

MRAC Hamateur Chatter

The Milwaukee Radio Amateurs Club

June 2014 Volume 22, Issue 6

One of the World's Oldest Continuously Active Radio Amateur Clubs—since 1917

Presidents' Letter

Field Day is a less than a week away. We will again be doing a multi club effort with Gateway Technical and MAARS. We are looking to run at least 3 stations again this year. It would be nice to see more members come out and operate.

We are a very laid back group that is more interested in having fun than winning. There also is interest in setting up an area where people can bring out their equipment to experiment with. The field day site is at Konkel Park Located at 5151 West Layton Ave, Greenfield, WI 53220. We will begin setup around 1pm on Friday afternoon. If we need to change setup plans we will do it on the MRAC 145.390 repeater. Our goal is to be able to check into the 10 meter net that evening.

The program for this month is show and tell and Field Day. The show and tell does not need to be radio related.

If you have an item or helpful tip that can be share please bring it.

If you have an app or computer program that is interesting please bring it.

Look forward to seeing you at the meeting and Field Day.



MRAC Officers:

Terms Expiring in 2016

- President – Dave, KA9WXN
- V-President– Dan, N9ASA
- Secretary – Mike, KC9CMT
- Treasurer – Joe, N9UX
- Director – Vacant

Terms Expiring in 2015

- Director – Al, KC9IJJ
- Director – Hal , KB9OZN

The Club Phone Number is: (414) 332-MRAC or

(414) 332- 6 7 2 2

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www.w9rh.org

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53226-0233

Board of directors meeting called to order at 7:01 pm by Dave Shank, KA9WXN club president.

Director's present: Michael KC9CMT, Dave KA9WXN, Joe N9UX, Mark Morgan KB9RQZ, Dan N9ASA, Al KC9IJJ.

Absent: Hal, KB9OZM. The MRAC is still one short on it's board of directors.

Preliminary Discussions: The Board of Director's minutes were accepted as published in the April Chatter by a motion forwarded by Michael, KC9CMT seconded by Al, KC9IJJ. Joe, N9UX, did not have a report on the treasury due to the early meeting this month of May. Joe did though, go over a brief explanation of what the treasurer of our club does. The new board member, Mark Morgan, KB9RQZ was welcomed and briefed on what a member of the MRAC board does.

Meeting programs: The May meeting is the annual club auction. The club does not require any fees from their auction, but encourages donations to the club. The club needs four directors' positions filled this year. Our June meeting will be the 26th this year, the week before ARRL field day. A show and tell session has been planned for June. In September, Joe N9UX will bring in and discuss his Raspberry Pi based TNC.

Field Day: The farmers market will be at Konkel park in Greenfield again in 2014 during our field day effort. The dates in 2014 are the 27th – 29th of June.

Special Project Committees & Committee reports: Michael, KC9CMT has consented to stay on as the club secretary for another term. Dave, and Dan will also be staying in their present positions. The club needs to find a new treasurer. Discussions regarding the new treasurer has been tabled until next month. The MRAC/MAARS joint picnic will be on August 9th, 2014 at Greenfield park. The FM Simplex contest in 2015 will take place on February 8th. The annual MRAC/MAARS food gathering will be during the February 2015 membership meeting on February 26th.

Repeater Report: Dave, WB9BWP is the repeater trustee, and control operator. The club would like more than one repeater control operator. A club repeater control operator should be a extra class operator to have the kind of privileges that are necessary to operate during field day to our fullest extent.

New Business:

Swapfest Committee: Next years Swapfest will fall on February 14th, Valentines day. The club does not think that this will be a problem. Next years complimentary tickets should be ready by the November membership meeting. Swapfest entrance tickets need to be ready by the first week on January.

Special Projects: The club needs someone to take over the FM simplex contest for February of 2015. The club now has a Facebook page. All club members are invited to join in. The club is looking for a location for setting up a special event station. The USS Cobia at the Manitowoc maritime museum was mentioned as a overnight special event.

An event at the Discovery museum at the Lake front has received considerable mention at board of director meetings. Dave, KA9WXN will be attending the ARRL 100th anniversary convention this year. We have contacted ARRL in the hopes of getting a framed document from them celebrating our clubs' being the oldest active amateur radio clubs' in the country.

A motion was made to adjourn the meeting at 8:15 pm by Dave, KA9WXN seconded by Al, KC9IJJ. Meeting adjourned at 8:20 pm. The room was returned to an organized condition as it was when the room was opened.

Here's some stupid math tricks:

Number Transformation:

Pick any **number**.

Add 3.

Multiply your result by 10.

Multiply your result by your **original** number.

Subtract 10.

Divide by 10.

Add 1.

Divide by your original number.

Subtract 3 from the number

Subtract your original number.

The result is always 0 (zero).

Magic Number

Pick a number between 1 and 9.

Multiply this number by 2.

Add 5.

Multiply by 50.

If you have already had your **birthday** this **year**, add 1750*. If you haven't had your birthday yet, add 1749*.

Last step: Subtract the **four digit year** that you were born.

The first digit of the **answer** is the original number you chose. The remaining two digits represent your age.

*: given for the year 2000. Increase these values by one for each successive year.

Prime number trick

Choose any **prime number** greater than 3

Square that number

Add 14

Divide by 12

The **remainder** will **always** be 3.

Each year about a thousand tornadoes touch down in the US. Only a small percentage actually strike occupied buildings, but every year a number of people are killed or injured. The chances that a tornado will strike a building that you are in are very small, however, and you can greatly reduce the chance of injury by doing a few simple things.

One of the most important things you can do to prevent being injured in a tornado is to be **ALERT** to the onset of severe weather. Most deaths and injuries happen to people who are unaware and uninformed. Young children or the mentally challenged may not recognize a dangerous situation. The ill, elderly, or invalid may not be able to reach shelter in time. Those who ignore the weather because of indifference or overconfidence may not perceive the danger. Stay aware, and you will stay alive!

If you don't regularly watch or listen to the weather report, but strange clouds start moving in and the weather begins to look stormy, turn to the local radio or television station to get the weather forecast.

Check The Weather Channel for additional information, or if you have trouble getting up-to-the-minute forecasts on a regular radio, then a "NOAA weather radio" is a wise investment.

If a tornado **"watch"** is issued for your area, it means that a tornado is "possible."

If a tornado **"warning"** is issued, it means that a tornado has actually been spotted, or is strongly indicated on radar, and it is time to go to a safe shelter immediately.

Be alert to what is happening outside as well. Here are some of the things that people describe when they tell about a tornado experience:

- A sickly greenish or greenish black color to the sky. If there is a watch or warning posted, then the fall of hail should be considered as a real danger sign. Hail can be common in some areas, however, and usually has no tornadic activity along with it.
- A strange quiet that occurs within or shortly after the thunderstorm.
- Clouds moving by very fast, especially in a rotating pattern or converging toward one area of the sky.
- A sound a little like a waterfall or rushing air at first, but turning into a roar as it comes closer. The sound of a tornado has been likened to that of both railroad trains and jets.
- Debris dropping from the sky.

An obvious "funnel-shaped" cloud that is rotating, or debris such as branches or leaves being pulled upwards, even if no funnel cloud is visible.

If you see a tornado and it is not moving to the right or to the left relative to trees or power poles in the distance, it may be moving towards you! Remember that although tornadoes usually move from southwest to northeast, they also move towards the east, the southeast, the north, and even northwest.

Encourage your family members to plan for their own safety in many different locations. It is important to make decisions about the safest places well BEFORE you ever have to go to them.

IN HOMES OR OTHER SMALL BUILDINGS:

The best places are:

In a storm shelter specifically designed for that use--within the basement or outside the home entirely. Some companies manufacture pre-fab shelters that you drop into a hole in the ground, and that blends in with home landscaping (some more, some less).

In a basement, away from the west and south walls. Hiding under a heavy work-table or under the stairs will protect the family from crumbling walls, chimneys, and large airborne debris falling into the cellar. A family in the April 8th, 1998 tornado in the Birmingham, Alabama area survived because a hutch toppled and was held up by the dining room table they were under. That hutch helped deflect the debris that would have struck **them**. Old blankets, quilts and an unused mattress will protect against flying debris, but they should be stored in the shelter area. Precious time can be lost by trying to find these items at the last minute.

In a small, windowless, first floor, interior room like a closet or bathroom. The bathtub and commode are anchored directly into the ground, and sometimes are the only thing left in place after the tornado. Getting into the bathtub with a couch cushion over you gives you protection on all sides, as well as an extra anchor to the foundation. Plumbing pipes may or may not help hold the walls together, but all the extra framing that it takes to put a bathroom together may make a big difference. If there is no downstairs bathroom and the closets are all packed with "stuff," a hall may be the best shelter. Put as many walls as you can between yourself and the tornado. In a pinch, put a metal trash over as much of you as you can. It will keep some flying debris from injuring you. Even that may make the difference between life and death.

Wherever it is, the shelter should be well known by each member of the family. If you and your family will conduct annual emergency drills (fire, tornado, etc.), everyone will remember what to do and where to go when a tornado is approaching--automatically and without panic. Choose a friend or family member in another part of town or elsewhere to be a "contact person" that will be called by everyone should the family members become separated.

<http://www.hsus.org/disaster/tips.html>

The Red Cross suggests that you assemble a "disaster supplies kit" that you keep in your shelter area. It should contain:

- o A first aid kit with essential medication in addition to the usual items.
- o A battery powered radio, flashlight, and extra batteries.
- o Canned and other non-perishable food and a hand operated can opener.
- o Bottled water.
- o Sturdy shoes and work gloves.

Written instructions on how to turn off your homes utilities.

IN SCHOOLS

Leave auditoriums, [gyms](#), and other free-span rooms, exiting in an orderly fashion. Go to [interior rooms and halls on the lowest floor](#), but avoid halls that open to the outside in any direction. If there are no interior hallways, avoid those that open to the southwest, south, or west, since that is the usually the direction the tornado will come. Stay away from glass, both in windows and doors. [Crouch down, and make as small a "target" as possible](#). If you have something to cover your head, do so, otherwise, use your hands. Don't assume that there will always be a teacher or other adult there to tell you what to do--if there is, you should follow their direction, but you need to know these things too. Peak time for tornadoes to strike varies from region to region. In some southeastern states, early morning tornadoes are almost as common as late afternoon ones. In western and northern states, peak hours are from 3 to 7 PM, just at the end of the school, but including the hours of afterschool activities.

TO AND FROM SCHOOL, WORK, OR AFTERSCHOOL ACTIVITIES:

If really severe weather is expected, your school may be dismissed early in order that you can reach home before the worst of the weather reaches the area.

If you are on foot or riding a bike, it is doubly important that you go home immediately, and not linger with your friends. If caught in the open, you should seek a safe place immediately. The chances of encountering falling trees, power lines, and lightning is greater than encountering the tornado itself. The basement of a sturdy building would be best, but lying flat in a ditch or low-lying area may be the only thing available. A culvert in a ditch MAY be a good choice if there is no rain, but if there IS rain, flash flooding may be more dangerous and likely than the tornado.

If you are in a car, and you can see a tornado forming or approaching, you should leave the car and take shelter as above. You may think you can escape from the tornado by driving away from it, but [you can't know what you may be driving into!](#) A tornado can blow a car off a road, pick a car up and hurl it, or tumble a car over and over. Many people have been killed in cars while they were trying to outrun the tornado, and although it is sometimes possible to escape, it is generally not a good idea. The photo to the left shows you what can happen to a car that encounters a tornado.

A few years ago a fellow contacted us and tell us his experiences with the Wichita Falls tornado of 1979. When he was a young man, he outran the Wichita Falls, Texas tornado in a car. He survived, but many people that day tried the same thing and were killed.

An underpass may seem like a safe place, but may not be. While videos show people surviving under an underpass, those tornadoes have been weak. No one knows how survivable an underpass is in a strong or violent tornado. The debris flying under the underpass could be very deadly... head for a ditch.

IN HIGH-RISE BUILDINGS:

Interior rooms and halls are the best locations in large buildings. Central stairwells are good, but elevators are not. If the building loses power, you may be in the elevator for a long time. Stay away from glass walls and windows, no matter how small.

MOBILE HOMES:

Most tornado deaths occur in cars and mobile homes. If you live in a mobile home park, you should find out from the manager where you should go in the event of a tornado--but don't wait until you really need the information--ask him/her on a nice day! Mobile home parks may have a designated tornado shelter, or a steel reinforced concrete laundry room. If they don't, you need to find another substantial structure that you can reach very quickly. You may have only seconds to get to it. The photo below shows what an 60-80 mph wind can do to a mobile home. At 100 mph, they may start to disintegrate.

SHOPPING CENTERS, HOSPITALS, AND FACTORIES:

Go to interior rooms and halls on the lowest floor. Stay away from glass enclosed places or areas with wide-span roofs such as auditoriums, theaters, and warehouses. Crouch down and cover your head. Deaths have occurred in large, single story department stores. They have occurred inside the building when the roof or [wide span brick walls](#), which collapsed. A corner would be safer than the [middle of the wall](#). A bathroom, closet, office, or maintenance room with short walls would be the safest area, especially if it was on the north or east side of the building.

Is it likely that a tornado will strike your home or school? No. But being ready for the possibility will keep you safer!

Deaths and injuries from tornadoes have dropped dramatically in the past 50 years. Casualties numbers are holding steady as scientists learn more about tornadoes and develop the technologies that detect them sooner. Forecasters must continue to improve techniques because the population is increasing. The National Weather Service, [Storm Prediction Center](#), and television and radio weather people have taken full advantage of the advancements in tornado prediction to improve warnings.

In addition, many people generously donate their time and expertise to help protect their neighbors and communities in another way--by tornado and severe storm "spotting." "Spotters" combine an interest in the weather, a willingness to serve and often, ham radio experience to make tornado prone areas safer for all. Spotting can provide a focus to a person's interest in the weather, and ham radio helps you meet other like-minded people. It is not often that something that starts out as a hobby can potentially do so much good.

Welcome

Battery Sulfation and How to Prevent it

Sulfation occurs when a lead acid battery is deprived of a full charge. This is common with starter batteries in cars driven in the city with load-hungry accessories. A motor in idle or at low speed cannot charge the battery sufficiently.

Electric wheelchairs have a similar problem in that the users might not charge the battery long enough. An eight-hour charge during the night when the chair is free is not enough. Lead acid must periodically be charged 14–16 hours to attain full saturation. This may be the reason why wheelchair batteries last only two years, whereas golf car batteries deliver twice the service life. Longer leisure time allows golf car batteries to get the fully saturated charge.

Solar cells and wind turbines do not always provide sufficient charge, and lead acid banks succumb to sulfation. This happens in remote parts of the world where villagers draw generous amounts of electricity with insufficient renewable resources to charge the batteries. The result is a short battery life. Only a periodic fully saturated charge could solve the problem, but without an electrical grid at their disposal, this is almost impossible. An alternative is using lithium-ion, a battery that is forgiving to a partial charge, but this would cost about six-times as much as lead acid. What is sulfation? During use, small sulfate crystals form, but these are normal and are not harmful. During prolonged charge deprivation, however, the amorphous lead sulfate converts to a stable crystalline that deposits on the negative plates.

This leads to the development of large crystals, which reduce the battery's active material that is responsible for high capacity and low resistance. Sulfation also lowers charge acceptance. Sulfation charging will take longer because of elevated internal resistance.

There are two types of sulfation: *reversible* (or *soft sulfation*), and *permanent* (or *hard sulfation*). If a battery is serviced early, reversible sulfation can often be corrected by applying an overcharge to a fully charged battery in the form of a regulated current of about 200mA. The battery terminal voltage is allowed to rise to between 2.50 and 2.66V/cell (15 and 16V on a 12V mono block) for about 24 hours. Increasing the battery temperature to 50–60°C (122–140°F) further helps in dissolving the crystals. Permanent sulfation sets in when the battery has been in a low state-of-charge for weeks or months. At this stage, no form of restoration is possible.

There is a fine line between reversible and non-reversible sulfation, and most batteries have a little bit of both. Good results are achievable if the sulfation is only a few weeks old; restoration becomes more difficult the longer the battery is allowed to stay in a low SoC. A sulfated battery may improve marginally when applying a de-sulfation service. A subtle indication of whether a lead acid can be recovered is visible on the voltage discharge curve. If a fully charged battery retains a stable voltage profile on discharge, chances of reactivation are better than if the voltage drops rapidly with load.

Several companies offer anti-sulfation devices that apply pulses to the battery terminals to prevent and reverse sulfation. Such technologies tend to lower sulfation on a healthy battery but they cannot effectively reverse the condition once present. Manufacturers offering these devices take the “one size fits all” approach and the method is unscientific. A random service of pulsing or blindly applying an overcharge can harm the battery in promoting grid corrosion. Technologies are being developed that measure the level of sulfation and apply a calculated overcharge to dissolve the crystals. Chargers featuring this technique only apply de-sulfation if sulfation is present and only for the time needed.

Beginner's Guide to Solar and Wind Energy

Many of the folks who visit our site are interested in installing a solar or wind electric system for their home but they do not know where to begin. Although to a certain degree each situation is different, there are a few basic things that will help you get started down the path to renewable energy.

Generally speaking, solar electric systems take from 12 to 20 years to pay for themselves depending on your location and what your local utility charges for electricity. [Wind power](#) systems can take from 8 to 12 years, depending on the [wind speed](#) at your site. That said, more and more states have very aggressive rebate programs and tax credits for both individuals and businesses to reduce the initial cost of the system. Rebates can be as high as 50 or 60% of the cost of the system depending on your state. To see all of the rebates and tax credits available for your state go to the [Database of State Incentives for Renewable Energy \(DSIRE\)](#).

A Little Homework is Required

Solar electric panels (PV) and wind generators create electricity. If we are to help you size a system for your home, we need to know how much electricity (kilowatt-hours or [kWh](#)) you use each month. If you are currently buying electricity from the utility company that information is available on your electric bill. If you are looking into a system for your RV or cabin where there are no electric bills to refer to, then please go through the process of [filling out the load calculator sheet in the Reference section of the How To area](#). Filling out this sheet requires you to supply two pieces of information - [how many watts each appliance](#) that you want to run uses and how many hours it operates in a day. Once we know how much electricity you use, we can offer system sizing recommendations. Without knowing that kwh number, we will not be able to provide recommendations with any accuracy.

Yes, the math for figuring all this stuff out can be somewhat confusing since it involves numbers that most people never really think about. The important numbers that can be read off the appliances are listed as volts, amps or watts. Everything in the US runs of 120 or 240 volts. Electric dryers and large power tools often use 240 VAC, but most everything else uses 120 volts. You may see the voltage written as 110 or 117 volts also; it's the same difference just a different way of rounding the number off.

Volts x Amps = Watts.

All appliances are required to list one of these three units. If the appliance only lists amps then you are ok because you know you can multiply that by 120 volts to get the watts. A kilowatt is 1000 watts and the amount of time you use a specific appliance is the number of hours. For example if you run a computer that uses 150 watts for one hour you have used 150-watt hours. After you run that computer for 1000 hours you have used 150,000-watt hours or 150 kilowatt ([kWh](#)). We will also want information about your peak load or peak [power consumption](#) which is also listed on your electric bill or can be found by adding up the wattages of every single load.

[Electricity consumption](#) varies greatly from household to household. And believe it or not, the number of kwh you use does not depend upon the square footage of your home. (A common misconception.) While it is difficult to say what an *average* household uses, for our example, we'll use a figure of about 900 kWh per month.

In most North American locations, you can count on an average of about 4 peak sun hours per day over the year (different from the number of hours the sun is up during the day). Operating this average home completely independent of the [electric utility](#) grid will require about 75 solar panels (~150 Watts each) plus batteries, inverters, fuses, wire etc... A complete solar energy system for this much energy consumption will cost between \$70,000 and \$90,000. If you want to have a system that's grid intertied and does not use a battery bank, then you can expect the cost to be reduced by about a third... but don't be discouraged.

If you use as much electricity as the average home in the example above (or even more) the first step is to reduce your electricity consumption. This does not mean "freezing in the dark". It means taking advantage of new, [efficient](#) technologies and being smart about how and when you use power. Here's a list of some of the most cost effective ways to reduce your electrical use:

Replace your incandescent light bulbs with [compact fluorescent lights](#). [Compact fluorescent lights](#) with the EnergyStar (tm) approval use a third to a quarter of the power of incandescent lights for the same amount of light. Incandescent lights produce and waste more electricity on producing heat instead of light!

Replace your old [refrigerator](#), freezer, water heater, washing machine (or any other major appliance over 5 years old). There have been a lot of energy efficiency improvements on major appliances in the last few years.

If your home uses electric heat, (air): Use [solar air heating systems](#) in conjunction with your electric heating system to greatly reduce the amount of electricity consumed by your heating systems. Depending on your location and the cost of your electricity, these systems can pay for themselves as quickly as 3-6 years - few investments have that rate of return.

For users of electric water heating: Use [solar water heating systems](#) in conjunction with your existing [hot water tank](#) to greatly reduce your electricity consumption. Just like the solar air heating systems they pay for themselves in 3 to 6 years - making them smart investments.

[Solar attic fans](#) are low cost, easy to install ways of reducing the amount of air conditioning you use. Also, if you live in a dry climate that gets very hot in the summer time, you can use an evaporative cooler (sometimes known as a swamp cooler) instead of an air conditioner. These appliances use a small fraction of the electricity that an air conditioning unit consumes.

- Also, consider replacing large electric appliances like water heaters, dryers, and stoves for propane or natural gas models. Of course using propane/natural gas will still cost you but since propane is more efficient for heating, you will pay less and be able to use a smaller solar system.

The big no-nos for a renewable energy system all revolve around creating or removing heat: regular household heat, water heat, air conditioners.

Easing Into Renewable Energy

It is not necessary to do a complete system all at once. One option is to pull a few circuits off the main circuit breaker panel and just run the loads on those circuits off solar. If the utility power (or grid) goes out in your area a lot, then you want to choose these loads based on your priority loads - what must be on even if the grid is down. Or you can install a utility intertie (also known as grid tie) system that will feed some [solar generated](#) power back onto the utility lines turning your meter backwards and off-setting power that you would otherwise buy from the utility. This is less expensive than an [off-grid](#) system since there are no storage batteries and because it is not necessary to cover your entire load.

If you are interested in a wind electric system we will need all the same information about your consumption and we will also need some information about the average [wind speed](#) in your area. A quick way to get this information is to call your local weather bureau or airport. You can also visit the website of the National Renewable Energy Lab and find your city in their [Wind Energy Resource Atlas](#). Cost-wise a wind system to operate the *average* home in the US will cost around \$25,000 - \$50,000 depending on the wind resource and whether it is battery based or not; so it is a bit less expensive than solar. A large [wind turbine](#) will most likely require the installation experience and large machinery of an experienced installer. Be sure to consult an installer before purchasing any large wind turbine.

Selling Power to the Utility Company

Selling power back to the utility makes things more complicated. Selling power back means that you are purposely installing more solar or wind capacity than you need and hoping that the utilities will buy the excess power back. The utilities are legally required to buy it back but at what is called "avoided cost" which is generally 1 - 3 cents per [kilowatt hour](#). Although some utilities in some states will buy it back at the same rate that you buy it from them (this is called net billing) these utilities are not the majority. This is different from offsetting power with a utility intertie inverter.

Net Metering

Most utilities do have what is called "net metering" which means that a solar or wind system installed on your property can be used to generate electricity and turn the utility meter backward. This allows you to offset power that you would otherwise buy from the utility. As long as you only generate the amount of power you traditionally use on a monthly basis and don't generate a lot extra to sell back you will fit into the [net-metering](#) category. These systems can be set-up to charge batteries for back-up power systems in addition to turning the utility meter backwards but it adds some complexity and increases cost. Be prepared to make contact with your utility to see what their rules are. If you are pursuing a wind electric system, be prepared to contact the county or township to make sure that there are no restrictions against tall towers. Some utilities or townships are very easy to deal with and the negotiations go off without a hitch. In some cases, they make it very difficult to even get the information about what you can do.

If you live in sunny Florida, Texas, southern California or the windy Midwest you may be able to install a renewable energy system for less than these average numbers indicate. Maybe you are just powering a cabin or an RV which use very little power generally. Better yet, maybe you are just building your home and you will have the opportunity to make it well insulated, efficient, oriented properly towards the south to take advantage of [passive solar](#) heating and daylighting. Doing all of these things will dramatically reduce the amount of energy you use thereby reduce the cost of a renewable energy system.

Options

The big question you need to answer before investing is why are you interested in using solar or [wind energy](#)? Is it because you need some back-up electricity for when the [utility grid](#) is unavailable? Or is it because you want to spend less money per month on electricity? In either case it is possible to install a smaller and less expensive system that will supply a portion of your electricity needs.

If it is because you want to spend less money per month then you may want to start by hiring a solar person or energy efficiency person in your area to come into your home and suggest ways of reducing your electricity consumption. These ways may be as easy as changing all your light bulbs to compact fluorescent bulbs or as difficult as changing out your old electric water heater for a propane or natural gas model. Any of these things will save money to different degrees. Once your home is as efficient as it can be, then you may want to consider installing a wind generator for "utility intertie". This system may not cover your entire electricity bill and can be as large or small as your budget allows with certain limitations on the size of the utility intertie inverters you have to choose from. This type of system is subject to acceptance from your local utility so you may want to contact them to see what their terms are. This type of system has very limited battery storage capacity in order to keep the price down so it is not typically thought of as offering back-up power.

Free Money for Your System

Many states offer incentive programs for folks to buy renewable energy products to offset the costs of purchasing and installing systems. The incentives range widely. Many folks are completely unaware of the programs that are offered in their states, and miss out on a large opportunity to offset the costs of their system. Want to find out what incentives your state offers? The University of North Carolina offers a great, comprehensive database of state incentives. [Click here](#) to pop up a window with their site.

Backup Power

If you are interested in [wind energy](#) to provide back up power during utility outages in your area, we still suggest doing whatever you can to increase the efficiency of your home first. A back-up power system like this is generally used to provide power for "priority loads" when the [utility grid](#) is unavailable. Every one has their own priority loads but they generally include the refrigerator, water pump, heater blower and some lights for example. The [wind generator](#) and battery bank are sized to power these priority loads for a period of a couple of days or how ever long you typically are without power.

This system can be set up so that it powers the priority loads all the time or so that it only comes on when the grid goes down.

This system also can be as small or large as your budget allows. The smaller the budget the more selective you will have to be about which loads to run.

If you want to pursue a back-up power system, the next step is for you to identify your priority loads, and determine the electricity draw (in watts) and hours of run time for each one. Further information on how to do a [load calculation](#) is located in our Learn section. Remember that if you want to pursue a utility intertie system we must have some idea of your budget or what portion of your electric bill you would like to try to offset.

Early Radio: Military Communications

A- in May 1970 LZ Wildcat

By Robert Southern (Captain)

Two platoons from Battery A (-) in support of 4th Infantry operation Bin Try moved to the Plei Djareng air strip by road from Artillery Hill in two moves in May 1970. The Chief of Firing Battery (SSG Max) commanded the first platoon followed a week later by the second platoon (both from Artillery Hill) commanded by myself, CPT Southern.

The moves by road were memorable in that a promised Air Observer never appeared for either movement. In my move, we halted the convoy at the intersection of the main road from Artillery Hill (past 4th Div base camp) and the road west into Cambodia and towards Plei Djareng. We contacted 1/92 TOC Artillery Hill and told them there was no air observer on the frequency given us and no observer aircraft visible. They had answered our first radio call but did not answer that one. After a few minutes, all section chiefs were told we were going in and each vehicle was to keep the vehicle in front in sight at all times. They were told we were to be moving as fast as road conditions would allow and that if we were attacked to return fire. Disabled equipment other than small arms would be abandoned but personnel would be boarded on the remaining vehicles and we would keep moving. There was a radio in my [jeep in](#) front and in the rear vehicle. In the back seat of my jeep was a man who said he had made the trip by road once before.

We were to turn right some distance down the road (it was shown on the map) and proceed to Plei Djareng airstrip. Hoping not to miss the road and go galumping in Cambodia we took off at as high a speed as the road would permit. After some minutes an Army MP appeared in the middle of the road and waved us to turn right. Thank God for the MP's. Usually can't find one when you need one. Void of air observers cover (promised) and convoy escorts (denied) both platoons made it safely. I understand why the history was incorrectly stated. It simply would not do for the truth to be known.

Each platoon left separately and went by choppers into Cambodia. We stayed at our first locations (your narrative LZ Dragon and Spearhead) only a few days. If they are in order of our departures SSG Max's platoon was at LZ Dragon and we were at LZ Spearhead. On the afternoon of the last day there, we were ordered to load the afternoon/evening of the last day in preparation for the move early the next. That night we were hit Viet Cong/NVA? There were no casualties.

At the second locations (LZ Scott and LZ Wildcat - if your narrative is correct - I presume so - memory fails me on such details) we remained for the same number of days. Not more than four. On the last night there we were attacked once again, this time with sappers. Things got kinda wild. A bunker on the infantry company's perimeter near our two howitzers was blown by sappers killing the three or four infantrymen inside. The LZ (if your chronology is correct - Wildcat) included a 105mm battery from the 4th Inf Div Arty, our two 155mm pigs, an infantry company on the perimeter, and the infantry company's battalion headquarters.

When the attack came we were contacted by land line from the 105mm Btry that we were not to fire self illumination. The Infantry Battalion Co was fearful of giving away our position. Shit! The VC/NVA probably had a map made from three or so days we had been there. A sapper ran into one our gun pits across the berm, placed a satchel charge under the tube in front of the equilibrator and ran back over the berm towards the previously blown infantry bunker.

The sapper was seen coming into the gun pit by one of the cannoneers who put his M-16 on full auto and splattered everything (except the sapper) in the gun pit. Jock strap and all, the sapper may still be running. Smilingly it was suggested to the cannoneer that the next time he take a good kneeling position and on semi auto, aim carefully, and fire one or two times (maybe more if needed). The howitzer was destroyed. It had been their only reason for the attack. All personnel (I think three maybe four) infantry in the blown bunker were killed. The only casualty among the 1/92 FA was a Vietnamese interpreter.

One of our personnel, early in the attack saw him running across the position. Knowing only in the dark the running person was an oriental, the man tried to fire but his rifle jammed. He then grabbed it by the barrel and swinging it as a baseball bat clobbered the interpreter as he went by. The Vietnamese interpreter survived.

The next morning we were informed the 4th Div ADC Maneuver was coming in to survey the damage, including our destroyed howitzer. When I spoke to the gun chief to tell him of the visit, the gun chief asked me if he could tell the ADC about the marijuana he and other members of his gun crew had smelled coming from the direction of the blown bunker the night before, prior to the attack. I told him he could tell the ADC anything he wished. When asked by the ADC what happened the gun chief told him all, including the marijuana. The ADC maintained eye contact with the Gun Chief all during the telling, as did the gun chief. I had looked only at the eyes of the ADC who glanced in my direction once in the last instant before he left our position. He said nothing.

The Infantry Battalion Commander was relieved of command.

We were airlifted from there back to Vietnam during which I had the pleasure of riding in a CV-2 Caribou with the Infantry Battalion Commander. After we landed in Vietnam I went to him, stuck out my hand, and shaking his told him what a distinct pleasure it had been serving with him. We both smiled broadly.

After landing I was met by my Bn XO, MAJ Jose Riovo. I was sitting on a log wondering what next when he, driving his own jeep, stopped and asked if I needed a ride. He walked over and handed me a cold beer. I sat on the log and took a long drag. I had been gone over a week, was covered with dirt and dust, and the only clean spot on my body was my face where I taken a swallow of beer. He took a picture. I still have it.

Annual ARRL Field Day

What is Field Day?

ARRL Field Day is the single most popular on-the-air event held annually in the US and Canada. On the fourth weekend of June of each year, more than 35,000 radio amateurs gather with their clubs, groups or simply with friends to operate from remote locations.

Field Day is a picnic, a campout, practice for emergencies, an informal contest and, most of all, FUN!

It is a time where many aspects of Amateur Radio come together to highlight our many roles. While some will treat it as a contest, other groups use the opportunity to practice their emergency response capabilities. It is an excellent opportunity to demonstrate Amateur Radio to the organizations that Amateur Radio might serve in an emergency, as well as the general public. For many clubs, ARRL Field Day is one of the highlights of their annual calendar.

The contest part is simply to contact as many other stations as possible and to learn to operate our radio gear in abnormal situations and less than optimal conditions.

We use these same skills when we help with events such as marathons and bike-a-thons; fund-raisers such as walkathons; celebrations such as parades; and exhibits at fairs, malls and museums — these are all large, preplanned, non-emergency activities.

But despite the development of very complex, modern communications systems — or maybe because they ARE so complex — ham radio has been called into action again and again to provide communications in crises when it really matters. Amateur Radio people (also called “hams”) are well known for our communications support in real disaster and post-disaster situations.

What is the ARRL?

The American Radio Relay League is the 150,000+ member national association for Amateur Radio in the USA.

ARRL is the primary source of information about what is going

It provides books, news, support and information for individuals and clubs, special events, continuing education classes and other benefits for its members.

What is Amateur Radio

Often called “ham radio,” the Amateur Radio Service has been around for a century. In that time, it’s grown into a worldwide community of licensed operators using the airwaves with every conceivable means of communications technology. Its people range in age from youngsters to grandparents. Even rocket scientists and a rock star or two are in the ham ranks. Most, however, are just normal folks like you and me who enjoy learning and being able to transmit voice, data and pictures through the air to unusual places, both near and far, without depending on commercial systems.

The Amateur Radio frequencies are the last remaining place in the usable radio spectrum where you as an individual can develop and experiment with wireless communications. Hams not only can make and modify their equipment, but can create whole new ways to do things.

Field Day 2014 – June 28th – 29th

Dear Field Day Participant:

One hundred years ago, the population of the United States had not quite reached 100 million.

There were only forty-eight stars on the US flag, the last one (Arizona) having only been added two years earlier... The number of automobiles registered in the US was just pushing 500,000... The right to vote for women was still six years away... The cost of an average home in the US was about \$6,000 and the annual average wage was about \$540... Coffee was about 30¢ a pound, Sugar was about 9¢ a pound, Milk was about 11¢ a quart, Bread about 9¢ a loaf and a Sirloin Steak would set you back about 33¢ a pound.

What a difference a century makes!

Things have really changed in the 21st Century. However, one thing that has remained a constant is the natural curiosity of humankind. It was from that curiosity in 1914 that Hiram Percy Maxim and Clarence D. Tuska met, forged a friendship and founded the American Radio Relay League – the ARRL.

One hundred years later Amateur Radio is still going strong – new technologies... new bands... new countries. ... There is always a new challenge in Amateur Radio. Nowhere does the Amateur

Community embrace our hobby more than ARRL Field Day. What started as a one-time test of portable operation has grown to become the largest single operating event in the United States.

Field Day is our annual opportunity to tell our story and invite our friends, neighbors and communities to discover and share in our passion.

Also, remember that Field Day will be a great opportunity to participate in the yearlong ARRL Centennial QSO Party. Look for ARRL affiliated club stations, members, headquarters staff and volunteers on the air for QSO Party points. Finally, as an added attraction, look for W1AW/3 in Maryland and W1AW/9 in Illinois as part of the Worked W1AW in All States Award during Field Day 2014.

A lot has changed since the first time "The Old Man" and his cohorts started their lifelong affair with the "mistress" we call Amateur Radio. The coffee you consume from Starbucks will run you a couple of dollars a cup and the steaks for the annual BBQ will be more in the range of \$14 a pound.

However, just remember, there is no price tag on the fun, friendship or knowledge that you will accumulate during ARRL Field Day 2014. See you on the air!
73

fdinfo@arrrl.org

(860) 594-0232



Next Regular Meeting

The next meeting will be on Thursday, June 26th at 7:00PM. We meet in the Fellowship Hall of Redemption Lutheran Church, 4057 N Mayfair Road. Use the south entrance. Access the MRAC Yahoo group for important details about the February Meeting.

Meeting Schedule:

September 25, 2014 7 pm

Please do not call the church for information!

Club Nets

Please check in to our nets on Friday evenings.

Our ten meter SSB net is at **8:00 p.m.** at **28.490 MHz USB** Our two meter FM net follows at **9:00 p.m.** on our repeater at **145.390 MHz** with a minus offset and a **PL of 127.3 Hz.**

Visit our website at: www.w9rh.org

Or phone (414)-459-9741



Name of Net, Frequency, Local Time	Net Manager
<u>Badger Weather Net (BWN)</u> 3984 kHz, 0500	W9IXG
<u>Badger Emergency Net (BEN)</u> 3985 kHz, 1200	NX9K
<u>Wisconsin Side Band Net (WSBN)</u> 3985 or 3982.5 kHz, 1700	KB9KEG
<u>Wisconsin Novice Net (WNN)</u> 3555 kHz, 1800	KB9ROB
<u>Wisconsin Slow Speed Net (WSSN)</u> 3555 kHz, Sn, T, Th, F, 1830	N1KSN
<u>Wisconsin Intrastate Net - Early (WIN-E)</u> 3555 kHz, 1900	WB9ICH
<u>Wisconsin Intrastate Net - Late (WIN-L)</u> 3555 kHz, 2200	W9RTP
<u>ARES/RACES Net</u> 3967.0 kHz, 0800 Sunday	WB9WKO
* Net Control Operator needed. Contact Net Manager for information.	

Chatter Deadline

The **DEADLINE** for items to be published in the **Chatter** is the **15th of each month**. If you have anything (announcements, stories, articles, photos, projects) for the 'Chatter, please get it to me before then.

You may contact me or Submit articles and materials by e-mail at: Kc9cmt@earthlink.net

or by Post to:

Michael B. Harris

807 Nicholson RD

South Milwaukee, WI 53172-1447

VE Testing:

No testing: June, July or December

**Location: Amateur Electronic Supply Time: 9:30 AM
(Walk-ins allowed)**

ALL testing takes place at: Amateur Electronic Supply 5720 W. Good Hope Rd. Milwaukee, WI 53223

Area Swapfests

July 12th, 2014 SMARC Swapfest.

Location: American Legion post, Oak Creek, WI
9327 South Shepard Ave. Sponsor: SM Amateur Radio Club

WB9TIK@ARRL.ORG for information

MRAC Working Committees

100th Anniversary:

- Dave—KA9WXN
- Dan—N9ASA

Net Committee:

- Open

Field Day

Dave—KA9WXN, Al—KC9IJJ

FM Simplex Contest

- Joe – N9UX
- Jeff – K9VS

Ticket drum and drawing

- Tom – N9UFJ

Newsletter Editor

- Michael-KC9CMT

Webmaster

- Dave, KA9WXN

Refreshments

- Hal—KB9OZN



Membership Information

The Hamateur Chatter is the newsletter of MRAC (Milwaukee Radio Amateurs' Club), a not for profit organization for the advancement of amateur radio and the maintenance of fraternalism and a high standard of conduct. MRAC Membership dues are \$17.00 per year and run on a calendar year starting January 1st. MRAC general membership meetings are normally held at 7:00PM the last Thursday of the month except for November when Thanksgiving falls on the last Thursday when the meeting moves forward 1 week to the 3rd Thursday and December, when the Christmas dinner takes the place of a regular meeting. Club Contact Information

Our website address <http://www.w9rh.org>

Telephone **(414)-459-9741**

Address correspondence to:

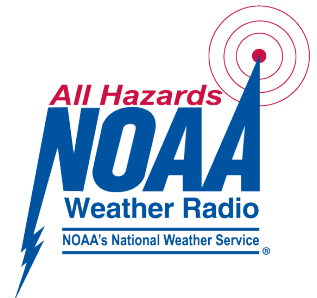
MRAC, PO Box 26233, Milwaukee, WI 53226-0233

Email may be sent to: w9rh@arrl.net . Our YAHOO newsgroup:

<http://groups.yahoo.com/group/MRAC-W9RH/>

CLUB NETS:

- The Six Meter SSB net is Thursday at 8:00PM on 50.160 MHz USB
- Our Ten Meter SSB net is Friday at 8:00PM on 28.490 MHz \pm 5 KHz USB.
- Our Two Meter FM net follows the Ten meter net at 9:00PM on our repeater at 145.390MHz - offset (PL 127.3)



The MRAC HamChatter is a monthly publication of the Milwaukee Radio Amateurs' Club. Serving Amateur Radio in Southeastern Wisconsin & all of Milwaukee County

Club Call sign – W9RH

MRAC Website: <http://www.W9RH.org>

Editor: Michael B. Harris, Kc9cmt@Earthlink.net

Milwaukee Area Nets

Mon.8:00 PM 3.994 Tech Net

Mon.8:00 PM 146.865- ARRL Newsline

Mon.8:00 PM 146.445+ Emergency Net

Mon.8:00 PM 146.865- Walworth County ARES net

Mon.8:45 PM 147.165- ARRL Audio News

Mon. 8:00 PM 442.100+ Railroad net, also on EchoLink

Mon. 8:30 PM 442.975+ WARC W9CQ net also on EchoLink 576754
Mon. 8:30 PM 442.150+ Waukesha ARES Net on the 1st, 3rd, and 5th Monday of each month.

Mon. 9:00 PM 147.165- Milwaukee County ARES Net

Tue.9:00 AM 50.160 6. Mtr 2nd Shifter's Net

Tue. 9:00 PM 145.130+ MAARS Hand Shakers Net

Tue. 8:00 PM 7.035 A.F.A.R. (CW)

Wed. 8:00 PM 145.130+MAARS Amateur Radio Newsline

Wed. 8:00 PM 147.045+ West Allis ARC net

Wed. 8:00 PM 147.270+ Racine County ARES net

Wed. 9:00 PM 145.130+MAARS SwapNet, link to FM-38

Thur. 8:00 PM 50.160, 6 Mtr SSB Net

Thur. 9:00 PM 146.910+ Computer Net

Fri. 8:00 PM 28.490 MRAC W9RH 10 Mtr SSB Net

Fri. 9:00 PM 145.390+ W9RH 2 MTR. FM Net

Sat. 8:00 PM 146.910+ YL's Pink HAMsters Net

Sat. 9:00 PM 146.910+ Saturday Night Fun Net

Sun 8:30 AM 3.985 QCWA (Chapter 55) SSB net

Sun 9:00 AM 145.565+ X-Country Simplex Group

Sun 8:00 PM 146.910+ Information Net

Sun 8:00 PM 28.365 10/10 International Net (SSB)

Sun 9:00 PM 146.910+ Swap Net

Daily: Milwaukee — Florida Net 7 am, 14.290 mhz.

Thursday's 8:00 PM 448.300+ Tech Net

2meter repeaters are offset by 600KHz - - 70 centimeter repeaters are offset by 5 MHz

