



# COUNTY OF HUMBOLDT

For the meeting of: 11/12/2024

---

File #: 24-1379

---

**To:** Board of Supervisors

**From:** Aviation

**Agenda Section:** Consent

**Vote Requirement:** Majority

**SUBJECT:**

Approve, and Allocate Funding for, the Purchase of a Nissan Leaf Electric Vehicle; Approve a Vehicle Loan Agreement for a Second Nissan Leaf Electric Vehicle; and Approve and Ratify the Former Director of Aviation's Execution of, a Research Sub-Award Agreement Regarding Implementation of the Redwood Coast Airport Microgrid Vehicle-to-Microgrid Pilot Project

**RECOMMENDATION(S):**

That the Board of Supervisors:

1. Approve, and authorize the Acting Director of Aviation, or a designee thereof, to execute the attached Nissan vehicle loan agreement;
2. Allocate funding in the amount of \$33,770 and authorize the purchase of a Nissan Leaf Electric Vehicle and direct staff to return with an appropriation transfer from General Fund contingencies;
3. Approve, and ratify the former Director of Aviation's execution of, the attached research subaward agreement regarding implementation of the Redwood Coast Airport Microgrid Vehicle-to-Microgrid Pilot Project; and
4. Direct the Clerk of the Board to provide the Department of Aviation with one (1) fully executed certified copy of the Board order related to this item.

**STRATEGIC PLAN:**

The recommended actions support the following areas of the Board of Supervisors' Strategic Plan:

Area of Focus: Sustainable Natural Resources & Infrastructure Stewardship

Strategic Plan Category: 5001 - Enhance climate adaptation landscapes and communities

**DISCUSSION:**

The Department of Aviation is partnering with the Schatz Energy Research Center, Pacific Gas & Electric, Nissan USA, and Fermata Energy, a manufacturer of bi-directional electric vehicle charging stations, to implement the Redwood Coast Airport Microgrid Vehicle-to-Microgrid Pilot Project. The pilot project requires installing four bi-directional EV chargers that will be used with a fleet of two Nissan Leaf Electric Vehicles and members of the public who own a 2018 or newer Nissan Leaf equipped with telematics to participate in the pilot project as desired.

The pilot project requires the Department of Aviation to purchase one Nissan Leaf Electric Vehicle at a discounted rate in the amount of \$33,769.41 and to accept a loan of a second Nissan Leaf. The attached Nissan vehicle loan agreement will be executed effective the date the County of Humboldt takes possession of the vehicle with a termination date set two years from that date. The installation of the bi-directional EV charging stations and the software and cloud services with Fermata Energy for the pilot project is funded through the attached research subaward agreement with Cal-Poly Humboldt in the amount of \$104,147.42. Should the County of Humboldt choose to continue utilizing bi-directional EV charging at the end of the pilot project it will assume the costs associated with software maintenance and cloud services with Fermata Energy.

The fleet vehicles will be available for use by Department of Aviation staff when servicing the six (6) airports owned by the County of Humboldt. In utilizing the Nissan Leaf Electric Vehicles, the Department of Aviation would be significantly enhancing sustainability efforts by reducing the departments carbon footprint in cutting down on traditional fuel consumption. When the vehicles are not in use and the grid is not under stress, the vehicles will be plugged into the bi-directional chargers and their batteries will be used to provide electricity bill savings to the Department of Aviation's electricity account at the Redwood Coast Airport. This functionality represents the normal mode of operations and demonstrates how Electric Vehicles can be used to provide electricity bill savings when they are parked.

When the state-wide or regional grid is under stress, the Nissan Leaf vehicles will respond to signals from the Emergency Load Reduction Program, which will generate revenue for account holders. This functionality allows vehicle owners to voluntarily support the state-wide electricity grid during periods of stress and benefit from generation compensation through the Emergency Load Reduction Program.

When the Redwood Coast Airport microgrid is islanded, the vehicle/charger combos will operate normally unless the microgrid's main battery is nearly full or nearly empty. In those cases, new microgrid control functionality is being deployed by the Schatz Center to use the frequency of the electrical sign wave throughout the microgrid as a signal to command available vehicle/chargers to either inject power into the microgrid to prevent the main microgrid battery from becoming depleted or absorb power from the grid to store excess solar energy before the microgrid controller shuts down solar because the main microgrid battery is full. This advanced functionality enables deterministic control of large numbers of distributed energy resources without having to establish point-to-point communications with each distributed energy resources, which is often unreliable and impractical. The pilot project will yield results that will be valuable for designing and implementing a more resilient and cleaner electricity grid in support of California's goals of being sixty percent (60%) renewable by 2030 and one hundred percent (100%) renewable and zero-carbon by 2045.

**SOURCE OF FUNDING:**

General Fund (1100); Subgrant Award through Cal Poly Humboldt

**FINANCIAL IMPACT:**

There are no funds budgeted in the current fiscal year budget for the purchase of the Nissan Leaf vehicle. The Department of Aviation is currently projecting a negative fund balance by the end of fiscal year (FY) 2024-25, due to delays in receiving grant reimbursements and partially due to the delay in issuing the Request for Proposals for Airport Parking Facilities Management Services.

Should the Board approve the recommended actions, staff will come back to the Board at a later date with an appropriation transfer in the amount of \$33,770 from General Fund contingencies and a supplemental budget for the Aviation Fund 3530 to effectuate the budget adjustment. A four-fifths (4/5) vote will be required to approve the supplemental budget adjustment. FY 2024-25 General Fund contingencies has an available balance of \$1,467,573 in budget unit 1100-990.

Installation of the bi-directional Electric Vehicle charging stations and the software and cloud services with Fermata Energy is included in the pilot project subaward agreement with Cal-Poly Humboldt. Incentive payments from the subaward agreement, in the amount of \$104,147.42, will be paid to the County of Humboldt as the project progresses and deposited to Aviation Capital Projects budget unit 3539-170.

Should the County of Humboldt choose to continue utilizing bi-directional Electric Vehicle charging at the end of the pilot project, the County of Humboldt will assume the associated costs of software maintenance and cloud services with Fermata Energy, estimated to be \$4,400 annually.

**STAFFING IMPACT:**

The recommended actions will not impact current staffing levels.

**OTHER AGENCY INVOLVEMENT:**

None

**ALTERNATIVES TO STAFF RECOMMENDATIONS:**

The Board could choose not to approve the actions recommended by staff. However, this is not recommended as this would delay the purchase of the Nissan Leaf Electric Vehicle and the County of Humboldt's participation in the Redwood Coast Airport Microgrid Vehicle-to-Microgrid Pilot Project. Without these approvals, the Department of Aviation would miss the opportunity to reduce operational costs through electricity bill savings and vehicle-to-grid revenue, and it would forgo an important sustainability initiative. The Board could also consider alternative vehicle options, though these may not align with the pilot project's focus on bi-directional charging capabilities.

**ATTACHMENTS:**

1. Nissan Vehicle Loan Agreement
2. Nissan Purchase Order #72-8435
3. Research Subaward Agreement
4. Attachment 6 to the Research Subaward Agreement

**PREVIOUS ACTION/REFERRAL:**

Meeting of: None

File No.: None