsible for driving the change in opinion.

Unfortunately, most members of one entire political party are on record as officially being deniers. Only when the public is close to 100% agreement on climate change can that party to be forced to do anything about it.

What can you do to help? The next time someone says to you that they believe there is legitimate scientific debate on climate change, be prepared to counter with these points.

- The scientific community has reached a consensus that climate change is happening and is caused by human impact. The consensus on climate change is as strong as on the "germ theory of disease".
- The denier "scientists" have never been more than the handful of individuals, never more than a dozen.
- The deniers have all been very well paid by industry and conservative think tanks such as the Heartland Institute, a right-wing think tank funded by Exxon and the Koch brothers.
- Climate change is moving more rapidly than even the top researchers had predicted, we do not have time to waste if we want our descendants to have a decent world to live in.

Global Climate Change and the Affects It Has on Wisconsin

By: Charlie Frisk

When I think about global climate change, I usually focus on global impacts; after all, global is in the name. However, there are many impacts already being felt right here in Wisconsin.

My favorite winter recreation is cross-country skiing. When I moved to Wisconsin in 1983, most winters provided good skiing conditions from at least December through February. Now, cross-country skiing is more hit or miss. This year there was little or no skiing through the New Year, depending on where you were in Wisconsin. Then we had great snowfall, followed by the Polar Vortex, and it looked like there would be good conditions for the rest of winter.

No such luck. The extreme cold was followed by temperatures in the 40s and the beautiful snow turned to slush.

Winters like what we had in December and January are now more the rule than the exception. To have consistently good skiing, I might have to move to Canada.

In the summer, my favorite recreation activity is white-water canoeing. Climate change is impacting this as well. Rivers are becoming a lot flashier, meaning that their high-water levels are higher, and their lows are lower. The late Herb Buettner, pioneer of the rafting industry on the Wolf River, told me he could never remember a summer in the early decades of his business when they had to close their rafting business because the river was too low to float rafts, or so high it was too dangerous.

Now the rafting industry on the Wolf shuts down for a period of time almost every summer because the water is either too high or too low. Frequently, both extremes occur in the same summer. Twice during the past 10 years I have canoed the Wolf when the rafting companies shut down because the water was too high; one time the water level was the highest it had been in 46 years, and another time the highest in 98 years. Those were both events that would have been considered 100 year floods, and they occurred in the same decade.

Another impact of global climate change is more extreme weather events. Throughout much of the Midwest, experts predict that total precipitation won't change that much but it will come in fewer, more extreme rainfalls. Higher temperatures have led to the trend for average water levels to be lower. The DNR has projected that many of Wisconsin's white water rivers will be consistently too low for paddlers all summer unless we turn this global climate change thing around.

I enjoy grouse hunting, although I can rarely hit them. Grouse run on a ten-year cycle between high and low populations. The falls of 2018-20 grouse were supposed to be at the peak of their cycle. This was going to be perfect for me. My bird dog is 10, and although slowing down a little, I figured she still had three good years in her. Unfortunately, West Nile Virus, a disease transmitted by mosquitos, decimated the Midwest grouse population. It appears that there will be no peak in the cycle.

It is very difficult to prove that West Nile Virus is becoming more of a problem in the Midwest because of global climate change, but I believe the circumstantial evidence is strong. According to Kim Knowlton, senior scientist and deputy director of the Natural Resource Defense Council, "A longer warm-weather season and changing rainfall patterns are allowing the insects that can transmit disease to humans and wildlife to thrive for longer periods each year, and to simultaneously move into broader areas." As the climate warms, we can expect diseases and pests that were formerly found further south to move into Wisconsin. When I lived in Southwest Iowa in the late 70s-early 80s, we had cockroaches and termites. When I moved to Northeast Wisconsin I left them behind. I will not be one bit surprised if they catch up with me in the next couple of decades.

Another nasty pest that has expanded its range and is increasing in population is the deer tick, a.k.a. the black legged tick. Unfortunately, this is the tick that spreads Lyme disease. Lyme disease can also impact dogs, horses and cattle. Fortunately, there is an effective vaccine for dogs, and I make sure to keep my dog's Lyme vaccine up to date.

The list of impacts global climate change will have on Wisconsin is far too long to cover in this article; that would require a book. The DNR has predicted that if society does not greatly reduce production of greenhouse gases, the brook trout, Wisconsin's only native stream trout, will disappear from Wisconsin by 2050. The ruffed grouse and loons will be gone by 2100. Snowmobile and ice fishing seasons will be shorter and may largely disappear from the southern portion of the state. Many of our woodland and grassland nesting birds will disappear. Farmers may be forced to switch to crops that tolerate a warmer climate, and Wisconsin may cease to be "America's Dairyland".

There are critics who would say, big deal, those birds and brook trout will still exist in Canada and other northern climes; but as Aldo Leopold said when talking about the extirpation of the grizzly from the lower 48, "Relegating the grizzly to Alaska is about like relegating happiness to heaven; one may never get there." For our generation to live a lifestyle that denies future Wisconsinites the opportunity to hear the haunting call of the loon, be startled by the explosive flight of a ruffed grouse, and to see the beautiful colors of the brook trout is unbelievingly sad and wrong.

Melting Polar Ice: What is the Worst That Could Happen?

By Charlie Frisk

We are continually seeing headlines saying things like, "Poles Warming Faster than Predicted," or "Polar Ice Disappearing Faster than Predicted." Scientists have a tendency to be conservative in their predictions because they are very careful not to state anything that their research couldn't back up. If you have been following the global climate change (GCC) situation for the past few decades, you have probably noticed what is happening out there on planet Earth has consistently outpaced the predictions of scientists.

There are a lot of feedback loops affecting GCC. For example, the warmer it gets, the less snow there is on the ground and it doesn't last as long. Snow reflects light and dark earth absorbs light, so this results in a feedback loop that speeds up warming. The zillions of tons of methane trapped in the permafrost of the Arctic and Antarctic also poses a large risk. Methane is a far more potent greenhouse gas than carbon dioxide. Melting permafrost would release large amounts of methane into the atmosphere, which in turn would cause a significant feedback loop. Furthermore, the Arctic and Antarctic pack ice reflects light and the dark water absorbs light, creating yet another feedback.

Predicting the impact of these feedback loops is very difficult, so there has been very little published about potential impacts. However, a few scientists have been willing to stick their necks out on this. NASA has been following the increasing shedding of ice from Antarctica. The Vincennes Bay Glaciers have dropped 10 feet since 2008, and the speed of melting is accelerating.

The Vincennes Bay Glaciers are crucial because they block the inland Aurora and Wilkes ice basins from falling into the sea.

According to NASA, if the Aurora and Wilkes ice basins collapsed, sea levels could rise by up to 92 feet. That would submerge every coastal city in the world. We could kiss Miami, NYC, Seattle, San Francisco, and New Orleans goodbye.

The National Oceanic and Atmospheric Administration (NOAA) found that 2018 was the second warmest year on record in the Arctic and the 2nd worst year for melting sea ice. The world's northernmost region is now so warm that it sheds ice even in the Arctic winter. Toxic algae blooms, typically a warm-water phenomenon, are increasingly common in the Arctic, fatally poisoning seals, walruses, and whales. "The Arctic," said NOAA researcher Emily Osborne, "is experiencing the most unprecedented transition in human history."

Nothing makes a person quite so willing to speak out as imminent death. Shortly before he passed away the late, great scientist Stephen Hawking stated, "We are close to the tipping point where global warming becomes irreversible. Trump's actions could push the Earth over the brink, to become like Venus with a temperature of 250 degrees, and raining sulfuric acid."

Occasionally I fantasize about young conservative politicians having to admit they were wrong when Miami and New Orleans have disappeared under the sea level rise, but if Hawking is right, that will never happen. We will all be dead, and there will be no one left to apologize, or to apologize to.

Personal Changes to Fight Climate Change

By Caitlin Cravillion

Climate Change is a global issue that many feel hopeless about because they feel as though they can't change the direction that society is taking. The truth is, there are small changes individuals can make to their personal lives that reduce their individual contribution to climate change. These small individual changes, added up, can have huge impacts on combating climate change.

Several changes that can be made on an individual level include implementing a more plant-based diet, or simply reducing one's meat intake. We can choose organic food producers and products that use sustainable practices as well as reducing the amount of individual food waste.

The current global food system is one of the largest contributors to climate change. Estimates of agriculture and food system activity emissions contribute to nearly 33% of all global emissions.

A study done by *Nature*, *the International Journal of Science* shows that between 2010 and 2050, as a result of expected changes in population and income levels, the environmental effects of the food system could increase by 50–90% in the absence of technological changes and dedicated mitigation measures. Reaching these levels would push humans beyond the planetary boundaries that define a safe operating space for humanity.

The first simple change an individual can do is change what they eat.

Animal food production leads to negative effects including increased greenhouse gases from their manure, deforestation for cropland, water shortages from massive farming, and vast freshwater and saltwater dead zones from agricultural pollution.

About 30% of the world's total ice-free surface is used not to raise grains, fruits and vegetables that are directly fed to human beings, but to support the chickens, pigs and cattle that we eventually eat. Livestock production uses roughly one-third of the world's fresh water.

So, what can be done? Choosing to reduce the amount of meat in one's diet has a larger positive impact on the earth than choosing to recycle or taking the bus. Meat production is highly inefficient and has a huge carbon footprint.

Although switching to a meat/dairy-free diet may not be practical, choosing to commit to reducing your meat and dairy consumption by a few meals per week can be. Implementing more fresh fruits, vegetables, and other proteins is an attainable goal.

One option that is being promoted around the US is called a flexitarian diet, which is predominantly a plant-based diet. This diet includes plenty of fruits, vegetables, and plant-based protein sources including legumes, soybeans, and nuts, along with modest amounts of poultry, fish, milk, eggs, and small amounts of red meat.

Another small change one can make is choosing to switch to sustainable, organic, and local food producers. By choosing organic, sustainable products as a consumer, you support farming that fights climate change by trapping temperature-raising carbon in soil, keeping it from contributing to the greenhouse effect.

Northeastern University's National Soil Project, showed soil from organic farms is 26 percent better at retaining carbon — and retaining it for longer periods of time — than soil that's farmed with conventional methods and synthetic fertilizers.

Choosing sustainable and organic products usually means choosing products that are distributed locally. As a result, less energy is used for transportation which automatically reduces carbon dioxide emissions. Fortunately, living in NE Wisconsin provides residents with many environmentally friendly producers.

As a consumer, you can search for organic farmers in your area or ask a manager at your local grocery store which products they supply are organic, sustainable, and from local farms. One example is the SLO Farmers Co-op, an emerging producer's cooperative in Northeastern Wisconsin that was formed in 2014. Another resource for organic and sustainable producers specifically located in NE Wisconsin is the *Farm Fresh Atlas*. A simple Google search will link you to a printable PDF of the document. The atlas is updated every year and includes farms, locations, the produce supplied, farm certifications, distributions of products, and more.

The final individual change mentioned is reducing one's food waste. Food loss and food waste are happening on all levels of the food supply chain. A NRDC 2017 report states that America does not eat 40 percent of the food it produces for citizens. This includes the whole food life cycle that many refer to as the farm-to-fork-to-landfill cycle that food makes.

20 billion pounds of produce go to waste on farms every year, often because it's too "ugly" for grocery stores' strict cosmetic standards. One company called Imperfect Produce sells produce that grocery stores aren't willing to purchase due to cosmetic standards for fruit. The company's mission is to work towards the elimination of food waste and build a better food system for everyone. Imperfect Produce sells their produce for 30% cheaper than what a customer would find at a grocery store, and it's much fresher.

About 150,000 tons of food is thrown away in U.S. households each day. This is equivalent to about a third of the daily calories that each American consumes. This waste has a huge environmental toll. The volume of discarded food is equivalent to the yearly use of 30 million acres of land, 780 million pounds of pesticide and 4.2 trillion gallons of irrigated water.

So how is food being wasted by consumers and how can it be fixed? Poor storage, poor planning, and impulse or bulk purchases are the main factors in household food waste. This can include suboptimal storage, poor visibility in refrigerators, partially used ingredients, failed meal plans, inaccurate estimation of meal portions, going out to eat, and buying because it's on sale.

Overall there any many simple changes individuals can make in their personal lives that can have huge impacts. Choosing to reduce one's meat intake has a huge impact. Living in NE Wisconsin we are fortunate to have so many environmentally friendly food producers that allow us to choose organic and sustainable food options. With food loss and waste happening from farm to plate, we can choose to make better choices in reducing waste and in turn, reduce our ever growing global footprint.

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Tell Congressman Mike Gallagher to Support Carbon Fee and Dividend

By John Hermanson

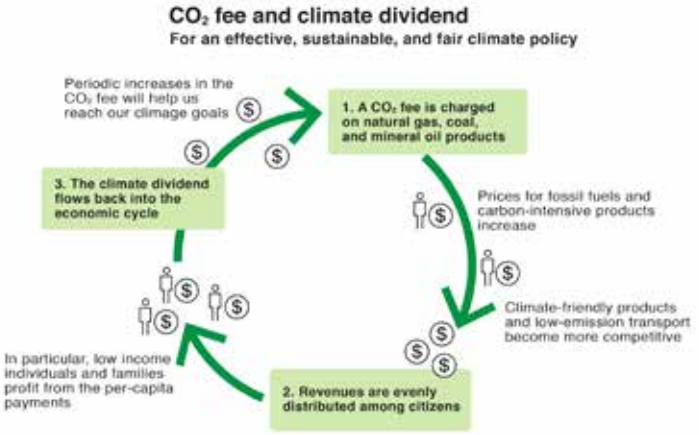
This is a case made for Congressman Mike Gallagher to support the bipartisan Energy Innovation and Carbon Fee and Dividend Act that is currently gathering sponsorship in Congress.

A carbon fee and dividend concept has been around for quite some time and has been refined over the years by economists and in particular a nonpartisan group, Citizens' Climate Lobby, that has 506 active chapters in the U.S. A carbon tax (fee) and dividend (nearly all fees collected go back to individuals except a small amount to administer the program) proposal was recently heralded by a group of 45 prominent economists with a letter submitted to the *Wall Street Journal*. The list of economists includes virtually every chair of the Council of Economic Advisers since the 1970s, including Alan Greenspan,

Ben Bernanke, and Janet L. Yellen along with several Nobel laureates in economics.

The letter states that "a carbon tax offers the most cost-effective lever to reduce carbon emissions at the scale and speed that is necessary," calling climate change a "serious problem" that needs "immediate national action."

The letter goes on to say, "The majority of American families, including the most vulnerable, will benefit financially by receiving more in 'carbon dividends' than they pay in increased energy prices."



A carbon tax is justified since fossil fuels are getting a free lunch the rest of us pay for. According to Dana Nuccitelli, a climate scientist, based on a 2017 study by the journal *World Development,* Americans effectively subsidize fossil fuel businesses by over $2,000 per year per American.

To add insult to injury, the U.S. is providing $26 billion per year tax benefits to the fossil fuel industry including public finance for coal-fired power plants, tax breaks and loopholes especially on public lands and extensive fiscal support for domestic oil and gas production.

The 4th National Climate Assessment (2018) warns in a worst case scenario, global warming costs could total 10% of the U.S. GDP by the end of the century.

Nationally, opinions about climate change are evolving. A majority (73%) of Americans are concerned about climate change, including 90% of Democrats and 66% of Independents. However, the largest gain in concern has been among Republicans, reporting a 9-point increase in concern since 2015 (from 45% in 2015 to 54% in 2018, with a peak of 59% in 2017) according to an ecoAmerica survey (September 2018).

Former Republican Representative Carlos Curbelo of Florida warned as he left his Washington office after the 2018 elections that Republicans must deal with climate change: "My party will never earn the votes of millennials unless it gets serious about finding solutions." He was a leading supporter of a carbon fee and dividend proposal but lost to a Democrat that had a perceived stronger position on climate mitigation. Certainly, having a climate denier Republican President did not help his case either.

In Wisconsin the tenor on the issue of climate change and the economy has taken a large turn.

Solar, wind, and energy efficiency are being chosen over coal and in some cases over natural gas by utilities. It has been shown to be more cost effective to close some coal plants because they are more expensive to operate than build and operate new wind and solar. Reducing energy demand through efficiencies that Wisconsin's *Focus on Energy* has helped deliver is also a great investment.

Governor Tony Evers recently attended *Wisconsin's Renewable Energy Summit* to declare science is now the decision driver and it shows there is no need to choose economic interests over environmental interests since they are proving to be the same.

The recent UW think tank *COWS* study shows a clean homegrown energy economy would provide 162,000 extra jobs while avoiding the $21 billion a year in health care costs fossil fuels cause, increase the Wisconsin GDP by almost 5% and add $570 million in state tax revenue each year. David Abel, a UW energy researcher and one of the studies authors, explains the combination of renewable energy and gains in energy efficiency would result in an overall net decrease in total spending of 3% for Wisconsin's energy costs.

In a recent survey participants overwhelmingly said 'yes' to The Green New Deal as described as: "Producing jobs and strengthening America's economy by accelerating the transition from fossil fuels to clean, renewable energy… generating 100% of the nation's electricity from clean, renewable sources within the next 10 years; upgrading the nation's energy grid, buildings, and transportation infrastructure; increasing energy efficiency; investing in green technology research and development; and providing training for jobs in the new green economy" (81% of registered voters, 92% of Democrats, 88% of Independents, and 64% of Republicans)." Findings from *Politics and Global Warming* survey (Dec 2018).

By utilizing the above information, it is hoped Rep. Gallagher will support the *Energy Innovation and Carbon Fee and Dividend Act*, and that he will support other actions addressing climate change and improving our economy.

Climate Change, Wisconsin, and You

By Lauren Felder, CWAC Intern

In the years between 2000 and 2014, the United States took measures to drastically cut its greenhouse gas emissions in an effort to reduce the country's contribution to climate change. During this time, several states outpaced Wisconsin in their emissions reduction even though Wisconsin had previously been a leader in emissions control efforts. The emission reduction average in Wisconsin was 12.7% while the national average was 18.1% over the same fourteen year period. Recently, Wisconsin has made an effort to reinstate itself as a frontrunner in reducing emissions, but not necessarily as a unified state. The main actors in reducing emissions in the state are, in fact, cities, counties, and citizen groups. These actions have the added benefits of keeping electricity bills

low for the public and pleasing stakeholders in businesses by switching to renewable energy sources.

Solar energy, in particular, is becoming mainstream in Wisconsin. For example, in January 2019, Madison College finished setting up the largest array of rooftop solar panels in Wisconsin. Furthermore, the solar energy industry is seeking to create "solar farms," as exemplified by Invenergy Badger Hollow Solar Farm, which is one of the largest solar energy projects planned on cropland in the U.S.

Several counties, cities, and municipalities in Wisconsin have made efforts at the local level to pass resolutions to reduce emissions. Madison, Eau Claire, and Middleton each passed a resolution to solely rely on renewable energy sources by 2050. More than 140 communities in Wisconsin have made it their goal to use renewable energy sources for a quarter of their energy needs by 2025. Property Assessed Clean Energy (PACE) financing has assisted property owners in more than thirty counties to obtain loans to source their household energy from renewable sources and improve energy efficiency.

On an even more local level, citizens have partnered with governments to form sustainability committees. These committees advise local officials on the best course of action for both the community and the environment. Green Bay participated in this movement by creating a sustainability commission for the City Council in 2018.

These efforts are a huge step forward in reducing state greenhouse gas emissions and bringing Wisconsin back up to the forefront as a producer of very few emissions. However, efforts at the state and local level can only get so far; Wisconsinites have to be personally invested. ***So how can you help reduce greenhouse gas emissions in Wisconsin?***

When you're at home:

- Switch to a company that provides renewable energy to power your home with sustainable energy practices. Most companies in Wisconsin do not provide energy from renewable sources. Some, like We Energies, support home-installed solar panels and wind turbines. Recently, Madison-based companies Alliant Energy Corporation and Madison Gas and Electric have contracted with renewable energy sources for their customers. A Green Bay-based company, Wisconsin Public Service, has followed suit.
- Install water conserving shower heads, faucets, and toilets as well as energy efficient light bulbs.
- Use SMART technology to track and control the energy you use within your home, such as to turn off lighting and heating in rooms no one is currently using.

When you eat:

- Eat local produce that has been sustainably sourced. Try to choose foods which are in season to cut down on emissions from importing food.
- The meat and dairy industries produce large amounts of greenhouse gases. Consume less meat and dairy products to reduce these emissions.
- Eat a variety of foods to support the way ecosystems naturally work. Constant farming of the same type of crop is not good for the soil. Switching the type of crops grown in one area and in turn eating a variety of produce supports the natural cycle of the environment.

When you travel:

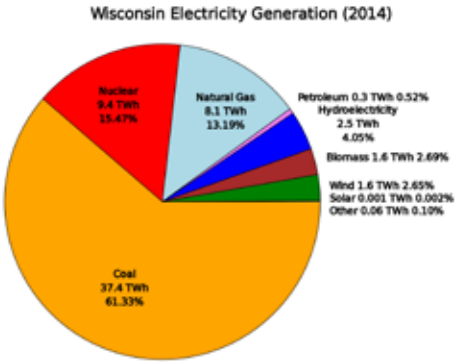
- Ride a bicycle wherever possible. Cycling produces no emissions and removes cars, which cause congestion and pollution from the road.
- Use public transportation as an alternative to driving. The removal of even one car from the road results in less carbon dioxide production.
- Improve the fuel efficiency of your vehicle; remove excess weight, maintain correct air pressure in the tires, and slow your travel speed by about six miles an hour. Of course, hybrid and electric vehicles are always an option as well.

Other considerations:

- Buy one expensive thing made of quality material rather than buying several cheaper products. This cuts down both on waste and carbon emissions from importing and exporting goods.
- Buy secondhand products to further reduce waste.

We need to exchange the coal section of the pie chart with solar, wind, and other renewable energy sources.

Climate change is often thought of as something only large



Courtesy of Wikimedia Commons.

corporations and governments have any control over. While it is true that corporations put out huge amounts of emissions and governments are the entities which try to control these outputs, every little bit helps. If every person in the world were conscious about their actions and participated in renewable practices, greenhouse gas emissions and climate change would be globally reduced.

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Time's Running Out, But the Sun Isn't

Jace Hannemann, CWAC Intern

We live in a time where a news headline changes every day. Meanwhile, the greatest issue of them all quietly waits to be recognized by someone; climate change. It's like a large cloud high up in the sky. People don't notice the cloud until it covers up the sun momentarily on a summer day. However, when it does you look up, then go back to whatever you were doing knowing it will pass. Sure enough, a few moments later the cloud lazily drifts away and the warmth and brightness return.

This reaction is so automatic, no one panics that they won't see the sun again. It's this same reaction climate change sparks in all too many people. After events happen, the news talks about how climate change will become the new norm while people on TV debate what can be done to help stop these disturbing trends. Then, after a week or so, it goes away, and life returns to normal. Just like the cloud.

This trend of ignoring the obvious needs to stop. Climate change has been here since the dawn of time, causing disturbances both large and small. The difference now is that humans are accelerating this process, and we are running out of time to stop the abnormally devastating effects.

China was once the largest polluter in the world. Images of Chinese citizens walking the streets of Beijing wearing masks is something we have all seen. So why are they now heralded as the torchbearers of the environmental movement? Last year, China hit its "peak" in carbon emissions, meaning from that moment on, they have been reducing their carbon emissions every day. They did all of this in accordance with the *Paris Climate Agreement* signed in 2015, but they did it 12 years earlier than expected.

China is now outspending the United States in clean energy development and has three of the top five largest solar farms in the world in terms of energy capacity. The country has the largest functioning solar farm in the world, Tengger Desert Solar Park in Zhongwei, Ningxia, China. It has the capacity to produce 1,547MW, or 1,547,000,000,000 watts (1.547 trillion) and is known as the "Great Wall of Solar." The solar farm itself covers roughly 16 sq. mi.

Photovoltaic power stations, or solar farms, use photovoltaic panels to capture the sun's energy and convert it into usable energy. Common solar panels can be found on a calculator screen, on roofs of homes and businesses, and in the shape of flowers on the campus of NWTC in Green Bay. 1MW (megawatt) of energy is equal to 1,000,000 watts or 1,000 kilowatts. 1MW can provide enough power to roughly 200 homes continuously depending on certain factors.

If we do the math on China's Tengger Desert Solar Park, it is able to power 310,000 homes. Take a second to grasp how remarkable this is. 310,000 homes, millions of people receiving power from 100% clean and renewable energy. This is just one of China's massive installations.

Green Bay isn't able to build a 1,550MW solar farm but that doesn't mean nothing should be built. Even a 50MW solar farm (3% of what China has in the Tengger Solar Park) could power up to 10,000 or more homes. This can be achieved by building one "solar park" in some open land around Brown County, or by scattering solar panels around the city with the energy going back to a single battery power plant, then dispersed. Cost will always be the first question of projects like this, and rightfully so. 1MW of power costs about $1 million. 50MW would cost $50 million which seems like a lot, however it's half of what Brown County is spending on the new expo center replacing Shopko Hall. Maybe it's time we sort out our priorities as a city and ask what's really important.

Out by Austin Straubel International Airport would be the perfect location for a solar farm because there is enough land for the solar panels as well as the battery farm necessary to store the energy from the days when the panels didn't get full energy input.

On February 13, 2019, Governor Tony Evers added Wisconsin to a list of 19 other states that are committed to upholding the Paris Climate Agreement. This is important because President Trump pulled the U.S. from the agreement. This means that Governor Evers and Wisconsin are committed to investing in clean and renewable energy.

Hopefully, Wisconsin will soon join countries like Germany who have days when they are net positive on energy. This means Germany takes in so much energy from their massive solar infrastructure, that they have an excess of energy as an entire country! This isn't some distant utopia, it's a feasible reality that can and is being done around the world already. The question is, will we the people make our voices loud enough so those in charge take action? Or, will we stay silent, ignorantly thinking the "cloud" will drift past while not realizing the storm that is climate change, hovers above?

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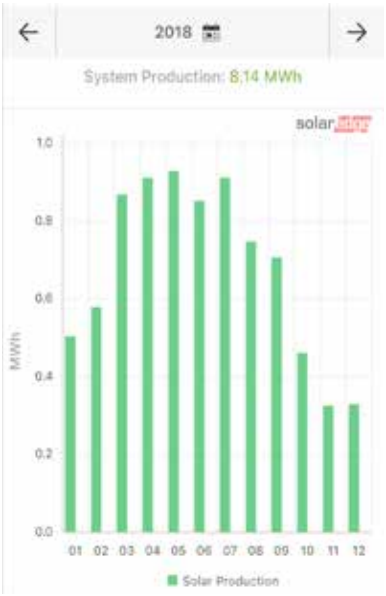
Solar in the Shadow of the Frozen Tundra

Dave Verhagen

Living in a region famous for the "Frozen Tundra" of Lambeau Field, does it make sense to buy a photovoltaic solar system. PV solar has been in the news since the 1980s, forever promising lower cost. We now know that they make sense in sunny California, but what about here in northeast Wisconsin?

We live south of De Pere and built a system in late 2014. It is producing about 8,000 kilowatt hours of electricity per year thus far, despite our less than ideal climate. The output varies by month, but so does our consumption. The green bar chart below shows just how much more power is produced in summer versus winter. It is our experience that the system produces more energy than we consume from February through June, holds its own July through October, but fails to deliver enough power during the short, cloudy days of November, December, and January.

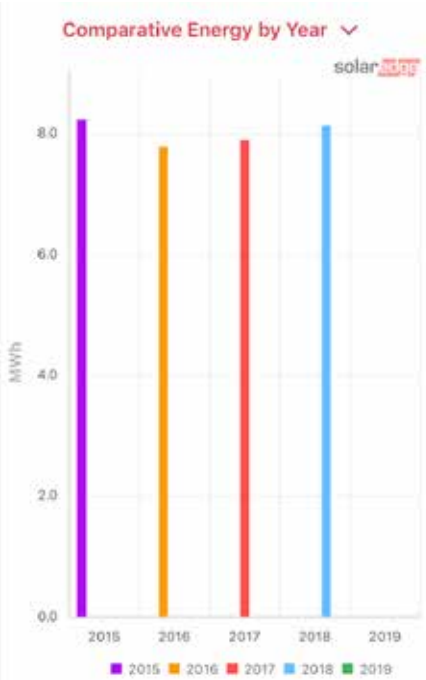
We sized our system to provide 90% of our electrical needs. So far it is producing over 93%. We still heat our potable water electrically. A natural gas water heater would mean we could make more electricity than we consume, but our old log home doesn't lend itself to adding a chimney or side venting.



Monthly 2018 PV Output

Our system only produces its maximum instantaneous output during a week or so around the Spring Equinox. The angle of the panels is nearly perfect then, and the air is clear. You might expect the Fall Equinox to match the spring, but it does not. By fall the air is thick with debris from agricultural harvests and alive with all manner of seeds, spores and insects that scatter the sunlight, reducing its intensity.

So, that is the big picture. The average U.S. home is 2,700 sq. ft. in size and uses 867-kilowatt hours of electricity monthly. Your home is probably smaller and uses a bit less. You can examine your own utility bills and find out how much you do consume right from your monthly bills.



Our system is a grid-tied array of 20 panels operating as two strings, or circuits, of ten panels. Each 295-watt panel has its own Optimizer/Safety Disconnect built by Solar Edge to reduce energy loss due to shadows or other issues. The 6000-watt inverter is connected to the local utility on a net billing basis. We live in the country and have enough land to have built our system on a ground mount. Good thing, too, as it allows for easy maintenance. By which I mostly mean snow removal.

Our mid-winter days only last nine hours. The sunlight is weak as a result of the low arc the sun cuts across the sky. The National Weather Service data predicts the generally cloudy conditions. Frequent "Alberta Clippers" dust the panels with snow. The sun will melt the snow and ice off of the panels, but at the cost of hours, maybe many hours of production. That is where the maintenance part happens.

We chose a fixed angle ground mounting for the panels because it is cheaper to build, and panels have become so inexpensive. A moveable mount that tracks the sun's position in the sky would collect more sunlight and produce more electricity. But such a moveable array that can handle a 90-mph wind load and a 40-pound snow load is expensive to build and requires maintenance. A simple to construct fixed angle mount easily meets code requirements. So, for overall cost, it is cheaper to add more panels than to build a moveable, sun-tracking mount.

Now, adding even more panels would produce more electricity than we use every month, but taking financial payback into account, that would have been a poor decision. As built, our system has a 7.5 year payback. Much better than the stock market, as electric rates never go down. And as the system has a twenty-five year warranty, it will last longer than I anticipate living here. Thus, it will still have value when we sell our place and taking its residual value and sale price into account when we do sell reduces our payback time even more.

We considered a standalone system with batteries instead of a grid-tied system but decided batteries were not ready for prime time. That is changing. Battery prices for home, automotive, and utility use are dropping rapidly. Soon enough, batteries and balance of system components will make sense. Very soon, within three years, battery electric cars will be cheaper to buy than gasoline powered vehicles. And the home charger that will come with such cars can utilize the car's battery pack to provide storage for solar power and backup power to your home during a power outage. Electric cars today have enough batteries to run a household for days at a time.

If you haven't given solar much thought, it is time to reconsider. They are a better investment than any annuity, and they provide you a means of personal action against the crisis of climate change.

Loss of Public Transportation Contributes to CO_2 Emissions

By Cindy Carter

Several years ago, Greyhound Lines announced that it would end service to 260 stops in 13 states. 12 of those states are considered mostly rural, but the 13th state, Wisconsin, has seen some of the biggest impacts in terms of people affected. Greyhound enacted the cuts to save money, however, no actual numbers have been given as to how much money they plan on saving.

Greyhound stated that it will continue to concentrate on its more profitable routes. In Wisconsin, there are still several cities that will continue the bus service, but route times are limited. Cuts to Greyhound Lines and other means of public transportation could be accelerating the effects of climate change. These cuts lead to a greater dependency on personal vehicles, and with that increase in personal vehicles comes higher levels of CO_2 entering the atmosphere. Instead, Wisconsin along with many other states facing the same issue, should invest in various means of public transportation.

Right now, transportation is one the largest emitters of greenhouse gases, but ways to clean it up or do things differently lack the attention they need. With that being said, recently there have been various focus groups dedicated to enhancing public transportation access and affordability. A focus group was formed in Wisconsin several years ago under the name Arrive Together. This group is made up of ESTHER - Fox Valley, Sierra Club, WI Council of the Blind, 1000 Friends, and WisPIRG Foundation, and was formed to study issues and bring forward legislative ideas for the "growing need for transit access across the state.

Some out-of-state examples of actions that have already been enacted include California, where eight of the state's largest ten transit agencies are already operating some zero emission buses powered either by batteries or hydrogen fuel cells. Another example can be seen in Luxembourg, where the country began making its public transportation system free to people under 20 years old. Luxembourg also provides free shuttles for school children to and from their homes and schools. Switches like these encourage many of the people who currently drive personal vehicles every day to switch to public transportation instead.

Closer to home, many cities in Wisconsin provide local bus service. However, many do not run after 10 p.m. or on Sundays. To combat this issue, a service in Appleton called "The Connector" operates outside of regular hours for those who need it, but it lacks funding. Appleton's mayor, along with many other local leaders and some state legislators, are on board with a regional transit authority.

So, what's the hold-up? The issue is funding and political will. Many politicians don't see a need for public transportation because they believe that most citizens have access to a vehicle. I believe many politicians have a dependency on their donors, especially the oil and gas industry.

The talk coming from Madison, especially for the last 8 years, has been that Wisconsin needs major highways to be competitive in the 21st Century. The concentration on interstates and highways is not working for everyone though. Our bridges are in critical condition, local roads are rated poor or worse, and the state has not increased investment in public transportation for over 15 years.

The focus on major highways has been at the expense of everything else, including public transportation and local roads. Today, nearly 20% of Wisconsin's transportation budget goes to repay the debt taken on from past expensive interstate/highway projects. Highway miles traveled have increased 250% since 1960, and the trend is expected to continue. Low fuel prices, less access to public transit and highway expansions are just a few of the contributors. Wisconsin needs to instead invest in other means of transportation.

Here are several reasons Wisconsin should stop wasting money on highway expansions to combat climate change:

- We have better options for people and the planet: public transportation.
- Our health has been affected: exhaust fumes and carbon monoxide, as well as noise from cars, create health issues. We need more bike-friendly and walkable streets, alongside expanded public transportation options
- Technological advances are changing the face of our transportation system, including Uber, Lyft and autonomous vehicles. This leads to the younger generation driving less, looking for better transportation options like Uber and Lyft.

Tony Evers' administration has started a commission regarding transportation issues. Appleton Mayor Timothy Hanna and Senator Dave Hansen are two local politicians who will sit on this board along with other experts.

One potential solution could be a gas tax. Gas has been relatively cheap for over a year, but it is time to encourage people to drive less and grow some funding for a transportation system that works for all of us.

Another option is having a strong rail network for transporting people, freight, and agricultural products instead of transporting by truck.

Increasing public transportation and alternative transportation options will reduce CO_2 emissions in Wisconsin, which can have a world-wide impact on the factors contributing to climate change. But we must act soon!

Electric Vehicles Making a Positive Impact Toward Global Warming

By Dana Wunsch, CWAC Intern

Motor vehicles are a major contributor to global warming. Vehicles emit harmful pollutants such as carbon dioxide and other greenhouse gases which are a major cause of global warming. One way global warming can be measured is through the rise in temperature, which affects air, soil, and water. This leads to impacts in farming, wildlife, sea levels, and natural landscapes.

Pollutants from cars have also led to health problems for humans including eye and skin irritation, and respiratory distress. Electric vehicles are one solution that has started to help moderate global warming and human health.

Electric vehicles were introduced more than 100 years ago, but they have just started to rise in popularity. They are helping people save money at the gas pump, along with helping the environment. Two major regulations which have helped change interest in electric vehicles were the passage of the 1990 Clean Air Act Amendment and the 1992 Energy Policy Act. The Department of Energy states that electric vehicle sales will increase nearly seven percent, or 6.6 million per year, worldwide by 2020.

Car & Driver

One vehicle that is taking advantage of this wonderful solution is the Hyundai Kona Electric. The Hyundai Kona Electric is an electric vehicle, which also has a sporty edge, making people turn their heads when it drives by. Electric vehicles are not just something people are going to be driving because they want to protect the environment; people are going to be driving them because they are the new trend in transportation. These environmentally friendly cars have made an appearance in Europe, but now they are heading to America. The Kona electric is going to be available at an affordable cost compared to the newest models of electric vehicles. People are already afraid that there is going to be more demand than supply with such a new classy product.

Wisconsin has been working to produce clean transportation, but needs to do more. Twenty-five percent of Wisconsin's energy consumption is due to transportation, so the state has used this as an opportunity to promote renewable energy use in vehicles instead of fossil fuels. With the rise in electric vehicles, there have been increases in meeting the demands for them. For instance, in the Kohler Company parking lots in Kohler, WI there are parking areas for electric cars. People are able to plug in their cars while they are working and can come out of work to a fully charged vehicle. People can also type "electric charging stations" into Google Maps, and areas with stations will appear. According to Atlas EV Hub from RENEW Wisconsin, Wisconsin has 30 public DC fast charging locations, 160 public level 2 charging locations, and 9,967 electric vehicles have been sold.

Some Wisconsin cities are promoting green transportation with upgrades to their vehicle fleets. The City of Madison is purchasing 20 electric vehicles in 2019 and 2020 with a grant award from the Wisconsin State Office of Energy Innovation and MG&E. This is going to be the largest fleet of electric vehicles in Wisconsin, and they are encouraging other fleets around the state to compete with them. Maybe an area in Northeast Wisconsin can beat the electric vehicle fleet record. Hopefully electric vehicles will continue to grow in popularity in Wisconsin, and we will see the Hyundai Kona Electric driving down the road.

Sources:
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Sustainable "Green Construction" Gaining Traction in the Industry

Lora Jorgensen

Sustainable construction isn't just about the creation of a building that has a low environmental impact; it is a new approach in the building sector that focuses on the full building life cycle, combining utility with insightful resource management. The advantages of sustainable or "green" construction have a host of environmental, financial, and health benefits as well as being socially responsible by cutting your carbon footprint.

Construction is a ten trillion-dollar industry. With its efficiency and rework rate up to 30 percent, smart and functional alternatives are necessary. Sustainable construction can provide great help in that direction. Overall, a green building costs less than a normal building because fewer resources (e.g. water and energy) are required for the completion of the project. On top of that, sustainable buildings have a great return on investment. Simply put, the value of the property is significantly increased with sustainable building.

Green buildings can be beneficial to health. According to the Environmental Protection Agency, outdoor air is two to five times less polluted than indoor air. Building and furnishing materials, such as paints, cleaning products, and carpets, can be dangerous for human health. The use of sustainable materials can help with the purification of the air.

In 2015, over 548 million tons of construction and demolition debris were generated in the United States, more than twice the amount of generated municipal solid waste. Demolition represents more than 90 percent of total debris generation, while construction represents less than 10 percent. Green buildings minimize waste with their lower environmental impact and use of renewable sources and materials.

Sustainable buildings manage water in a more effective and environmentally friendly manner. They can be equipped with systems that recycle water, such as collecting rainwater for toilet cleaning. They can collect and preserve natural energy, such as solar or wind energy, storing it and reusing it accordingly.

Recycled materials used during the construction process are contributing significantly to the protection of the environment and to the reduction of waste. Moreover, sustainable construction considers a number of critical elements. The installation of well-insulated windows, ceilings, and walls can ensure that no energy is going to waste. Additionally, the use of solar heaters, insulated air-conditioning pipes, and photovoltaic panels can make buildings more energy efficient and less harmful to the environment.

Sustainable construction has a plethora of benefits in every stage of a construction project. Improved health due to safer materials, increased productivity thanks to better surroundings, and more effective noise protection are only a few of the advantages. Green buildings can improve quality of life.

The debate has been going on for years as to which materials and processes are the most "green". Some builders believe using renewable resources such as wood is the best for the environment, while others believe that using a combination of man-made and natural elements is best.

One style of construction, ThermoForm, is particularly cost effective and energy efficient, utilizing concrete rather than typical building materials such as wood. ThermoForm construction uses engineered foam forms which concrete is poured into to form the foundation and walls. The cement has a high insulation value, which maintains ambient temperatures, reducing heating and cooling costs. Concrete is a virtually maintenance-free option when compared to standard wood construction. ThermoForm buildings are up to 8.5 times stronger than wood framed buildings. As a result, walls are more able to withstand severe weather, which reduces the need for rebuilding in areas prone to earthquakes and hurricanes. Wood is also vulnerable to external threats like water damage, fire and insects.

This style home also employs venting and dehumidifying systems which prevents mildew and mold issues, commonly found in humid climates. In traditional construction, moisture gets trapped inside the open cavity of a wood stud wall, causing mold, mildew, and rot. ThermoForm is a closed cavity construction, with the concrete filling the entire cavity of the wall. They are resistant to mold and mildew problems because they are composed of three inorganic materials that do not attract water; steel reinforcement bars, concrete, and foam.

The ThermoForm house is designed with windows primarily located on the south side of the home to capture and utilize passive solar heat in cooler climates. Add high efficiency appliances, and efficiency continues to skyrocket, while energy use plummets.

Another recent building technology to hit the market is concrete 3-D printing. A large robotic printer is brought to the build site and set up. It slowly extrudes concrete in thin layers, allowing drying time between each. A small home's walls can be printed in less than 48 hours. Potential advantages of these technologies include faster construction, lower labor costs, increased complexity and/or accuracy, greater integration of function, and less waste produced.

As shown throughout this article, there are many ways to be sustainable in the construction process. With the pros benefiting contractors, communities, and homeowners, as well as combating climate change, it seems like an obvious switch. Hopefully, more contractors will choose a more sustainable construction technique for future projects.

The Action in Clean Water Action Council

By Dean Hoegger

Our membership drive for 2019 began with the winter newsletter issue. Please join the many members who renewed their membership if you have not already done so. Thank you to the many members who renewed their membership for 2018. If you forgot to renew in 2018, please consider a more generous donation this year. For membership status, please check your mailed newsletter address label. For e-mailed newsletters check your status in the body of the e-mail. To renew, use the enclosed membership form, or go to http://www.cleanwateractioncouncil.org/membership/ to use a credit card.

Read below about actions we have taken in the last three months. Be sure to contact us if an environmental issue arises in your community. CWAC is here to support citizen action.

LEGAL ACTIONS

As a citizen organization, an important function of CWAC is to take legal actions on behalf of our members to protect human health and the environment. Because individual members may be reluctant or unfamiliar with how to file a legal action, the CWAC board of directors believes that taking legal action on behalf of our members is an important part of our mission. Here are some current legal actions and our efforts to improve environmental laws.

CWAC's Efforts to intervene in DBA vs DNR Settlement

Success! Midwest Environmental Advocates previously filed a declaratory judgment action and petition for judicial review to challenge the DNR settlement with the Dairy Business Association on behalf of CWAC and several other petitioners. This settlement gave up DNR's authority over requiring manure runoff controls in vegetated calf hutch production areas.

Judge Pocan ruled in our favor and invalidated most of the Settlement Agreement provisions that were challenged. The Judge invalidated the most concerning provisions of the Agreement on the basis that they are unlawful rules.

Thank you MEA attorney Sarah Geers for her extensive efforts to win this case for the citizens of Wisconsin!

CWAC helped pass NR151 revisions.

Although not a typical legal action, influencing the rule changes has legal implications in the form of administrative rules. While serving on the DNR's Technical Advisory Committee, CWAC helped citizens demand stricter manure spreading rules in karst regions and the NR151 revisions were approved. Nearly all of CWAC's recommendations are in the new rules with the exception of requiring three feet of soil over karst bedrock.

Now we must continue to monitor the implementation of the new rules and we are asking that residents of Brown and Calumet Counties urge elected officials to have their county adopt the rules as a county ordinance.

Update on Safe Drinking Water Act Petition for Emergency Action, filed with the EPA October, 2014.

While the revisions to NR151 are a direct result of this Petition, we feel more is needed to protect our groundwater. We will continue to work with other state environmental groups to monitor NR151 enforcement and to seek other strategies for protecting the groundwater. The petition and supporting documents can be found at: www.cleanwisconsin.org/kewaunee-safe-drinking-water

Citizen Petition for Corrective Action for the Clean Water Act, filed October, 2015.

We previously reported that 68 of the 75 deficiencies have been resolved. There appears to be a need for a lawsuit to resolve the remaining issues.

CWAC promotes ordinances to ban manure spraying.

CWAC continues to offer presentations to residents and town officials. Thus far, at least 17 northeast Wisconsin towns and cities have passed a ban. If your town has not passed an ordinance, contact us to help pass a ban and protect your family from this health threat.

For more information on this concern, go to our website for Priority Issues: "Ban Manure Spraying" for more information http://www.cleanwateractioncouncil.org/. If your town has not passed a ban, contact us for assistance.

CWAC monitors water pollution permits.

We monitor new permit notices and hearings and publish those in our Weekly Update and at times attend hearings and/or submit comments. At this time, a hearing and informational webinars are scheduled for General Permit - Municipal Separate Storm Sewer Systems. More information can be found at https://dnr.wi.gov/topic/wastewater/publicnotices.html where you will need to click on the date to access additional information. Please monitor the *Weekly Update* for permit updates.

Join the Clean Water Act Enforcement Network. CWAC is sponsoring this group and providing training on how to monitor for pollution permit compliance. Group members monitor for pollution permit violations online and through on site observations. Midwest Environmental Advocates is providing technical and legal support for the group. Research work can be completed at home, shared with the group online, and then reviewed during a monthly meeting in person or by telephone. Contact us if you would like to work on this enforcement effort to protect the waters of northeast Wisconsin.

CWAC continued to monitor the PFC Contamination, Citizen Steering Committee in Marinette.

Perfluorinated compounds (PFCs) contamination from the Fire Training Center in Marinette has been found at alarming levels in drainage ways and creeks discharging to Green Bay as well as in several ponds on residential and commercial properties in the City of Marinette. CWAC is participating in a citizen advisory group. The case is now being considered by attorneys familiar with this type of contamination. They are monitoring the response by responsible parties, Tyco Fire Protection and Johnson Controls.

CWAC monitors actions by the state legislature.

Again, not a typical legal action, yet monitoring for harmful bills, and supporting those that provide greater protection, is necessary to ensure that laws are not passed without public participation.

Join us on the bus to Madison for Conservation Lobby Day on March 27. Go to our website or Facebook page to sign up. See the mini-poster on page 15 for more information.

CWAC'S EDUCATIONAL EFFORTS IN THE COMMUNITY

Coal tar pavement sealant education to protect human health and water ecosystems.

Polycyclic aromatic hydrocarbons (PAHs), found in coal tar pavement sealants, are found to be a serious cancer risk in humans, and a risk to water wildlife. CWAC promoted Clean Wisconsin's presentations in Sturgeon Bay and Green Bay by reaching out to hundreds of community leaders at schools, daycare centers, and medical facilities.

We are now scheduling and promoting presentations in Oconto and Marinette to be given by a Clean Wisconsin scientist. One event will be held at the Oconto Falls Community & Senior Center, 512 Caldwell Ave. and is free and open to the public, April 18. A meet and greet will start at 6:00 PM and a presentation given by a staff scientist from Clean Wisconsin will begin at 6:15 PM. The Marinette presentation date will be announced soon.

"Jay Dejardin reports that his company never uses coal tar pavement sealants."

Health Forums: Protecting Your Family from Toxins in the Home and Environment.

Doctor Susan Davidson, MD will be addressing "The Environment and Health: Why what we eat, touch and breathe matters" on April 23, 6:30 PM at the Lyric Room, 233 N Broadway, Green Bay. Additional details can be found in "Mark Your Calendar." Also, check our Weekly Update for upcoming forums. Thank you to member Laura McMillan for sponsoring this forum.

Contact us if you have suggestions for topics or speakers and please consider sponsoring a health forum at the $150 level, or contact a business who will sponsor. The forums focus on protecting our families from toxins in the home and environment.

Presentations and Exhibits

Contact us to schedule a presentation for your group on a variety of environmental issues or exhibit at your event. Presentations include *The Hazards of Manure Spraying*, *Citizen Action to Protect the Waters of the Northeast Wisconsin*, *Barriers to Citizen Participation in Environmental Decision Making*, *The Hazards of Burn Barrels*, *Communities on the Road to Zero Waste*, and more. The presentations can be tailored to your group's age and available time. Also, contact us if you would like us promote or cosponsor your event or presentation. Below are additional community presentations.

Since the last newsletter we hosted geologist Roger Kuhns' talk and showing of his film *Escarpment* at UW-Green Bay. About 50 people attended including 15 students.

CWAC serves on Congressman Gallagher's Save the Bay committee for the Lower Fox River watershed

CWAC continues to serve on the committee's education and outreach subcommittee. Staff attended the March 18 meeting to learn more about the latest efforts of the agricultural community to protect the watershed.

Efforts to Stop the Back 40 Mine

We continue to monitor these efforts and lend support when requested. We publish the latest developments including in the Weekly Update. This year's Conservation Lobby Day will include a session on sulfide mining and the Back 40 Mine.

Outreach through Newspaper and Radio

CWAC Vice President Charlie Frisk frequently has his articles published in "letters to the editor" in publications around the state, and he is willing to write an article for you. CWAC President Dean Hoegger spoke on WDOR FM about the hazards of coal tar pavement sealants.

Website Updates

Articles and resources on our website continue to be updated as new information is available and past newsletter issues can be found at www.cleanwateractioncouncil.org

CWAC provides interns with valuable experiences

We provide our interns with valuable experiences and strategies for managing a non-profit organization. We invite them to attend area conferences and meetings to provide them with networking opportunities in environmental fields, encourage them to research and write for our newsletter, invite them to attend board meetings, and we provide many other experiences. We sent two of our interns the Wisconsin Environmental Health Network Making the Connections conference and will send another to Conservation Lobby Day. See "Meet the Interns" to learn more about Jace Hannemann, Lauren Felder, and Dana Wunsch.

Get Our Weekly Update by email.

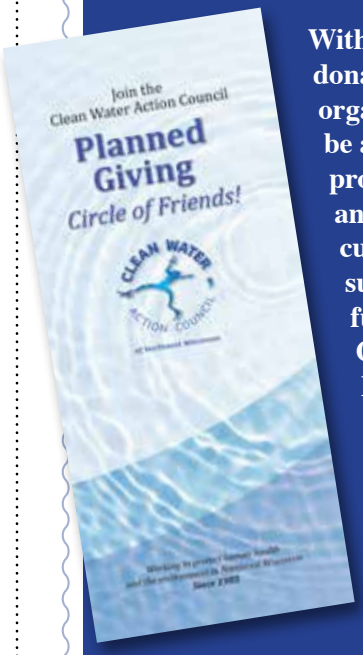
Each Tuesday we e-mail the CWAC Weekly Update of actions, alerts, events, and the latest information on topics of concern. Send your postings by Monday evening. If you are a member with an e-mail address and you are not getting the CWAC Weekly Update, check your spam folder before e-mailing us to request to be put on the mailing list. If you are reading this newsletter as a non-member, e-mail us to be placed on the free Weekly Update list. E-mails are sent via BCC to protect your privacy.

Not receiving the Update? Send us an e-mail request. It is sent out once a week via BCC e-mail.

CWAC's Non-Profit Status

To learn more about our non-profit status and financials go to the Wisconsin Department of Financial Institutions and then go to Credential Search for Clean Water Action Council.

Please follow us on Facebook.
Click here for our page: Facebook



Without planned giving donations or legacies, our organization would not be able to do the work of protecting human health and the environment at its current level. Please consider supporting our endowment fund at the Greater Green Bay Community Foundation with a gift in your will or bequest.

Contact us for a Planned Giving Brochure

Meet Our Interns

Lauren Felder is currently a freshman at UW-Green Bay and is double majoring in environmental policy and political science with a minor in French. She is from Lake Mills, Wisconsin and she loves to read, hike, and trail ride in her free time. After graduation, she hopes to attend UW-Madison Law School to earn a JD in environmental law and an MS in conservation biology. She hopes to work with the government or with non-profit organizations to change or create legislation in order to sustain a healthy environment for many generations to come.

Jace Hannemann is a UWGB senior with a Business Administration major, Marketing emphasis as well as a certificate in Sustainability through the Environmental Management and Business Institute (EMBI) program. In his free time, Jace enjoys snowboarding in the winter, and going on hikes in the summer. After graduation, he would like to work for an environmentally conscious company that promotes sustainable business practices like Burton Snowboards or Patagonia. In his senior year, Jace has also led a campaign to bring 100% renewable energy to UWGB and hopes to lead it post-graduation.

Dana Wunsch is a senior at the University of Wisconsin – Green Bay. She is double majoring in Democracy and Justice Studies and Humanistic Studies with emphases in Law and Justice and World Cultures. She is also minoring in Political Science and History. She has previously interned with the Democracy and Justice Studies Department at UWGB as the social media intern, and with Assistant Corporation Counsel Attorney Samantha R. Bastil of Sheboygan County. Over the summer of 2018 she studied abroad in Germany, Belgium, and France to study the World Wars. In her free time, she likes to do puzzles, knit, and read. She is very excited to be interning with the Clean Water Action Council of Northeast Wisconsin and to learn how to manage a nonprofit organization. She hopes to take these experiences and one day manage an animal rescue nonprofit.

April 27, 2019
CWAC Dinner, Dance, and Silent Auction
Buy your tickets today!

Clean Water Action Council Health Forum:

Protecting your Family from Toxins in your home and Environment

April 23, 6:30 - 8:00 PM
The Lyric Room, 233 N Broadway, Green Bay, WI 54303

Doctor Susan Davidson, MD, will be addressing the topic
"The Environment and Health:
Why what we eat, breath and touch matters."

Doctor Davidson is a specialist in Maternal Fetal Medicine, a specialty of Obstetrics dedicated to care of the high risk pregnant patient. She works for SSM Health and is Adjunct Associate Professor of Obstetrics and Gynecology and Family Medicine at the University of Wisconsin School of Medicine. Susan's passion for her work led her to an interest in the impact the environment has on reproductive health and on human health in general.

LEARN ABOUT THE DANGERS OF COAL TAR SEALANTS

Join other concerned members of the community to learn about the dangers of polycyclic aromatic hydrocarbons, or PAHs, which are commonly found in coal tar sealants. Coal tar sealants are used in parking lots, drive ways, and playgrounds and pose a risk to everyone, especially the sick, elderly, and young children. But, there are alternatives!

A meet and greet will start at 6:00 PM and a presentation given by a staff scientist from Clean Wisconsin will begin at 6:15 PM.

APRIL 18, 2019 6:00 PM

Oconto Falls Community and
Senior Center
512 Caldwell Avenue, Oconto Falls

A second presentation will be given in Marinette; date and time TBA.

MARK YOUR CALENDAR! Meetings, Events and Happenings

March 27, 10:00 AM - 5 PM
Conservation Lobby Day
Monona Terrace, Madison

Sponsored by Wisconsin Conservation Voters, this event gives concerned Wisconsinites the opportunity to make their voices heard. The three main issues are clean energy, drinking water, and the Knowles Nelson Stewardship program. Attendees will have the opportunity to learn about issues related to drinking water and public land, participate in scheduled meetings with state legislators, and to attend training sessions.

Registration is free. Clean Water Action Council and the Brown County Conservation Alliance are sponsoring a bus to stop in Algoma, Green Bay, De Pere, Appleton, and Oshkosh at no cost to riders. The bus can accommodate 50 people.

To register, visit https://secure.everyaction.com/zvQ8KTXJUU2n6upvEWCNdg2
To sign up for the bus, visit https://secure.everyaction.com/BYX9WKitIE6StGmBeHfLIQ2
To donate, visit https://secure.everyaction.com/aIfnbot78E6rGsd9nOHclA2

March 30, 1:00 PM
League of Women Voters of Greater Green Bay Environmental Film
Lower level atrium of the Brown County Library, 515 Pine St.

99% of the plastic that should be floating in the oceans is missing. Even accounting for the plastic that washes up on beaches or is trapped in arctic ice, millions of tons have simply disappeared. Where are they? In this investigative film, scientists embark on a search for micro-plastics.

Doors will open at 1:00 with the opportunity for the public to view exhibits. The film will begin at 1:30 to be followed by speaker Mark Walter, Brown County Port Resource and Recovery Administrator at 2:30.

April 13, 5:30 AM - 7:30 AM
Annual Midwest Crane Count
The International Crane Foundation of Baraboo, WI

This event was created as a citizen science tradition in order to monitor the general population trends of Sandhill cranes in the Upper Midwest. The program also promotes awareness of cranes and wetland conservation.

If you would like to help gather this valuable research data, please contact Shannon Davis-Foust at agalinus3@gmail.com or call 920-420-7426.

April 18, 6:00 PM
The Dangers of Coal Tar Sealants
Oconto Falls Community and Senior Center, 512 Caldwell Ave.

Join other concerned members of the community to learn about the dangers of polycyclic aromatic hydrocarbons, or PAHs, which are commonly found in coal tar sealants. Coal tar sealants are found in parking lots and drive ways and pose a risk to everyone, but especially the sick, elderly, and young children.

Free and open to the public. A meet and greet will start at 6:00 PM and a presentation given by a staff scientist from Clean Wisconsin will begin at 6:30 PM.

A second presentation is planned for Marinette County; the date and time are to be announced in the CWAC weekly update.

April 22, 7:00 PM
iPat Environmental Film Series: An Inconvenient Sequel
Screening will be held at the UW-Green Bay Christie Theatre

Enjoy entertaining and thought provoking films which evaluate the condition of the natural world, identify drivers of environmental harm, and consider solutions. After the film, a community expert or panel will offer their insights, draw attention to relevant local issues, and answer questions from the audience. **Admission is free**.

For more information, contact Ashley Heath at (920) 465-2608 or heatha@uwgb.edu, or Elizabeth Wheat at (920) 465-2848 or wheate@uwgb.edu.

April 23, 6:30 PM
Clean Water Action Council Health Forum
Lyric Room, 233 N Broadway, Green Bay

Doctor Susan Davidson, MD will be addressing "*The Environment and Health: Why what we eat, touch and breathe matters.*" Dr. Davidson is a specialist in Maternal Fetal Medicine, a specialty of Obstetrics dedicated to care of the high risk pregnant patient. She works for SSM Health and is Adjunct Associate Professor of Obstetrics and Gynecology and Family Medicine at the University of Wisconsin School of Medicine.

April 25, 7:00 PM -10:00 PM
Wild and Scenic Film Festival
Screening will be held at Backstage at the Meyer in Green Bay

Revel in the wonders of our natural world with a lineup of several award-winning short films screened at this annual event hosted by the River Alliance of Wisconsin. There will be a pre-party with food and a free drink for those who purchase VIP tickets.

VIP entry begins at 5:30 PM and the doors open to regular ticket holders at 6:30 PM. Tickets are $12 in advance, $15 the day of, and $30 for VIP. Please visit www.wisconsinrivers.org for more information and to purchase tickets.

April 26-28
Earth Day is Earth Day Festival
Throughout Door County, people, organizations, and businesses will celebrate in the spirit of preserving and protecting Green earth-care culture in Door County and beyond. The weekend will be filled with events such as environmentally focused open houses, speakers, demonstrations, films, and activities for children and adults.

April 27, 5:00 PM - 10:00 PM
Clean Water Action Council Banquet
Riverside Ballroom, 1560 Main St. Green Bay

Join Clean Water Action Council for our annual fund raising banquet! A silent auction will begin at 5 PM, a dinner of locally sourced items with gluten free options will be served at 6 PM, followed by a program at 6:45 PM. Dancing will begin at 7:30 PM with music by Terry Murphy and the Cherry Pickers, a band featuring an eclectic blend of classic American music. Door prizes will also be available for current members.

Tickets for the dance only are $15 and advance tickets for the dinner and dance are $25.

Please visit https://www.cleanwateractioncouncil.org/events/ to register and buy tickets. Or use the order form on page 18 where you can also take advantage of the buy five tickets and get one free. *Please consider being a ticket seller. Just pay for the ones you sell.*

MARK YOUR CALENDAR! Meetings, Events and Happenings

April 27, 9:00 AM - 11:30 AM

Fox-Wolf Watershed Alliance Cleanup

Volunteers will gather at their chosen cleanup site in the morning, receive cleanup T-shirts (if registered before April 8) and supplies, learn about our watershed and how we can protect our water resources by working together.

To sign up, visit https://www.eventbrite.com/e/2019-fox-wolf-watershed-cleanup-registration-55874751887

April 28, 11:00 AM - #:00 PM

Earth Day Celebration

Bay Beach Wildlife Sanctuary, Green Bay

Celebrate Earth Day surrounded by nature at Bay Beach Wildlife Sanctuary in Green Bay! Family-friendly activities will be set up all around the sanctuary and range from Critter Counter and Animal Release to Question and Answer sessions. The event is **free and open to the public**.

May 3 - May 21

Art of Water III

The James May Gallery, Algoma

The Third Annual Art of Water event seeks to celebrate water as a crucial resource as well as its beauty. Perhaps by celebrating the beauty and necessity of water, we can better protect it.

The exhibition will run May 3 through May 21 with an opening reception on May 3 from 5:30 PM to 8:30 PM. Last year, more than 100 artists exhibited works of art at the event and a similar turnout is expected this year.

For more information and to buy tickets, please visit www.jamesmaygallery.com.

May 6, 7:00 PM

iPat Environmental Film Series: *Shark Girl*

UW-Green Bay Christie Theatre

Enjoy entertaining and thought provoking films which evaluate the condition of the natural world, identify drivers of environmental harm, and consider solutions. After the film, a community expert or panel will offer their insights, draw attention to relevant local issues, and answer questions from the audience. Admission is free.

For more information, contact Ashley Heath at (920) 465-2608 or heatha@uwgb.edu, or Elizabeth Wheat at (920) 465-2848 or wheate@uwgb.edu.

May 11, 9:00 AM - 5:00 PM

Move Some Earth Day

Midwest Renewable Energy Assoc. 7558 Deer Road, Custer, WI

With the historic 30th Anniversary Energy Fair right around the corner, this volunteer day is focused on all things Energy Fair! Join in the fun and excitement of readying the grounds, organizing promotional materials, and more for the big event. Move Some Earth Day happens rain or shine. Coffee, light breakfast, and an energizing lunch is provided.

This event is organized by the Midwest Renewable Energy Association. RSVP by e-mailing volunteer@midwestrenew.org. For more information, visit https://www.midwestrenew.org/volunteer/.

May 11, 8:00 AM

Bike to Move Some Earth Day

Sundial on the UW-Stevens Point campus

Riders meet by 8:00 a.m. at the Sundial. The 20-mile round trip rides on mostly flat terrain, and back roads to and from Move Some Earth Day at the Midwest Renewable Energy Association (MREA) headquarters in Custer, WI. Riders who volunteer at Move Some Earth Day will receive a free day pass to The 30th Anniversary Energy Fair, June 20-23.

MREA is looking for a Group Ride Lead to organize the 2019 ride. If you or someone you know would like to lead the Ride, e-mail volunteer@midwestrenew.org. To find out more, visit https://www.midwestrenew.org/volunteer/.

May 18, 8:00 AM - 2:30 PM

6th Annual Climate Change Forum

Stone Harbor Resort in Sturgeon Bay

Every year, the Climate Change Coalition of Door County organizes a forum of local and global leaders on actions to address climate change. This year, the speakers will be Buddy Huffaker, President and Executive Director of the Aldo Leopold Foundation, Eric Chapman, a member of the Tribal Council of the Lac du Flambeau Band of Lake Superior Chippewa Indians and Director of the Tribe's Climate Resilience Initiative, and Rosalyn Pertzborn, the Director of the Office of Space Science Education at UW-Madison.

Please visit https://climatechangedoorcounty.com/ to find the registration form. Print page seven, fill it out and mail it to P.O. Box 582, Baileys Harbor, WI 54202. Early bird registration ends May 9 and is $25. Registration after May 9 is $30.

June 4-6

Celebrate Water Door County Water Summit

Door Community Auditorium, 3926 Hwy 42 , Fish Creek

A year of celebration and education will culminate with a three-day summit June 4-6, 2019. It will feature a keynote speaker, educational sessions, and field trips.

For $35 attendees can enjoy three meals, a choice of 6 out of 12 educational sessions, a luncheon with author Dan Egan, the author of *The Death and Life of the Great Lakes*, and a breakfast with Community Foundation CEO & President, Bret Bicoy. The keynote presentation is **free and open to the public**. Field trips are optional and presented for $20, which includes transportation. Included in the summit activities is a Science Poster Project that gives high school or college students an opportunity to present a project among their peers and professionals.

Register for the event at:
https://celebratewaterdoorcounty.org/2019summit/
Reserve a room at The Landmark for the Summit by calling (800) 273-7877. Request a room in the Celebrate Water block by April 20.

June 21-23

The Energy Fair (30th Anniversary)

7558 Deer Road, Custer, WI

Celebrate the Thirtieth Anniversary of the Energy Fair in Custer! The purpose of the fair is to promote renewable energy, energy efficiency, and sustainability through education and demonstration.

Please visit www.theenergyfair.org after April 1, 2019 for schedule of events and to buy tickets for admission, extended workshops, special events, and camping.

Silent Auction, Dinner & Dance for the Environment

Saturday, April 27 @ 5:00 p.m.

Our annual dinner, dance and silent auction will be held at the Riverside Ballroom at 1560 Main St., Green Bay. There will be door prizes for current members, a silent auction and a locally sourced dinner. Paul Matheson of Clean Wisconsin will speak about protecting our family from toxic pavement sealants, and Terry Murphy and the Cherry Pickers will play a fine Door County blend of bluegrass, rock, swing, jazz and folk with topical and thoughtful lyrics, or songs of past generations recreated to keep the old hits alive. And music to dance to!

Please consider ordering a block of tickets to sell to friends. Buy 5 tickets, get one free!

Ticket Order Form for $25 Advance Tickets (Please place your order by Monday, April 1)

Please indicate the # of your dinner preference(s):
( ) Slow roasted free-range chicken quarter (Gluten-free)
( ) Mushroom Marinara (Vegan, Gluten-free)

Each entrée includes a mixed green salad, roasted sweet potatoes, vegetable, dessert bar (not gluten-free), and coffee. Most of the menu items are locally sourced and organic.

# of tickets_____@ $25 each for a total of $_____

_____Yes, I have an item for the silent art auction/door prizes. I will bring it by 5:00 or call Dean at 920-421-8885 for prior pickup (preferred).

Send tickets to (name/address):

_____

_____

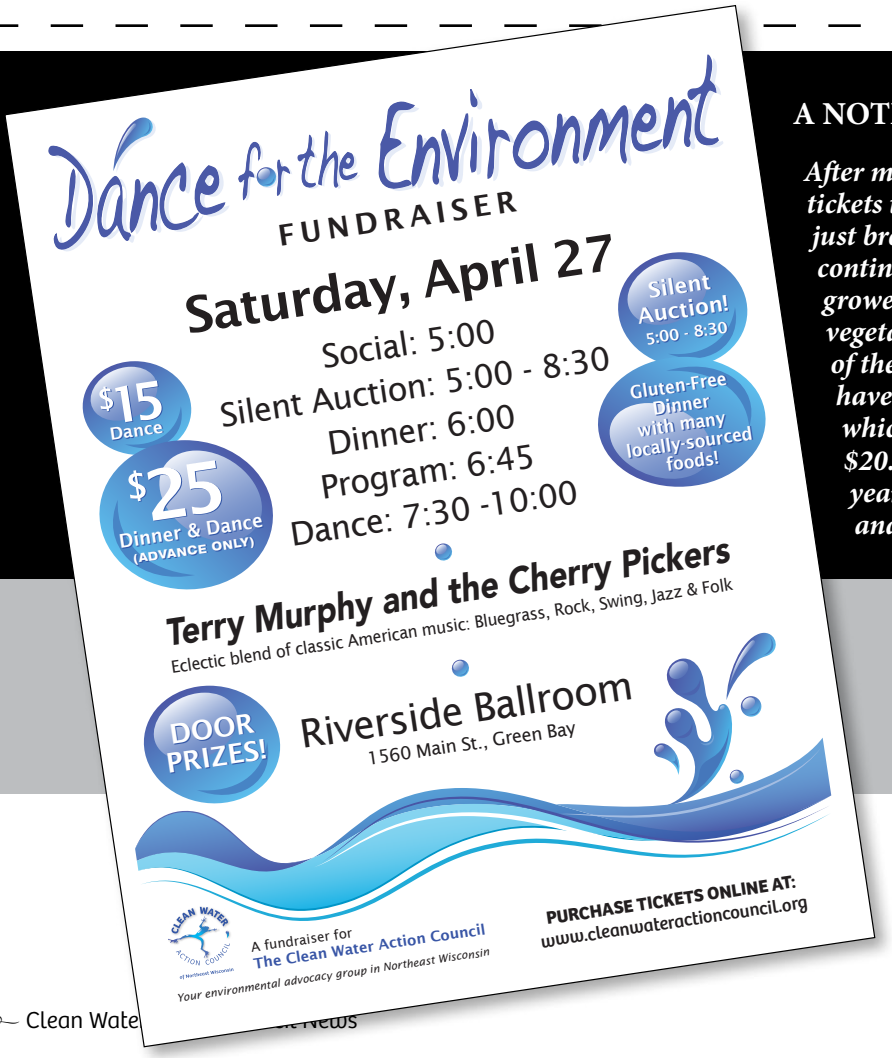
_____

Phone #: _____
(*in case we have a question on your order*)

Please include payment with your order.

Checks payable to: *Clean Water Action Council*
P.O. Box 9144, Green Bay, WI 54308

Or order online with an additional service fee and no buy five get one free special, go to:
https://www.eventbrite.com/e/dinner-dance-program-and-silent-auction-for-the-environment-tickets-58036713372



A NOTE ON THE TICKET PRICE

After many years of holding the banquet tickets to $20, we found that we were just breaking even on ticket sales. As we continued to support local and organic growers for banquet food, and to provide vegetarian and gluten free options, the cost of the meal has increased. We will still have the "Buy 5 tickets, get one free" offer which will bring the ticket price close to $20. As this is our only fundraiser of the year, we hope you will support CWAC and local producers.

For free posters, please e-mail us at contact@cleanwateractioncouncil.org or call Dean @ 920-421-8885.

CLEAN WATER ACTION COUNCIL of Northeast Wisconsin

Join or Renew Your Membership to Clean Water Action Council for 2019!

☐ Renewal ☐ New Member Date_____

( ) $20 Individual ( ) $30 Family **(this amount would really help)**

( ) $50 Sustaining ( ) $100 Donor ( ) $500 Benefactor

( ) Non-member donation of $ _____for_____

( ) Other $_____

( ) Please send me information about making a planned gift to CWAC

Name(s)_____

Address _____

City _____State _____ Zip _____

Phone _____

E-Mail _____

Receive FREE newsletters with each membership.

Please choose one...

☐ Printed version ☐ E-mailed version

PLEASE VOLUNTEER!
(BE SURE TO PROVIDE PHONE NUMBER ABOVE)

☐ the newsletter ☐ events ☐ work at office ☐ mailings

☐ joining or leading one of the committees ☐ other

Send check or money order to: **Clean Water Action Council**
P.O. Box 9144
Green Bay, WI 54308

CWAC is a registered non-profit organization.
Your contributions may be tax-deductible. ***Thank you!***

Office location:
A307 MAC Hall, UW-Green Bay
2420 Nicolet Drive
Green Bay, WI 54311

www.cleanwateractioncouncil.org

Find us on Facebook or updates on hearings and current or upcoming events.

The newsletter, "Clean Water Action Council of N.E. WI" is published quarterly by the Clean Water Action Council of Northeast Wisconsin, Inc., P.O. Box 9144, Green Bay, WI 54308, a registered non-profit charitable, educational organization. *Contributions may be tax-deductible.*

CONTACT US

By phone: 920-421-8885
If you leave us a message, we will try to get back to you within 24 hours.

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P.O. Box 9144, Green Bay, WI 54308

By e-mail:
contact@cleanwateractioncouncil.org

Clean Water Action Council of Northeast Wisconsin
P. O. Box 9144
Green Bay, WI 54308

ORDER YOUR TICKETS NOW!
for our Annual Banquet
April 27th
(See order form on page 18) for details

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For previous newsletters, go to: www.cleanwateractioncouncil.org