Penn Green Fund

Electric Vehicle Pilot Project: Final Report

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Project Status: The School of Arts and Sciences Facilities, Planning and Operations (SAS FPO) purchased its first electric vehicle in late August 2012. The chosen vehicle was an electric Columbia ParCar Mega Van, and has been situated in the loading dock of DRL. The Mega Van replaced a 1991 maintenance-intensive and highly polluting petro-fueled Daihatsu. It is currently being used by SAS computing to facilitate the pickup and delivery of computing equipment. Members of the SAS community including faculty, staff, and students, are all serviced by SAS computing and currently share the benefits of the success of the electric Mega Van. September 2013 will mark one year that the Mega Van has been in use, and no issues or repairs have been needed since. SAS FPO plans to continue using the van to facilitate the transportation of computing goods.

The old Daihatsu is currently situated at the DRL loading dock, and has not been in use since the arrival of the Mega Van. SAS FPO has delayed the disposal of the Daihatsu until an environmentally responsible solution was made for the disposal of the vehicle. A recent solution has been established with the help of Revolution Recovery, who will pick up the Daihatsu from the DRL loading dock and responsibly recycle it.

Budget Report: The total cost of this project was $22,022.00, which was used to purchase the Mega Van. Specifications and a quote from the local dealer are attached to this proposal. This cost has remained consistent from the projected cost given in the Midterm Report. The Mega Van has not required any service since it has been in use, which has provided a significant savings for SAS FPO. In FY 2011 the Daihatsu had to be sent in for three service trips. These three service trips totaled $2,181.00 in repair
charges, and receipts from these service trips are attached to this proposal. By purchasing the Mega Van, SAS FPO is able to save this cost annually. With the conditions of the Daihatsu continually getting worse, the annual cost of repairs would have only increased over the future years. The Mega Van requires zero gas, which is an additional savings for SAS FPO. SAS FPO plans on funding battery replacements/recycling and a service contract to cover all other ongoing maintenance costs.

**Metrics:** The measures of this project’s success, as defined in the Grant Application, are reduced emissions through the replacement of a petro-fueled vehicle with an electric one, and reduced emissions through fewer service visits. As of yet, there is no system in place to quantify the environmental benefit of the electric vehicle added to the SAS fleet. However, the Mega Van is a zero-emissions vehicle, whose use has by definition reduced the tailpipe and downstream carbon emissions compared to its predecessor. The now-retired Daihatsu required an average of 2.17 service visits per year over the last 6 years, with 2011 alone requiring 3 service visits. For every service trip that had to be made, the Daihatsu had to be hauled by flatbed truck 12 miles round trip to Quality Transmissions. Since its employment, the Mega Van has required zero service visits and harbors no indication of needing service.

**Environmental Benefit:** The benefits of the Mega Van support the goals of the university’s Carbon Reduction Action Plan. The Mega Van is a zero-emissions vehicle, whose use has by definition reduced the tailpipe and downstream carbon emissions compared to its predecessor. The acquisition of a newer and more reliable vehicle has greatly reduced the downstream emissions from the increasingly frequent service trips that had to be made with the Daihatsu. These factors all contribute to the Carbon Reduction Action Plan’s goal to reduce carbon emissions by one percent annually.

**Lessons Learned:** The addition of the electric Mega Van to the SAS vehicle fleet is a highly visible example of SAS’s commitment to sustainability, and to the reduction of vehicle-generated carbon emissions. Not only does the Mega Van benefit the school environmentally and financial, but it serves as
a model for how carbon reduction can be met at Penn. The success and projected savings of the Mega Van has encouraged SAS to consider purchasing additional electric vehicles in the future when it comes time to replace other conventionally powered vehicles in its van fleet.