



The RELAY)))

FEBRUARY
2021

The Official Publication of the Arrowhead Radio Amateur Club

A.R.A.C. Inc. P.O. Box 7164 Duluth MN 55807-7164 <http://www.thearac.org> Dues: Member \$20/Family \$25

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HAM SHACK ELECTRICITY HIGH? WHAT'S BEHIND YOUR ESCALATING ELECTRICITY COSTS

Wouldn't it be great to harness all that sun and wind power to run our homes, businesses and ham shacks cheaply and efficiently? Actually the efficiency of home solar panels have improved and their infrastructure cost has continued to go down. Home wind turbine technology and their costs are also more promising than ever before. Geothermal heating and cooling is a very viable choice of "alternative" energy. The costs of all these "self sufficient" home systems are still beyond the reach of many homeowners, but if you can work them into your budget, they will pay for themselves over the years and give you the peace of mind that your energy needs—and bills—are finally in **your** hands, instead of utility companies.

Recently, Charles McConnell, former Assistant Secretary of Energy in the Obama Administration, gave an illuminating explanation on what's behind your escalating electricity costs. He describes succinctly how the energy cost structure works through utility companies and expresses his opinion on the flaws and failures of such a system. A transcript was posted for the public, so we are sharing his insights with you unedited:

Why does your electricity bill keep going up when the cost of producing electricity keeps going down?

"Since 2010, the price of natural gas has fallen 43% and coal prices have dropped 11%. And yet, the price of electricity for residential users in the U.S. has risen 13% over that time. Why?"

"Because almost all the money Americans should have saved (and we're talking serious money) went to **subsidize** renewable energy. Wind and solar, it turns out, are more expensive than advertised.

"Perhaps if renewable energy was what made our air cleaner, or what caused the dramatic reductions in CO2 over the last decade, you could say it was worth it. But our air was **already** becoming dramatically cleaner long before wind and solar



were identified as "environmentally critical." Emissions of harmful pollutants have decreased 77% in the US since 1970. And that had nothing to do with wind and solar. It was almost entirely due to the switch from coal to natural gas.

So if we're getting no cost savings from wind and solar, and minimal benefits in terms of cleaner air or reductions in CO2, why are we so obsessed with it?

"The question becomes even sharper if we take a close look at your electricity bill.

Continued on page 24



2021



Join us on
facebook!

Co-Editors:

Kim & Steve Waller

Kim - KEØNQS ● Steve - KEØNQT

KEØNQS.mn@gmail.com
KEØNQT@gmail.com

ARAC Board Meeting Minutes - January 5, 2020

PRESIDENT



NØVRM
Gene Ellefsen
371Ø Chambersburg Ave
Duluth, MN 55811
218-39Ø-3272
lspitech@mail.com

Present: Gene Ellingsen-NØVRM, Mike Lovold-NØPDG, Bruce Carlson-KEØNIT, Robin Davis, Gary Minter-KD9ABS, Dave Davis-AAØAC, Randy Wabik-KRØB (In and Out), Doug-AAØAW

VICE PRESIDENT



NØPDG
Mike Lovold
386Ø Birchwood Rd
Downtown Arnold, MN
558Ø3
lovoldm@gmail.com

Meeting called to order at 6:37 pm by President Gene-NØVRM

Minutes:

Minutes posted in newsletter and on the web site. Motion to accept by Gary-KD9ABS, seconded by Mike-NØPDG, motion passed

SECRETARY



NØCALL
Robin Davis
218-391-3Ø77
davisfam2858@yahoo.com

Treasurer's Report:

Checking	1,842.79
Savings	2,173.73
Subtotal Cash	\$4,016.52

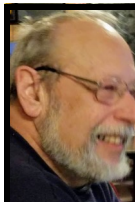
Winter CD	1,724.37
Summer CD	0.00
Subtotal CD	\$1,724.37

Outstanding Checks:

Mahtowa Repeater	-1,100.00
Bob Boyd-KDØLYN Memorial ..	-1,020.00
First United Methodist Church	150.00
Reserved Funds	-\$2,270.00

Grand Total \$3,470.89

TREASURER



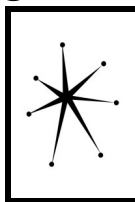
KEØNIT
Bruce Carlson
9Ø6 Anderson Rd
Duluth, MN 55811
763-315-2967
carlsbr@gmail.com

End of the Year printed out a full report for 2020, back to December 31, 2019. Includes all of the Checkbook Activity, Savings Register, \$.16 Saving Interest, CD Register, \$10.34 CD Interest, E Statements from the Bank, Income Sheet, Expenses Sheet:

Income	\$2,227.56
Expenses	\$3,264.75
About	\$500.00 loss.

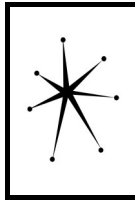
Motion to approve Dave-AAØAC, seconded by Mike-NØPDG, motion passed

3RD YEAR BOARD



AAØME
Randy Johnson
randy@nsw4x4.com

2ND YEAR BOARD



KD9ABS
Gary Minter
1621 N 26th St
Superior WI 5488Ø

1ST YEAR BOARD



AAØAC
Dave Davis
218-348-6649
aaØac@outlook.com

Repeater:

Beneficial to upgrade all the equipment instead of piecing together repairs and replacement parts. We do have a full backup stored at WDSE, plug and play. This gives us a time line, a road map to approach this update. Randy-KRØB provided information for the

Continued on Page 3

ARAC Board Meeting Minutes , continued

Continued from page 2

Board with additional information still being gathered.

Ham Fest:

From Bob Schultz-KC0NFB, we need to decide how far to go for Ham Fest? Vendor Notices? ARRL Endorsement? Yes, Board says to forge ahead. We will cancel the Ham Fest, if we have to, at that time. Talk to John Cavanaugh-KC0AFE and Cliff Tanner-AC0FO about possibly using the September Fall Fest instead if restrictions are still in place in May. Plan for a full Ham Fest. Discussion on new Management Company at the Superior Fairgrounds. Additional discussion ensued as to what happened to the Deposit of \$100.00 that stayed with the last Management Company. That money rolled over year to year to ensure our rental contract each year for the first Saturday in May. Gene-N0VRM to follow up with Bob-KC0FNB, as he has been the contact person for the last few years to have him follow up with the new Management Company and/or the Fairgrounds Board

Picnic:

Discussion concerning the Annual ARAC Picnic. Consensus was that Scott-N0BYU should get the City of Duluth Park Rental License for the August Picnic at Chambers Grove. We will plan as we would annually for the ARAC Club Picnic

Testing:

A couple of things have changed. You can no longer use Social Security # for identification any more. You have to have a FRN (Federal Reservation Number). You must preregister with the Federal Government, available on line, prior to testing. You also have a valid email address because they will be emailing the license to each individual, whether it is a new license or a renewal. Looking at a couple of test sessions in January. We have made it work for our test sessions during the Covid Pandemic. Just a note, the ARRL is considering raising their fees and is looking for comments. Please let them know your concerns and/or questions

Motion to adjourn by Bruce-KE0NIT, seconded by Gary-KD9ABS, motion passed





ARAC Club Meeting Minutes

January 14, 2020

Present:

President Gene Ellefsen-N0VRM
Vice President Mike Lovold-N0PDG
Treasurer / Membership Bruce Carlson-KE0NIT
Secretary Robin Davis
Third Year Board Dave Davis-AA0AC
Special Events – Open / Gene Ellefsen-N0VRM acting
Ham Fest / Education Bob Schultz-KC0NFB
Property / Picnic Scott Ahlgren-N0BYU
Testing Doug Nelson-AA0AW

Absent:

Second Year Board Randy Johnson-AA0ME
First Year Board Gary Minter-KD9ABS
Chaplain (Visiting) Rolland Bockbrader-KB0CK
Parliamentarian Grant Forsyth-KC0WUP
Newsletter / Historian Kim Waller-KE0NQS
Newsletter Steve Waller-KE0NQT
Repeater Randy Wabik-KR0B
Repeater Derek McCorison-W0DNF
Repeater Randy Haglin-N0BZZ
Web Site Thomas Dorr-KE0RHA

Meeting called to order by President Gene-N0VRM at 7:00 pm via 94 Repeater

Minutes:

Minutes posted in newsletter and on the web site. Motion to approve by Joe Meese-W0LWWU, seconded by Jeff Nast-KC0MKS, accepted unless there are objections

Treasurer's Report:

Checking	1,842.79
Savings	2,173.73
Subtotal Cash	\$4,016.52
Winter CD	1,724.37
Summer CD	0.00
Subtotal CD.....	\$1,724.37
Assets Subtotal:	\$5,740.89
Outstanding Checks:	
Mahtowa Repeater	-1,100.00
Bob Boyd-KD0LYN Memorial	-1,020.00
First United Methodist Church	150.00
Reserved Funds	-\$2,270.00
Grand Total.....	\$3,470.89

Gene-N0VRM went to the PO Box today and checked the box. He will get the bills to Bruce-KE0NIT tomorrow. Motion to accept by Mike-N0PDG, Joe-W0LWU, any objections? None, consider it passed

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ARAC Club Meeting Minutes, *continued*

Education:

Technician Class currently has six (6) people registered for the class. Sign up through the Duluth Community Education Class. Next Wednesday, is the start of the General Class, via Zoom

Ham Fest:

Ham Fest reserved location at the Curling Club and the application has been submitted to ARRL. The new flyer is ready to be posted on the web page. Six (6) tables have been reserved. Mid-Winter Madness has been cancelled. The Board approved moving forward with the annual Ham Fest, subject to change, following all the COVID restrictions, hoping for the best.

Testing:

Successful testing session with one (1) candidate, who passed. Testing session, Saturday, at House of Refuge, 9:30 am Registration, 10:00 am testing, fee is \$15.00. Remember you need an FRN number and an email address before the paper work can be processed. New licenses and upgrades need the FRN number and a valid email address

FCC will be instituting a \$35.00 fee for any licensing, upgrades or vanity calls, thirty (30) days after posting it on the National Registry System. Your license has the FRN number at the bottom of it. Getting your FRN number is immediate after completing the online application

Any new business?

Picnic:

Scott-N0BYU In the spirit of what I heard, should we secure a license from the City of Duluth for the annual August picnic? We should pursue it. He will call tomorrow to start the process

Grandma's Marathon:

Tim Ferch-AK0TF was just wondering if Scott-N0BYU or Doug-AA0AW could let us know about Grandma's Marathon? Doug-AA0AW - Grandma's will be happening with 4,000 runners for the half and full marathon and 1,500 runners for the 5K. All races all full. There is a meeting next week to gather information. More information to follow after the Wednesday meeting

MN QSO Party:

MN QSO Party is happening February 6, 2021. It is a good opportunity to get on the air contacting both Minnesota and outside of Minnesota ham radio operators

Program tonight is by DX Engineering via the Facebook page. The program is about putting connectors on from the mini all the way up

Anything else anyone would like to discuss?

Motion to adjourn by Ben Harstad-KE0JDB, seconded by Terry Thompson-KA0TST, motion passed at 7:23 pm



Prez Sez...

Hi everyone!

Hope you are surviving the winter OK.

There was a group of Hams that put on a Winter Field Day station at Dave Davis's home (AAØAC). Normally we do this at Joe Meese's (WØLWU) but because of the Covid virus we moved so as not to expose Joe to anything. It was a good time, good food and good contacts; 304 voice, cw and digital.

Because we can't have our monthly meetings at the Church we have asked you to mail in your dues and you have responded well. Thank you!! Also a big thank you to those who have included extra donation amounts along with the dues. It really helps since we lost the Hamfest funds.

I know this is early, but Grandma's Marathon is coming up in June. Yes it is on !! So you may want to start checking out your radios in case you might need to replace batteries.

Monthly meeting on the WØGKP (94) repeater at 7:00pm on February 11, Zoom program following. Tom Ferguson, a retired Minnesota power engineer and instructor at UMD will do a presentation on the local power grid. Should be interesting!!

73 Gene Ellefsen NØVRM

Have a Blast at the 2021 Minnesota QSO Party!

When: Saturday February 6th, 8 a.m.— 6 p.m. CST

Where: HF (160-10 m)

- ♦ Covers voice, CW, and digital modes
- ♦ Minnesota stations work everyone (87 counties, US states, Canadian provinces, plus one DX multiplier)
- ♦ Non-Minnesota stations try to get all 87 MN counties
- ♦ Exchange is your name & county (or state/province for non MN)
- ♦ Full rules, operating resources & a centralized place to publicize your operation are available at the MN Wireless Association website: www.w0aa.org

“See” you there!



U.S. AIR FORCE MILITARY AUXILIARY RADIO SYSTEM

Minnesota State MARS Director
Reginald B. Cass / AFS5MN

Gene Ellefsen
NØVRM

Thank you for your time and interest.

Air Force MARS membership could be for you. We do hope that it is.

If you have the following interests, and capabilities, we are interested in recruiting you to become an Air Force MARS member. Completion of the following on line training is mandatory:

Personally, Identifiable Information (PII) <https://iatraining.disa.mil/eta/piiv2/launchPage.htm>
Cyber Awareness https://iatraining.disa.mil/eta/disa_cac2018/launchPage.htm

If you have completed: [Incident Command System](#) (ICS) -100, 200, 700, and 800 training, and have obtained certification for Air Force MARS or are willing to obtain this training, again, Air Force MARS could be for you.

You must be interested in joining a group of individuals that are dedicated to amateur radio, emergency communications, and willingness to learn and used military communications procedures for voice and digital communications.

You must have equipment that will meet the minimum requirements for voice and digital operation. The equipment will be: transmitter, receiver, (transceiver) modified to operate out of amateur radio bands, computer, modem, and antenna's that are designed to operate on military assigned frequencies. (The best antennas will be a dipole cut to the operational frequency. NVIS antennas work best. You will not need a linear amplifier, however if you have one that will operate on out of amateur radio bands that will be a plus)

You must go through and complete training. You are allowed up to 180 days to do so.

Air Force MARS operation's and procedures are based upon "MARS Operating Instruction", (MOI). The MOI manual uses as its basis for instruction a series of Allied Communications Publications (ACP's), Department of Defense Directives, Department of Defense Instructions, and Department of Defense Manual.

If you already belong to a MARS program and would like to consider Air Force MARS, please contact one of the recruiting team members.

Our recruitment team is as follows:

AFA5XK Dave, WB7DRU wb7dru@gmail.com

AFA5ZV Randy, KRØB afa5zv@gmail.com

AFA5JY Reg, KAØRJY reg_cass@msn.com

CW Abbreviations

- | | | | |
|--------------------------|-------------------|--------------------------|-------------------|
| AR End of Message | AS Pse QRX | BK Back to You | SK End of Contact |
| TU Thank You | PSE Please | K Invite to Transmit | |
| QST Calling all Amateurs | QRL Are You Busy? | QRU Have anything for me | |
| QRV Are You Ready? | QRX Standby | QRS Transit Slower | |



A	●	M	—	Y	—
B	—	N	—	Z	—
C	—	O	—	1	—
D	—	P	—	2	—
E	●	Q	—	3	—
F	—	R	—	4	—
G	—	S	—	5	—
H	—	T	—	6	—
I	●	U	—	7	—
J	—	V	—	8	—
K	—	W	—	9	—
L	—	X	—	0	—

US Amateur Radio Bands

US AMATEUR POWER LIMITS

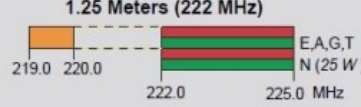
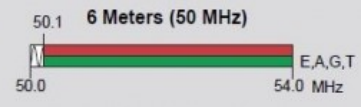
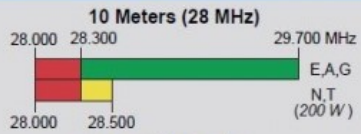
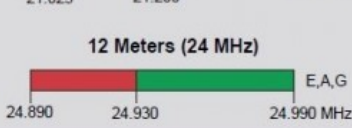
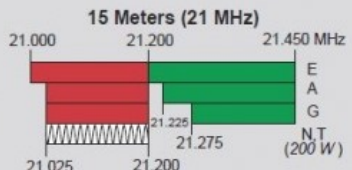
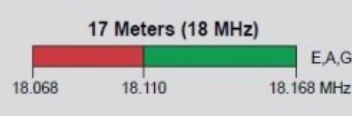
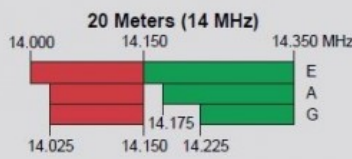
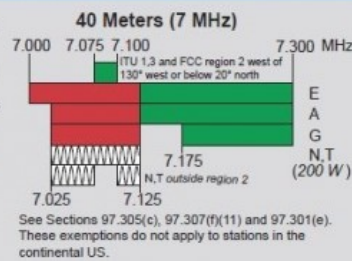
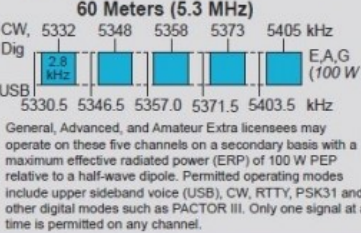
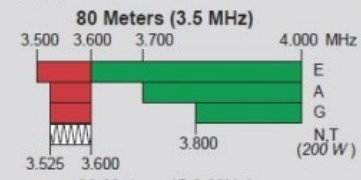
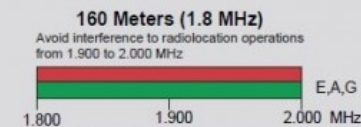
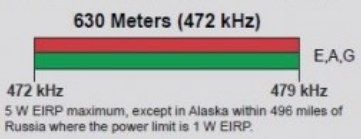
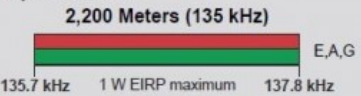
FCC 97.313 An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.

Effective Date for
2,200 and 630 Meters
to be announced

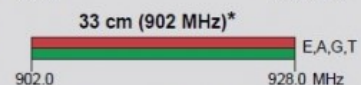
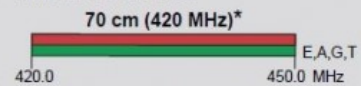


The national association for
ARRL AMATEUR RADIO

On March 28, 2017, the Federal Communications Commission adopted rules that will allow Amateur Radio access to 472-479 kHz (630 meters) and to 135.7-137.8 kHz (2,200 meters). However, amateurs cannot use these frequencies until 30 days after the Report and Order is published in the Federal Register and the final procedures for registering stations with the Utilities Telecom Council (UTC) have been approved and announced. At the time this chart was created, the Report and Order had not been published and the UTC online registration site is not yet available. Follow ARRL news for further information. New charts will be published at www.arrl.org/graphical-frequency-allocations when the bands are fully available for use.



*Geographical and power restrictions may apply to all bands above 420 MHz. See *The ARRL Operating Manual* for information about your area.



All licensees except Novices are authorized all modes on the following frequencies:

2300-2310 MHz	10.0-10.5 GHz ‡	122.25-123.0 GHz
2390-2450 MHz	24.0-24.25 GHz	134-141 GHz
3300-3500 MHz	47.0-47.2 GHz	241-250 GHz
5650-5925 MHz	76.0-81.0 GHz	All above 275 GHz

‡ No pulse emissions

KEY

Note:
CW operation is permitted throughout all amateur bands.
MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.
Test transmissions are authorized above 51 MHz, except for 219-220 MHz.

- = RTTY and data
- = phone and image
- = CW only
- = SSB phone
- = USB phone, CW, RTTY, and data
- = Fixed digital message forwarding systems only

E = Amateur Extra
A = Advanced
G = General
T = Technician
N = Novice

See **ARRLWeb** at www.arrl.org for detailed band plans.

ARRL
We're At Your Service

ARRL Headquarters:
860-594-0200 (Fax 860-594-0259)
email: hq@arrl.org

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Toll-Free 1-888-277-5289 (860-594-0338)
email: membership@arrl.org

Getting Started in Amateur Radio:
Toll-Free 1-800-326-3942 (860-594-0355)
email: nowham@arrl.org

Exams: 860-594-0300 email: vec@arrl.org

NETS

Have a favorite HF/6m/2m/1.25m/70cm net that you check into or listen in on? Also, please send corrections and we will add it to the list below - Kim KEØNQS at my email KEØNQS.mn@gmail.com.

- **Northland Weather Group Net:** Mondays 2000 on the ARAC repeater (146.940 MHz with a tone of 103.5 and standard offset).
- **Minnesota D-Star Net:** Sundays at 19:30 on Reflector 53A
- **Minnesota Section Net** 1200 and 1730 on 3.860 [Net Manager: NØYR] http://www.mn-section.org/dept_stm.html
- The non-non-net: Evenings 2000 144.200 USB except for Sunday evenings.
- Badger WX Net: 0500-0715 on 3.985. Give 24 hour high/low/current temperature, precipitation and snowfall.
- **PICONET:** 3.925 from 0900-1100 CT Mon-Sat and 1600-1700 CT Mon-Fri. Info at: <http://www.piconet3925.com>
- Michigan Upper Peninsula Net: 1600 (CST) on 3.921 MHz Sun-Sat and 1200 Sun. Info: <http://www.michupnet.com>
- Great Lakes Marine/Maritime Mobile Net: Morning 07:30 - 3.932; 08:15 - 7.261 MHz and evening 18:30 - 3.1730927; 19:15 - 7.268 MHz. Weekend extra net: 10:00 - 7.261/7.268 MHz. All CST, LSB and +/- QRM. See: <http://www.sailblogs.com/member/glimmnet/>
- MIDCARS: 07:30-13:00 - 7.258 MHz. See: <http://www.midcars.net>
- Iowa snowbird net on 14.257MHz, M-W-F at 10:00 am Local Time. This is an open net.
- Spider Web Net (Marco Island FL) on 14.347 every morning at 0730 CST/CDT: <http://www.spiderwebnet.net>
- Maritime Mobile Service Network: Daily at 1100—2100 Central on 14.300. <http://mmsn.org> and <http://www.14300.net>
- RV Radio Network: Every day at 1900 Central on 7.265 MHz. Web site: <http://www.rvradionetwork.com>
- Upper Midwest Ten Meter Net: Every Thursday Evening @ 8 PM – 28.480 MHz USB
- Wisconsin Sideband Net: Daily @ 5:15 PM – 3985 [or 3982.5] KHz LSB
- Upper Midwest Ten Meter Net: Every Thursday Evening @ 8 PM – 28.480 MHz USB
- Hobby Helpers Net - Tuesday @ 8 PM – 28.330 MHz USB (Isanti MN) LSB [Net Manager: WOØA].
- Northstar Trader Net: 3.908 +/- at 0830 CST Sundays
- WARFA: 3.908 +/- Sun/Tue/Thu nights at 2200 CST, <http://warfa.org/>
- Youth Net: 14.320-14330 Sundays 1800-1900 UTC, Net Control: AC8PI
- YACHT: Saturdays 1900 CST on EchoLink #481872, <http://yachthams.webstarts.com>
- Northwestern Ontario ARES Net: Evenings at 20:15 (Central) on +/- 3.750Mhz
- The Iron Range Net: Saturdays at 0800 Central time on or near 3.919 Mhz. Look them up on Facebook!
- FORX Net: Mondays at 1900 Central at 3.941 Mhz +/- QRM. WAØJXT — Grand Forks, North Dakota
- HF CW: Fridays 08:00 CST, 7.112 MHz. Informal slow speed CW Net. W8IRT NCS. Email: w8irt@aol.com
- Minnesota ARES Digital Net: Thursdays at 2000 CST, 3.5835 MHz USB +/- QRM, Mode: Olivia 8/500.
- SARA Digital Net: Sundays at 1900 Local, 3.582.150 MHz USB +/- QRM, Mode: BPSK31/BPSK63
- Spider Web Net (Marco Island FL): 14.347 every morning at 0730 CST/CDT: <http://www.spiderwebnet.net>
- Broadcaster Net: 7.231 or 3.855 M/W/F @ 1500 UTC. 14.255 M-F @ 2130 UTC. <http://www.cbsretirees.com/ham.htm>
- Old Military Radio Net: 7.268 +/- nightly at 0200z. Other times/Frequencies too. See: <http://www.mrca.ar88.net/>
- Rag Chew Crew/Tailgaters/Freewheelers Nets: 3.916 +/- nightly at 1900 CST, <http://www.tailgatersnet.com>
- North South Net: 7.214.6 +/- at 0700 CST, Monday-Saturday



Next ARAC Board Meeting

Tuesday, February 2, 2021

@ 6:30 p.m.

Sammy's Pizza

Next ARAC Club Meeting

Thursday,
February 11, 2021
7 p.m.

on the 94 Repeater

Join us on Zoom immediately
following the club meeting!

FEBRUARY 11th Zoom PROGRAM

Tom Ferguson
Swenson College of
Science & Engineering—UMD

Mr. Ferguson holds Bachelor's and Master of Science degrees in electrical engineering from the University of Minnesota, with concentrations in power and energy systems, and electromagnetics.

His interests include all aspects of energy conversion and delivery, including policy and environmental issues, as well as communications systems and antenna design. Mr. Ferguson is registered as a Professional Engineer in the State of Minnesota, and has over 30 years experience in engineering, operations, project management, and executive management. Mr. Ferguson will be speaking on the topic of our power grid.

Interested in providing a program, or have an idea for one?

Contact Mike NØPDG at
lovoldm@gmail.com

General License Class via Zoom!

January 20th—March 31st

This 12-week course will be held
Wednesdays at 19:00 CST

Lead Instructor:
Diane Saunders KØDSL

Associate Instructors:
Bob Schulz KCØNFB
Paul Dallavia KCØWDQ

To register for this **FREE** class, please contact KØDSL at k0dslae@gmail.com with the following information:

- ◆ Name
- ◆ Address
- ◆ Current Technician Class call sign
- ◆ Email address
- ◆ Daytime or evening phone number

Required Text

2019-2023 General Class book by Gordon West WB6NOA, available from Amazon at \$24.95.

Highly Recommended (optional) Additional Material
ARRL publication *Understanding Basic Electronics, 2nd Edition*, available from ARRL at \$32.95.

Required Equipment

Handheld calculator without programming functions or capability (scientific calculator is recommended--- such as the Texas Instruments TI-30XIIS Scientific Calculator, white, available from Amazon for \$15).

Handouts for the class will be sent via email the week before class begins and will also be available at the start of the class.

This class is available to anyone anywhere. All that is needed is a desire to obtain an upgrade from Technician to General Class. Any additional questions, please contact KØDSL at kc0dslae@gmail.com

Upon completing this class, individuals in the Twin Ports region can seek testing by contacting Doug Nelson AAØAW at aa0aw@arrl.net All others, please contact your local club or go to <http://www.arrl.org/find-an-amateur-radio-license-exam-session> to find an exam near you.

Duluth Area Repeaters



ARAC System WØGKP

Freq. Offset Tone Location

146.940	minus	103.5	Duluth
146.940	minus	107.2	Lakeside (rcv)
146.940	minus	151.4	Two Harbors (rcv)
146.940	minus	100.0	Gary-New Duluth (rcv)
146.940	minus	123.0	Solway (rcv)
146.940	minus	110.9	Cloquet (rcv)
147.000	minus	103.5	Mahtowa
444.100	plus	103.5	Duluth UHF Link

N9MMU/N9QWH System (WI)

145.310	minus	110.9	Duluth
145.490	minus	110.9	Solon Springs
147.255	plus	110.9	Hayward
145.110	minus	110.9	Rice Lake
147.345	minus	136.5	Holcombe
145.230	minus	110.9	Eau Claire

WECOMM – WI Statewide Linked System WE9COM

147.075 plus 110.9 Meteor Hill (closest repeater to Duluth)

LSAC System #1

147.330	plus	151.4	Proctor
147.330	plus	103.5	Duluth (rcv for Proctor)
147.330	plus	156.7	Duluth (North) (Fish Lake)
147.270	plus	114.8	Two Harbors
147.270	plus	103.5	Wales
147.090	plus	114.8	Silver Bay
145.410	minus	114.8	Finland
147.300	plus	114.8	Isabella
145.150	minus	103.5	Washburn, WI
146.700	minus	103.5	Bayfield, WI
443.850	+5.00	none	Bayfield, WI
147.165	plus	110.9	Hurley, WI
146.640	minus	151.4	Ely
443.500	+5.00	141.3	Gilbert
147.060	plus	103.5	Virginia
147.360	plus	162.2	Cook
147.165	plus	114.8	Coleraine
443.925	+5.00	110.9	Brainerd
443.200	+5.00	114.8	Tamarack
147.360	plus	203.5	Aitkin
146.865	minus	146.2	Giese
147.570	simplex	146.2	Hinckley
444.575	+5.00	146.2	Hinckley
443.325	+5.00	146.2	Isanti

NARC System NAØRC

145.45Ø	minus	1Ø3.5	Solway Twp
145.45Ø	minus	114.8	Park Point (rcv)
147.135	plus	114.8	Park Point (rcv)
147.135	plus	1Ø3.5	Knife River

Stand Alone Repeaters

145.21Ø	minus	11Ø.9	Clam Lake, WI
146.88Ø	minus	123.Ø	Grand Rapids
146.91Ø	minus	146.2	Duxbury, MN

Fusion and D Star

Fusion (Analog has tone and C4FM digital with no tone)

147.15Ø	plus	151.4	NTØB Gilbert Fusion Rptr
145.17Ø	minus	11Ø.9	WA9KLM Superior –
Douglas County RACES/ARES Fusion Repeater			
443.1ØØ	+5.ØØ	1Ø3.5	KBØYHX Cloquet –
Carlton County RACES/ARES Fusion Repeater			
444.3ØØ	+5.ØØ	1Ø3.5	NØEO Spirit Valley Amateurs Fusion
Repeater WIRES-X NØEO (Analog only) Fusion Room 40494			
147.375	plus		NØEO D Star
442.2ØØ	plus		NØEO D Star

Repeater list compiled by Dr. Frequency—KCØWDQ

ST. Louis County Department of Emergency Services Net Control Roster

N9DMG	Scott Swanson	NØVRM	Gene Ellefsen
AAØAW	Doug Nelson	KCØWDQ	Paul Dallavia
WØNWO	Dave Miller	WØDIO	Dennis Anderson
KØDSL	Diane Saunders	AAØME	Randy Johnson

Sunday Nights at 21ØØ on the ARAC System
(See Calendar for net control schedule)

Ten Meter SSB Net Control Roster

AAØAW	Doug Nelson	WØLWU	Joe Meese
NUØW	Gary Hanson	K9KDK	Al Babcock
WØDIO	Dennis Anderson	NØVRM	Gene Ellefsen
AAØME	Randy Johnson	KØDSL	Diane Saunders

Sunday Nights at 2ØØØ on 28.45Ø MHz USB

Ten Meter CW Net Control Roster

AAØAW	Doug Nelson	NØPDG	Mike Lovold
-------	-------------	-------	-------------

Sunday Nights at 193Ø on 28.125 MHz

Northland Weather Group Net Control Roster

KCØMKS Jeff Nast

Monday Nights at 2ØØØ on the ARAC System

Douglas County Net

Tuesday Nights at 2ØØØ on 145.49Ø (N9QWH System)

Central Carlton County Net

Tuesday Nights at 2Ø3Ø on the ARAC System

Lake County RACES/ARES Net

2nd & 4th Wednesday Nights at 19ØØ on the LSAC 1 System

Elmers

El-mer / el-mær/ [el-mer]

1. a male given name: from Old English words meaning "noble" and "famous."
2. an adhesive used to bond like or unlike materials
3. An experienced ham radio operator who mentors new and prospective hams.

<u>Name</u>	<u>Call</u>	<u>Expertise</u>
Jeff Nast	KCØMKS	APRS, EchoLink, WinLink, Fusion, Contesting
Bob Schulz	KCØNFB	Contesting
Jim Anderson	NØJWA	QsoNet
Doug Nelson	AAØAW	HF, VHF/UHF, Contesting, Packet, APRS, Morse Code, VE testing, Echolink, Allstar, EmCom...

Membership E-mail Directory

Ahlgren, Scott NØVYU
sahlgren01@msn.com

Anderson, Jim NØJWA
kcØmko@centurylink.net

Anway, Allen KC9LJN
allen@a2d2.com

Bakke, Richard KDØQHE
rabakke46@aol.com

Barnes, Ray KEØZN
KEØZN@outdrs.net

Blodgett, Warren KDØXI
kdØxi@aol.com

Blotti, Nick KBØMHD
NickBlotti@hotmail.com

Bockbrader, Jonah KEØCXD
jØpelirrojo.ninja

Bockbrader, Rollie KBØCK
Rollie.bockbrader@q.com

Clemens, Butch KBØSMG
kbØsmg@2z.net

Currier, Barb
bjcurrier@peoplepc.com

Dall, Jim WDØGVW
Dall, Teresa KAØCDO
wdØgvw@gmail.com

Dallavia, Paul KCØWDQ
kcØwdq@yahoo.com

Daly, Ed KØYMF
eddalymn@aol.com

Ellefsen, Gene NØVRM
lspitech@mail.com

Ferch, Tim AKØTF
akØtf@aol.com

Ferguson, Tom WBØDHB
tferg5@msn.com

Fleischman, Bill KCØZZL
wfleisch@d.umn.edu

Forsyth, Grant KCØWUP
forsythgrantc@gmail.com

Frederick, Jerry NØBNG
nØbng@mchsi.com

Frederick, Julie NØPIE
jfreds@mchsi.com

Gibbs, Rex NØKXT
nØkxt@yahoo.com

Godbout, Med WØEEZ
wØeezmedgodbout@centurytel.net

Hanson, Gary NUØW
captaingary@chartermi.net

Harstad, Ben KEØJDB
coast_guard_aux_duluth@yahoo.com

Hawkinson, Garry WØELH
garryhawkinson@yahoo.com

Hegrenes, Bruce KØOE
Hegrenes@charter.com

Jakubek, Patrick KDØSGK
kdØsgk@gmail.com

Johnson, Randy AAØME
randy@nsw4x4.com

Leslie, Shirl KBØSBM
dsleslie@centurytel.net

Makowski, Cletus KBØLBS
kbØlbs52@msn.com

Makowski, Karen NØWEZ
k-wez1@hotmail.com

Marchetti, Jim KEØLHX
jimmarchetti@live.com

Mattson, Bing KCØKRA
, Kathy KCØTIV
HamToHam@msn.com

McCorison, Derek WØDNF
derek1Ø68@hotmail.com

Meese, Joe WØLWU
rxcpd@yahoo.com

Miller, Dave WØNWO
dmiller@nwoutlet.com

Mullozzi, Anthony (Nick)
AJ KDØYQA
Ben KDØYPZ
Joe KDØYQB
KDØYQC
amulloz@hotmail.com

Murray, Edwin W1ELM
w1elm@arrl.net

Nast, Jeffrey KCØMKS
kcØmks@gmail.com

Nelson, Doug AAØAW
aaØaw@chartermi.net

Nelson, Glen KAØGGG
mgnelsonØ1@gmail.com

Nelson, John KBØSUW
jon275@q.com

Nordin, Al WBØDBQ
anordin@aol.com

Olson, Lloyd Jr. KC9JTC
kc9jtc@yahoo.com

Pearson, Wayne WØKRH
meppsy@netzero.net

Pettit, Kathy KCØYVM
kcØyvm@gmail.com

Pomroy, Deb KCØUKC
dpomroy@d.umn.edu

Pyrlík, David KØDJP
David.pyrlík@gmail.com

Reger, Bernard KB9KQZ
Mike KB9KRA
Brian KB9KUX
Chris KB9WJQ
bjr5488@yahoo.com

Rosell, Dawson KEØHEL
rosel032@d.umn.edu

Saunders, Diane KØDSL
kØdslae@gmail.com

Scholz, Greg KDØUYN
kdØuyn@gmail.com

Schreyer, Dave WAØAWZ
kaØfyb@mediacombb.net

Contact Kim or Steve Waller to include your name in this listing!

Schulz, Robert KCØNFB
kcØnfb@charter.net

Snyder, Mark ACØLE
snyds1118@msn.com

Stark, John KCØYVH
johnvinyl@yahoo.com

Swanson, Scott N9DMG
sswanson6749@charter.net

Waller, Kim KEØNQS
keØnqs.mn@gmail.com

Waller, Steve KEØNQT
keØnqt@gmail.com

Whelan, Jacqui KBØJIM
cndymx@gmail.com

Whelan, John KØJRW
jr-whelan@hotmail.com

Winterscheidt, Heinz
KD6FSA
alter.skipper@gmail.com

Wulf Gar WU1FGR
wu1fgr.ham@gmail.com

Members, please check your name and email address for accuracy. If you are not on this list and want to be on the list, contact us with your info. If you need to make a change, please let us know at KEØNQS.mn@gmail.com Or KEØNQT@gmail.com

Co-Editors,
Kim & Steve Waller
KEØNQS & KEØNQT



SUNDAY NIGHT NETS
 1930 - CW - 28.125 MHz USB-CW
 2000 - USB 28.450 MHz
 2100 - Southern St. Louis County
 Emergency Services Net
MONDAY NIGHT NETS
 2000 - Northland WX Net - ARAC Repeater

FEBRUARY

CLUB EVENTS

TUESDAY NIGHT NETS
 2000 - Douglas Cty 145.490 MHz
 2030 - Central Carlton County
WEDNESDAY NIGHT NETS
 1900 - Lake County - LSAC1
 2nd & 4th Wednesdays
 2100 - BWAR

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 WX 2000 KCØMKS	2 ARAC BOARD MEETING - 18:30 Sammy's Pizza DC Net 2000 CC Net 2030	3	4	5	6 MN QSO Party 8 a.m.–6 p.m.
7 CW 1930 AAØAW USB 2000 NØVRM ES 2100 NØVRM	8 DC ARES/ RACES Mtg 1900 DC EOC WX 2000 KCØMKS	9 DC Net 2000 CC Net 2030	10 Lake County ARES/RACES Meeting 1800 Lake County Net 1900 2100 - BWAR	11  ARAC Club Meeting 94 Repeater 7 pm	12	13
14 CW 1930 NØPDG USB 2000 NØPDG ES 2100	15 WX 2000 KCØMKS	16 DC Net 2000 CC Net 2030	17 St. Louis County ARES/ RACES Mtg 1630 Pike Lake EOC 2100 - BWAR	18	19	20
21 CW 1930 AAØAW USB 2000 AAØAW ES 2100 AAØME	22 WX 2000 KCØMKS	23 DC Net 2000 CC Net 2030	24 2100 - BWAR	25 Carlton County ARES/RACES Meeting 1900 CC EOC	26	27 Club Breakfast @ The Chalet 0800-0900
28 CW 1930 NØPDG USB 2000 WØLWU ES 2100 N9DMG						

Get this newsletter *faster*
via email!
Email Doug AAØAW at
aa0aw@arrl.net

Next Meeting: Thursday,
February 11, 2020 - 7 pm
On the 94 Repeater

ARAC Committee Chairs



Club License Trustee:

Ray Barnes KEØZN

Control Operators:

AAØAW - NØKXT - KCØNFB

Newsletter/Historian:

Kim KEØNQS & Steve KEØNQT
Waller

Education Chair:

Bob Schulz KCØNFB

Hamfest Chair:

Bob Schulz KCØNFB

Chaplains:

Visiting Chaplain:

Denny Anderson WØDIO

Parliamentarian:

Grant Forsyth KCØWUP

Website:

Thomas Dorr KEØRHA

Membership:

Bruce Carlson KEØNIT

Property Chair:

Wulf Gar WU1FGR

Testing:

Doug Nelson AAØAW

Field Day:

Dennis Anderson WØDIO

Picnic Chair:

Scott Ahlgren, NØVYU

Repeater Chairs:

Randy Haglin NØBZZ
Randy Wabik KAØJZV

Contest Calendar at www.contestcalendar.com

National Contest Journal at www.ncjweb.com

QSO Party Note: State/Province/National QSO Parties are abbreviated with the 2 or 3 letter abbreviation for the state/province/national designation followed by QP for QSO Party:

Examples: Minnesota QSO Party is MNQP
British Columbia QSO Party = BCQP

QRZ web site at www.qrz.com

VHF Propagation site at www.aprs.mountainlake.k12.mn.us

Reminder: The Contest Corral monthly listing of contests can be found in each issue of QST. ARRL sponsored contests can be found in Contest Corral, highlighted, or on the ARRL's web site at arrl.org.



FCC Adopts \$35 license fee for amateur radio service applications

As you may have heard, the FCC made a proposal to add/change service fees on Amateur Radio transactions. On December 23rd, they issued a ruling in the form of a 97 page document you can read in full here: <https://docs.fcc.gov/public/attachments/FCC-20-184A1.pdf>

As you know, there was a proposal a few months ago for a \$50 fee to accompany nearly any amateur radio license application.

The FCC published their Report and Order (MD Docket No. 20-270) adopting a \$35 license fee after reviewing numerous requests from amateur radio operators and organizations like the ARRL stating that the fee was excessive for a mostly automated process.

The FCC seems to have “split the difference” on the proposal agreeing that \$50 was too much, but free was too little considering the number of applications they receive and process annually.

The following is language from page 11 of the FCC Report and Order

30. We adopt the categories of personal license application fees proposed in the NPRM. The Commission proposed a fee of \$50 for each of these applications. The Sonoma County Radio Amateurs, Amateur Radio Relay League (ARRL), and many individual commenters contend that the proposed \$50 fee for Amateur Radio Service applications is too high and will prevent amateurs from joining the amateur radio service; instead, they contend, the Commission should adopt no fee or a nominal fee. We agree with commenters asserting this fee is too high to account for the minimal staff involvement in these applications and therefore adopt a reduced amount of \$35 fee for all personal license application fees.

Federal Communications Commission FCC 20-184

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of)
Amendment of the Schedule of Application Fees) MD Docket No. 20-270
Set Forth in Sections 1.1102 through 1.1109 of the)
Commission's Rules)

REPORT AND ORDER

Adopted: December 23, 2020 Released: December 29, 2020

By the Commission: Chairman Pai issuing a separate statement; Commissioner Rosenworcel approving in part, dissenting in part, and issuing a separate statement; Commissioner Starks approving in part, dissenting in part.

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I. INTRODUCTION
1. In this Report and Order, we adopt a new application fee schedule that significantly updates the Commission's previous fee schedule in both types of applications and other processes covered by the fee requirement and also in the fee amounts. The new and revised application fees we adopt today apply to a broad spectrum of filings processed by the Commission, including applications, modifications, amendments, and renewals of wireless, broadcast, and satellite licenses, applications to participate in auctions, tariff filings, formal complaints, and certain petitions. This new application fee schedule is

Federal Communications Commission

New license	\$35
Special temporary authority	\$35
Rule waiver	\$35
Renewal	\$35
Vanity Call Sign (Amateur Radio Service)	\$35

Thanks to all the members of **Arrowhead Radio Amateur Club** who participated in the FCC Proposal Feedback process alongside the American Radio Relay League. Amateur Radio Operators perform valuable services to our communities and our country and deserve to have our voices heard.

FOR SALE



Our thanks to the family of Bob Boyd KDØYLN, who have graciously donated Bob's ham shack equipment to the ARAC.

Bob became a silent key on May 31, 2020 & was serving the club as a 1st Year Board Member. N0PDG found sales for 3 items totaling \$970 thus far.

The Board has voted to earmark all proceeds from Bob's equipment toward replacement of our aging repeater.

THE FOLLOWING ITEMS ARE AVAILABLE FOR SALE:

We are taking offers on non-priced items & will present offers for discussion on all items for consideration as appropriate. Contact N0PDG at lovoldm@gmail.com to make offer.

YAESU 767GX, built in power supply. Comes with matching speaker (no cables to hook up the speaker). This radio has an issue with all the lights coming on all the time. Sometimes they come on, sometimes not.

MAKE OFFER

KENWOOD TS-940S Receives Great! No mic, built in power supply, power button missing. Unit powers up by pushing the display button, likely had work done to it. Unknown on power output.

MAKE OFFER

ICOM 718 RADIO with mic and power cord. No manual. New are selling for \$625.

ASKING \$400

Morse code book with a cd for learning. Also oscillator, no keyer.

ASKING \$20

ICOM IC-Z1A Handheld dual band. Comes with manual. Unknown if works as there is no power cord or charger. Worked fine when gifted to Bob by Randy Johnson AA0ME.

MAKE OFFER

ADDITIONAL ITEMS FOR SALE ON PAGES 17 & 18!

FOR SALE



Larry Mattfield KEØPJW, of Bovey, Minnesota became a silent key July 25, 2020. NØVRM was contacted by Minton Miller NØNWO who is handling the sale of the radio equipment benefiting Larry's wife of 48 years, Betsy.

Please contact Minton Miller NØNWO at mdfamily@mchsi.com or 218-256-6708 with questions or offers on the following items:

Icom 7300 \$935.00

Icom sm30 desk mic \$119

Samlex sec1235m \$110.50

LDG AT 600 Prow II auto tuner for Icom \$ 314.50

Yaesu 857d hf/vhf/uhf \$680

Yaesu ft70d 2m ht \$148.75

Yaesu SBH-28 rapid charger \$25.50

Yaesu SBR-24Li batteries (2X) \$34 each or \$68 for both.

MFJ 941E manual antenna tuner \$119

Ameritron ALS 500m mobile 500 watt amp \$850

Ameritron ALS 500 rc mobile amp remote \$55.25

Ameritron SPS 75MV switching power supply \$246.50

vantage pro 2 weather station. \$990.25

diamond 2m/440 X50A bass antenna \$80.75

Solarcon A 99 cb antenna with GPK-1 Ground Plane \$123.25

Alpha Delta DELTA 4b coax switch. \$89.25

**MORE ITEMS
FOR SALE on p.18!**

FOR SALE

Denny Burt KB0SPA has a close friend—Lynn Johnson KB9PFF of Siren, WI—who became a Silent Key. KB9PFF's radio equipment is now located in Barnum at the house of KB0SPA.

For those interested in the following items, please send texts to KB0SPA
at 218-341-4033

1. a pair of uniden frs or gmrs radios, with cradle charger 20.00
- 2.lafayette swr field strength meter. with box. 30.00
- 3.radio shack 2 meter mobile radio model htx-242 60.00
4. ic-2000 2 meter mobile lcom, 65.00
- 5.ic-2100 2 meter mobile icom 65.00
- 6.Yaesu 2800 2 meter mobile 65.00
7. yaesu 2900 2 meter mobile 75.00
8. Kenwood ts-480 200 watt radio hf-6 meters. 500.00
- 9.palamar tx-100 3-30 mhz mobile hf amp 50.00
10. hygain 2.5 amp power supply 15.00
11. yaesu 757gx hf radio 200.00
12. astron ss-25m with meters built in, 45.00
- 13.kenwood at-200 tuner. 60.00
14. astron rs-20a power supply. 65.00
15. mirage 35 watt 2 meter fm amp 30.00
- 16.uniden 40 channel cb radio 10.00
17. sears roadtalker base mic 30.00
18. realistic pro 2023 scanner 10.00
19. mfj 259 analyzer 150.00
20. mfj 862 144/220/440 swr watt meter.25.00
- 21.realistic 2024 scanner 10.00
22. bc60xlt handheld scanner x2 of these 20.00 a peace.
- 23.tv antenna rotor with 3 wire wire. 35.00
24. realistic pro 2003 scanner. 15.00
25. 2 vintage regency scanners crystal operated. 10.00 each.
26. auto rotator tra rotor with control box 45.00
27. lil tarheel screwdriver 225.00
28. 50 feet raw coax on a spool 10.00
29. 1/4 inch guy wire cable 80-100 feet. 20.00

Contest Calendar - February 2021

<u>+ K1USN Slow Speed Test</u>	0000Z-0100Z, Feb 1
<u>+ OK1WC Memorial</u>	1630Z-1729Z, Feb 1
<u>+ RSGB 80m Club Championship, SSB</u>	2000Z-2130Z, Feb 1
<u>+ Worldwide Sideband Activity Contest</u>	0100Z-0159Z, Feb 2
<u>+ ARS Spartan Sprint</u>	0200Z-0400Z, Feb 2
<u>+ RTTYOPS Weeksprint</u>	1700Z-1900Z, Feb 2
<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 3
<u>+ Phone Weekly Test - Fray</u>	0230Z-0300Z, Feb 3
<u>+ CWops Mini-CWT Test</u>	1300Z-1400Z, Feb 3
<u>+ VHF-UHF FT8 Activity Contest</u>	1700Z-2000Z, Feb 3
<u>+ CWops Mini-CWT Test</u>	1900Z-2000Z, Feb 3
<u>+ UKEICC 80m Contest</u>	2000Z-2100Z, Feb 3
<u>+ CWops Mini-CWT Test</u>	0300Z-0400Z, Feb 4
<u>+ RTTYOPS Weeksprint</u>	1700Z-1900Z, Feb 4
<u>+ NRAU 10m Activity Contest</u>	1800Z-1900Z, Feb 4 (CW) and 1900Z-2000Z, Feb 4 (SSB) and 2000Z-2100Z, Feb 4 (FM) and 2100Z-2200Z, Feb 4 (Dig)
<u>+ SKCC Sprint Europe</u>	2000Z-2200Z, Feb 4
<u>+ NCCC RTTY Sprint</u>	0145Z-0215Z, Feb 5
<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 5
<u>+ NCCC Sprint Ladder</u>	0230Z-0300Z, Feb 5
<u>+ K1USN Slow Speed Test</u>	2000Z-2100Z, Feb 5
<u>+ Vermont QSO Party</u>	0000Z, Feb 6 to 2400Z, Feb 7
<u>+ 10-10 Int. Winter Contest, SSB</u>	0001Z, Feb 6 to 2359Z, Feb 7

Continued on Page 20

Contest Calendar - February 2021, Continued

<u>+ EurAsia HF Championship</u>	0800Z-1700Z, Feb 6
<u>+ F9AA Cup, CW</u>	1200Z, Feb 6 to 1200Z, Feb 7
<u>+ Mexico RTTY International Contest</u>	1200Z, Feb 6 to 2359Z, Feb 7
<u>+ FYBO Winter QRP Sprint</u>	1400Z-2400Z, Feb 6
<u>+ Minnesota QSO Party</u>	1400Z-2400Z, Feb 6
<u>+ FISTS Saturday Sprint</u>	1600Z-1800Z, Feb 6
<u>+ British Columbia QSO Party</u>	1600Z, Feb 6 to 0359Z, Feb 7 and 1600Z-2359Z, Feb 7
<u>+ AGCW Straight Key Party</u>	1600Z-1900Z, Feb 6
<u>+ European Union DX Contest</u>	1800Z, Feb 6 to 1800Z, Feb 7
<u>+ North American Sprint, CW</u>	2300Z, Feb 6 to 0300Z, Feb 7
<u>+ K1USN Slow Speed Test</u>	0000Z-0100Z, Feb 8
<u>+ ARRL School Club Roundup</u>	1300Z, Feb 8 to 2359Z, Feb 12
<u>+ OK1WC Memorial</u>	1630Z-1729Z, Feb 8
<u>+ Worldwide Sideband Activity Contest</u>	0100Z-0159Z, Feb 9
<u>+ RTTYOPS Weeksprint</u>	1700Z-1900Z, Feb 9
<u>+ NAQCC CW Sprint</u>	0130Z-0330Z, Feb 10
<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 10
<u>+ Phone Weekly Test - Fray</u>	0230Z-0300Z, Feb 10
<u>+ CWops Mini-CWT Test</u>	1300Z-1400Z, Feb 10
<u>+ VHF-UHF FT8 Activity Contest</u>	1700Z-2000Z, Feb 10
<u>+ CWops Mini-CWT Test</u>	1900Z-2000Z, Feb 10
<u>+ RSGB 80m Club Championship, Data</u>	2000Z-2130Z, Feb 10
<u>+ CWops Mini-CWT Test</u>	0300Z-0400Z, Feb 11

Continued on Page 21

Contest Calendar - February 2021, Continued

<u>+ RTTYOPS Weeksprint</u>	1700Z-1900Z, Feb 11
<u>+ NCCC RTTY Sprint</u>	0145Z-0215Z, Feb 12
<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 12
<u>+ NCCC Sprint</u>	0230Z-0300Z, Feb 12
<u>+ K1USN Slow Speed Test</u>	2000Z-2100Z, Feb 12
<u>+ CQ WW RTTY WPX Contest</u>	0000Z, Feb 13 to 2359Z, Feb 14
<u>+ SARL Field Day Contest</u>	1000Z, Feb 13 to 1000Z, Feb 14
<u>+ Asia-Pacific Spring Sprint, CW</u>	1100Z-1300Z, Feb 13
<u>+ Dutch PACC Contest</u>	1200Z, Feb 13 to 1200Z, Feb 14
<u>+ KCJ Topband Contest</u>	1200Z, Feb 13 to 2359Z, Feb 14
<u>+ SKCC Weekend Sprintathon</u>	1200Z, Feb 13 to 2400Z, Feb 14
<u>+ YLRL YL-OM Contest</u>	1400Z, Feb 13 to 0200Z, Feb 15
<u>+ HamCation QSO Party</u>	1500Z, Feb 13 to 0300Z, Feb 14
<u>+ OMISS QSO Party</u>	1500Z, Feb 13 to 1500Z, Feb 14
<u>+ Feld Hell Sprint</u>	1900Z-2059Z, Feb 13
<u>+ RSGB 1.8 MHz Contest</u>	1900Z-2300Z, Feb 13
<u>+ AWA Amplitude Modulation QSO Party</u>	2300Z, Feb 13 to 2300Z, Feb 14
<u>+ PODXS 070 Club Valentine Sprint</u>	0000Z-2359Z, Feb 14
<u>+ Balkan HF Contest</u>	1300Z-1700Z, Feb 14
<u>+ K1USN Slow Speed Test</u>	0000Z-0100Z, Feb 15
<u>+ 4 States QRP Group Second Sunday Sprint</u>	0100Z-0300Z, Feb 15
<u>+ CQC Winter QSO Party</u>	0100Z-0259Z, Feb 15
<u>+ OK1WC Memorial</u>	1630Z-1729Z, Feb 15
<u>+ RSGB FT4 Contest Series</u>	2000Z-2130Z, Feb 15
<u>+ Worldwide Sideband Activity Contest</u>	0100Z-0159Z, Feb 16

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Contest Calendar - February 2021, Continued

<u>+ RTTYOPS Weeksprint</u>	1700Z-1900Z, Feb 16
<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 17
<u>+ Phone Weekly Test - Fray</u>	0230Z-0300Z, Feb 17
<u>+ CWops Mini-CWT Test</u>	1300Z-1400Z, Feb 17
<u>+ CWops Mini-CWT Test</u>	1900Z-2000Z, Feb 17
<u>+ AGCW Semi-Automatic Key Evening</u>	1900Z-2030Z, Feb 17
<u>+ CWops Mini-CWT Test</u>	0300Z-0400Z, Feb 18
<u>+ RTTYOPS Weeksprint</u>	1700Z-1900Z, Feb 18
<u>+ NCCC RTTY Sprint</u>	0145Z-0215Z, Feb 19
<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 19
<u>+ NCCC Sprint</u>	0230Z-0300Z, Feb 19
<u>+ K1USN Slow Speed Test</u>	2000Z-2100Z, Feb 19
<u>+ ARRL Inter. DX Contest, CW</u>	0000Z, Feb 20 to 2400Z, Feb 21
<u>+ Russian PSK WW Contest</u>	1200Z, Feb 20 to 1159Z, Feb 21
<u>+ FISTS Sunday Sprint</u>	2100Z-2300Z, Feb 21
<u>+ Run for the Bacon QRP Contest</u>	2300Z, Feb 21 to 0100Z, Feb 22
<u>+ K1USN Slow Speed Test</u>	0000Z-0100Z, Feb 22
<u>+ QCX Challenge</u>	1300Z-1400Z, Feb 22
<u>+ OK1WC Memorial</u>	1630Z-1729Z, Feb 22
<u>+ QCX Challenge</u>	1900Z-2000Z, Feb 22
<u>+ Worldwide Sideband Activity Contest</u>	0100Z-0159Z, Feb 23
<u>+ QCX Challenge</u>	0300Z-0400Z, Feb 23
<u>+ RTTYOPS Weeksprint</u>	1700Z-1900Z, Feb 23
<u>+ SKCC Sprint</u>	0000Z-0200Z, Feb 24
<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 24

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Contest Calendar - February 2021, Continued

+ Phone Weekly Test - Fray	0230Z-0300Z, Feb 24
+ CWops Mini-CWT Test	1300Z-1400Z, Feb 24
+ CWops Mini-CWT Test	1900Z-2000Z, Feb 24
+ UKEICC 80m Contest	2000Z-2100Z, Feb 24
+ CWops Mini-CWT Test	0300Z-0400Z, Feb 25
+ RTTYOPS Weeksprint	1700Z-1900Z, Feb 25
+ RSGB 80m Club Championship, CW	2000Z-2130Z, Feb 25
+ NCCC RTTY Sprint	0145Z-0215Z, Feb 26
+ QRP Fox Hunt	0200Z-0330Z, Feb 26
+ NCCC Sprint	0230Z-0300Z, Feb 26
+ K1USN Slow Speed Test	2000Z-2100Z, Feb 26
+ CQ 160-Meter Contest, SSB	2200Z, Feb 26 to 2200Z, Feb 28
+ REF Contest, SSB	0600Z, Feb 27 to 1800Z, Feb 28
+ FTn DX Contest	1200Z, Feb 27 to 1200Z, Feb 28
+ UBA DX Contest, CW	1300Z, Feb 27 to 1300Z, Feb 28
+ South Carolina QSO Party	1500Z, Feb 27 to 0159Z, Feb 28
+ NA Collegiate Championship, RTTY	1800Z, Feb 27 to 0559Z, Feb 28
+ North American QSO Party, RTTY	1800Z, Feb 27 to 0559Z, Feb 28
+ High Speed Club CW Contest	1400Z-1700Z, Feb 28
+ Classic Exchange, CW	1400Z, Feb 28 to 0800Z, Mar 1 and 1400Z, Mar 2 to 0800Z, Mar 3
+ North Carolina QSO Party	1500Z, Feb 28 to 0059Z, Mar 1

Our thanks to **Bruce Horn, WA7BNM** for use of this calendar!

Please visit Bruce's site at
www.contestcalendar.com/contestcal.html

Escalating Electricity Costs *Continued from Page 1*

"It consists of three main parts. Part One: Generation Cost. Part Two: Transmission Cost. Part Three: Taxes and Fees.

Part One: Generation Cost

"The cost of generating and reliably maintaining electricity comprises about 50% of your power bill. In order to keep the lights on, the demand *for* and supply *of* electricity must be satisfied at all times. Fossil-fueled electricity is inexpensive, and the fuel can be stored or sourced on site—the electricity is there when you need it. In contrast, wind and solar generate electricity based on the mood of Mother Nature. This is known as the *intermittency problem*.

"Here's what it means in practical terms: For every wind and solar farm you build, **you need a fossil fuel facility nearby to supply electricity on demand**. This is what filmmaker Michael Moore and his team found out, much to their shock, when researching green energy for their documentary, *Planet of the Humans*. All that wasted money is reflected in your electricity bill.



Above & below: Screenshots from Charles McConnell's presentation on PragerU website

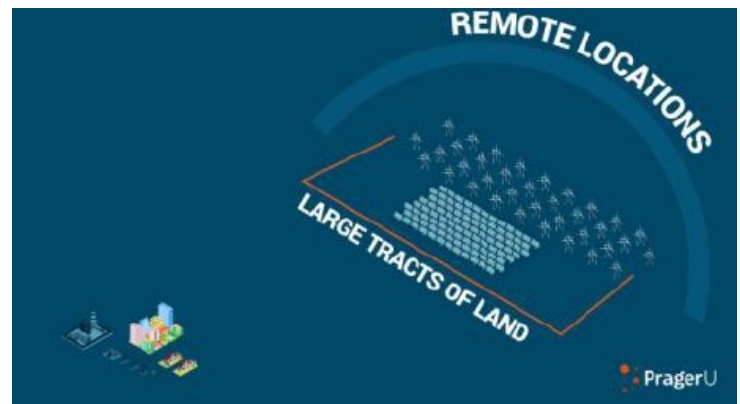
Part Two: Transmission Cost

"The cost to transmit electricity is determined by the distance between the power plant and your home or business. This is one of the reasons fossil fuel and nuclear plants are ideally suited to power our large, dense cities and industries.

"They require little land space and can be situated near or within population centers, so they need relatively few transmission lines.

"But wind and solar resources require large tracts of land and are therefore usually placed in remote locations. That remoteness requires expensive infrastructure.

"Texas, for example, has already spent over \$7 billion in new transmission lines to bring distant wind power to cities in the east and south. And billions more will be required. Texans are already seeing those costs in their energy bills. But Texas is not unique. It's happening everywhere.



Part Three: Taxes and Fees

"Most taxes are plainly stated on your power bill. State taxes, city and county taxes, plus a bewildering assortment of fees—those are bad enough. But what you won't see [itemized] on your electricity bill are the federal and, in many places, state taxes that you pay to **subsidize** wind and solar generation.

"Federal subsidies alone for the wind and solar industries totaled more than \$70 billion from 2010 to 2019. Most state governments kick in their own incentives. The subsidies for wind and solar are in a class by themselves, and have been for decades. We are not incentivizing new technology, but are artificially supporting an industry. Take away the subsidies and, very likely, that industry does not exist.

"Add it all up—the generation cost, the transmission cost, the taxes and fees...you're paying a lot more than you should. Maybe you can afford it. But many can't.

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“An electricity bill is a regressive expense, meaning it takes up a lot bigger chunk of the budget of a lower middle-class family than it does an upper middle-class one.

“Many poor families devote more than 10% of their income after food, rent, and transportation to electricity, while those further up the income scale spend only a few percent.

“A third of American households report having difficulty paying their electricity bills, and 7 million families face the choice



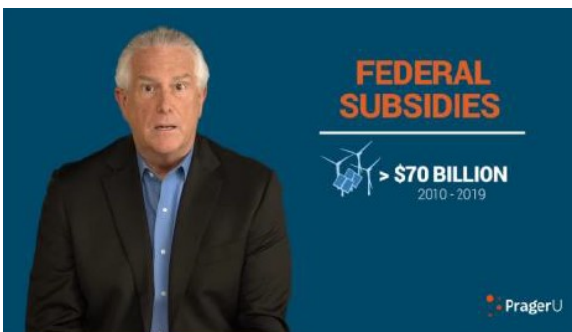
Screenshot from Charles McConnell video on PragerU

between putting food on the table or keeping their home warm during the cold winter months.

“So maybe we should be thinking more about **them** and less about expensive, inefficient wind and solar energy [integrated into our power grid].

“Yes, the wind and the sun are free. But wind and solar *power* are anything but.”

- **Charles McConnell**,
former Assistant Secretary of Energy,
Obama Administration



Charles McConnell hosts a video on PragerU website

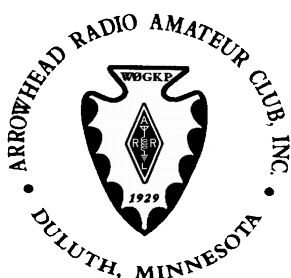
Wow. Mr. McConnell’s short presentation is an eye-opener. He wanted to share his insights with an educational nonprofit (PragerU) so that the American public can be better informed about the how our energy prices really work. You can see a video of Mr. McConnell’s info at:

<https://www.prageru.com/video/why-are-utilities-so-expensive/>

On the website, Mr. McConnell also provides a long list of sources for the data he cites, as well as suggestions for further research and study for those interested. Mr. McConnell currently heads The Center for Carbon Management, a research and development arm of the University of Houston aimed providing transformative marketplace solutions to lowering greenhouse gas emissions through carbon management.

Conclusion: Though solar & wind energy systems for individual home or cabin use are still a great idea if you can afford them, the notion that they are a self-sustaining efficient method of energy production for our power grid is unfortunately not the case. They absolutely cannot function without a fossil-fuel back up plant nearby. Much more development will need to take place in wind and solar power technologies for either of them to ever be viable as sustainable large-scale energy producers without artificial subsidies. Tell us what you think about this subject. Are you thinking of self-sustaining energy solutions for your home or cabin? Let us know by emailing us at ke0nqs.mn@gmail.com ★

The ARAC RELAY



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