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National Federal Fleet Loaner Program Final Report

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EXECUTIVE SUMMARY

The goal of the U.S. Department of Energy's (DOE) Loaner Program was to increase the awareness, deployment, and use of advanced technology vehicles in Federal fleets. The Loaner Program accomplished this by providing free electric vehicles (EVs) to Federal fleets on a loaner basis, generally for 2 months. The Program partnered DOE with six electric utilities, with DOE providing financial support and some leads on Federal fleets interested in obtaining EVs. The utilities obtained the vehicles, identified candidate loaner fleets, loaned the vehicles, provided temporary charging infrastructures, provided overall support to participating Federal fleets, and supported the fleets with their leasing decisions.

While the utilities did not have the success initially envisioned by themselves, DOE, the Edison Electric Institute, and the Electric Vehicle Association of the Americas, the utilities can not be faulted for their efforts, as they are not the entity that makes the ultimate lease or no-lease decision. Some external groups suggested to DOE that they direct other federal agencies to change their processes to make loaning vehicles easier; this is simply not within DOE's power.

Common sense dictates that the level of concentration of Federal fleets within a utility's service territory must influence a utility's ability to place greater numbers of loaner vehicles. This proved true in practice as the greater Washington DC utility (Potomac Electric Power Company) had good success in generating leases. Minimizing bureaucratic input (both Federal Agency and utility) appears to increase the likelihood of successfully loaning vehicles. There are pockets of risk-takers within fleets that are willing to adopt new technology vehicles; however, bureaucracy does not encourage such behavior. San Diego Gas and Electric was the most successful at generating vehicle leases, which is not surprising given the high concentration of military and other Federal Fleets in their area.

Fifty-six vehicle loans took place, allowing more than 274 Federal employees to test drive the EVs. The amount of exposure was significant; each driver was able to gain an average of 162 miles of EV experience. However, the cost to obtain this experience was not inconsequential. It cost DOE about $1,100 for each driver (about $6 per loaner mile), but this may not be unreasonable when one considers that temporary charging infrastructure had to be installed, the vehicles delivered and returned, and that each driver receives at least brief training.

Since the ultimate goal was to increase the deployment and use of EVs by Federal fleets, this should be the criterion to measure the success of the Program. Fifteen vehicle leases can be directly credited to the Program, with another 52 leases probably resulting from Loaner Program activities. It has cost DOE about $4,400 for each of the 67 electric vehicle leases generated by the Loaner Program; the total Loaner Program cost to DOE was $294,000. If the utilities' contributions were about equal to DOE's costs, the Loaner Program cost a combined total of $8,800 for each lease generated.

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1. LOANER PROGRAM BACKGROUND

The National Federal Fleet Loaner Program was a U.S. Department of Energy (DOE) sponsored program (Office of Transportation Technologies) that encouraged the deployment and use of electric vehicles (EV) by Federal fleets. The Loaner Program consisted of partnerships between DOE and six electric utilities. The Loaner Program concept developed from discussions held between DOE, the Edison Electric Institute, and the Electric Vehicle Association of the Americas. These discussions led to a formal DOE solicitation process that resulted in contract agreements between DOE and the six utilities. DOE's six utility partners were:

- Boston Edison
- Georgia Power
- Potomac Electric Power Company (PEPCO)
- San Diego Gas and Electric (SDG&E)
- Southern California Edison (SCE)
- Virginia Power.

The Loaner Program was managed as part of DOE's Field Operations Program. The Field Operations Program's goals include evaluating advanced technology vehicles in real-world applications and environments, and increasing the awareness, acceptance, and use of advanced technology vehicles. The Loaner Program activities supported these goals by increasing the awareness, deployment, and use of electric vehicles by Federal fleets. The Idaho National Engineering and Environmental Laboratory had the responsibility for the day-to-day functions, contracting, and reporting for the Loaner Program.

In general terms, the DOE awarded contracts to each of the six utilities to obtain EVs and loan them to interested Federal fleets within each of their six respective service territories. The number and models of EVs that each utility leased varied somewhat, but generally consisted of five EVs each. EV models included mostly Chevrolet S-10s, Ford Rangers, and Toyota RAV4s.

The utilities' responsibilities included:

- Identifying Federal fleets that were candidates for participating in the Loaner Program
- Contacting the Federal fleets
- Obtaining the loaner EVs
- Educating the potential Federal fleets about the capabilities of EVs
- Installing a temporary charging infrastructure
- Providing the loaner EVs to the Federal fleets

- Gauging the acceptance of the EVs by the Federal employees driving the EVs
- Supporting the Federal fleets if they decided to pursue leasing EVs on a permanent basis.

If a Federal fleet decided to lease an EV, DOE provided one-half of the incremental cost of the vehicle and the utilities provided additional support to the Federal fleets, including:

- Helping Federal fleets match the capabilities of vehicles with their requirements
- Helping install permanent charging infrastructure
- Helping with the EV acquisition process.

2. LOANER PROGRAM CONTRACT STATUS

PEPCO was DOE's initial Loaner Program partner, providing loaner vehicles for approximately 6 months before contracts were signed with the other utilities during the spring of 1999. All of the original DOE and utility agreements were for 1 year.

The PEPCO agreement expired during the fall of 1999; however, PEPCO continued to loan EVs to Federal fleets on its own through the end of 1999. The contracts for the other five utilities ran through the end of April 2000; SDG&E and SCE requested and received from DOE-Idaho (DOE contracting office) contract extensions at no additional cost to continue their Loaner Program Activities. As of November 2001, all of the contracts had ended.

Several factors influenced the utilities' decisions not to request contract extensions. Some of these factors included insurance and liability issues, lack of vehicle availability, bureaucratic inertia (both utility and Federal), difficulty installing charging infrastructures, vehicle recalls, difficulties identifying candidate Federal fleets, and the slow rate at which vehicles were successfully loaned.

3. LOANER PROGRAM ACTIVITIES

3.1 Miles Driven

The utilities loaned 56 vehicles (Table 1) to the various Federal fleets. Except for two instances, all of the vehicle loans consisted of loaning a single vehicle to a single Federal fleet, generally for a period of 2 months. More than 274 federal employees took advantage of the opportunity to drive the vehicles. Unlike typical ride-n-drives at industry conferences where a driver simply drives an EV around the block, the Loaner Program allowed the drivers to drive the vehicles for extended periods, gaining significant EV knowledge.

While 35,133 Loaner Program miles were reported, not all of the utilities collected the number of miles and the number of drivers for each loan. However, enough data was collected to make the following observations about the Loaner Program activities and success, with only a minimal number of assumptions employed.

Table 1. Total Loaner Program activity.[a]

Utility	No. Vehicle Loans	No. of Drivers	Miles
Boston Edison	8	35	10,265
Georgia Power	10	54	1,861
Potomac Electric Power Company	19	45	17,821
San Diego Gas and Electric	7	72	450+
Southern California Edison	7	32	2,257
Virginia Power	5	36+	2,479
Totals	56	274+	35,133

a. The number of drivers is the number of federal employees that took advantage of the Loaner Program and drove one or more of the loaner vehicles. The miles are the total miles the federal employees drove the loaner vehicles (not all of the miles were reported).

For those utilities reporting the miles driven and number of drivers, each of the 212 drivers drove an EV an average of 162 miles. All of the utilities (Appendix A, Tables A1 through A6) reported at least some of the number of loaner drivers and miles driven. Their average reported number of miles per driver ranged from 10 miles (SDG&E) to 1,754 miles (PEPCO). The other utilities reported average number of miles per driver of 293 miles (Boston Edison), 28 miles (Georgia Power), 90 miles (SCE), and 56 miles (Virginia Power).

From the data that the utilities reported on the miles driven and the number of vehicle loans, the Federal fleets drove each vehicle an average of 976 miles. Based on the reported number of vehicle loans and miles, and the average miles driven per vehicle loan for each utility was 1,283 miles (Boston Edison), 186 miles (Georgia Power), 3,564 miles (PEPCO), 150 miles (SDG&E), 451 miles (SCE) and 496 miles (Virginia Power).

When the reported average miles driven per driver are extrapolated to the total number of drivers (274), the total number of miles driven during the Loaner Program would be approximately 44,388 miles. Similarly, when the average miles driven per vehicle loan are extrapolated to the total number of vehicle loans (56), the total number of miles driven during the Loaner Program is approximately 54,656 miles. If the average of these two totals is used, one can assume that the participants gained nearly 50,000 miles of EV exposure.

3.2 Vehicles Used

Each utility proposed to DOE what vehicle models they would offer as loaner vehicles to the Federal fleets. Not all vehicles models were loaned out by each of the utilities. The actual models loaned were not tracked. The vehicle models each utility loaned are listed in Table 2.

3.3 Costs

The cost for providing approximately 50,000 miles of EV experience to over 274 participants has been calculated. Using the final invoiced costs ($294,000), the Loaner Program costs can be compared to the Loaner Program activities. The Loaner Program cost DOE $1,073 per driver, or about $6 per loaner mile. There is no information readily available that provides

comparative costs of a similar program. In fact, such an extensive EV National Loaner Program has never been conducted previously.

Table 2. Vehicle models made available by the electric utilities as loaner vehicles.

Federal Fleet	Vehicle Models
Boston Edison	1 Chevrolet S-10s, 1 Solectria Force, 1 Ford Ranger
Georgia Power	2 Ford Rangers (1 NiMH & 1 Lead Acid), 1 Chevrolet S-10, 1 General Motors EV1
Potomac Electric Power Company	5 Ford Rangers
San Diego Gas and Electric	Toyota RAV4, Ford Ranger, Chevrolet S-10, Chrysler EPIC, Honda EVPlus (1 each)
Southern California Edison	2 Chevrolet S-10s, 1 Chrysler EPIC, 2 Ford Rangers, 3 Toyota RAV4s, 1 Honda EVPlus, 1 General Motors EV1
Virginia Power	5 Chevrolet S-10s

3.4 Federal Fleet Participation

Forty-eight Federal fleets took advantage of the Loaner Program. Often, more than one fleet from the same agency or department participated. (A complete breakdown, by utility and Federal fleet, is available in Tables A1–A6). Whether measured by the number of miles driven, the number of drivers, or the number of vehicle loans, various Department of Interior fleets took the greatest advantage of opportunities to use the loaner vehicles. This group and its 96 drivers drove the loaner vehicles 18,185 miles (see Table 3, National Parks/Wildlife/Refuges/ Battlefields/Fish and Wildlife/Seashores/DOI). The Environmental Protection Agency also made significant use of the Loaner Vehicles, especially when measured by the number of miles driven. The Army had the second highest number of Loaner Program participants when measured by the number of drivers (Table 3). If the Army, Marines and Navy participants are grouped together, the Department of Defense had 43 Loaner Program participants.

Many Federal fleets were not able to participate in the Loaner Program since they are not located within the utilities' service territories. For instance, none of DOE's large laboratories are located within any of the service territories, so the only DOE fleets that were able to participate in the Loaner Program were the Germantown and Headquarters fleets. It should be noted that Federal fleets ordered 220 EVs with incremental funding support from DOE as directed by Executive Order 13031 (Federal Alternative Fueled Vehicle Leadership). For additional information on the 220 EVs, see the Incremental Funding Activities Final Status Report http://ev.inel.gov/fop/pdf/IncremFundingReport.pdf

The U.S. Postal Service (USPS) also placed an order for 500 electric carrier route vehicles (ECRV). The DOE is supporting this procurement by providing testing assistance to the USPS. The ECRV is based on the Ford Ranger electric vehicle. Delivery commenced during 2001 and as of February 2002, over 300 of the ECRVs had been delivered.

Table 3. Federal fleets that took advantage of the Loaner Program.[a]

Federal Fleet	No. of Vehicles	No. of Drivers	Miles
Architect of the Capitol	1	1	
Army	5	36+	2,479
Border Patrol	1	4	1,118
Coast Guard	3	32	510
Department of Commerce	1	15	200
Department of Energy	2	5	2,904
Department of Transportation	3	13	1,400
Environmental Protection Agency	7	27	4,411
Federal Highway Administration	1	10	157
General Services Administration	1	4	3,368
Marines	2	3	401
National Institute of Health	1	1	
National Institute of Standards & Technology	1	1	
National Parks/Wildlife Refuges/Battlefields /Fish and Wildlife/Seashores/DOI	19	96	18,185
National Security Agency	1	1	
Navy	2	4	
Postal Service	1	15	
Senate	1	1	
Smithsonian	2	4	
White House	1	1	

a. The groups may include several Federal fleets located in more than one location. Mileage was not reported by all utilities for all fleets. (DOI – Department of the Interior)

4. LOANER PROGRAM PROBLEMS AND ISSUES

4.1 Legal Issues

Those utilities that did not have extensive legal requirements as a condition for leasing vehicles had the most success. When looking at the activities by each utility, either by number of vehicles loaned or miles driven, PEPCO had the most success at loaning vehicles. The concentration of federal agencies and fleets in PEPCO's service territory, in and near the District of Columbia, would lead one to expect that PEPCO would loan the most vehicles. In addition, PEPCO did not impose burdensome legal requirements on the fleets in the leasing process, and this appears to be extremely important if loans were to occur. Each utility was free to design their Loaner Program in a method that best fit their corporate structure, the structure of the Federal fleets in their service territory, and other constraints such as state public utility commission regulations. PEPCO previously had an agreement with the General Services Administration (GSA) that allowed PEPCO to work with the various fleets. None of the other utilities had this advantage. Several of the utilities reported severe delays and problems with the issue of who would assume liability for the vehicles if an accident occurred. However, PEPCO would

generally loan the vehicles with a simple three-page written agreement, assuming that the vehicle loans could occur under the umbrella of the GSA Agreement.

It became apparent that legal issues often seriously delayed some loans, and completely canceled other loans when agreement could not be reached. The largest problem was over the issue of whom would be liable if a vehicle were involved in an accident. Some of the utilities wanted the Federal fleets to take out insurance, but the Federal fleets are self-insuring and would not indemnify the utilities. Sometimes, so much time was required for the federal and utility lawyers to come to agreement that the fleet managers and utility Loaner Program manager would give up trying to place a vehicle.

4.2 Vehicle Availability

All of the major original equipment manufacturers (OEMs) have provided EVs in limited numbers over the last few years. Some of the OEMs have limited their products to California, or limited their products with advanced batteries to California, and were only available in very limited numbers. Because of limited vehicle availability, some utilities decided to end their own local loaner programs and this affected their participation in the Federal Loaner Program. There have been suggestions (rumors) that when the OEM vehicles come to the end of their current 3-year leases, they will be reconditioned (if necessary) and released. The following sections describe the current availability of EVs, as the author believes to be true. Most of the OEMs have future plans for deploying some combinations of smaller EVs, hybrids with internal combustion motors, or fuel cell hybrids.

DaimlerChrysler – Chrysler made available approximately 150 electric EPIC minivans, mostly in California. It is believed that all 150 have been leased and no more EPICs will be available. However, DaimlerChrysler purchased Global Electric Motors (GEM) of North Dakota. GEM has sold approximately 7,000 of their neighborhood electric vehicles (NEVs).

Ford – The Ford Ranger suffered some of the same earlier problems that the Chevrolet S-10 did (see next section) in that the Ranger's first lead-acid batteries had range problems. However, Ford appears to have worked with a new lead-acid battery supplier to ensure the batteries are manufactured to the required specifications. Unfortunately, the time that was required to correct the lead-acid battery and other problems resulted in some fleets having to wait for 6 months or longer for their Rangers. Ford probably leased somewhere between 300 and 400 vehicles during 1999. The lead-acid Rangers are available nationally, provided an EV-certified warranty provider (generally a Ford dealer) is available. It is believed that Rangers are still available in 2002 in limited numbers. As mentioned previously, Ford is building 500 electric carrier route vehicles for the USPS. Ford has also introduced NEVs and Urban electric vehicles (UEVs) through their Th!nk Mobility division. The NEV is called the Th!nk neighbor and comes in two- and four-door versions. The UEV is called the Th!nk city, and is a two-door hatchback.

General Motors – GM provided two vehicle choices, the EV1 sports coupe and the S-10 pickup. The EV1 as a two-seat coupe did not meet the mission requirements of most fleets, and it was only available in a few states. It should be noted that the EV1 is an excellent vehicle in terms of its energy efficiency and performance. The S-10 provided excellent driving performance, but its earliest versions used a lead-acid battery that performed poorly and the vehicle did not sell.

The S-10 is no longer available. When General Motors recalled some of the S-10s and EV1s for charger port problems (potential fire hazards), Virginia Power had to end their Loaner Program because of their dependence on the S-10s. Virginia Power was not only faced with the prospect of not having vehicles available; they also had to face the issue of their own corporate liability if a fire occurred. General Motors may still have some lead-acid equipped EV1 coupes for lease.

Honda – Honda leased approximately 300 EV Plus electrics in California. They are not making any more vehicles available. Honda was unique among the OEMs, as they targeted the general public for leasing their EV Plus while the other OEMs targeted public and private fleets for vehicle leasing. It is believed that Honda has reconditioned some EV Pluses and they are releasing them.

Nissan – Nissan made available about 50 of their lithium EVs to fleets in California. A large deployment was never initiated, nor is it believed that one is planned. Nissan has limited numbers of its Hypermini UEV-class EVs in demonstration fleets in California.

Toyota – Toyota's electric RAV4 is a very popular vehicle with those that have them. Southern California Edison has about 250 RAV4s in their fleet. While the vehicles were primarily available in California, they have also been leased in other parts of the country. Probably somewhere around 800 RAV4s have been leased nationally. However, no more new RAV4s are likely to be built and leased, but Toyota is reconditioning some of their original electric RAV4s and releasing them. Toyota also has limited numbers of their ecom UEV-class EVs in demonstration fleets in California.

The remaining OEMs all have some sort of advanced technology vehicle programs. These range from the Hyundai electric sport utility vehicles in a demonstration fleet in Hawaii to various types of fuel cell vehicles that are not commercially available.

4.3 Driver Surveys and Utility Comments

The six utilities provided quarterly reports to the INEEL. These reports have provided information for this Final Report. In addition, the INEEL asked the utilities to provide their comments and opinions about the Loaner Program and any additional information provided by the Federal fleets. This information is available in Appendix A. The specific areas that the utilities reported on are as follows:

- Federal fleets gave several reasons for not leasing EVs (Table A7).
- Federal fleet drivers gave their reactions after driving the loaner vehicles (Table A8).
- The utilities encountered a variety of obstacles when trying to loan EVs to the Federal fleets (Table A9).
- Some of the utilities provided comments about the vehicles leased for the Loaner Program (Table A10).

The authors of this final report have generally not connected specific comments to specific utilities; this has been intentional. The utilities have been very frank about the problems they encountered, and they should not be criticized because of this frankness and trust. However, the comments below by Boston Edison and Southern California Edison provide insight into some of the problems they dealt with. The comments are not repeated word-for-word, as the authors of this report have altered some of the comments to better put them into context.

4.3.1 Boston Edison

All the drivers expressed how much they liked the performance of the electric vehicles, and Boston Edison expected that at least one of the first three agencies to borrow a vehicle would try to buy or lease an EV. Boston Edison was loaning the vehicles out for longer than 30 days, because agency heads had requested this. It gave the agencies a better opportunity to fully evaluate the performance in real-world conditions. Also, the time to install the infrastructure was lengthy, and it made more sense to let the agencies keep the vehicle longer because of this.

While feedback has been varied, most of the users were very impressed with these vehicles. Boston Edison has had several agencies turn them down due to the simple indemnification Boston Edison required. Even when Boston Edison was willing to negotiate for a simple TORT agreement instead, sometimes the federal agency just did not want to be bothered. Boston Edison had about a 50% success rate in loaning vehicles. Overall, this was probably not too bad. The U.S. Fish and Wildlife Service was planning to borrow two vehicles from Boston Edison, but their Washington office was slow to agree to simple contract language so Boston Edison could formally start the program. This was been the biggest programmatic problem. For this reason, Boston Edison was extending the current loans up to 120 days in some cases so that all vehicles were in use during the waiting period. The program was rewarding in many ways, especially when the reactions from the drivers were positive.

4.3.2 Southern California Edison

Even while the loan agreement contracts were being reviewed, Southern California Edison was working closely with the federal representatives to evaluate their existing light-duty fleets, and identify vehicles that could be replaced with electric vehicles. Southern California Edison conducted an Electric Vehicle Workshop that educated federal personnel on the benefits of including electric vehicles into their fleet mix. While Southern California Edison's original estimate as to the number of man-hours that would be expended to complete a loan were based on their past experience in dealing with their commercial customers in their Electric Vehicle Trials Program, they found this to be an underestimate in dealing with Federal agencies. This was a lesson learned for Southern California Edison in dealing with Federal fleets.

5. LOANER PROGRAM RESULTS

DOE's Incremental Funding Program (also managed by the INEEL) provided one-half the incremental cost to any Federal fleet that leased a light-duty, highway-capable EV. The Incremental Funding Program provided incremental funding to 37 Federal fleets, in support of leasing 220 EVs. (Agencies leased vehicles either through the GSA or directly from Ford and Chrysler; DOE provided incremental funding support through GSA or directly to the leasing

agencies if they leased directly from the manufacturer). This set of 220 leases is used to identify leases generated by the Loaner Program. The success of the Loaner Program should be judged by how many EV leases are generated, as this is the ultimate goal of the Loaner Program. While increasing awareness about EVs is also a goal, this is a difficult parameter to definitively measure; and, besides, increasing awareness is ultimately intended to increase leasing rates.

The number of leased EVs that can be directly credited as resulting from Loaner Program activities is probably 15. These 15 EVs were all leased in the PEPCO service territory after PEPCO provided loaner vehicles. It should also be acknowledged that PEPCO subleased Rangers to support the deployment of EVs to Federal fleets. Not all 15 Rangers were subleased from PEPCO. Some were leased directly from GSA. PEPCO also leased EVs to other Federal fleets (Grand Canyon and Gettysburg) not within their service territory.

The USPS leased 45 electric Chrysler EPICs in San Diego after 15 of their drivers participated in the SDG&E portion of the Loaner Program and after they had already leased 16 electric EPICs in Huntington Beach and Long Beach. It is not known if the 45 EPIC leases resulted singularly from the Loaner Program experience or partially from the USPS experience with the previous 16 EPIC leases. However, all 45 USPS leases will be credited to the USPS Loaner Program experience in San Diego.

An additional 14 EVs were also leased within the SDG&E service territory by fleets other than the USPS. However, seven of the leases were to a Navy Fleet that already had EV S-10s and the authors believe that they did not participate in the Loaner Program. The other seven EV leases may have been a result of the Loaner Program activities. Therefore it will be assumed that 67 vehicles (15 + 45 + 7) were leased as a direct result of Loaner Program activities.

The success of the Loaner Program should be judged based on the number of vehicles that were leased by Federal fleets as a direct result of their participation in the Loaner Program. If this criterion is used to gauge success, then the cost to achieve such success can be calculated by dividing the cost of the Loaner Program by the number of leases generated by the Program. Based on a generated lease rate of 67 vehicles, the cost per vehicle lease was about $4,400. That is, for every $4,400 that DOE has spent on the Loaner Program, one vehicle has been leased. If it is assumed that the utilities provided support that roughly matched DOE's costs, then the total Loaner Program cost to generate a single lease was about $8,800 per vehicle.

6. CONCLUSIONS

At the inception of the Loaner Program, most of the domestic OEMs were making electric vehicles available (in at least one state) for either lease or sale. However, by the end of the first year of the Loaner Program, only a single OEM was still accepting vehicle orders and it was taking upwards of a year or more to obtain the vehicles. Given this availability issue, most of the utilities recognized that there was no sense in loaning vehicles and then telling the Federal fleets that no vehicles are available in a timely manner.

While it may be easy to suggest that the legal issue of indemnification should have been eliminated, DOE did not, nor does it, have the power to solve this issue for other federal agencies or for the utilities.

While all of the electric utilities were very cooperative and responsive, some of the utilities were unable to overcome their own internal legal bureaucracies when it came to individual agreements with federal agencies. PEPCO's ability to minimize or even eliminate "contractual issues" seemed to be the significant reason why they were able to make so many vehicle loaners (plus being located in the Washington, DC area).

Given the number of leases generated, the cost to generate the leases ($8,800), and the difficulty involved in obtaining new vehicles, another National Loaner Program should not be attempted until suitable vehicles will be available in large numbers and in a timely manner.

Appendix A

Tables A1 through A6 provide the locations, amount of time, number of vehicles, number of drivers, and miles driven for each Federal fleet that participated in the Loaner Program. The information is provided by the participating utilities.

Tables A7 through A10 provide drivers' reactions, obstacles the utilities encountered, and comments that the utilities provided.

Table A1. Boston Edison Loaner Program activity.

Agency Name	City	State	Dates Loaned	No. of Vehicles	No. of Drivers	Miles
Longfellow Olmstead Park	Brookline	MA	Apr 99 – Jul 99	1	5	1,220
National Historical Park	Charleston	MA	Apr 99 – Dec 99	1	3	2,210
Coast Guard	Boston	MA	Apr 99 – Jul 99	1	4	360
Department of Transportation (VOLPE)	Cambridge	MA	Aug 99 – Dec 99	1	11	1,400
Environmental Protection Agency	Boston	MA	Aug 99 – Dec 99	1	2	275
Fish and Wildlife (Fish Hatchery)	North Attleboro	MA	Dec 99-Mar 00	1	4	1,500
Fish and Wildlife (Great Meadows Wildlife)	Sudbury	MA	Dec 99-Mar 00	1	2	2,500
Fish and Wildlife (Parker River Reservation)	Newburyport	MA	Dec 99-Mar 00	1	4	800
			Total Reported	8	35	10,265

Table A2. Georgia Power Loaner Program activity.

Agency Name	City	State	Dates Loaned	No. of Vehicles	No. of Drivers	Miles
Environmental Protection Agency	Atlanta	GA	Jun 99 – Aug 99	2		350
Environmental Protection Agency	Atlanta	GA	Aug 99 – Sep 99	1	3	67
				1	19	210
Federal Highway Administration	Atlanta	GA	Aug 99 – Sep 99	1	10	157
Kennesaw Mountain National Battlefield	Kennesaw	GA	Dec 99 – Jan 00	1	4	50
Chickamauga National Battlefield	Ft. Oglethorpe	GA	April 2000	1	4	175
Cumberland National Seashore	St. Marys	GA	Jan 00 – April 00	1	5	300
Andersonville National Historic Site	Andersonville	GA	Mar 00 – April 00	1	4	285
Department of the Interior	Atlanta	GA	Feb 00 – Apr 00	1	5	267
			Total Reported	10	54	1,861

Table A3. Potomac Electric Power Company Loaner Program activity.

Agency Name	City	State	Dates Loaned	No. of Vehicles	No. of Drivers	Miles
White House	Washington	DC	Sep 98 – Oct 98	1	1	
U.S. Senate	Washington	DC	Nov 98 – Feb 99	1	1	
Environmental Protection Agency	Washington	DC	Sep 98 – Oct 98	1	1	
Environmental Protection Agency	Crystal City	VA	May 99 – Dec 99	1	2	3,509
Department of Energy – HQ	Crystal City	VA	Sep 98 – Oct 98	1	1	
Department of Energy – Germantown	Germantown	MD	May 99 – Dec 99	1	4	2,904
Department of Transportation	Washington	DC	Sep 98 – Oct 98	1	1	
			May 99 – Jul 99	1	1	
Department of Interior at Patuxent Wildlife Refuge Center	Laurel	MD	Nov 98 – Dec 99	1	13	3,402
Department of Interior at Rock Creek Park	Washington	DC	Nov 98 – Apr 99	1	1	
Department of Interior at Rock Creek Park	Washington	DC	Jul 99 – Dec 99	1	6	4,638
National Institute of Standards & Technology	Bethesda	MD	Mar 99 – Apr 99	1	1	
Smithsonian	Washington	DC	Sep 98 – Oct 98	1	3	
Smithsonian	Washington	DC	Mar 99 – Apr 99	1	1	
Architect of the Capitol	Washington	DC	Nov 98 – Jan 99	1	1	
General Services Administration Headquarters	Washington	DC	Apr 99 – Dec 99	1	4	3,368
National Security Agency	Fort Meade	MD	Nov 98 – Feb 99	1	1	
Marine Corps	Quantico	VA	Nov 98 – Feb 99	1	1	
National Institute of Health	Bethesda	MD	Mar 99 – Apr 99	1	1	
			Total Reported	19	45	17,821

Table A4. San Diego Gas and Electric Loaner Program activity.

Agency Name	City	State	Dates Loaned	No. of Vehicles	No. of Drivers	Miles
NAVY – 32nd St. Transportation Department	San Diego	CA	Aug 99 – Sep 99	1		
Navy – 32nd St. Utilities Department	San Diego	CA	Sep 99 – Dec 99	1	4	
Postal Service	San Diego	CA	Apr 00– Jun 00	1	15	
Coast Guard	San Diego	CA	Jun 00 – Jul 00	1	20	
National Parks Department	San Diego	CA	Aug 00 – Oct 00	1	10	100
Coast Guard	San Diego	CA	Dec 00 – Feb 01	1	8	150
Department of Commerce, Marine Fisheries	La Jolla	CA	Feb 01 – May 01	1	15	200
			Total Reported	7	72	450

Table A5. Southern California Edison Loaner Program activity.

Agency Name	City	State	Dates Loaned	No. of Vehicles	No. of Drivers	Miles
Border Patrol	Temecula	CA	Jun 99 – Sep 99	1	4	1,118
Marine Corp Base 29 Palms	29 Palms	CA	Dec 99 – Mar 00	1	2	401
Channel Islands National Park Service	Ventura	CA	Jul 00 – Sep 00	1	4	302
Joshua Tree National Park Service	29 Palms	CA	Jan 01 – Mar 01	1	13	268
Yosemite National Park Service	El Portal	CA	Permanent (Donation)	2	7	
Death Valley National Park Service	Death Valley	CA	Mar 01 – May 01	1	2	168
			Total Reported	7	32	2,257

Table A6. Virginia Power Loaner Program activity.

Agency Name	City	State	Dates Loaned	No. of Vehicles	No. of Drivers	Miles
Fort Monroe	Hampton	VA	Jun 99 – Mar 00	1	12	787
Fort Eustis	Newport News	VA	Jun 99 – Mar 00	1	12	796
NSGA Northwest	Great Bridge	VA	Sep 99 – Mar 00	1	12	426
Quantico	Quantico	VA	Oct 99 – Mar 00	1	Many	48
Fort Lee	Hopewell	VA	Nov 99 – Mar 00	1	Many	422
			Total Reported	5	36+	2,479

Table A7. Federal fleets gave these reasons for not leasing EVs (not listed in any particular order).

- Costs are too high.
- Auxiliary batteries are not strong enough to jump-start multiple cars.
- Range between charges is not far enough.
- Uncomfortable with the range and technology.
- Prefer sedans.
- An unwillingness to "take the risk". It seems the Fleet Manager will take the blame if a procured vehicle does not work out.
- For the EPA in Atlanta, range is an issue, and other internal issues are preventing them from leasing electric vehicles.
- Solectria does not lease EVs as they only sell EVs.
- Vehicle availability (choice) is very sparse.
- The drivers impressed with the performance of the vehicle. However, after talking with the OEM, they learned that OEMs might not place vehicles in hot weather communities such as 29 Palms.
- The U.S. Coast Guard is open to the idea, but is waiting for available funding.
- The fleet cited infrastructure problems with their EV and called in an electrician to adapt the charger plug to their conventional type.
- Budget constraints and lack of product (EVs).
- Several agencies have expressed a desire to wait for the hybrid vehicles to become available.

Table A8. Federal fleet drivers gave these reactions after driving the loaner vehicles (not listed in any particular order).

- Drivers do not want to give the loaner vehicle back when the loan period is up.
- The stiff suspension took some time getting use to.
- The distance between charges is not far enough.
- The loaner vehicle works just like a gas-powered pickup, only better.
- They were amazed at the cruising speed and acceleration.
- Most are pleased with the experience, but are somewhat afraid of the range.
- Vehicles are being driven everyday and there have been no mechanical problems.
- The drivers find the electric vehicles super clean and quiet. These are two very important attributes for the U.S. Fish and Wildlife.
- Vehicle is well liked; range is still a small issue for some of the drivers.
- Initial reactions and responses have been good.
- The vehicle feels stable and safe.
- The vehicle steering is responsive on the road.
- The vehicle acceleration is adequate.
- The vehicle braking is responsive and safe.
- The charging controls are easy to use.
- The vehicle may not charge adequately.
- The car heater does not provide adequate heat.
- The air conditioner provides adequate cooling.
- The vehicle is quiet.
- The vehicle has adequate payload.
- The loaner vehicles have worked very well. In most cases the users are surprised on how well they work.
- Driver reactions are very favorable. The drivers are impressed with the performance and ease of charging.
- The vehicle is too quiet and children might not be able to hear the car.
- A driver noted that when he tried to start the vehicle up after it hadn't been driven for a few days, he had trouble getting it to start up.
- One driver commented it didn't have a lot of pick up and could reach speeds of 60 – 65 mph maximum.

Table A9. The utilities encountered a variety of obstacles when trying to loan EVs to the Federal fleets. The utilities had the following comments about some of the Federal fleets (not listed in any particular order).

- Unwillingness to indemnify the utility company for liability.
- Very slow in getting a response from management.
- Very long time in having a simple 220-Volt outside plug installed at a parking site.
- Too many different people being involved from the Agency (no one in charge).
- Hurry up and wait attitude.
- Very slow in reviewing and/or approving the loaner agreement.
- Lots of time spent with legal staff questioning the agreements for the loaner and leases vehicles.
- Only 480-volt power was available, 480 / 120 – 208-volt transformers had to be installed.
- There is still a need for more public charging.
- Lack of familiarity with electric vehicles.
- Contract approval on the Federal level takes too long.
- U.S. Military branches are not responding to the offer.
- U.S. Post office is not responding to the offer.
- Contracts are taking way too long.
- Lack of knowledge of the technology.
- Because one utility utilizes utility fleet vehicles for the loan program, the receiving party must sign a Loan Agreement Contract. This has proven to be very challenging when dealing with federal agencies.
- The Federal fleets do not have any repercussions if they do not choose to purchase or lease alt fuel vehicles. No fines, no real harm if they choose not to follow the order.
- The range between charges is too short. They would buy one in a minute if reliably were 100+ miles under real world driving conditions.
- Contract approval by lawyers is very slow.
- Until we have vehicles with NiMH batteries available here in the Northeast, it is going to be a tough sell. More vehicle varieties and advanced batteries will solve all the problems associated with interest in leasing by just about all the agencies.
- Price and charging availability.
- It has been a “reeducation” process in introducing electric vehicles into the fleets. The existing way of thinking is internal combustion engines (ICE) are best and nothing compares, so we try to discuss alternatives, and explain while electric vehicles can’t

replace all ICE vehicles, there is an opportunity for a mix of technologies to do the job.

- There is no down side if they do not lease the vehicle.
- There is a fear of the new technology is an obstacle.
- Range, price, no teeth to the law.
- Some agencies seemed very reluctant to try anything new due to concerns about reliability as well as having to use their own insurance to cover the vehicle.
- Product availability.

Table A10. Comments some of the utilities had about the vehicles leased for the Loaner Program (not listed in any particular order).

- One of Boston Edison's vehicles died at a tollbooth. It turned out to be failed component in the controller.
- One of Boston Edison's vehicles had a flashing wrench on dashboard, turned out to be several problems. The charge module under hood needed to be replaced, and the battery pack also needed to be replaced. This took 2 weeks to fix.
- Some vehicles have had bad on-board chargers. Each of PEPCO's vehicles has had the charger replaced at least once. Some have had second replacements.
- Each PEPCO vehicle had to have its battery pack replaced.
- Some of PEPCO's vehicles have had to have the battery control module replaced.
- Each PEPCO vehicle has had to have the IAA module replaced.
- The EV was used when the batteries needed to be levelized. As a result the vehicle went into limp home mode. After full charge it worked fine.
- Fuel fired heater did not work in super cold weather. Diesel fuel seemed to gel.
- One of the EVs at Georgia Power had a battery problem with the pack. It has been pulled back from the customer and a replacement vehicle is now in their hands. This was a bad way to start out the test, but I am keeping tabs on them making sure they are still using the replacement vehicle.
- PEPCO has experienced problems with batteries and on board chargers.
- Everyone is experiencing slow delivery of new vehicles.
- The S-10s were all pulled back for the recall by GM and the Fords still have some minor software glitches.
- One fleet expressed some frustration in the charger plug configuration. They needed to obtain an engineer to adapt the charger plug to the more conventional type to fit their outlets.