

Note: See presentation summary from Bob Bruninga, WB4APR - with ARRL book "Energy Choices information at the end of this document.

Zoom Presentation CHAT

- 19:02:08 From Paul KJ7JCB Washington: If you click on the link in the email, you don't need a password.
- 19:08:36 From Jon Coats ki6iid San Diego: lots of noise, block others mics.
- 19:13:40 From David W0DHG ADEC LAX Section: Q - is Hybrid better than EV? Or does it not matter?
- 19:23:52 From Alan W2AEW NNJ TC: That's the part of NJ I live in - We were without power for almost 2wks after Sandy
- 19:30:46 From Bruce AI6KL CA: Ha! Not in Southern California! :)
- 19:34:15 From Mark KE8NHT OH: Nobody runs a coffee pot brewing at home for 8 hours a day.
- 19:35:49 From Dan KJ7PJB AZ: We need more nuclear power plants to provide enough electricity to charge everyones' EVs at night.
- 19:36:59 From Steve WH6ST Kauai: ARRL's solar panels will need replacing in ~20 years, that's not "forever". That's replacable, not renewable, energy.
- 19:37:09 From David KL7EB ak: new solar oanek
- 19:38:39 From David KL7EB ak: now solar panels can charge from both sides. so a 300 watt panel can produce 359 watts
- 19:39:12 From Steven KB9VUJ Wisconsin: And you can use the nuclear waste to make nano diamond batteries! 28,000 year charge. <https://techcrunch.com/2020/08/25/self-charging-thousand-year-battery-startup-ndb-aces-key-tests-and-lands-first-beta-customers/>
- 19:39:28 From KO6TH - Greg, Calif.: Net metering isn't available everywhere. Some utilities are "greedy" (or appear to be), and don't allow the grid tie without putting you on a different rate structure where you pay full freight for what you use, and almost nothing for what you feed.
- 19:41:48 From Mooneer K6AQ CA: I hear RFI is a common problem with solar. Are there any RF quiet grid-tie systems out there? At least without having to buy extra stuff, anyway
- 19:42:25 From KO6TH - Greg, Calif.: There are, though your next question (who?), I don't recall. But definitely are available.
- 19:42:33 From Bruce AI6KL CA: TrUe
- 19:44:07 From Dan NR6V Northridge, CA.: In Los Angeles, there are periods when solar generation exceeds power demand. They use the excess power to pump water from their low level lakes to high level lakes and then run it through hydroelectric generators when the demand exceeds the solar generation.
- 19:45:25 From David n2awe NC: "Q" when you use your car to power your house, do you isolate your house from the grid?
- 19:47:11 From Tom WB7EUX OR: Mute all, mute all!
- 19:47:12 From John G: k7ty please mute
- 19:51:39 From Mark KE8NHT OH: David n2awe, yes - if you power your house circuits from any source, you MUST disconnect from the grid while you do it. Grid tie is different...not sure how they work that.

19:51:58 From Matt D.: I'm done with this crap. anti oil and gas, global warming... I just wasted nearly an hour of my life I'll never get back. SEE YA!!!

19:52:31 From KO6TH - Greg, Calif.: Grid tie senses (how?) that the grid is or isn't there. It self-isolates if there's no grid.

19:53:07 From Terry KK4JGT: not what I expected for this presentation ...outta here.

19:53:46 From Doug NN7D - Gig Harbor, WA: how about airplanes?

19:54:16 From Scott KM6RTE Orange, CA: This is great information. May be hard to listen to for some, and just "inconvenient truth"

19:54:28 From Tom WB7EUX OR: Darn, just completely replaced our roof.

19:54:29 From KO6TH - Greg, Calif.: Agreed.

19:54:48 From Doug NN7D - Gig Harbor, WA: Every been to Seattle?

19:56:34 From Scott KM6RTE Orange, CA: Washington send us our water and here in CA we'll send you power. :)

19:59:07 From Jim K5QOI STX: I thought the topic was "Emergency Solar Power" not a presentation on Green Power.

20:00:21 From Jim K5QOI STX: 5 minutes on emergency solar and 55 minutes on green power.

20:00:27 From steve KF5UUF: I was expecting information on solar systems for emergency use.

20:01:27 From Bruce AI6KL CA: 26% Now

20:01:28 From Dan K7REX Idaho: He has covered emergency power and all that, the rest is just plus info...

20:01:51 From Jim K5QOI STX: tooooooo much plus. sorry

20:04:38 From Skip W9REL to Dan K7REX Idaho (Direct Message): This presentation is WAY off topic. I'm leaving the meeting and am very disappointed in this.

20:05:49 From Dennis K9DPF: Sorry. I am not about to chop down a 300+ year old Burr Oak.

20:11:04 From Dale Fiorillo K7MPZ: Could an electrician wire a 12v emergency lighting system for a house?

20:12:05 From Richard KF5OIM: Wouldn't you want 240V for a balanced system?

20:12:45 From Mark KE8NHT OH: Q: This is fascinating, but the enthusiasm detracts from the credibility. Where do you get solar panels and what is the cost per KW?

20:12:50 From Doug, Lynch, W4DBL, Port Orange, FL: Bob,

20:13:21 From David W0DHG ADEC LAX Section: Thanks for a enthusiastic presentation. Great info

20:13:36 From Mike, N6JGA, CA: Not the topic we were told it would be.

20:13:44 From AI K7AOZ CN84lx: Thank you for the presentation.

20:14:04 From KO6TH - Greg, Calif.: Thanks, Bob!

20:16:36 From Joe K2OL SEC NLI: thank you for a knowledgeable presentation, very well documented

20:16:50 From Doug, Lynch, W4DBL, Port Orange, FL: Just a observation. Friend in GA just installed a full system with three power walls. The Grid Tie rate from the power co is much lower on the buy rate from him than the sell rate to him. Not sure if this is the same everywhere. They also took away his EV charging discount.

20:17:52 From Dave N9KMY East TN: I have a 32 panel grid tie system but the rf hash is not in the HF band but rather VHF between 138 and 146.6 MHz. will the ferrites also work?

20:18:21 From Tom Horne W3TDH, MDC Section: All new homes on the 2020 code has to have an exterior main safety switch.

20:19:22 From Jim K5QOI STX: please rename the topic, only 5% on Emergency solar power, thanks for the presentation.

20:20:52 From jeffcauhape: Q: When adding additional panels to produce AC, how does the additional panel sync with the grid power?

20:21:00 From David W0DHG ADEC LAX Section: This was a good presentation. Great info. I wonder if it would be possible to do a 60-minute presentation on how to emergency power our HAM Hardware with more detail on specific parts and other wiring options (solar, Ev and other options

20:21:21 From Richard KF5OIM: It's called Rapid Shutdown

20:23:53 From Dave N9KMY East TN: Actually disagree. Inverter produces 120/240 AC from the DC at a slightly higher voltage than the grid

20:28:21 From Doug NN7D - Gig Harbor, WA: Q Is it possible to get a copy of the slide presentation?

20:30:08 From Rick, KK6CTT, CA: Thank you. Interesting stats on the advantages of this form of energy. I will be working on an off-grid home in the future. Any information is a positive going forward.

20:30:18 From Oscar Resto KP4RF: Thanks bob, very illuminating presentation.

20:32:36 From Tom Horne W3TDH, MDC Section : AMEN

20:32:42 From Steve K6CRW, CCARES, CA: I just replaced my '13 Leaf' battery with a salvaged pack. The vendor takes the old battery with 50% capacity and repurposed them for energy walls

20:34:25 From jeffcauhape: What kind of batteries are the hospital use?

20:35:53 From Frank n6cds: Do you guys know when 3 phase is going to be used for new construction.

20:36:34 From Paul KD7ISA OR: My hospital gives me the SLA AGM up to 30 AH. After that there is a core charge.

20:38:52 From Marv WA4NC NC: Has ARRL shown any receptivity to the idea of going solar? When was the pitch made and to whom?

20:39:21 From Paul KD7ISA OR: I test the batteries with a CBA IV to match them. Then the local ARES group turns the bad one in for for \$\$.

20:39:41 From bruce KJ7OXB: Thanks for a very thought-provoking presentation! Are your slides available for later viewing?

20:39:57 From Paul KD7ISA OR: I do a discharge test with the CBA IV. Great tester.

20:42:20 From Paul KD7ISA OR: Also look up how to wire your multiple battery pack so that the discharge is "balanced." The simple way is keep all leads the same length. Remember the fuse.

20:46:36 From Midge W6LIK CA: This was an intense program with enormous valuable information. Thank you Bob WB4APR Midge W6LIK

20:46:52 From Bob WB4APR: Download from <http://www.aprs.org/RATPAC-power.pptx>

20:47:29 From Tom Horne W3TDH, MDC Section: Thank you Bob WB4APR!

20:47:49 From Paul KD7ISA OR: I would encourage everyone to get a "Watts Up" or similar. Monitor your use.

20:48:43 From Tim KC1TWR CT: Where was the presentation uploaded to? I heard APRS.org but that doesn't seem right.

20:50:49 From Doug, Lynch, W4DBL, Port Orange, FL: Q One point on switches. Make sure they are DC rated and not AC.

20:51:02 From Bob WB4APR: The link is in chat about 5 lines back

20:54:29 From Paul KD7ISA OR : https://www.solar-electric.com/lib/wind-sun/lota_balanced_charging.pdf

20:58:56 From Lew AC6LS LAX: Thank you, Bob. Great presentation!

21:00:05 From Tom Horne W3TDH, MDC Section: GOOD NIGHT AND THANK YOU!
21:00:36 From Dennis W6DQ & Lisa KF6QNG: Thanks, Bob, for your presentation. Very informative. 73 all DE W6DQ
21:00:51 From Martin W1EMR NYC DEC: Q: where is the best place to get bobs book
21:00:53 From Glen KD2FFR: Thanks all!

Presentation summary by Bob Bruninga, WB4APR - with ARRL book "Energy Choices" information

- Solar is ECONOMICAL average power. Half the cost of the utility when Grid Tied
- Solar is NOT emergency power (bad weather, night time, etc.) without a huge battery and/or generator
- Solar IS required for long term (Armageddon) emergency power (still with a huge battery and/or generator)
- Modern EV's that you use and drive every day, have HUGE batteries suitable for EMERGENCY power for days or a week
- PLUGIN Hybrids have HUGE generators that can supply a home for a week until the gas runs out.
- Powerwall house batteries are EXTEREMELY uneconomical - They can power your house for several hours or a day
- But are useless the other 99% of the year (until the grid will actually pay you for their valuable power to supplant the grid)
- but a single power wall can only store about \$2 worth of electricity (one day power outage) while costing over \$14,000
- Better to drive an EV (battery is three times as big as a power wall) which gives you economical transportation AND a huge battery
- And a plugin-hybrid gives you a huge generator (and long range) as well. And both are available everywhere you go at any time.

Conclusion - Solar is now cheaper than any other source of power generation but needs batteries for off-grid or emergency operation. We are ten years into the modern EV revolution where EV's are now Better, Faster, Cleaner, Quieter, Safer, and cost LESS to Buy, to Operate and to Maintain than the average gas car. Half cost less than the average gas car. And half (plugin-hybrids) have ranges of more than 350 miles (some over 600 miles). Besides clean reliable transportation, they provide a HUGE whole house emergency battery for every ham virtually for free. Accessing that power is as simple as clamping a \$100 inverter to the 12v battery and drawing up to 1 kW average or 2 kW peak power for days or weeks where 1 kW is the American Average home load. Much less (Maybe 250W) during emergency conditions of powering all LED lights, a modest ham shack and a refrigerator. Don't buy a whole-house power wall that can only store \$2 or about a day's worth of emergency power and only used about 1% of the time when a 3-year-old used Nissan Leaf EV for example can provide three times the battery capacity for about the same price but also be used the other 99% of the time for clean renewable transportation as well

Consider your next car purchase... for Ham radio!

But be cautious of RFI from both solar and EVs! Test for compatibility before purchase.

All of this is covered in the ARRL book "Energy Choices - for the radio amateur".

I have waived the authors fee to keep the price of the book down and it is the first major ARRL pub in full color.

Bob, WB4APR

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