It is expected that a Quorum of the Personnel Committee, Board of Public Works, Plan Commission and Administration Committee will be attending this meeting: (although it is not expected that any official action of any of those bodies will be taken)

CITY OF MENASHA
SUSTAINABILITY BOARD
Common Council Chambers
140 Main Street, Menasha

Tuesday, January 17, 2012
6:30 PM

AGENDA
AMENDED

A. CALL TO ORDER

B. ROLL CALL/EXCUSED ABSENCES

C. PUBLIC COMMENTS ON ANY MATTER OF CONCERN TO THE SUSTAINABILITY BOARD (five (5) minute time limit for each person)

D. MINUTES TO APPROVE
   1. December 20, 2011

E. COMMUNICATIONS
   1. Community sustainability committee gathering (Roger Kanitz & Kathy Thunes)

F. REPORTS

G. ACTION ITEMS

H. DISCUSSION
   1. Earth Day recycling event update
   2. Review of Wildpoldsried, Germany Energy Independence Initiative
   3. Reviewing city's small scale wind ordinance
   4. Wisconsin Sustainability Intern Program

I. ADJOURNMENT

"Menasha is committed to its diverse population. Our Non-English speaking population and those with disabilities are invited to contact the Menasha City Clerk at 967-3603 24-hours in advance of the meeting for the City to arrange special accommodations."

CITY OF MENASHA
Sustainability Board
Council Chambers, City Hall – 140 Main Street
December 20, 2011
DRAFT MINUTES

A. CALL TO ORDER

The meeting was called to order at 6:35 p.m. by Linda Stoll.

B. ROLL CALL/EXCUSED ABSENCES

SUSTAINABILITY BOARD MEMBERS PRESENT: Paul Van de Sand, Chris Bohne, Linda Stoll, Roger Kanitz, Ed Kassel

SUSTAINABILITY BOARD MEMBERS EXCUSED: Kathy Thunes

OTHERS PRESENT: CDD Keil, PP Homan, Mayor Merkes.

C. PUBLIC COMMENT ON ANY ITEM OF CONCERN ON THIS AGENDA

1. No one spoke.

D. MINUTES TO APPROVE

1. Motion made by Linda Stoll and seconded by Paul Van de Sand to approve the minutes of November 15, 2011. The motion carried.

E. COMMUNICATIONS

Linda Stoll indicated that ECWRPC did not receive the HUD Sustainable Communities grant, nor did anyone else in Wisconsin. However, it was the only entity in the state to receive Preferred Community Status, which provides additional points for other HUD grant applications.

Linda Stoll indicated that she had discussions with NEWERA regarding the needs of business and industry, and tying higher education "sustainability" training to their needs.

F. REPORTS

1. **"River-Gen 1: Using Fox River flow for Off-Grid local EV charge stations – A Demonstration Project" (Ed Kassel)**

Ed Kassel descriped the steps he's taken since the last board meeting to further explore the potential for an off-grid hydro-powered electric vehicle charge station in Menasha. These include:

- preliminary work on location, site surveying, and picture taking;
- meeting with an interested property owner with river frontage;
- preparing an abstract on the concept for the Green Summit;
- securing a 20+ year old study conducted by Menasha Utilities on hydro-electric power generation; and
- contacting two manufacturers of small-scale hydro-electric generators; no responses have been received to date.

Roger Kanitz suggested making calls to WDNR to determine what permits are required. CDD Keil stated that he would send contacts for the WDNR water regulation and zoning staff.

A general discussion occurred regarding potential buildings that already have water flowing under them as potential locations for good river flow. Buildings identified included Sonocco, Whiting, and Gilbert.

Mayor Merkes indicated that WPPI is currently offering incentives for electrical vehicles, which could fit well with this project if implemented.

2. **City electric use baseline study (Paul Van de Sand)**

Chris Boehne provided the board with an overview of federal data on average energy usages for building types in the Midwest based on BTUs. He also compared City of Appleton facilities to Menasha Facilities. It appears as if Menasha's facility usages are comparable to federal data and Appleton averages.

Paul Van de Sand explained his methodology for conducting a baseline assessment for Menasha municipal facilities. Facilities were categorized as year round and seasonal. The intent is to use this baseline to help measure what energy efficiency projects are able to achieve in energy savings moving forward. He would like to use January's Sustainability Board meeting to add gas to the baseline and convert all facilities to BTUs/square foot. He will be prepared to do a presentation to the Common Council in February.

3. **Ecos-FV (Roger Kanitz)**

Roger Kanitz described the efforts of Ecos-FV to develop a sustainability video clip library. The Town of Menasha is willing to tape programs on sustainability and air them after their Plan Commission meetings on public access TV.

4. **Community web-site status (Roger Kanitz)**

Roger Kanitz provided an update on the plans for the Ecos-Fox Valley community website. It will be a resource for communities to share resources and events related to sustainability. UW-Extension is preparing an online survey to help gather community information. Maintenance and funding of the site will need to be considered in the future.

5. **Meeting with Town of Menasha Sustain Committee (Roger Kanitz)**

Roger Kanitz met with the Town's sustainability committee and learned they would like to work with the City on an electronic recycling program. They currently have two events, with the next one set for April, 2012.

Roger Kanitz also mentioned that the Town is planning a Saturday farmer's market at their municipal building. PP Homan suggested they get in contact with Kristin Sewall who runs the City's Thursday market for advice.

G. ACTION ITEMS

NONE

H. DISCUSSION

1. **Earth Day Recycling Event**

The Board discussed a potential partnership with the Town of Menasha for an Earth Day electronic recycling event, and where potential pickup locations could be. There was a general consensus that a location on the east side of the river was necessary and could serve both Town and City residents. The Board decided they needed to know the following before proceeding:

- Who will coordinate/staff the event;
- Where will the recycling location(s) be;
- How long of a time period will the recycling event last;
- What kinds of electronic recycling can be accepted;
- What will the cost be to the City and/or Town to administer the event.

I. ADJOURNMENT

Motion made by Paul Van de Sand and seconded by Chris Bohne to adjourn at 8:08 PM. The motion carried.

Minutes respectfully submitted by Kara Homan, PP.

Computer and Electronics Recycling Event

Prior to the Event: We recommend advertising the date, location, and time of the event. The week of the event a press release will be issued to local papers. We also do get out on foot the weeks leading up to any event with flyers to post throughout the area.

Volunteers: The day of the clean up RecycleThatStuff.com will arrive on site 1 hour before the event to set up boxes, and talk to any volunteers. If there is anyone looking to volunteer, please let us know. We recommend they bring:

- Clothing they wouldn't mind getting a bit dirty
- A bottle of water to stay fully hydrated
- A pair of work gloves

Volunteer duties to be carried out the day of the event will include:

- Hauling of computers & metals from residents vehicles to the trucks
- Handing out recycling information
- Coordinating where people will need to go for electronics recycling at the event

RecycleThatStuff.com's duties the day of the event:

- Posting signs to help residents find the location of the event prior to the event
- We will also be hauling computers as well as metals from residents vehicles to each truck for billing and for payment.
- We will also hand out recycling information as well as certificates of recycling
- Coordination of which receptacles materials will go in, will be coordinated on our end
- We will provide all transportation of materials from your location to our facility in Appleton.
- We will provide receipts for electronics recycling and collect funds for any fees assessed to residents.
- We will also provide you with a grand total in weight of items received for your records.

Keeping It Green!

Come Join Us For A Fun Recycling Event!

When: Date: <___-___-____>

Where: <Location Name>
<Address>
<City, State Zip>

Time: <Hours of Event>

Phone: (920) 955-3760

Hosted By
City of Menasha
&
RecycleThatStuff.com
Resource Solutions Corp.

Recycle your old electronics at _____! Many items will be accepted at no charge to the public See back for additional information!

Keeping It Green!

Come Join Us For A Fun Recycling Event!

When: Date: <___-___-____>

Where: <Location Name>
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Time: <Hours of Event>

Phone: (920) 955-3760

Hosted By
City of Menasha
&
RecycleThatStuff.com
Resource Solutions Corp.

Recycle your old electronics at _____! Many items will be accepted at no charge to the public See back for additional information!

Map to
Event Here

Day
Date

Location Name
Address
City, State Zip

Phone: 920-955-3760
Fax: 920-955-3762

Items we will recycle for Free

CPU's - Printers - Speakers - Scanners - LCD Screens
Fax Machines - Vacuum Cleaners - Phones
Laptops - Record Players Tape Players - CD Players
I-pods - VCR's - DVD Players - Beta Tape Players
Electrical Saws -Drills - Calculators - UPS's
Paper Shredders - Coffee - Machines - Heaters
Portable Game systems - Most Household Electronics

Items with recycling fees

CRT Computer Monitors:	***$5 Each***
Televisions:(Call for Quote)	***$5 to $20 Each***
Mini Fridges:	***$10 Each***
Small Ac Units:	***$10 Each***
Dehumidifiers:	***$10 Each***
Stoves/Washers/Dryers	***$5 Each***
Diswashers/Microwaves	***$5 Each***
Hard Drive Destruction:	***$10 Each***
Copiers (Large):	***$5 Each***

Map to
Event Here

Day
Date

Location Name
Address
City, State Zip

Phone: 920-955-3760
Fax: 920-955-3762

Items we will recycle for Free

CPU's - Printers - Speakers - Scanners - LCD Screens
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Hard Drive Destruction:	***$10 Each***
Copiers (Large):	***$5 Each***

SPECIAL EVENT PRICES

Items we will accept for FREE

LCD Computer Monitors - Mice
CPU's - Laptops - Keyboards
Computer Cords - Circuit Boards
Back-up Power Supplies - Scanners
Printers - Printer Cables
Telephones - Cell Phones -
Fax Machines - VCR's/ DVD Players
Stereo Equipment - Record Players
I-pods - Electrical Saws - Drills
Calculators - Paper Shredders
Coffee Machines - Heaters
Game Systems - Most Electronics

Items with recycling fees

CRT Monitors	$5.00
TV's (Call for Price)	$5 to $20
Mini Fridges	$10.00
Small AC Units	$10.00
Dehumidifiers	$10.00
Stoves/Washers/Dryers	$5.00
Dishwashers/Microwaves	$5.00
Hard Drive Destruction	$10.00
Large Copiers	$5.00

Please call us if you do not see your item listed

(920) 955-3760

RecycleThatStuff.com
Resource Solutions Corp.

Please Join Us For This Recycling Event!

CONTACT INFORMATION

Recycle That Stuff

121 N. Linwood Ave.
Appleton, WI 54914

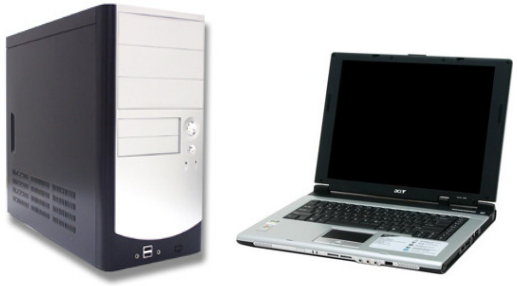
Phone: (920) 955 - 3760
RTS@RecycleThatStuff.com

Contact Name

Address
City, State Zip

Phone Number

Computer & Electronics Recycling Event!



When

<Day>

<Date>

Where

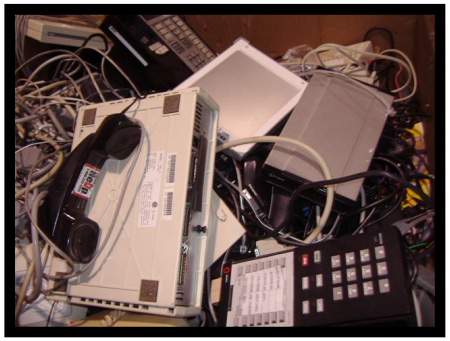
<Location Name>

<Address>

Drop off Time

<Time of Event>

Event Contact Information



RecycleThatStuff.com

(920) 955-3760

Monday - Friday
8:00 am - 4:00 pm

Contact Information

Phone Number

<Hours>

Please call us with questions regarding this recycling event

Recycling Day

<DATE>

<TIME>

Bring your electronics to:

<Location Name>

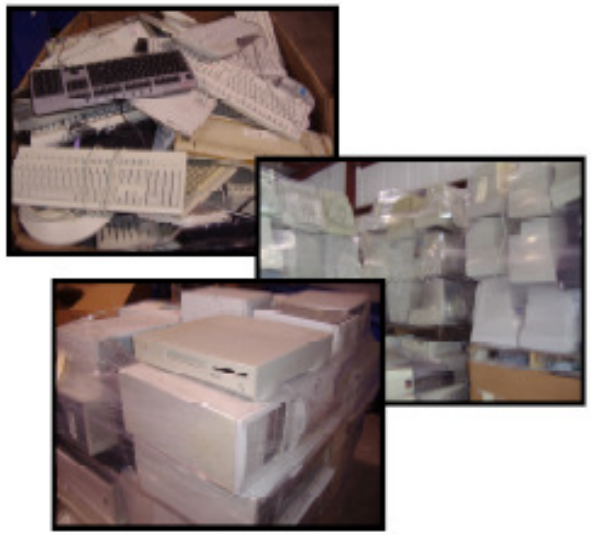
<Address>
<City, State Zip>

Map
To Days
Event

The day of the event look for our signs To direct you to the Days event

RecycleThatStuff.com
Resource Solutions Corp.

Reduce, Reuse, Recycle!



Recycling is the Smart Choice for Everyone!

Electronics, while essential in Most households and work places, become outdated or obsolete after only a few years!

If improperly disposed, Electronics can pollute the environment leaving behind hazardous materials such as mercury, lead, and cadmium.

German Village Achieves Energy Independence … And Then Some

BioCycle August 2011, Vol. 52, No. 8, p. 37

Wildpoldsried produces 321 percent more energy than it needs and is generating $5.7 million in annual revenue — a remarkable accomplishment for a modest farming community that has been able to invest in new municipal infrastructure without going into debt.

Christie Allen

IN 1997, when the newly elected Mayor and Village Council of Wildpoldsried, Germany took their posts, everyone agreed that its goals should be to build new industry, keep initiatives local, bring in new revenues and create no debt. Those goals included construction of a new sports hall, theater stage, pub, and retirement house. Without going into debt, the mayor and council assumed it would take several decades to achieve. But clever thinking, a national policy that "paid back" on investments in renewable energy and a community-supported vision of environmental and economic stewardship, have led to fulfilling those goals in significantly less time. This article tells the story of Wildpoldsried, a small agricultural village in the state of Bavaria, which serves as a model of how to achieve community sustainability in the 21st century — and remain debt-free.

In May 2011, 14 years later, Mayor Arno Zengerle announced at a town hall meeting that it's "half time" of his third term. He walked the community through a massive list of accomplishments that include nine new community buildings (including the school, gym and community hall) complete with solar panels, four biogas digesters with a fifth in construction, seven windmills with two more on the way, 190 private households equipped with solar, a district heating network with 42 connections, three small hydro power plants, ecological flood control and a natural wastewater system. Wildpoldsried (pop. <2,600) now produces 321 percent more energy than it needs and is generating 4.0 million Euro (US $5.7 million) in annual revenue. This is a remarkable accomplishment for a modest farming community that turned a village with no industry into an industry of renewable energy with the help of local entrepreneurs and pioneers. Small businesses have sprung up to sell and install technologies and provide services to the renewable energy installations — from solar panels to district heating to the anaerobic digesters and energy efficiency retrofits.

WIND AND BIOGAS ENERGY

In 1999, the Village Council crafted a mission statement — WIR–2020, 'Wildpoldsried Innovativ Richtungsweisend (Wildpoldsried Innovative Leadership) — which became the blueprint for how it should consider its citizens' demands, community projects and future development and growth. In turn, the council hoped that the guidelines would inspire people to get involved, begin thinking greener and create jobs and businesses for the community. The W.I.R – 2020 focused on three main themes: 1) Renewable Energy and Saving Energy; 2) Ecological Construction of Buildings Using Ecological Building Materials (mainly wood-based); and 3) Protection of Water and Water Resources (both above and below ground) and Ecological Disposal of Wastewater.

One citizen, Wendelin Einsiedler, started talking to his neighbors and friends about the community's direction, resulting in the formation of a civic society. At the time, he wasn't sure where things were headed but wanted the society to be an active group that could lead the way for the new initiatives in Wildpoldsried. In 1999, the society established EW Wind Energy GmbH Hutoi to build two Enercon E-58 community windmills to produce 3.5 MWh of power. The total investment was 4.4 million Deutsch-marks (DM), comprised of 25 percent equity and about 70 percent debt and a small grant from the state of Bavaria (200,000 DM) specifically allocated for testing the two Enercon E-58 wind turbines. (The value of a DM in 1999 was about 1.95 Euros €.)

In June 2001 the society created a second company, EW Wind Energy GmbH & Co.KG Haarberg, which had 94 investors. Each investor could contribute a minimum of 5,000 € up to 25,000 €. Two windmills were constructed, producing 4.5 MWh. The total investment was 6.6 million DM, 2.5 million DM in equity and 4.5 million debt. In June 2008, a fifth windmill was installed to produce an additional 4.0 MWh, bringing total installed capacity to 12 MWh. Most recently, in May 2011, Einsiedler raised funds for a third company to install two more windmills. This investment is only available to the citizens of Wildpoldsried. The two new windmills will each have a capacity of 2.3 MW. Overall, investors in the society's community windmill projects have been receiving a minimum of an 8 to 10 percent return on their investments, says Einsiedler.

Not long after Einsiedler received approval for the society's first pair of windmills in April 2000, his brother Ignaz Einsiedler went to the village council for approval to build a second biogas plant on his dairy farm. The first biogas plant became operational in 1997. Two other biogas plants are operating on village dairy farms. Today, three biogas companies are operating four anaerobic digesters that produce a total of 320,000 kWh/year. "One-by-one, individuals came forward with ideas and plans to become energy independent," says Susi Vogl, council administrator.

NATURAL WASTEWATER TREATMENT PLANT

Even before the village council crafted a mission statement, many people were already thinking greener. As a pilot project in the fall of 1994, the

third generation owner of Schellheimer, a local landscape company, built the first private natural wastewater system for his home. At the time, flooding was a big issue in Wildpoldsried and it was a constant concern for the citizens.

In 2000, Mayor Zengerle secured a European Union grant that focused on flood control and rainwater diversion. In the Mayor's mind, the project could be more comprehensive by including a natural wastewater system for the entire community utilizing wetlands that could release clean water into the local stream. Schellheimer was approached to design a pilot project.

The system was designed similarly to a conventional wastewater plant, with three simple processes: a sedimentation tank, a (plant) filtration system and clarifier for sludge removal. WiWaLaMoor (the name of the natural wetlands) was designed for optimal drainage with two rectangular-shaped, lined humification beds, in order to achieve a steady accumulation of humus. It was estimated that in 7 to 10 years, 100 m3 of humus could be harvested from the process and thereafter 20 m3 of monthly harvesting was available. Schellheimer uses the humus for customers' landscaping orders.

The first two years of the project were difficult. "The problem was that our existing clarification plant was obsolete and didn't have any chemical or additional cleaning layer," explains Günter Mögele, a member of the Village Council. "We were not sure whether we would get permission from the regional water authority again to operate it. That permission has to be renewed every 20 years. Together with the pilot system from Schellheimer, our permission was renewed. If this hadn't worked, we would have had to build a totally new and very expensive wastewater plant or pump our waste-water to a central plant in another village, which would have required construction of many kilometers of pipes."

After the WiWaLaMoor pilot program was completed in 2006, the council approved full-scale production of the natural wetlands. Involved in the process were the Water Authority of Kempten and the District offices of the Oberallgäu Health Department, measuring the water treatment with soil tests and other parameters set by both organizations. The project also took into account flooding of the stream (the Leubas), which occurred during the rainy season in the Allgäu. Today, says Vogl, "we are supporting 2,570 residents' wastewater with natural wetlands and we haven't had any more trouble."

Wildpoldsried has built a trail with informational stations to explain its WiWaLaMoor project. "Water is life for everyone and it is evident that the ecological interplay between people and their environment must be sustainable." explains Mayor Zengerle. The nature trail includes a honey bee friendly garden complete with a hive, two natural ponds, an orchard with 96 fruit trees and the natural wetlands park, which is now thriving with dragonflies, birds, butterflies and plants.

Wildpoldsried has a central composting collection facility for yard trimmings and landscaping waste. It opened after aggressive regional recycling programs were enacted when the village's landfill closed many years ago. Additional laws were enacted that required residents with yards to compost their yard trimmings and food scraps (no meat, bread and dairy) at home. Households without yards put their organics in the trash, which is hauled to a regional incinerator.

BOOST FROM FEED-IN TARIFF

The momentum for renewable energy really picked up after Germany introduced a new feed-in tariff under the Renewable Energy Source Act of 2000 (the Erneneurbare-Energien-Gesetz, or EEG). The EEG made it economically viable for citizens, small businesses and entrepreneurs to get into the renewable energy business, especially solar. "By 2004, more people started to invest in solar," says Vogl. "The Mayor started asking more citizens to place panels on their roofs. Even I installed solar panels on my house because the feed-in tariff contract was guaranteed. I went to the bank, opened a line of credit and bought my panels. They will be paid off in a few more years from the revenue I have been receiving from the power company."

How the structure works is based on the type of alternative energy produced. For example, homeowners in Wildpoldsried who installed solar in 2004 were guaranteed to receive 45.7 to 57.4 cents/kWh (based on kWh production). AÜW, the regional power company, must purchase the energy (with a guaranteed constant price for 20 years). The extra costs that utilities incur for feed-in tariff payments are averaged across the country, and then recovered through an equal surcharge placed on electricity bills. In the region of the Allgäu, where Wildpoldsried is located, the AÜW reports that household energy prices have increased from .1608 € cents/kWh in 1999 to .2575 € cents/kWh in 2011. About 14 percent of that increase is attributed to the EEG.

"Homes with solar pay the same price as everybody, but in the new EEG law from 2011, the energy company has to pay 12 cents for every kWh homeowners use from their solar panels," explains Councilman Mögele. "This means homeowners with solar panels save the .2575 € cents and receive .1200 € cents on top, leaving .3775 € cents in their pocket. If you use more than 30 percent of your self-produced energy by yourself, you receive €16 cents."

Today, over 190 households in Wildpoldsried have solar panels producing 3300 kWp (p = peak, or maximum potential); nine municipal buildings are producing 390 kWp. Energy generated from these buildings is sold to AÜW; the revenue covers the cost of annual maintenance. Any additional profits fund community needs such as musical instruments for the schools and new equipment for the volunteer fire department.

DISTRICT HEATING, ENERGY EFFICIENCY

In 1999, the first evaluation of a district heating system in Wildpoldsried found it was not viable because a network needed to be laid first and the location of the heating system needed to be centralized. The project was delayed for

four years until a new community hall had been erected in the village square. Wildpoldsried applied for a grant in February 2005 to install a CHP system in the basement of the community hall and a heating network under the street. In November 2005, a biomass (wood pellet) heating system was put into operation and the old oil heaters in the community buildings were retired.

Many new buildings have been erected or remodeled in Wildpoldsried in the past 16 years, and it was recommended that wood be used as building material or an energy source. The fact that the village is surrounded by 1,413 hectares of forest meant wood was a locally available and renewable resource, and generates revenue for the local tree farmers. “For our central heating system, we only use pellets, which are industrially produced in Bavaria mainly out of waste wood from the wood industry,” says Mögele. “Some home heating systems use wood chips (‘Hackschnitzel’) out of the local forests made mostly from waste wood like branches.”

In terms of energy efficiency, Wildpoldsried follows the Passive House program created by the German federal government under a 2008 resolution from the European Parliament. In 2011, the Wildpoldsried Village Council adopted an ordinance that requires all new home construction to incorporate energy efficiency measures, similar to those included in the government’s Passive House program. This is the only regulation that Wildpoldsried put into effect since the start of the WIR-2020 program in 1999. Developers of new homes are required to build a passive home, which is defined as having maximum insulation, energy efficient appliances and no oil heaters. The council also established a rebate for new home construction to offset costs of building a “zero energy” home. “With the rebate, Wildpoldsried will pay new homeowners 15 euro/m2 toward the cost of the land if they construct an energy passive house,” explains Mögele.

Remodeled homes are required to undergo a thermal scanning to identify where energy and heat are wasted. From the Passive House consult, the homeowner is required to make improvements during the remodel due to energy inefficiencies. New windows, insulation improvements and replacing oil heaters are all typical recommendations from the energy consultation.

Saving energy has been such a hot topic in the last few years in Wildpoldsried that more pioneering homeowners like Thomas Herring are stepping forward. Herring participated in another energy program called “AlpEnergie Project,” which uses a new technology called Joonior. An appliance is plugged into a Joonior, which monitors the AÜW’s pricing broadcast and turns on the appliance when the price of energy is cheap, thus lowering the cost of consumption.

FUTURE PLANS AND MILESTONES

During the second hour of the May 2011 town hall meeting, Mayor Zengerle laid out the next steps of Wildpoldsried’s sustainable community plan: Participation in Project IRENE (Integration of Renewable Energy and Electric Vehicles) , which includes a Siemens Smart Grid, 37 eCars and a solar charging facility; Expansion of the district heating system and use of LED street lights; and Completion of Wildpoldsried’s new hotel that is attached to the already completed culture café, community hall and education center. The facilities will be used to hold renewable energy seminars and introduce “Eco-Energy Tourism.”

Wildpoldsried was chosen by the Federal Ministry of Economics for Project IRENE because of its renewables portfolio. The study is a joint research program with two universities and AÜW. The project begins in the fall of 2011 and will continue for two years. The study “...will reflect actual patterns of mobility and the mobile batteries in everyday scenarios,” explains Dr. Michael Fiedeldey, Managing Director of the AÜW Kempten. “The main requirement of the study was to find a community that is already producing energy through renewable means. Wildpoldsried was selected because it already generates significantly more renewable energy than consumed.”

AÜW’s network will need to be optimized as a shift occurs from a centralized power supply to a decentralized model, i.e., renewable power supply. In late May 2011, the German government announced it was phasing out all of Germany’s 17 nuclear reactors — eight of which are offline — by 2022 and expanding use of renewable resources. The move was spurred on by the disaster at Japan’s Fukushima nuclear power plant and public opposition to the country’s reliance on nuclear energy. AÜW relies on nuclear energy for 17.1 percent of its power supply; the State of Bavaria, however, gets 63 percent of its power supply from nuclear energy.

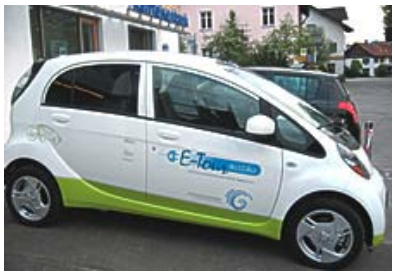
When wind and solar farms are in full production, the electrical grid can become overloaded with renewable power. This is currently the case with AÜW, which would like to avoid a costly expansion and restructuring of its network by coordinating the supply, consumption and storage of energy through smart grid technology in combination with electric cars. (A “smart grid” attempts to predict and intelligently respond to consumption patterns of all electric users connected to it, ultimately optimizing power supply and energy efficiencies.) In addition, AÜW wants to reduce the operational and maintenance costs of regional power plants that will be slowing down in production as more local suppliers come online. “The Siemen’s system is not in use yet, but in the second phase of this study we will demonstrate the functionality and practicality of smart grids,” adds Fiedeldey.

“…We are really honored to be selected for this study,” says Mögele. “Energy cannot be destroyed; you must move it, store it or change it. We have already run into problems where we are producing too much renewable energy. It’s very important to make the network intelligent and combine it with a storage system.” He adds that the Village Council is entertaining a second research project with the Fraunhofer Institute for Wind and Energy Systems to convert excess energy to biogas. The concept will take water and C02 to produce methane. “The stored methane will then be saved and converted back to power at a later time,” Mögele explains.

EMISSIONS REDUCTIONS

As of 2010, Wildpoldsried has reduced its CO2 emissions by 65 percent, and village officials and its citizens believe they will reach 125 percent by

2012. The current targeted emissions reduction for the country is 40 percent by 2020, as set forth in Germany's Climate Initiative. Proving that Germany's renewables portfolio is making an impact, organizations such as the Agency for Renewable Energies is tracking communities like Wildpoldsried. Its purpose is to communicate the key benefits of a sustainable energy supply — including securing the supply, innovation, employment growth and export potential — while permanently lowering the cost of energy supply, continuing climate protection and conserving resources.



Wildpoldsried has received numerous national and international awards for its conservation and renewable energy initiatives known as Klimaschutz (climate protection). The council is hosting tours to teach other village councils how to start their own Klimaschutz program. Wildpoldsried expects its Eco-Energy Tourism to be introduced to the region by next year. Biogas, solar and windmill tours, environmental education, renewables education, sustainability, nature, business and regional tourist sites (such as the Neuschwanstein Castle) will all be part of this multiday experience. In turn, they also hope that new ideas, new technology and new businesses continue to develop within the community.

"After the Fukushima disaster, Mayor Zengerle has been busier than ever," says Mögele. "He has gone to Romania, Berlin and the Black Sea Region to talk to European economic and energy groups. What people find so amazing about our story is that no project was a burden of the community. Every decision the Village Council made was based on the financial feasibility and profitability of the project. Our terms are for six years, and we don't want the next council to have to budget for our debt. If a project could be financed in six years or less we felt it was worth doing."

What was once thought to be a 30-year wish list of community projects for a new council-elect, has turned out to be a blueprint for other villages to get into the renewables business. "The mitigation of climate change in practice can only be implemented with the citizens and with the Village Council behind them 100 percent of the way," states Mayor Zengerle. "This model cannot be forced from only one side. We often spend a lot of time talking to our visitors about how to motivate the village council (and Mayor) to start thinking differently. We show them a best practices model in motion and many see the benefits immediately. From the tour we give, our guests understand how well things can operate when you have the enthusiasm and conviction of the people."

Christie Allen is the International Sales and Business Development Manager for SUMA GmbH and SUMA America Inc., a biogas mixer and agitation manufacturer. She has over 15 years of experience in technology and business consulting, and volunteers in Wildpoldsried to give Energy Tours in English.

WINDMILL FACTS

- Emissions reductions of 12 million kg CO2/year
- 12.0 MWh/year from five community windmills
- Energy fed into the grid
- Projected revenue of 1,957,500 € in 2012 (22.500 kWh) because the two new windmills to be constructed are larger and much more efficient than the existing ones

BIOGAS FACTS

Three biogas companies operate four digester plants.

Company One

- Digester manufacturer: Johann Hochreiter, Schnaitsee; operating since Feb. 1996
- Manure from 80 milk cows, along with plant and grass silage
- 80,000 kWh/year of energy produced
- 30,000 kWh consumption on farm; residual is fed into the grid
- Fermenter size: 250 m3 with stationary paddle mixer
- Temperature around 40°C
- Gas storage in 100 m3 plastic bag
- Gas combustion in dual fuel 56 HP with asynchronous 22 KW generator
- Excess heat fed to hot water heating systems of two houses

Company Two

- Digester manufacturer: HJS Fast, Amtzell; operating since Jan. 1999
- Manure with plant and grass silage
- 120,000 kWh/year produced
- Power used on farm with residual fed into the grid

Company Three (2 plants)

- Manufacturer: Fa. Schnell, Amtzell; operating since Nov. 1997
- Manure slurry, feed and corn silage
- 150,000 kWh/year energy and 80,000 kWh/year of heat produced
- Injection into the district heating network and private consumption
- Roof area of second digester plant equipped with 110 kWp photovoltaic system

WIWALAMOOR FACTS

- Sludge treated – 250 m3/yr

• Dry matter content – 60 kg/m3
• Yearly dry content – 15,000 kg
• Humification bed area – 450 m2
• Specific bed load – 33 kg TS/m2/yr
• Annual sludge bed growth – 0.06 m
• Life of bed prior to initial clearing – about 10 years
• Life of the bed between clearings – about 7 years
• Annual humus harvested – 20 m3

SOLAR PANEL FACTS

Photovoltaic panels on municipal buildings include:
• Fire department – 27.5 kWp
• School – 93.6 kWp
• Recycling center – 42.4 kWp
• New sports facility – 147 kWp

DISTRICT HEATING FACTS

• 42 buildings connected, including village hall, community center, church, fire department, library, businesses, school facilities and 20 private buildings and homes
• District Heating network growing annually as more private citizens replace oil heaters with a connection to the central heating system
• Heat fed into the district system comes from community building's wood pellet furnace (400 kW) and waste heat from two biogas generators (250 kW/generator
• Oil heater – 385 kW – only used when heat at demand peak
• Fuel saving of about 164,278 liters (from oil heaters no longer in use)
• C02 emissions reduced by 443,550 kg/year

a. All abandoned or unused towers and associated facilities shall be removed within twelve (12) months of the cessation of operations at the site unless at time extension is granted by the Zoning Administrator and/or designee.

b. Unused portions of towers above a manufactured connection shall be removed within six (6) months of the time of antenna relocation. The replacement of portions of a tower previously removed requires the issuance of a new special use permit.

(2) The Zoning Administrator and/or designee shall notify the telecommunications service provider by certified mail when removal of an abandoned or unused tower or portion of a tower is required. The telecommunications service provider shall be given thirty (30) days to remove such facilities.

(3) In the event that a tower or portion of a tower is not removed within this time period, the tower and all associated facilities may be removed by the city and the costs of removal assessed against the property.

(l) **APPEAL.** Decisions by the Zoning Administrator and/or designee based on the requirements of this ordinance shall be subject to appeal to the Board of Appeals.

SEC. 13-1-82 SPECIAL USE PERMITS REQUIRED--WIND ENERGY SYSTEMS.

(a) **APPROVAL REQUIRED.** No owner shall, within the City, build, construct, use or place any type or kind of wind energy system without holding the appropriate conditional use permit for said system.

(b) **SEPARATE PERMIT REQUIRED FOR EACH SYSTEM.** A separate conditional use permit shall be required for each system. Said permit shall be applicable solely to the systems, structures, use and property described in the permit.

(c) **BASIS OF APPROVAL.** The Plan Commission shall base its determination on general considerations as to the effect of such grant on the health, general welfare, safety and economic prosperity of the City and, specifically, of the immediate neighborhood in which such use would be located, including such considerations as the effect on the established character and quality of the area, its physical attractiveness, the movement of traffic, the demand for related services, the possible hazardous, harmful, noxious, offensive or nuisance effect as a result of noise, dust, smoke or odor and such other factors as would be appropriate to carry out the intent of the Zoning Code.

(d) **FEES.** The Common Council shall, by resolution, establish fees for the processing and issuance of wind energy special use permits under this Article.

(e) **DEFINITIONS.** "Wind energy systems" shall mean "windmills" which are used to produce electrical or mechanical power.

SEC. 13-1-83 PERMIT PROCEDURE--WIND ENERGY SYSTEMS.

(a) **APPLICATION.** The permit application for a wind energy system shall be made to the Zoning Administrator on forms provided by the City. The application shall include the following information:

(1) The name and address of the applicant.

(2) The address of the property on which the system will be located.

(3) Applications for the erection of a wind energy conversion system shall be

accompanied by a plat or survey for the property to be served showing the location of the generating facility and the means by which the facility will provide power to structures. If the system is intended to provide power to more than one (1) premises, the plat or survey shall show all properties to be served and the means of connection to the wind energy conversion system. A copy of all agreements with system users off the premises shall accompany the application. The application shall further indicate the level of noise to be generated by the system and provide assurances as to the safety features of the system. Energy easements shall accompany the application.

(4) An accurate and complete written description of the use for which special grant is being requested, including pertinent statistics and operational characteristics.

(5) Plans and other drawings showing proposed development of the site and buildings, including landscape plans, location of parking and service areas, driveways, exterior lighting, type of building material, etc., if applicable.

(6) Any other information which the Zoning Administrator may deem to be necessary to the proper review of the application.

(7) The Zoning Administrator shall review the application and, if the application is complete and contains all required information, shall refer it to the Plan Commission.

(b) **HEARING.** Upon referral of the application, the Plan Commission shall schedule a public hearing thereof as soon as practical and the Plan Commission shall notice said hearing as deemed appropriate.

(c) **DETERMINATION.** Following public hearing and necessary study and investigation, the Plan Commission shall, as soon as practical, render its decision in writing and a copy made a permanent part of the Commission's minutes. Such decision shall include an accurate description of the special use permitted, of the property on which permitted, and any and all conditions made applicable thereto, or, if disapproved, shall indicate the reasons for disapproval. The Plan Commission may impose any conditions or exemptions necessary to minimize any burden on the persons affected by granting the special use permit.

(d) **TERMINATION.** When a special use does not continue in conformity with the conditions of the original approval, or where a change in the character of the surrounding area or of the use itself cause it to be no longer compatible with surrounding areas, or for similar cause based upon consideration for the public welfare, the special grant may be terminated by action of the Plan Commission following a public hearing thereon.

(e) **CHANGES.** Subsequent change or addition to the approved plans or use shall first be submitted for approval to the Plan Commission and if, in the opinion of the Board, such change or addition constitutes a substantial alteration, a public hearing before the Plan Commission shall be required and notice thereof be given.

(f) **APPROVAL DOES NOT WAIVE PERMIT REQUIREMENTS.** The approval of a permit under this Article shall not be construed to waive the requirement to obtain electrical, building or plumbing permits prior to installation of any system.

SEC. 13-1-84 SPECIFIC REQUIREMENTS REGARDING WIND ENERGY SYSTEMS.

(a) **ADDITIONAL STANDARDS.** Wind energy conversion systems, commonly referred to as "windmills," which are used to produce electrical power, shall also satisfy the requirements of this Section in addition to those found elsewhere in this Article.

(b) **APPLICATION.** Applications for the erection of a wind energy conversion system shall be accompanied by a plat of survey for the property to be served showing the location of the generating facility and the means by which the facility will provide power to structures. If

the system is intended to provide power to more than one (1) premises, the plat of survey shall show all properties to be served and the means of connection to the wind energy conversion system. A copy of all agreements with system users off the premises shall accompany the application. The application shall further indicate the level of noise to be generated by the system and provide assurances as to the safety features of the system. Energy easements shall accompany the application.

(c) **CONSTRUCTION.** Wind energy conversion systems shall be constructed and anchored in such a manner to withstand wind pressure of not less than forty (40) pounds per square foot in area.

(d) **NOISE.** The maximum level of noise permitted to be generated by a wind energy conversion system shall be fifty (50) decibels, as measured on a dB(A) scale, measured at the lot line.

(e) **ELECTROMAGNETIC INTERFERENCE.** Wind energy conversion system generators and alternators shall be filtered and/or shielded so as to prevent the emission of radio-frequency energy that would cause any harmful interference with radio and/or television broadcasting or reception. In the event that harmful interference is cause subsequent to the granting of a conditional use permit, the operator of the wind energy conversion system shall promptly take steps to eliminate the harmful interference in accordance with Federal Communications Commission regulations.

(f) **LOCATION AND HEIGHT.** Wind energy conversion systems shall be located in the rear yard only and shall meet all setback and yard requirements for the district in which they are located and, in addition, shall be located not closer to a property boundary than a distance equal to their height. Wind energy conversion systems are exempt from the height requirements of this Chapter; however, all such systems over seventy-five (75) feet in height shall submit plans to the Federal Aviation Administration (FAA) to determine whether the system is to be considered an object affecting navigable air space and subject to FAA restrictions. A copy of any FAA restrictions imposed shall be included as a part of the wind energy conversion system conditional use permit application.

(g) **FENCE REQUIRED.** All wind energy conversion systems shall be surrounded by a security fence not less than six (6) feet in height. A sign shall be posted on the fence warning of high voltages.

(h) **UTILITY COMPANY NOTIFICATION.** The appropriate electric power company shall be notified, in writing, of any proposed interface with that company's grid prior to installing said interface. Copies of comments by the appropriate utility company shall accompany and be part of the application for a conditional use permit.

SEC. 13-1-85 GARAGES, ACCESSORY BUILDINGS AND USES.

(a) **INTENT.** It is recognized that residents may need private garages to store vehicles as well as small accessory buildings for storage or other incidental uses. It is the purpose of this Section to allow these buildings and uses as long as aesthetics open space, and residential character are not compromised.

(b) **PRINCIPAL STRUCTURE.** No garage or accessory building shall be located on a lot without a principal structure unless said lot adjoins a lot of same ownership with a principal structure.

(c) **LOCATION.** A detached garage or accessory structure shall not be located in between a principal structure and a street right-of-way except in the case of a through lot where the

Wisconsin Sustainability Intern Program

P2 Helps Facilities Improve the Environment and Save Money

2011 Interns: Ben Villwock, Alysa Bradley, Joe Van Rossum, SHWEC faculty advisor, Katherine Mitchell, Tony Rieth, and Mike Nied

Interns Promote Environmental Sustainability

Since 2008 the University of Wisconsin Extension Solid and Hazardous Waste Education center has placed college students at facilities throughout Wisconsin to evaluate and put into practice pollution prevention projects that advance environmental sustainability. These 12-week summer experiences immerse the students in real world situations and enable the host facilities to reduce waste and improve their bottom line.

During the summer of 2011 Intern Alysa Bradley was placed in the City of Waupun with Public Works Director Dick Flynn and General Manager of Waupun Utilities Zak Bloom to investigate overall energy use to determine the best possibilities for new HVAC systems in City facilities, evaluate the feasibility of renewable technologies in the City, and investigate improving the efficiency of street lights. Bradley's efforts will assist the City with meeting its goal to have 25% of its energy come from renewable sources by 2025.

Bradley spent the second six weeks of her internship with Fond du Lac County government where she worked with Building Maintenance Supervisor Rick Kiefer and a newly formed Energy Team to develop an energy baseline. Bradley's work helped evaluate improvements to HVAC systems, the possibility of generating renewable energy to sell back to the power grid, and options for a new boiler in the Highway Department garage in Fond du Lac.

In addition to Fond du Lac County and the City of Waupun 2011 students worked on pollution prevention projects in Dunn County, Milwaukee County, Oshkosh Truck and the Marshfield Clinic. Municipalities, businesses, or residents interested in learning more about this project can contact Intern Coordinator, Marlene Jaglinski at marlene.jaglinski@ces.uwex.edu or Waste Reduction Specialist, Steve Brachman, at steve.brachman@ces.uwex.edu.