



# TOWN OF FAIRFAX

## STAFF REPORT

### June 3, 2020

**TO:** Mayor and Town Council

**FROM:** Michele Gardner, Town Clerk

**SUBJECT:** Receive written report from Climate Action Microgrid subcommittee regarding the Pavilion

---

#### **RECOMMENDATION**

Receive report.

#### **DISCUSSION**

The attached report was submitted by the Microgrid Subcommittee of the Climate Action Committee (CAC).

#### **ATTACHMENT**

CAC Microgrid Subcommittee Report

## INTERIM REPORT ON PAVILION PROPOSAL

May 28, 2020

*Microgrid Subcommittee: David Haskell (CAC), Courtney Richardson (community), John Sarter (microgrid engineer),  
Bruce Ackerman (CAC Council rep)*

The Microgrid Subcommittee of the Climate Action Committee continues to learn and make progress on the design of the Pavilion battery retrofit. The subcommittee presented an interim report at Council's April 15 meeting, and again at the May 15 Budget Workshop.

The design currently being focused on includes:

Ossiaco Dcbel 21kW Inverter with 2-port car charger - \$5200-\$6200  
<https://dcbel.ossiaco.com/wp-content/uploads/dcbel-specifications.pdf>

1-Resu LG Chem 400V battery, 10kWh - \$5500

Work on the equipment room, and installation – unknown cost

It is still hoped that the cost of the battery might be covered by the Self-Generation Incentive Program (SGIP), but the first round of that funding was completely taken within the first day after applications could be submitted (May 12), on which day the Town was not yet ready to submit an application. For an application to be submitted, there would need to be a contract for the project, which awaits a full Town discussion; at that time our application would be waitlisted for likely future SGIP funding. However, even without this incentive, the cost of the proposed project is small given its expected benefit to the Town in terms of resiliency.

The design incorporates the Ossiaco inverter, which is unique in that in addition to connecting to the solar panels on the Pavilion roof, the 10kWh battery, and the electric grid, it also includes a bi-directional EV charger. This means that if an electric vehicle is plugged in, that EV can be charged when there is adequate sun or a grid connection, *but also the EV can be discharged* when needed. This is a concept that has been part of the vision for EVs for quite some years (Vehicle-to-Grid or Vehicle-to-Home), but is only now becoming available in practice – using the large batteries in EVs as batteries in a solar system.

The Ossiaco inverter selected also has a second EV charger that is only for charging.

**Limitations of this design:** (1) The Ossiaco inverter is not available yet, but is supposed to be by summer (see below). (2) At first the Ossiaco inverter's bi-directional charger will only work with ChaDeMo connectors, which are not the most popular standard for EVs. The Nissan Leaf is one vehicle with this connector, and Nissan has also approved use of the bidirectional charger with their Leafs. We have been assured that compatibility with a wider range of EVs is coming and that the inverter will be upgradable.

**Advantages of this design:** (1) it is even lower in initial cost than the first design, the one reported to Town Council on April 15. (2) While the stationary battery in the Pavilion is smaller (10 kWh), when a

Leaf or other EV is plugged in during a power outage the battery capacity is far greater. (3) The EV could be driven elsewhere, to charge it faster or to carry power to another town, increasing resiliency.

**Status:** Town Council directed Staff to work with the subcommittee in preparing engineering drawings and such necessary for permitting.

As a funding option, our subcommittee would like to present a novel approach to funding of local projects called the *Fairfax Community Combine*. This funding approach would be ideal for the Pavilion project, if it is possible to discuss it and set it up in time for this work, but more importantly could offer opportunities for future revenue-generating solar projects to be built.

In late-breaking news, MCE has just contacted us to say that they are considering (not final yet) pre-funding this up to \$25,000, and also applying for SGIP on our behalf. MCE needs to determine whether our equipment would be compatible with the Embala Concerto system that they want to use to monitor microgrids in the MCE territory; this will need to be explored.

The subcommittee met with Mark Lockaby to clarify the improvements that would be needed to the equipment room in the Pavilion, and it appears that these will be relatively minor and will not involve any digging or structural work.

The subcommittee is in the process of arranging a call with Ossiaco to ascertain the likelihood that this inverter will be available by summer, and confirm the upgrade path to allow it to be used with other EVs. It is possible that after these discussions, the design or timeline might need to change or a back-up design be developed.

In the early stages of looking at the Pavilion solar system (originally installed in 2009 for the Town), it was discovered that one of the existing inverters was no longer functioning, meaning that for an unknown period of time part of the Net Energy Metering revenue has not been available. The Town's electrical bills are being studied to ascertain typical loads, which might be found to allow a larger system to be considered, and/or options considered for bringing the solar strings that are currently not producing revenue (those connected to the broken inverter) into production again. While all this requires attention and discussion, it will in the end likely lead to the Town's monthly electric cost being reduced.