

Feedline

Voice of the Niagara Peninsula Amateur Radio Club, Inc.

And now for something different...

President's Welcome Message— Steve, VA3FLF

Well, what a busy month! The Big Event is completed and it was a grand success. I am hoping to build on this year's success and make it even bigger and better next year. What else is going on you may ask? Here are some highlights.

We have had the Repeater Infrastructure Committee meet and begin looking at our current equipment and potential improvements for future growth. The committee will soon be sending out a survey to get your input. We want to know what you think and would like to see in our repeaters and coverage. The results of this survey will give the committee some ideas as to what NPARC members would like for changes and improvements.

We have six new hams and six new members of NPARC. Phil's class was a success and we already have reports of one of the students working PSK and a couple have checked into our weekly nets. These guys and gal need Elmers. Please, when you see them at the meeting offer a handshake and be willing to help them get set up and to start enjoying the hobby.

Last month, there was a vote to investigate the cooperation with ARES and NPARC. That committee has been very busy and has come up with some recommendations. As a part of this committees work, we have looked at some changes to the bylaws.

One of the frustrating things for me as President, is that there is no variance on the length and conduct of the monthly meetings. We have to hold the business meeting first and are required by the bylaws to cover a predetermined agenda. I want us to have a fun monthly meeting. With these changes, we can have a shorter business meeting, cover what needs to be covered, and leave more time for the program and fellowship. Ham radio should be fun and our meetings should be fun. This will be presented on Thursday night.

If you haven't registered on the NPARC Website, please do so. We are "Beta Testing" a means for members to communicate with each other. You will find two separate Forum's to try. We have recognized that there is not a good way for members to communicate with one another. The Webmaster has set up a couple of different types of forum software. Try them out and see which one you like best. Our goal is to find a means to share interests and communicate with one another.

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Previous Meetings Minutes — Denis, VE3XC

NPARC General Meeting February 8, 2018
Royal Canadian Legion, Fonthill
Minutes taken by Dennis, VE3XC, Secretary

The meeting was called to order by Lloyd, VE3ERQ, Vice-President

Introductions of those Present: 14 members plus 3 guests
(There were 19 names on the sign-in sheet)

Moved by Dennis, VE3XC, Seconded by Jim, VE3BCA: That the minutes of the last General Meeting be accepted as printed in the Bulletin. Carried.

Treasurer's Report: Kaitlynn, VE3AUO reported cash in the bank at \$ #1 attached + \$ #2 attached GIC.
Moved by David, VE3RNf, Seconded by Kevin, VA3KGS: To accept the Treasurer's report. Carried

Correspondence: Dennis, VE3XC read a letter we received from Community Care St. Catharines thanking us for our Christmas food donation.

Kevin, VA3KGS (now VA3AC) said he received notification from Industry Canada that he has been approved as an Examiner.

RAC Report: Dennis, VE3XC, RAC Asst. Director: No report.

ARES: Henry, VA3OV, ARES EC: The next meeting of ARES will be February 21, 2018 at the Niagara Regional Police Headquarters, Niagara Falls at 7pm.

Repeater Committee: John, VA3WM says that the IRLP link to a location in Port Colborne from VE3WCD will be set up by the Spring. It will also be an Echo-Link IRLP node. Internet connection through the School Board is no longer possible. Steve, VA3FLF had previously suggested that John would need about three volunteers to discuss what works, do an RF survey, Splatt Modelling, find the Gaps, and determine future needs. John has sold the 220mHz repeater and duplexer for the Club. Lloyd mentioned that we do not now have any UHF capability and that perhaps John could look into setting up VE3RNR, possibly at the former PLF site. Henry, VA3OV said that while ARES uses the VE3RAF repeater, the present ownership is unclear. We have no documentation on that repeater. Brian, VE3BMX in his CANWARN report says that VE3RAF is used by the group for weather related exchange of information and weather warnings from Environment Canada. VE3RAF is excellent for emergency use because it has full natural gas generator backup.

Previous Meetings Minutes cont... — Denis, VE3XC

Mesh (and Repeater): Kevin, VA3AC said that because VE3PLF is down, we have no Mesh network. There may be some links to Toronto in the future. The VE3PLF D-Star equipment is working is owned by the estate of Eric, VE3EI and the callsign is licensed to Tom Dimascus. As of this time the Club has nothing to do with that location. John, VA3WM said that the Escarpment Repeater Association is interested in that site.

SATERN: No report.

Ham Classes: There are about eight people who will write the test on February 15th. There are now three certified examiners in the area: Kevin, VA3AC, Phil, VE3ACK, and Kevin, VE3RRH. We could use another examiner in the Northern part of the Niagara area. Lloyd suggested that we put this request in the newsletter.

NEW BUSINESS

Lloyd, VE3ERQ: The next Executive meeting will be Mar 3rd. If anyone has items they wish to be brought forward, get them to the VP or Secretary before then. The Executive will be getting a 6 hr training session on a new email server system at the same time. Date, time, and location TBA. The new Executive will get their signing authority at the Meridian Credit Union over the next few days.

From the last Executive Meeting Steve, VA3FLF, suggested that the Club needs more visibility in public. He would like members with suggestions to forward them to him or the Secretary. Kevin, VA3AC pointed to an article in the "Pelham Voice" which highlighted the ham radio activities of David, VE3RNF, who then suggested a flyer type promotion be sent to all 700 hams in the peninsula inviting them to visit the Club. Of those hams about 200 were previous members of the Club.

Lloyd, VE3ERQ, started a discussion on how we could increase membership. We need the meetings to be more attractive to present and prospective members. The Executive discussed the purchase of a White Board so that members might be able to more easily demonstrate projects of interest. Lloyd also indicated that next meeting would be a "Show and Tell" type meeting. Members could bring in any new or interesting radio purchases or projects they have and speak briefly about them. Paul, VE3WRP suggested it might benefit us to visit other clubs to see how they conduct their meetings. Lloyd reminded us that this year marks the 70th Anniversary of the Club and that maybe we could consider some type of public celebration suggesting that September might be a good month for that. The executive is looking for ideas.

There was a short break for coffee and donuts.

Moved by Kevin VA3AC/ Seconded later by Mike, VE3CKO

Does NPARC want to be involved with ARES ? We should form a committee to be in place for March/

Previous Meetings Minutes cont... — Denis, VE3XC

2018 meeting of no less than 3 Club members and up to 5 if outside interests want to be involved. Names to be in place for that meeting. The purpose of the Committee will be to evaluate and recommend at least 3 options as follows;

NPARC and ARES as per RAC guidelines.

Affiliate ourselves with Niagara ARES.

Do nothing at all.

The Committee will report to the Executive for the June Feedline all scenarios in detail to be published in June feedline. Discussion at the Oct/ 2018 General Meeting and voted on by members of which of the 3 scenarios we want to pursue.

There was some lengthy further discussion before the vote.

Lloyd VE3ERQ, called the motion. It was carried.

David, VE3RNF volunteered to be on this committee along with Kevin, VA3AC , Henry, VA3OV, Kaitlynn, VE3AUO, Steve, VA3FLF, and Brad, VE3XNC

Big Event #40: Kaitlynn, VE3AUO gave a report indicating various incomes and expenses for the period Sept to February 8th giving a Net Profit of \$ item #3 attached at this time. This does not include paying a deposit for next year as we have been looking at other locations. The present location offers difficulties with the entrance ramp for vendors and the chair lift for buyers. Kaitlynn did suggest another location as a possibility.

Motion by Kaitlynn VE3AUO/ Jim VE3BCA: To put a deposit on the Merriton Community Center for next year.

Amendment by Kevin VA3AC/ David VE3RNF: To include the basement for next year.

Carried.

Kevin VA3AC/ Henry VA3OV. Adjournment 9:13 pm

Field Day — Steve, VA3FLF

Kevin Smith, VA3KGS, has graciously volunteered to be our Field Day Coordinator this year. He is looking for band captains, operators, and anyone else who wants to volunteer at Field Day. Field Day is a very important event for NPARC and Amateur Radio as a whole and will be held June 23 and 24. It is an opportunity to learn, operate, and enjoy the hobby. It doesn't matter if you have never been to Field Day or you regularly attend field day, please sign up for this important event. There will be a signup sheet at this weeks meeting.

Reports

Treasurer's Report — Kaitlynn, VE3AU0

Big Event #40 is finally over and the reports are done. I will have the report at the meeting if anyone is interested in it and the nitty gritty details. Suffice it to say that all in all it was a success and there are some recommendations for next year.

As for the club finances, there have been no large or major expenses for this period. Pretty much most of the expenses that happened recently were attributed to the Big Event and are accounted for in the report. Only standard expenses were incurred otherwise.

Our GIC is doing the same as usual for what it does and will come to maturity again later this year.

See you all at the meeting.

Kaitlynn

2017-2018 Treasurer



SATERN Report — David, VE3FOI

Nothing to report, SATERN : although we might be able to get a coax drop into the Family and Disaster Services just waiting more info

73 Dave VE3FOI SATERN Niagara Rep,

CANWARN Report — Brian, VE3BMX

All good here nothing for CANWARN

Brian VE3BMX

ARES Report — Henry, VA3OV

Nothing to report.

Henry VA3OV

Reports Cont...

Ham Class Report — Phil, VE3ACK

Another Successful NPARC Course

Philip Gebhardt, VE3ACK

It's all over. Well, almost. We're rapidly approaching the finish line for the latest basic theory course. It's just a matter of tying up a few loose ends.

The class has covered the theory and, yes, they've written the exam.

Six members of the class wrote the exam and all six passed. In fact, four of the six scored higher than 80%!

So now we're into review mode for the two who scored over 70%, since they want to increase their mark and gain full privileges and access to the hf bands.

We have a seventh class participant who was unavailable to write the exam with the class. He is writing the exam this week. I'd say "Good luck!" but in this case I don't think there is any luck involved. He has put ample effort into the class work and the review and trying the practice exams on the Industry Canada website, so I'm confident that he will be rewarded for his dedication.

In addition, we have an eighth participant who is currently on vacation and who will write the exam when he returns.

The operating frenzy has already begun. Aaron, VE3SMQ, had his first QSO with VA2WA on 20 metres. Erick, VE3ETN, has had contacts with stations in the U.S., Italy, Trinidad and Puerto Rico on 40 metres. Erick is currently using a 40-m dipole. (Well, actually, an inverted-V dipole.) I'm in the process of trying to convince him to use the antenna on its third harmonic and give the 15-metre band a try. I've introduced the group to the ARRL's propagation charts. Hopefully that will convince Erick that there's potential to do double duty with his dipole. It may also help Aaron schedule his time to focus his efforts where they will pay dividends in the areas of the world that he wants to contact.

Now that the hard part is over, the fun can begin. But, of course, the road through radioland is not always smooth. Randy tried listening to the 2-metre net – without success. I asked John, VA3WM, NPARC's Repeater Committee chairman, to give Randy a hand. John obliged and Randy's problem was solved immediately. That's the sort of thing that will encourage new hams and will ensure that they continue to enjoy the hobby. Thanks, John.

I ran a survey to get feedback from the participants. Everyone agreed that the activities which we did in class with the electronics kits that the club supplied were helpful in learning the theory and getting a feel for components and circuits. And besides, they all had fun in the process. So the purchase was well worth the money and both the students and I thank NPARC for their support.

In addition, Steve, VA3FLF, NPARC's president, came out to the classes and shouted encouragement. He also brought his equipment and his Isotron antenna to class to demonstrate digital communications. Everyone was amazed – by both the antenna and the digital contacts. Steve deserves our gratitude for his effort.

Reports Cont...

Ham Class Report Cont... — Phil, VE3ACK

The current slate of graduates includes:

Aaron, VE3SMQ

Mike, VA3MPA

Erick, VE3ETN

April, VE3BHG

Terry, VE3TOB

Andy, VE3XAS

Congratulations to everyone who participated in the course and to those, such as Peter, VA3WET, and the NPARC executive, who supported us from the very beginning.

Phil, VE3ACK

Ham Class Instructor

From the Repeater Manager — John, VA3WM

A weekly net is conducted on the Club's VE3NRS repeater, 147.240 MHz, positive 600 kHz offset and 107.2 Hz tone, commencing at 19:00 local time.

The purpose of the net is to pass news and views along to members and visitors to the club. It also provides experience to volunteer operators in net and emergency operating procedures. New net controllers are most welcome (training provided). Not yet certified SWL's may check in by e-mail to netcontrol@nparc.on.ca.

The schedule for net controllers is shown on the right.

We'll be listening for your check in.

John VA3WM, repeaterchair@nparc.on.ca

2018	Mar	5	David VE3RNF
		12	Dave VE3FOI
		19	John VA3WM
		26	John VA3WM
	Apr	2	David VE3RNF
		9	Dave VE3FOI
		16	John VA3WM
		23	David VE3RNF
		30	Dave VE3FOI
	May	7	David VE3RNF
		14	Dave VE3FOI
		21	John VA3WM
		28	Dave VE3FOI
	Jun	4	David VE3RNF
		11	Dave VE3FOI
		18	John VA3WM
		25	John VA3WM

Items in red are slots that are open if needed.

Presidents Message Cont... — Steve, VA3FLF

Finally and most importantly, we are celebrating the NPARC 70th Anniversary this year. We have a charter member still with us, Jim Thompson, VE3BCA. The Executive has given tentative approval for a celebration at the September Meeting. We will be able to use the Legion Hall and have a cookout with lots of fanfare. A complete plan will be presented to the members at the April Meeting.

It has been a great privilege thus far to be the NPARC President. There is so much work we need to do to grow our club. I would ask each one of you to pick at **least** one event this coming spring and summer to participate in. We are going to have GOTA (Get on the Air Stations) at some public events, Field Day, Ride for Roswell, Canal Days, ARES Events, and the list goes on. Most of these events don't take a lot of time and they are enjoyable to show off our great hobby and club.

Thanks,

Steve

VA3FLF

NPARC President

Who Are These People We Share Spectrum Space With?— Phil, VE3ACK

Some of us bounce signals off meteors; some of us bounce signals off birds.

While driving through Fonthill the other day, I noticed the sign for Accipiter Radar Technologies on a building.

The company provides products, applications and services related to radar technology.

At one time, radar was associated with warfare and the detection of aircraft. After the end of World War II, applications related to civilian aviation were developed. In those days, the word *radar* evoked images of enormous, white, spherical radomes that housed radar antennas and systems.

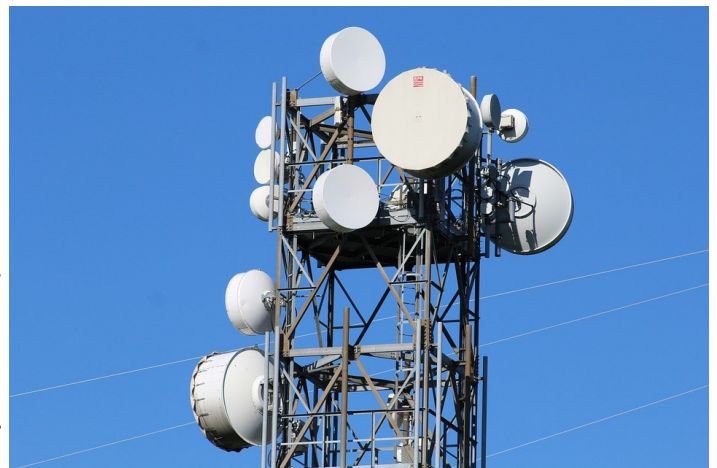
But like everything else, radar has evolved.

Those huge antennas we associate with radar have morphed into the modern, sleek, 8-foot (2.4 metre) devices used in Accipiter applications.

Those cathode-ray tube displays, once cutting edge technology, have been replaced with computers and computer graphics.

Accipiter deals with radar applications that not only apply to air surveillance, but also to ground and to maritime surveillance.

Amateur radio and radar have a great deal in common. Amateur radio and radar (specifically radiolocation) share S-band and X-band frequencies.



Who Are These People We Share Spectrum Space With? Cont...

There are two amateur radio bands (2.3-2.45 GHz and 3.3-3.5 GHz) within the S-band. There is also an amateur band (10.0-10.5 GHz) allocated in the X-band. While amateurs are known for reflecting signals off meteor trails, radar is used by researchers in the detection of meteors to determine size, position and velocity. As with amateur meteor activities, the radar detection of meteors occurs at much lower frequencies – researchers often use frequencies between the amateur 6- and 10-metre bands.

If you think that you would like to tour the Accipiter facilities in Fonthill, speak with a member of the executive and I will contact the company. Lloyd, VE3ERQ, suggested that it would be beneficial to have a technical representative of the company come to an NPARC meeting before the tour to provide a presentation.

Oh, and those birds I mentioned at the beginning? Due to increasing growth in aircraft traffic and bird population, mitigating the risk of bird strikes has now become critical to aviation safety. Sharing the skies safely is all about separation and requires continuous collection of 3D trajectories for birds and aircraft alike, especially at night and in the fog when visual observations are ineffective. To-day, that's just one application of modern radar.

Phil, VE3ACK

A Better Emergency/Backup Battery—Denis, VE3KVE

A better emergency/backup battery

If you're the type of Amateur who only uses power from the 120 volt grid, then this article may have limited appeal. However, if you like to be able to use your Amateur Radio equipment when we have a power blackout, or if you wish to be ready to contribute your time and energy to assist with emergency communications then you will be interested in the type of power that you will have available. Among the various power possibilities you'll certainly include a battery source. When we're looking for a suitable type battery for emergency or backup power for our radio equipment, we have generally stayed with the lead acid type battery because (a) reasonable cost and (b) they are readily available. However, they are large and heavy and carry a string of maintenance tasks. When using one as a power source for emergency use, transporting one and constantly keeping them ready for emergency service can be a real headache. My comments about regular lead acid batteries apply almost as much to the SLA (Sealed Lead Acid) type batteries. SLA batteries are also heavy, have critical maintenance requirements, but at least are completely sealed against acid leakage. We are now in a technological transformation with battery power - the latest lithium type batteries are far superior to any lead acid battery. I'm thinking in particular of the Lithium Ferrite Phosphate (LiFePO₄) battery. Here are some comparison points between lead acid batteries and LiFePO₄ batteries.

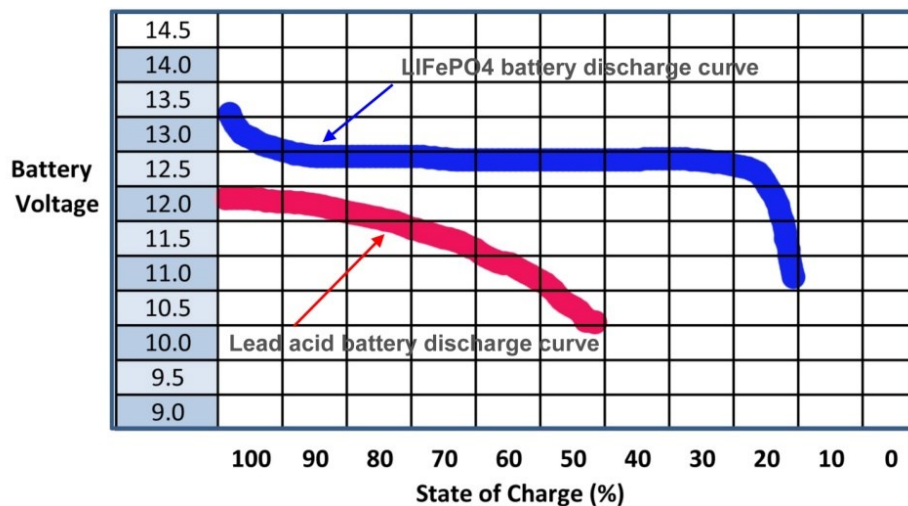
A Better Emergency/Backup Battery cont... — Denis, VE3KVE

Lead acid Big & heavy
LiFePO₄ 50 to 70% smaller & lighter

Lead acid Can use only 50% of available capacity before its voltage drops to an unsafe level.
 Discharge curve drops steadily.

LiFePO₄ Can use > 80% of available capacity.
 Discharge curve is constant until the maximum discharge point is reached. (This advantage all by itself could obviate any need for a Battery Booster dc to dc converter - saving approximately \$200.00). Battery boosters take any voltage source between a pre-determined minimum (can be selected but should be at or above the safe level). A dc to dc converter converts the output voltage to 13.75 volts. I should mention though that the LiFePO₄ battery will maintain a close to constant voltage, but it will be around 12.4 volts, not the 13.75 volts that a battery booster would supply. The graph below shows how the voltage of a lead acid battery drops as it is discharging. On the same graph is the voltage discharge rate for a LiFePO₄ battery.

Discharge rates for lead acid batteries compared to LiFePO₄ batteries



Lead acid Battery life is typically < 500 cycles and three years

A Better Emergency/Backup Battery cont... — Denis, VE3KVE

LiFePO₄ Typically > 3,000 charge cycles and ten years, a shelf life that far exceeds the service life of other batteries.

Lead acid Self discharge requires periodic recharging even without a load.

LiFePO₄ Virtually no self discharge.

Lead acid Discarding old battery is environmentally toxic.

LiFePO₄ Chemicals are "green" and non-toxic.

Lead acid Have acid that is subject to spills. Regular (non sealed lead acid type) must always be kept upright. Can generate hydrogen gas if over charged.

LiFePO₄ Are completely sealed, so can be stored and used in any position. They are inherently safe, and use stable chemical compounds. (Cell phones and other lithium battery powered devices use Lithium Cobalt Oxide (LiCoO₂) chemicals - a different animal entirely). LiFePO₄ batteries are thermally and chemically stable without the possibility of fire or explosion.

Lead acid batteries also require very careful attention to ensure (a) safe operation and (b) long life. The battery should be in a plastic box with a plastic lid (ventilated). Working around it with the top exposed and with metal tools is an accident waiting to happen. The typical lead acid battery can pump several hundred amps if the terminals are shorted. Keep wedding rings well away - a wayward screwdriver and a gold wedding ring accidentally touching the battery terminals could make that ring glow red hot in a fraction of a second!

There are negatives related to LiFePO₄ batteries, the biggest concerns are cost and availability. Cost is at least three times more than a deep cycle lead acid battery. (Note that total life cycle cost is approximately the same or even lower than a regular lead acid battery when you take into account that LiFePO₄ batteries will outlast lead acid batteries by at least a 4 to 1 ratio).

Also, try finding a source of LiFePO₄ batteries here in Canada. I recently searched for a Canadian supplier with no success. I finally bought one from Bioenno Power, based in California.

(<https://www.bioennopower.com/collections/12v-series-lifepo4-batteries>).

They have a terrific reputation for both starter and deep cycle LiFePO₄ batteries of all sizes. I bought a 12 volt, 15 Ah deep cycle version complete with special 4 Amp charger for \$169.99 U.S. However, shipping costs amounted to \$44.99 U.S. via UPS Ground. (The U.S. does not allow the transport of lithium batteries by air). I was also charged brokerage by UPS as I had it shipped to my home this side of the border. The

A Better Emergency/Backup Battery cont... — Denis, VE3KVE

total cost was substantial. I would recommend having Bioenno Power ship any battery that you buy from them to a Niagara Falls NY address and pick it up yourself.

This battery weighs only 4.3 lbs. (1.9 kg.) The size is 5.5 in. X 4.3 in. X 3.2 in. (137mm x 77mm x 78mm). It has a maximum continuous discharge current of 30 amps and comes with Anderson Powerpole connectors. Despite the upfront costs I'm really pleased with this battery



Figure 1 LiFePO₄ 12 volt 15Ah battery P/N BLF-1215A

This particular Bioenno 15Ah version is just one of a number of sizes in the deep cycle series (LFP) ranging from 3Ah up to 40Ah. A Google search will list many other LiFePO₄ battery sources (in the U.S.) and a range of sizes.

A very big factor with any battery, but especially with the lead acid type, is to ensure that when in use the discharge does not cause the battery voltage to drop below defined limits. e.g. for lead acid type this is around 10.5 volts. If the battery is allowed to continue supplying current and dropping the voltage below 10.5 volts, then the battery life could be much reduced. I recommend buying a digital voltmeter and checking the battery voltage accurately and regularly. Small, low cost (but accurate) digital voltmeters are readily available on the Internet. They cost less than ten dollars and could save you from damaging or shortening the life of your battery.

Also, with lead acid batteries the self discharge rate means that if the battery is not in use, it must be periodically charged. This can be accomplished with either a trickle charge, or by using a regular charger approximately once a month, making sure that you disconnect the charger once the voltage has risen into safe limits. (Over charging is also a good way to damage a battery).

In comparison, a LiFePO₄ battery can be safely stored for a year or more without any ill effects. However, the rule about ensuring that a LiFePO₄ battery does not drop its voltage too much also applies. Also, LiFePO₄ batteries require special consideration when charging. LiFePO₄ batteries need two steps to be fully charged: step 1 uses constant current (CC) to reach about 60% State of Charge (SOC); step 2 uses constant voltage (CV). This kicks in until each cell attains a voltage of 3.6 volts (14.4 volts for a nominal 4-cell 12 volt battery). The charging voltage should be maintained around 14.4 volts. Most LiFePO₄ battery

A Better Emergency/Backup Battery cont... — Denis, VE3KVE

suppliers sell suitable chargers as a special deal when buying the battery. In my case I paid \$20.00 to get a 4 amp LiFePO₄ battery charger when I ordered the battery.

In conclusion I am positive that as Amateurs involved with emergency preparedness, (or any Amateur who wants to be able to communicate even when the grid is down), we will in time switch away from lead acid and SLA batteries and use the LiFePO₄ deep cycle type instead. As this type of lithium ferrite phosphate battery matures, the costs will drop, making them more affordable. The dramatic move towards electric powered vehicles has triggered hugely expensive research into improved battery technology. I suspect that we'll see some amazing progress in battery design. This is all good news for us Amateurs looking for better emergency/backup power, Building and maintaining a reliable and long-life battery system for our shack or for emergency readiness requires some smart decision-making from the get go. The extra money invested upfront will be repaid many times over.

This is one of a series of articles I am writing on the subject of power sources for emergency readiness and backup purposes. I am not an expert in this; nor am I a professional engineer, so I present these thoughts on a strictly personal level. You'll need to verify for yourself that what I have written is useful to you. All the above is offered without any guarantees or promises.

Enjoy!

73 Denis ve3kve
February 24. 2018

PS: right on time, take a look at this, the biggest lithium battery in the world! Built by Tesla in Australia and fed by a huge Wind Farm. It will be capable of powering 30,000 homes. A \$50 million backup battery.

<http://www.cbc.ca/news/technology/tesla-powerpack-battery-south-australia-1.4416028>

Club Executive 2017-2018

Position	Name	Callsign	Email
President	Steve Riddle	VA3FLF	president@nparc.on.ca
Vice-President	Lloyd Kubis	VE3ERQ	vice-president@nparc.on.ca
Secretary	Denis Surek	VE3XC	secretary@nparc.on.ca
Treasurer	Kaitlynn Mattatall	VE3AUO	treasurer@nparc.on.ca
Bulletin Editor	Rachel Barnsdale	SWL	feedline@nparc.on.ca
Public Relations Officer	John Eagle	VE3HWE	public_relations@nparc.on.ca
Repeater Committee Chairperson	John Lorenc	VA3WM	repeaterchair@nparc.on.ca

Feel free to check out our website at <http://www.nparc.on.ca>. There you will find more information regarding the club and the other dedicated members that put in numerous hours of their own personal time to help make this club as great as it is.

NPARC Repeaters

VE3NRS	147.240 MHz +	PL Tone 107.2 Hz
VE3RNR	443.175 MHz +	PL Tone 107.2 Hz
VE3WCD	147.300 MHz +	PL Tone 107.2 Hz

Area Repeaters

VE3RAC	147.165 MHz +	PL Tone 107.2 Hz
VE3GRW	442.900 MHz +	PL Tone 107.2 Hz
VE3RAF	442.250 MHz +	PL Tone 107.2 Hz

This is by no means a complete listing. This is just a snippet of all that are available and ones used by club members on occasion.

Nets of Note

- ONTARS 80m Net / 3.755 MHz LSB daily 7:00 A.M to 6:00 P.M. EDT
- CLARA 80m Net / 3.750 MHz Mondays 7:00 P.M. EDT
- GWEN-Ground Wave Net on the 1st and 3rd Monday of the month at 7:30 P.M. EDT on 3.607 MHz
- NPARC 2m Net /147.240 MHz on Mondays at 7:00 EDT
- ARES 2m Net /145.190 MHz on Mondays at 8:00 P.M. EDT
- SATERN Net on 2m /147.300 + MHz / IRLP on Mondays at 9:00 P.M. EDT
- NPARC 10m Net / 28.415 MHz on Tuesdays, 8:30 EDT
- CLARA 20m Net / 14.120 MHz on Tuesdays at 1700 UTC & 40m Net / 7.055 MHz at 9:00 am Eastern
- PROCOM—ARES 40m / 7.153 MHz & 80 M / 3.74 MHz on Thursdays at 8:00 P.M. EDT

Niagara Peninsula Amateur Radio Club, Inc.

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 Canada

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 Email: info@nparc.on.ca

Amateur Radio - When all else fails!

We're on the web
<http://www.nparc.on.ca>

The **Niagara Peninsula Amateur Radio Club** carries the club call sign of VE3VM. Our organization serves all amateurs and local community within the region of Niagara located in Ontario, Canada.

NPARC has a strong membership ranging from youth and senior amateur radio operators. We conduct monthly meetings, and serve the community in not only educating, but providing radio communication services to assist at public functions.

We operate three, commercially built repeaters that serve the Niagara region (and beyond). This year, our infrastructure plan includes several upgrades to increase communication flexibility and experimentation in the area.

If you're interested in becoming a licensed operator in Niagara, email one of our executive. Somebody from the club would be more than glad to assist you!

General Meeting Schedule for 2018

Meetings are held monthly, September to June, on the 2nd Thursday of the month at 7:00 pm Royal Canadian Legion Hall, Branch 613, 141 Hwy 20 East, Fonthill, Ontario. All are invited to attend.

**Thursday March 8th, 2018—
 Next General Meeting**



HAM-EX™ 2018



Canada's Top Amateur Radio & Electronics Showcase and Sale

Saturday March 17, 2018

Vendors: 7am---- Exhibits & Demonstrations: 8 am ---- Flea Market: 9 am to 1 pm

Brampton Fall Fairgrounds

Heart Lake Road & Old School Road,

Public Admission - \$8

So BIG we need 2 Talk-In Frequencies

VE3PRC 146.880- (103.5 Hz tone required) VE3MIS 145.430- (103.5 Hz tone required)

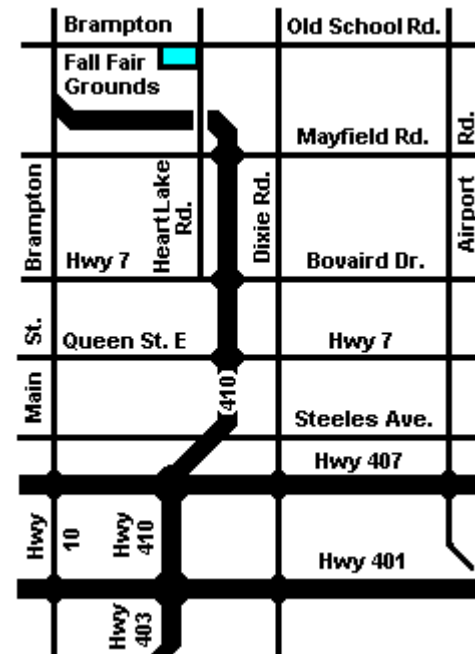
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12942 HEART LAKE ROAD

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