



LEBANON ENERGY ADVISORY COMMITTEE (LEAC)
JUNE 20, 2024 - 3:30 PM
COUNCIL CHAMBERS, CITY HALL OR
REMOTE VIA VIRTUAL PLATFORM
LEBANONNH.GOV/LIVE

-
1. **Call to Order**
 2. **Tentative presentation by Emily Monroe, Director, Cook Engineering Design Center, Thayer School of Engineering**
 3. **Approval of Minutes**
 - A. May 16, 2024
 4. **Old Business**
 - A. Legislation / PUC Regulations / CPCNH / LPC updates; CPCNH Publicity Campaign
 - B. Landfill Gas to Energy Project
 - C. Municipal Solar
 - D. Rental Decarbonization Pilot Project
 - E. EV Subcommittee Report: Public Charging Stations; CFI grant; Sweeper grant
PROPOSED MOTION: The EV Subcommittee requests that LEAC recommend to the City Council that the Council approve using TIF funds to purchase a Solaflect four-port solar EV charging station.
 - F. Letter to the School District regarding electric school buses
 - G. Include energy efficiency standards as part of the City's affordable housing initiative
 - H. Calculate past and future \$ savings through the City's sustainability efforts
 - I. City Master Plan-Energy Chapter Update
 - J. Thermal Energy Network; Water Energy Transfer
 - A. [How to Develop a Thermal Energy Network \(VT Community Thermal Network\)](#)
 - K. Glen Hydroelectric Facility Re-licensing
 - L. Clean 100 Decal (See attached)
 5. **New Business**
 - A. Planning Board priority-Update energy building codes
 - B. Discuss the creation of an 'Environmental Justice Task Force'

- 6. Energy & Facilities Manager Report**
- 7. Open to the Public**
- 8. Upcoming Events**
- 9. Future Agenda Items**
- 10. Adjournment**

Meetings are open for in-person and remote attendance. Members of the public that wish to attend remotely may do so by going to LebanonNH.gov/Live where you will find instructions on how to enter the meeting. Members of the public will be able to participate and ask questions through the City's virtual platform or by phone. Please note: Should technical difficulties occur during the meeting that disrupts virtual or phone connection(s), the meeting will continue without remote access capabilities.

AGENDA

LEBANON ENERGY ADVISORY COMMITTEE(LEAC)

June 20, 2024

AGENDA ITEM 3

APPROVAL OF MINUTES:

May 16, 2024

**LEBANON ENERGY ADVISORY COMMITTEE
CITY COUNCIL CHAMBERS OR
REMOTE VIA VIRTUAL PLATFORM
THURSDAY MAY 16, 2024, 3:30PM**

MEMBERS PRESENT: Henry Bromberg (Chair), Jon Chaffee (Vice Chair), Clifton Below (City Council Rep.), Sherry Boschert (REMOTE), Tom Benzel, Woody Rothe, James Mashal, Patrick Kennelly (Planning Board Rep.), Bill Stearns (Alt)

MEMBERS ABSENT: Devin Wilkie (Alt. Council Rep)

STAFF PRESENT: Tad Montgomery (Energy & Facilities Manager)

1. CALL TO ORDER

Chair Bromberg called the meeting to order at 3:33pm.

Ms. Boschert said she is attending remotely out of health concerns for a family member.

2. APPROVAL OF MINUTES – April 18, 2024

Amendments: Page 2 Line 23: Change “54%” to “36%”
Page 2 Line 29: Change “CPCNH” to “City”
Page 5 Line 10: Delete everything after “design”
Page 5 Line 21: Change “Mr. Chaffee” to “Mr. Rothe”

A MOTION was made by Jon Chaffee to approve the April 18, 2024 Meeting Minutes as amended. The Motion was seconded by James Mashal.

Roll Call Vote:

Voting in Favor – Mr. Bromberg, Mr. Chaffee, Mr. Below, Ms. Boschert, Mr. Benzel, Mr. Rothe, Mr. Mashal, Mr. Kennelly, Mr. Stearns

Voting Against – None

****The MOTION was approved (9-0).***

3. OLD BUSINESS

A. Legislation/PUC Regulations/CPCNH Updates/ LCP updates; CPCNH Publicity Campaign

Mr. Below said, a week after the hearing on House Bill 1600, the Department of Energy came out against moving it forward because there were too many questions related to it, which stalled the bill's progress.

He said he learned that Bart Fromuth, CEO of Freedom Energy Logistics, was lobbying Republican senators against the bill, including the committee chair. He said he talked with him but did not convince him to support the bill. He said there's concern about what the PUC might do with net metering rates going forward. He said the Senate President suggested an amendment to create a study committee out of the bill, so the bill could get to committee conference and allow more time to work out more of an agreement. He said they are trying to figure out a path to get people back on board.

Mr. Below said, related to the net metering legislations, that the PUC asked for the settling parties to file responses to several in-depth questions prior to the latest prehearing conference, which has caused a delay. He said the NH Consumer Advocate filed an objection, saying this additional information violates procedural orders. He said it appears the hearings might be held by late August.

He said the Coalition has hired Mark Bolinger as Director of Programs, and Scott May as Data Analyst. He said several communities will launch in June.

The group discussed at length the possibility of optional adders in Lebanon and Enfield.

B. Landfill Gas to Energy Updates

Mr. Montgomery said the 3VO has been installed at the Slayton Hill substation as of May 9. He said the upgrades by Liberty Utilities have been made and now the building needs to be constructed, which will begin as soon as building permits have been approved. The Direct Transfer Trip has been ordered before May 9th with an expected 16-20 week turn-around. The DTT should be installed in Oct. for a Dec. start. He also mentioned that the agreement between Liberty and National Grid was signed on 3/20/2023, so the 16-month clock should end on 7/20/2024.

C. Municipal Solar Updates

Mr. Montgomery said the RFP is on hold because of the uncertainty of net metering in NH with HB 1600 and the PUC docket. He said he spoke to Glen Nelson at Glenn Industries, one of the manufacturers of trackers. He said that Mr. Nelson said that he can't get a performance bond big enough to cover the whole project. He asked the Committee members to give him the name of anyone who has expertise in performance bonds.

D. Rental Decarbonization Pilot Project

Mr. Chaffee said that Jason Staples is the UNH Sustainability Institute's fellow who will be working in Lebanon beginning May 20. He said Jason would begin working with City software starting the first week of June.

E. EV Subcommittee Report: Drive Electric Earth Day Event; Public Charging Stations; Public Outreach/Education

Mr. Below said the City Council approved the supplemental appropriations for the Electric Street Sweeper Grant. Ms. Boschert said they are waiting on the governor and Executive Council to sign off on the grant. Mr. Montgomery said he did not believe a final approval had been granted.

Ms. Boschert said the EV Subcommittee is finalizing work on a Lebanon workplace charging program for Lebanon employees. She said a sticking point has been a payment mechanism for City employees. The group discussed ideas like using a flat daily or hourly rate instead of monitoring electricity usage. Mr. Montgomery said he was told that DPW prefers an automated system.

Ms. Boschert said the Earth Day EV Expo was successful and a couple of hundred people attended. She said she conducted a follow-up survey and meeting. She said, going forward, they might organize some smaller events and coordinate them with other events, like the Farmers Market, during the off years when there is no EV Expo.

She said another subcommittee idea was about solar ebike charging stations. She said Mr. Montgomery organized a meeting for next week with several interested stakeholders in the Upper Valley to discuss the installation of ebike charging stations at the Kilton Library and somewhere in downtown Lebanon.

Ms. Boschert said she saw that the letter to the School Board regarding electric school buses, which was approved by LEAC at the last meeting, was forwarded by Chair Bromberg to the City Council, who will send it to the School Board. Mr. Bromberg said that he has not yet received a response to the letter.

She said she and others continue to work on the plan to use the tax increment financing funds to install EV infrastructure in the TIF area downtown. She said an issue has arisen, much like the one for the workplace charging, as to how to have users pay specifically at the chargers. She said, for instance, the Solaflect EV charger is an off-grid solar powered EV charger for ports, but as designed it doesn't have the capability for charging users a fee. Mr. Benzel said he met with a project engineer at Solaflect who is going to design a unit with four ports (two at first and the other two added later) that would take up less room but still provide the charging that is needed.

Ms. Boschert said the EV Subcommittee has decided to use EVCS as the acronym for EV Charging Stations. She said several other acronyms had been used and it was getting confusing.

F. Include Energy Efficiency Standards as part of City's Affordable Housing Initiative

Mr. Rothe said that he is waiting for energy use intensity data from City Manager Mulholland for the buildings that the City is proposing to build for staff.

G. City Strategic Plan - Update

Mr. Montgomery said that Mr. Below reported that the City Council has adopted the Strategic Plan without substantial changes. He said his next step is to gather the plan items and organize them over the next three years. Mr. Below said the items of the Strategic Plan should be used for the Master Plan.

H. City Master Plan - Energy Chapter Update

Chair Bromberg said LEAC has been asked to resume writing the Energy Chapter 13 of the Master Plan, specifically paragraphs C, E, and F. He said he intends to send an email to the Committee members to see if anyone is interested in working on this. The group discussed how to communicate via email properly without violating the State Right-To-Know policy related to discussions on Committee matters.

4. NEW BUSINESS**A. Glen Hydroelectric Facility Relicensing**

Mr. Montgomery said several hydroelectric plants are in the process of relicensing and input can be received until May 22. The group discussed how to work with CPCNH and other Upper Valley groups to gather feedback and submit it in time to meet the deadline.

B. Develop Decal for City Buildings re: 100% Renewable Electricity Through CPCNH's CLEAN 100

Mr. Montgomery shared some draft decal designs that he proposed to be used on doors/windows of City buildings to announce the fact that the facilities use 100% CLEAN power. Mr. Below suggested that the Lebanon Community Power logo could be used in the design, with information added about the building's use of CLEAN 100. Mr. Montgomery said that he would revise the decal based on feedback and send it out for further discussion at the next meeting.

The group discussed the need to quantify what the City has done for sustainability efforts to date. Mr. Rothe asked if Mr. Montgomery could spare some time to quantify what taxpayers have saved because of these efforts. The group discussed the many ways that such data could be used, such as in the Master Plan and for grant submittals. Mr. Montgomery suggested that this task could be added to his job description and mentioned a document called The Value of EFM, which is an accounting he had done a couple years ago of the various monetary benefits to the City of the Energy & Facilities Manager's work.

A MOTION was made by Woody Rothe to request Energy & Facilities Manager Tad Montgomery's time to update the Value of EFM Document to include quantification of the City's sustainability efforts to date. Mr. Benzel seconded the motion.

Roll Call Vote:

Voting in Favor – Mr. Bromberg, Mr. Chaffee, Mr. Below, Ms. Boschert, Mr. Benzel, Mr. Rothe, Mr. Mashal, Mr. Kennelly, Mr. Stearns

Voting Against – None

****The MOTION was approved (9-0).***

5. ENERGY & FACILITIES MANAGER REPORT

Mr. Montgomery discussed the following:

- He sent three proposals have been signed for lighting upgrades for the DPW Admin building, the Wastewater Plant, and the Water Plant.
- He talked to LCI and C-Power about getting proposals to manage the City's electricity demand response. He said they asked him to provide a year's worth of hourly interval data for our two biggest (G-1) accounts – the water and wastewater plants, which he has requested from Liberty Utilities.
- City Manager Mulholland has asked him to gather information on embodied greenhouse gases in construction projects.
- He contacted Wishcamper Industries to let them know the City has not yet formally requested buying out the Phase one solar project from Wishcamper.
- He is meeting with a representative of a company that does solar array maintenance next week.
- He will be out of the office during the week after next.
- He was contacted by energy committee members and staff of the city of Portsmouth because that city is considering the creation of a position like his.
- The American Society of Heating, Refrigeration and AC Engineers (ASHRAE) were recorded a number of seminars at their winter conference in January. three in particular that grabbed his attention were on thermal energy storage, beneficial electrification, and hydronic district energy systems.
- New Hampshire Network's Municipal Working Group met yesterday, and, at the June meeting (third Wednesday of the month), former LEAC Chair Greg Ames will speak about the Liberty Utilities Home Battery Pilot project.
- NHDOE is still taking comments on the Home Energy Rebate program.

[Mr. Stearns left the meeting at 5:15pm.]

- The Drive Tool (DRVE), developed by the Electrification Coalition, has a 2.0 version. Mr. Montgomery said that this tool is generally used to compare life-cycle costs of EVs vs. regular vehicles, but he has learned recently that it can also compare attributes and features of specific EVs and ICE vehicles.
- Some transformers failed at the Storrs Hill recreation area and there has been a lot of confusion because it is unclear whether the City or Liberty Utilities owns the wiring and equipment.

- NH Network is hosting a climate change modeling event on Monday (May 20) from 5:30-7:00pm.
- He said he locked oil prices at \$2.865 per gallon and propane at \$1.442 per gallon for the next heating season.
- He said he that at Mr. Below's suggestion he has added sensitivity analyses to the Phase 1 Solar project Capital Improvement Project. This is in order to give the City Manager and City Council a sense of the impact that an increase in cloud cover or a decrease in the value of Renewable Energy Credits would have on the project.
- Mr. Montgomery asked Committee members to consider providing input on the NH Climate Action Plan. He said he has forwarded information on this to the Committee from Ms. Rebecca Owens (of the Planning Department).

6. OPEN TO THE PUBLIC

No members of the public spoke.

7. UPCOMING EVENTS

None

8. FUTURE AGENDA ITEMS

- Local option adders for Lebanon Community Power
- Value of EFM update
- Building window decal for CLEAN 100

9. ADJOURNMENT

A MOTION was made by James Mashal to adjourn the meeting at 5:32pm. The Motion was seconded by Sherry Boschert.

Roll Call Vote:

Voting in Favor – Mr. Bromberg, Mr. Kennelly, Mr. Rothe, Mr. Benzel, Mr. Below, Mr. Mashal, Mr. Chaffee, Ms. Boschert

Voting Against – None

**The MOTION was approved (8-0).*

The meeting was adjourned at 5:32pm.

Respectfully Submitted,

Paula Roux

Recording Secretary

AGENDA

LEBANON ENERGY ADVISORY COMMITTEE(LEAC)

June 20, 2024

AGENDA ITEM 4

OLD BUSINESS:

E. EV Subcommittee Report: Solar EV Charging Proposal



Solar EV Charging Proposal



June 6, 2024

Tad, Sherry and Tom,

Thanks again, and apologies for not being clearer with a proposed approach for Solar EV Charging for the City of Lebanon. The following is intended to directly address the unique proposed approach for this installation.

Solar EV Charger Installation Specifics

Solaflect Energy proposes to install a Solar EV Charger for the City of Lebanon, providing EV charging for the general public.

- **Installation location:** To be determined by the City of Lebanon. The Solar EV Charger can be relocated over time as needs change.
- **Installation surface:** Installation requires a 10' x 10' level surface, either fully on pavement, or on an unpaved surface adjacent to the parking surface, or on pavement overlapping with unpaved surface. Surface must be level (or close to level if on pavement – some adjustment can be made to accommodate slight grade). If any portion of 10' x 10' foundation 'arms' extend off of paved surface, bare ground must be prepared with crushed stone to meet local permitting requirements.
- **Number of chargers:** The Solar EV Charger (in the near term) will be modified from current configuration of 4 charging stations to 2 charging stations, effectively doubling the charging speed and charging capacity of the 2 charging stations. Solaflect will install the additional 2 charging stations at any time in the future, as requested, at no additional cost.
- **User Authentication and Payment:** The installation will integrate the AmpedUp! evPayMate EV Charging Kiosk Payment System with the Autel chargers mounted on the Solar EV Charger. The AmpedUP! integration team is currently backed up with other projects, so timing will be depend somewhat on their capacity. The additional hardware cost of the point of sale credit card reader is incorporated in the overall pricing.
- **Software Integration:** Software development by Solaflect will integrate the AmpedUp! solution into the Autel charger functionality. The Solar EV Chargers will be activated by

AmpedUp!'s cloud system, which will then message our system once authentication and payment is confirmed, and then start charging sessions. The Solar EV Charger software will continue to handle load management.

- **Installation Timeframe:** We expect to be able to install within 90 days, as soon as software integration is complete.

Equipment

Solar EV Charger equipment includes:

- Solaflect Energy Suspension PV Tracker (patented, 40% more power than fixed)
- 16 Axitec solar modules, 390 DC Watts each, 6,240 DC Watts total
- Two Level 2 EV chargers
- 8 kW hybrid inverter (Sol-Ark)
- 10.24kWh LFP Battery (POWERSYNC)
- Foundation, inverter, and equipment to enable functionality
- Free web-based system monitoring

Project Cost and Terms

Purchase

- \$52,000
- \$300 annual service/maintenance fee

Terms

- \$26,000 Due at time of contract
- \$26,000 Due at time of installation

Best regards,



Rob Adams
Chief Operating Officer
Solaflect Energy

Solar EV Charger Specifications

- Total EV charger power: up to 6.4kW
- Daily range delivered: up to 240 miles, based on local driving and weather conditions
- Level 2 charge up to 4 vehicles
- Array dimensions (LxW): 22' x 15'
- Base: 2 foundation arms, 10' x 1', in "plus" shape
- Gross weight: 12,500 lbs
- Surface loading: <5 psi
- Certified wind load: 105 mph
- Max height: 23 ft
- Minimum ground clearance: 8 ft
- Asphalt ground anchors – 9" penetration at end of each "arm", 8 total
- Connected – collects real-time data and reporting
- Dynamic power allocation between 4 chargers
- Deploys in 1 day



Solar EV Charger, Dartmouth College

Solar EV Charger Production Update

Summary Performance
December 20, 2023-
April 30, 2024

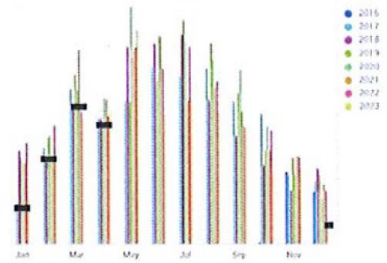


Solar Production Snapshot

4+ Months Includes Lowest Solar Production Weeks of Year

- 8 years actual production data from solar Tracker on Dartmouth Campus
- Solar EV Charger averaging 31 miles per day charging for each of 4 EVs/Plug-in hybrids

Actual Dec '23 - Apr '24 Solar EV Charger Production



Charging Summary: 12/22/23 – 4/30/24*

- 31 average miles charging per vehicle per day
- 2,348 total miles if used on daily basis (e.g. 71 out of 75 working days Chevy Bolt)

Type	Vehicle	Days Plugged In	Total Kwh	Avg Daily Kwh	Total Miles	Avg Miles Per Day
Full EV	Chevy Bolt	71	587	8.3	2,348	33
Full EV	Tesla Model Y	43	381	8.9	1,533	35
Plug-in hybrid	Toyota RAV 4	40	299	7.5	1,195	30
Plug-in hybrid	Mazda CX90	33	216	6.6	865	26
Totals		92	1,483	7.8	5,941	31

* Shortest/cloudiest/least solar productive winter season – rest of year sunnier/more production



Dartmouth Employee Commuting Distance Survey

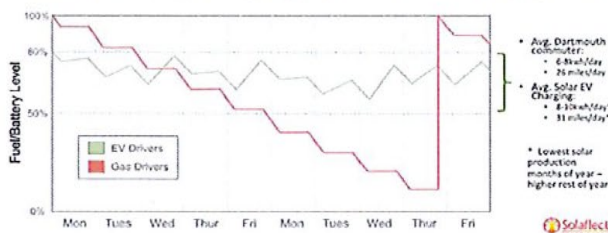
- Average daily commute 26 miles
- 73% of commuters average 20 miles each day
- Solar EV Charger produced average 31 miles each day (through shortest/cloudiest/winter days of year)
- Covering well more than commute “range anxiety”

Survey 1 way commute	<10 Miles	10-20 miles	20-30 miles	>30 miles
% of EV/PHEV drivers	41.5%	31.7%	18.3%	8.5%
# of EV/PHEV drivers	34	26	15	7
Avg roundtrip commute	10 miles	30 miles	50 miles	80 miles



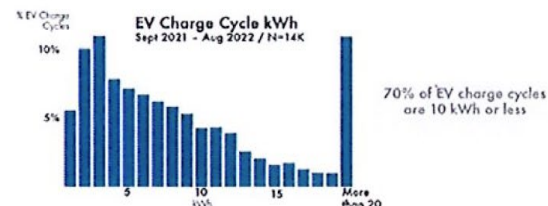
How EV Drivers Charge Battery vs Gas Drivers Fill Tank

- Solar EV Charging is daily “topping off”- matches charging habits



How EV Drivers Charge Battery vs Gas Drivers Fill Tank

- EV Drivers “Sip at Chargers”
- Translates to less than 2 hours on Level 2 grid-tied charger



AGENDA

LEBANON ENERGY ADVISORY COMMITTEE(LEAC)

June 20, 2024

AGENDA ITEM 4

OLD BUSINESS:

L. CLEAN 100 DECAL



This Building
Runs on

100%
CLEAN

Electricity

