

US EPA ARCHIVE DOCUMENT

# ENVVEST Semiannual Progress Report

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## 1 INTRODUCTION

### 1.1 ENVVEST INITIATIVE

On 16 March 1995, the federal government announced an initiative entitled *Reinventing Environmental Regulation*, which proposed 10 principles of regulatory reform and directed the U.S. Environmental Protection Agency (U.S. EPA) to implement 25 high priority actions. One of these was aimed at achieving regulatory reform within the Department of Defense (DoD) through a program called ENVVEST (Environmental Investment).

On 2 November 1995, the DoD and U.S. EPA signed a Memorandum of Agreement (MOA) on Regulatory Reinvention Pilot Projects, which formally established the ENVVEST program. The MOA established a framework for developing pilot programs at three to five selected DoD facilities. Vandenberg Air Force Base (AFB) was selected as the prototype facility to pilot the ENVVEST program, thereby implementing a common sense and cost-effective environmental protection program to meet regulatory requirements.

### 1.2 FINAL PROJECT AGREEMENT (FPA)

On 3 November 1997, Vandenberg AFB, U.S. EPA, and the Santa Barbara County Air Pollution Control District (SBCAPCD) signed the first, ENVVEST Final Project Agreement within the DoD; since then, only one other such agreement has been signed. The FPA states the intentions of the signatories to carry out a pilot program pursuant to the 1995 MOA by testing innovative approaches to environmental protection. Under the FPA, the Vandenberg AFB Air Quality Project XL/ENVVEST Initiative is aimed at improving air quality beyond that achieved through federal, state, and local permit programs. This multi-year implementation strategy is aimed at achieving sustainable long-term projects meeting criteria specified in the FPA.

## 2 PROGRAM SUMMARY

### 2.1 ENVVEST PROGRAM GOAL

The ENVVEST program emphasizes regulatory compliance through pollution prevention and provides an alternative strategy to prescriptive command-and-control regulatory requirements in the form of a performance based environmental management system designed to reduce pollution. The ultimate goal of the ENVVEST Program is to implement sustainable long-term reduction initiatives while targeting ozone precursor emissions.

## **2.2 ENVVEST PROGRAM MILESTONES**

The following ENVVEST Program milestones were developed and are identified in the FPA:

1. By 4 December 1997: Vandenberg AFB will complete the initial assessment and cost feasibility study.
2. By 30 April 1999: 30 percent of ENVVEST candidate boilers identified in milestone #1 are being retrofitted.
3. By 30 April 2000: 2 tons per year of emission reductions shall have been accomplished.
4. By 30 April 2001: 70 percent of ENVVEST candidate boilers identified in milestone #1 are being retrofitted.
5. By 30 November 2002: Vandenberg will have achieved 10 tons per year of ozone precursor reductions.

## **2.3 PREVIOUS PROGRAM PROGRESS**

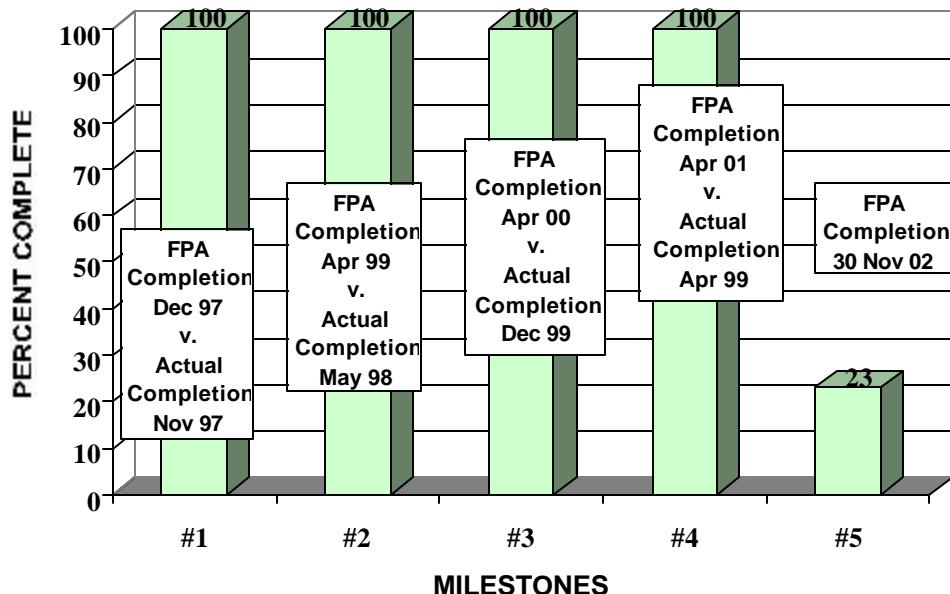
Vandenberg AFB identified ten opportunities for real and quantifiable NO<sub>x</sub> and VOC emission reductions. Details of these efforts are presented in the progress report dated 30 August 1999. Further investigation showed nine of the ten emission reduction opportunities did not meet regulatory "surplus" requirements or were considered economically infeasible. Only a fraction of these reductions would be attributed to ENVVEST as a consequence of surplus constraints and result in program funding to run out prior to meeting the fifth ENVVEST emission reduction goal. Realizing this, Vandenberg AFB re-evaluated the technical approach and implemented economically viable and sustainable initiatives. Initiatives that warrant further cost or performance evaluation are incorporated into the Vandenberg AFB Pollution Prevention Program; however, they are not relied upon in the ENVVEST program or to meet the goals of the fifth milestone. To date, the Low NO<sub>x</sub> Boiler Retrofit & Replacement Program is the only initiative considered economically feasible to implement and sustain at Vandenberg AFB. Therefore, it is the only initiative where emission reductions will be relied upon for the ENVVEST Program.

## **2.4 PROGRAM MILESTONE PROGRESS**

The percent completion for each milestone objective, FPA scheduled completion dates, and actual completion dates are presented in Figure 1.

After consultation with and the support of the SBCAPCD, Vandenberg AFB has developed an alternative technical strategy to meet the fifth program milestone identified in the FPA. The alternative strategy is identified in Section 3.0.

**Figure 1**  
**ENVVEST MILESTONE PROGRESS**



### 3 STATIONARY SOURCE EMISSION REDUCTION TECHNICAL APPROACH

To date, Vandenberg AFB has implemented five emission reduction initiatives, achieving 4.2 tons<sup>1</sup> of real and quantifiable emission reduction credits. However, only the Low NOx Boiler Retrofit and Replacement Program emission reductions are considered surplus, sustainable, and therefore, enforceable for purposes of the ENVVEST Program.

#### 3.1 LOW NOX BOILER RETROFIT AND REPLACEMENT PROGRAM

To date, Vandenberg AFB has achieved 2.29 tons of real, quantifiable, surplus and enforceable emission reductions attributed to the implementation of the ENVVEST Low NOx Boiler Retrofit and Replacement Program. The emission reductions have been documented and these results were submitted to SBCAPCD on 28 April 2000 to fulfill the FPA third and fourth milestones.

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<sup>1</sup> The 4.2 tons of emission reductions resulted from implementing the following initiatives: 1) Low NOx Boiler Retrofit and Replacement resulted in 2.29 tons of NOx emissions, 2) Zero VOC Paint and Coating Substitution resulted in 1.27 tons of VOC emissions, 3) Paint Booth Consolidation resulted in 0.50 tons of VOC emissions, and 4) Wastewater Reclamation System at SLC 2 resulted in 0.15 tons of NOx and VOC emissions. Details of these efforts are presented in the progress report dated 30 August 1999.

### 3.2 PROGRAM CONCERN

One issue that continues to challenge the ENVVEST Program is the surplus requirements for emission reduction credits. Surplus standards, which are constantly evolving and changing, have a dramatic impact on the amount of emission reductions that can be credited to the ENVVEST Program. While the program continues to identify emission reduction opportunities, finding initiatives that support long-term emission reduction and financial goals are of concern. Program guidelines were established to determine each initiative's emission reduction potential and financial impact to the ENVVEST program. Thus far, the only project to successfully meeting the program guidelines is the Low NOx Boiler Retrofit and Replacement Program. Under this program, 100 percent of emission reductions are defined as surplus. To date, only ten boiler are considered economically feasible under the ENVVEST Program and were retrofitted or replaced with low NOx control technology.

### 3.3 PROPOSED SOLUTION

After further evaluation and research for emission reduction opportunities from stationary sources, Vandenberg AFB calculated that the goals of the program (fifth milestone) would not be achieved with the remaining budget and milestone schedule. Therefore, on 25 August 1999, Vandenberg AFB presented an alternative proposal to the SBCAPCD that would still meet the goals and objectives of the ENVVEST Program.

Under this proposal, Vandenberg AFB would purchase 12 tons of registered NOx emission reduction credits (ERCs) from another source, Grefco Minerals, Inc., located in Santa Barbara County to meet the fifth milestone, a 10-ton reduction goal. As a result, the purchased ERCs would be permanently removed from Santa Barbara County's emission bank, and given up for the benefit of clean air and credited to the ENVVEST Program. The application of these ERCs along with the other ENVVEST emission reduction initiatives already implemented provides the air basin with 16.2 tons<sup>2</sup> of emission reductions.

In exchange for the SBCAPCD's concurrence to apply purchased ERCs to the ENVVEST Program, the Air Force is committing the balance of ENVVEST funds (approximately \$1,000,000) to implement Mobile Source Reduction Measures at Vandenberg AFB. In November 1999, the SBCAPCD agreed to the allocation of ERCs to fulfilling the 10-ton emission reduction goal, while Vandenberg AFB agreed to purchase electric vehicles (EVs) using ENVVEST Program funds. The application of ERCs to the ENVVEST Program enables Vandenberg AFB and the SBCAPCD to evaluate and implement an innovative mobile source emission reduction measures that are traditionally cost prohibitive. The technical approach for the first mobile source emission reduction measure implemented at Vandenberg AFB is summarized in Section 4.0.

## 4 MOBILE SOURCE EMISSION REDUCITON MEASURES

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<sup>2</sup> The 16.2 tons of emission reductions are derived from the 4.2 tons of emissions resulting from those initiatives implemented and identified in Section 3.0 plus 12 tons of the purchased ERCs.

As the number of mobile sources has increased, transportation has now become the biggest contributor to air pollution in most urban areas. In 1968, California began to limit the exhaust emissions of passenger vehicles. The State of California has become the driving force behind the introduction of innovative mobile source emission reduction measures. Now, all states have legally prescribed emission tests within specific cycles and maximum permissible limits.

#### **4.1           *CALIFORNIA LEV/LEVII PROGRAM SUMMARY***

In 1990, California adopted new stringent exhaust regulations for the control of emissions from light- and medium-duty vehicles with its Low-Emission Vehicle (LEV) Program. With those regulations, emissions from passenger cars and light-duty trucks are 90 percent cleaner than when first regulated. This program is continually updated and new requirements are added to meet State Implementation Plan (SIP) commitments. As a part of the update, LEV requirements include proposed LEVII amendments. Among many new LEVII amendments, there are proposed exhaust emission standards for light and medium-duty vehicles, which includes ultra and super-ultra low emission vehicle standards. In addition, the new LEVII amendments also include zero emission vehicle (ZEV) development, requirements, and manufacturing standards.

#### **4.2           *ZEVS TO MEET LONG TERM AIR QUALITY GOALS***

The commercialization of ZEVs is critical to the success of most California Clean Air Programs. California Air Resources Board (CARB) recognizes that even with full implementation of LEVII program standards, emissions from light-duty vehicles will still contribute to a significant portion of daily emissions. Additionally, the anticipated growth, increase in vehicles miles traveled per day, emissions related to vehicle degradation, and emissions related to fueling activities, the need for implementing ZEV or electric vehicle (EV) technology to meet long term source and regional air quality goals is quite clear.

The standards proposed in recent rulemaking require automobile manufacturers to meet LEVII requirements by placing 10 percent of the total fleet sales with ZEVs. Therefore, at the consumer level, LEVII standards have already been incorporated into the SIP, leaving little opportunity for mobile source emission reduction credits. In other words, the vehicle manufacturers rather than the consumers own emission reductions resulting from the operation of EVs. Even if the "gold standard" or ZEVs are incorporated into fleet operations, emission reduction credits are not considered surplus to the consumer.

#### **4.3           *PROPOSED SOLUTION***

Vandenberg AFB proposes to apply the purchased ERCs to ENVVEST in order to fulfill the fifth program milestone. After that milestone has been reached, the balance of ENVVEST Program funds (approximately \$1,000,000) would be redirected to start up an EV program at Vandenberg AFB. Furthermore, this proposed solution would allow Vandenberg AFB to exercise its leadership in the displacement of petroleum consumption by implementing an EV Pilot Program. An EV fleet will reduce greenhouse gases as well as ozone precursor pollutants and improve

overall fleet fuel efficiency with the application of ZEV technology. Reduced petroleum use and the displacement of petroleum by EVs should also foster markets for more fuel efficient products and encourage vehicle manufacturers to develop new EV and hybrid vehicle technologies to ensure a healthier environment.

From an operational point of view, EVs generate lower fuel costs. The per-mile fuel cost for electricity is one-third to one-fourth the cost of gasoline. Additionally, routine maintenance costs are expected to be lowered by half with EVs since they have fewer moving parts and don't require routine tune-ups or oil changes. This in turn will also reduce the volume of hazardous waste associated with conventional gasoline vehicle maintenance.

The long-term benefit from the Vandenberg AFB EV Program will result in demonstrating the reliability and applicability of EV technology for fleet applications. The success of the Vandenberg AFB EV Program will be identified using standard data collection practices, tracking performance and maintenance results, and issuing a final summary report that documents the overall success of the program. These results will be available to other Air Force installations and other public and private commercial fleet applicants, as well.

#### **4.4 PROGRAM IMPLEMENTATION**

Vandenberg AFB has a strong commitment to pollution prevention and the ENVVEST Program, which is demonstrated by the start up of the EV Pilot Program in June 1999. The following sections describe the EV Pilot Program, which includes:

- EV Pilot Program Technical Approach;
- EV Pilot Program Assessment;
- Partnerships;
- EV Program Technical Support, Educational Outreach, and General Use, Safety and Maintenance Training;
- Vehicle Loaner Program;
- Loaner Program Data Collection and Results; and
- Long-Term Planning.

The details of each component are presented below.

#### **4.4.1** *EV Program Technical Approach*

Vandenberg AFB developed a three-part approach to assess EV applications on base and has applied each program component concurrently. First, Vandenberg AFB identified "Blue Fleet" (government owned and operated) vehicles and the need to establish a Vandenberg AFB EV loaner program, which provides EVs and temporary infrastructure at no cost to the recipient organizations. Program participants are testing and evaluating selected EVs for a 2- to 4-week period. At the conclusion of each trial period, each participating organization will evaluate whether an EV is well suited for its day-to-day operations.

Second, Vandenberg AFB obtained a pilot-scale fleet of four EVs from a Base Realignment and Closure (BRAC) installation. The fleet has been assigned to various organizations under the auspices of the 30th Transportation Squadron. Required support infrastructure was permanently installed for this program before fleet arrival. The "pilot" fleet on Vandenberg AFB is under evaluation using performance criteria and user feedback specific to the fleet applications.

Third, Vandenberg AFB assessed the applicability of phasing in long-term EV use on the base. This assessment has identified possible vehicle fleet substitute options (make and model), infrastructure requirements, and vehicle and infrastructure co-funding opportunities. During fiscal year 2000 (FY00), Vandenberg AFB will begin installing the necessary infrastructure to support the procurement of a larger scale pilot fleet of 25 EVs. Each phase of this program is established with a commitment from each EV participant.

#### **4.4.2** *EV Program Assessment*

Vandenberg AFB conducted a survey to determine the commute and transportation characteristics of the government owned and operated (Blue Fleet) vehicles. Approximately 142 vehicles were identified as prospective EV substitute candidates. The goal of the assessment was to establish optimal candidate vehicles for EV replacement based on vehicle type, use (driving pattern), and user interest.

Survey results were compiled in an Access database and forwarded to Southern California Edison (SCE), who assisted in evaluating the commuter and vehicle data. A numerical scoring system was used to determine the best candidates for EV substitution. The survey data were ranked and assigned a weight factor of importance by using the following criteria:

- Mission support (critical v. non-critical);
- Miles per day on base;
- Miles per day off base;
- Level of EV interest; and
- Number of similar vehicle types within the organization.

Next, Vandenberg AFB determined the best EVs commercially available to replace the top-ranked Blue Fleet vehicles. Replacement options were determined using actual test data from the Vandenberg AFB loaner program and Department of Energy (DOE) Field Operations Program

EV Qualified Vehicle Test (QVT) data. A list of potential substitutions was established for top-ranked Blue Fleet vehicles. Each recommendation considered DoD contracting and purchasing requirements and evaluated options by cost, availability, performance, warranty, service, and manufacturer commitment to EV infrastructure and operation support.

At the conclusion of initial assessment, a total of 50 vehicles were considered for EV replacement. During the assessment phase of the program, Vandenberg AFB also identified Ford Ranger pickup trucks and Daimler Chrysler EPIC mini-vans as EV replacement options. Although both types of vehicles require conductive charging, the power requirements and connectors for two vehicle types are different. Until vehicle and charging station manufacturers standardize power requirements, equipment incompatibility will always be an issue. Vandenberg AFB's decision to standardize based on two types of vehicles, both with conductive charging, could minimize some of the compatibility problems in the future.

#### **4.4.3**           *Partnerships*

Upon completion of the Blue Fleet assessment, Vandenberg AFB networked with key EV industry manufacturers and supporting organizations to provide technical support, educational outreach, and training to facilitate the EV Pilot Program. Key organizations and partners include:

- Vandenberg AFB 30 CES/CEV (Environmental Flight);
- Vandenberg AFB 30 TRNS (Transportation Squadron);
- DOE/Idaho National Engineering and Environmental Laboratory (INEEL);
- Ford Motor Company;
- Daimler Chrysler Corporation;
- Tetra Tech, Inc.;
- Pacific Gas & Electric (PG&E); and
- Southern California Edison (SCE).

#### **4.4.4**           *EV Program Technical Support, Educational Outreach, And General Use, Safety and Maintenance Training*

User education is one of the many components critical to success of the Vandenberg AFB EV program. Training programs provide familiarity to the vehicle and its charging requirements, emergency response, and maintenance. General use, safety and maintenance training were implemented as a part of the EV program.

##### General Use Training

Vandenberg AFB, with the assistance of vehicle manufacturers, provided EV program participants with general use training. These training procedures on vehicle operation also included charging station use and requirements. EV use and charging station operation training is performed before the vehicle is put in operation. At the conclusion of training, the program participants were considered "authorized" to use and charge the EV. By taking precautions to

train EV program participants, vehicle repairs are expected to be reduced, while maximizing vehicle performance.

#### Safety Training

Vandenberg AFB, with the assistance of PG&E, provided emergency response and safety training for fire and safety personnel on base. The training followed the *Emergency Response to Electric Vehicles* guidance document provided by the California Department of Forestry and Fire Protection Office of the State Fire Marshal. In addition, manufacturer safety videos along with a vehicle orientation and demonstration provided during emergency response and safety training were provided. During this training, procedures for emergency or safety personnel at the scene of an accident were identified and practiced. Over 50 emergency and safety personnel participated in this training, enhancing the acceptance of an EV program at Vandenberg AFB.

#### Maintenance Training

EV maintenance was implemented at the base level. Specialty tooling to assist in EV maintenance, including battery management system diagnostics and battery pack removal, was purchased for each type of EV. Transportation personnel were trained by the OEM to evaluate and maintain each type of vehicle. Each training course outlined troubleshooting and repair instructions to diagnose and repair mechanical and electrical equipment and components for EVs. Vandenberg AFB is an authorized service center for EVs and will maintain this expertise at the base level to minimize EV down time and repair time.

#### **4.4.5              *Vehicle Loaner Program***

Vandenberg AFB initially relied on vehicle loaner programs established by its partners; however, because of vehicle availability and contracting limitations, the Environmental Flight at Vandenberg AFB established its own EV loaner program. The goal of the program was to test and evaluate various EV makes and models currently available and identify target substitution candidates during the Blue Fleet assessment. A total of 12 organizations in 17 locations were qualified to participate in the EV loaner program.

The vehicle loaner program requires participants to use the EV instead of their traditional gasoline-fueled vehicle for a 2- to 4-week time period. EV user training and temporary infrastructure were provided prior to vehicle use. The vehicle use pattern and performance were documented during each trial period. EV use and performance results were entered into a database for further evaluation.

In addition to the vehicle loaner program, Vandenberg AFB incorporated four EV mini-vans into its fleet when the EV Program was designed. The vehicles were originally assigned to McClellan AFB, but due to that base's closure the vehicles were requested to be reassigned to Vandenberg AFB. The vehicles served as a small pilot EV fleet at Vandenberg AFB and required the same vehicle use and performance documentation as the loaner program. The four EV mini-vans were assigned to organizations and personnel under the 30th Space Wing. In contrast to the loaner program, the assigned organizations are required to use these EVs in place of their traditional vehicles for a 6- to 12- month period. Upon completion of the pilot program, the EV use and

performance data will be compiled and evaluated to determine whether the vehicle is applicable to the organization's day-to-day requirements. If unacceptable, the vehicle will be reassigned to another EV program participant.

#### 4.4.6 *Loaner Program Data Collection and Results*

The loaner program goals were met. To date, over 100 individuals and 11 organizations participated in the EV loaner program. Participants and organizations continue to be identified and user and vehicle performance results are entered into the database for further evaluation. The next step for this program is to evaluate the applicability of Government Services Administration (GSA) vehicles (government leased vehicles) for EV substitutions. The loaner program initiated under this effort will be directly transferred to meet GSA customer needs in evaluating EV applicability at Vandenberg AFB. Currently, vehicle use and performance results are being compiled and will be further evaluated in June 2000.

#### 4.4.7 *Long Term Planning*

Vandenberg AFB's implementation schedule and capital cost estimates for replacing 50 Blue Fleet vehicles are as follows:

| Fiscal Year | Number of Vehicles | Vehicle 3-Year Lease Cost <sup>1</sup> (\$) | Infrastructure & Specialty Tooling Cost <sup>2</sup> (\$) | Engineering Consulting Cost (\$) | 3-year EV Program Cost (\$) |
|-------------|--------------------|---|---|----------------------------------|-----------------------------|
| 99          | 6                  | 32,400                                      | 42,000  | 4,200                            | 78,600                      |
| 00          | 20                 | 218,000                                     | 100,000   | 14,000                           | 332,000                     |
| 01          | 23                 | 250,700                                     | 115,000   | 14,000                           | 379,700                     |

**Notes:**

1. Lease cost includes \$5,000 per vehicle Air Quality Management District incentive program funds and incremental funding from DOE of \$4,100 per 3-year lease.
2. Infrastructure cost based on average charging station cost of \$2,000 per charging station and average installation costs of \$3,000 per site.

By designing an EV program where the vehicle use is carefully assessed and participant willingness to embrace EV technology is objectively identified, EV application at a military installation will be successful. Implementing an EV pilot and loaner program allows the end user to identify whether EVs are applicable to an organization's specific needs and requirements and provides the program administrator the data necessary to validate an EV fleet application.

If the success of the EV program at Vandenberg AFB continues, EVs will be added to an organization's fleet mix for a 1-year trial period. During the 1-year trial period, program participants will continue to commit to maximizing EV use and documenting vehicle performance and use.

While EV program benefits are significant in achieving air quality goals and reducing fossil fuel dependency, program issues and concerns with respect to sustainability must be addressed.

Vandenberg AFB has identified EV availability, development and reliability, affordability, and sustainable partnerships as issues of concern.

#### Availability

There are only six OEMs or major auto manufacturers that have introduced light-duty general purpose, EVs in the United States market: Daimler Chrysler, Ford Motor Company, General Motors, Honda, Nissan and Toyota. To meet "buy American" requirements, Vandenberg AFB may obtain EV products only from Daimler Chrysler, Ford Motor Company, and General Motors. Based on preliminary research, General Motors was excluded from further consideration due to their EV performance, commitment to product development, and safety. This early observation was verified in March 2000 when General Motors announced a total recall of their EV products due to fire safety hazards that resulted from inductive charging systems that periodically overheated and caught fire. Vandenberg AFB requested Ford and Daimler Chrysler to commit to supporting the efforts of Vandenberg's EV Program. As a result, Ford has committed to reserving 50 vehicles for the program. Daimler Chrysler has elected to manufacturer a limited number of production vehicles (only 200 EPIC minivans) and will not produce any more until their 2003 year mandate for more EV products. While the details of each OEM's product development are vague, Vandenberg AFB believes that future EV availability is critical to sustaining any type of long-term EV fleet application.

#### Development & Reliability

Vandenberg AFB has experienced excellent performance and 100 percent reliability with the Ford Ranger EV trucks. Vandenberg AFB has also experienced excellent performance with the Daimler Chrysler EPIC minivan, but only 25 percent reliability. Due to Daimler Chrysler's decision to limit production, replacement parts are not always available. This resulted in two EPICs being out of service for one month while awaiting replacement parts for repair.

#### Affordability

Vandenberg AFB has been presented a unique opportunity to start up an EV Pilot Program through the use of ENVVEST Program funds. The availability of these unique funds has enabled Vandenberg to over come the high cost of EVs, specialty tooling, and supporting infrastructure. Additionally, market incentives and co-funding opportunities offered through CARB, DOE, and the OEMs have provided an economy of scale when compared to the cost of conventional gasoline vehicles. As expected, the cost of EVs is relatively high during this initial demonstration and marketing phase, however, to continue EV fleet applications these market incentives must continue until EVs become economically viable.

#### Sustainable Partnerships

As environmental regulations change to incorporate more stringent regulatory standards and thresholds, military installations frequently look toward new technology to meet regulatory and mission support goals. However, investment in new technology is often costly when its economic and operational reliability has not been proven.

The basic mechanism to implement a successful new technology program is cost-shared research, development, and implementation by establishing partnerships between government and industry. Environmental programs in which the government jointly pursues projects with industry are of economic benefit and help establish a mechanism for program sustainability. Vandenberg AFB is currently participating in several partnership programs with various government agencies. The key to this success is proactive pursuit of programs to facilitate commercialization of technology, committing resources to implement technology, providing an objective evaluation of technology, and improving the technology transfer process.

Vandenberg AFB established a technical approach and methodology used to form alliance and partnership programs to meet regulatory requirements, evaluate budget and co-funding mechanisms, identify government and industry partnerships, establish mutual program goals and objectives, and determine technology transfer mechanisms. One concern of sustainable partnerships is availability of co-funding to sustain the program. If Vandenberg AFB continues to implement state-of-the-art programs, will funds be available to augment the cost of innovative technology. Partnering remains an unknown program parameter and will require detailed cost analysis and program planning to determine the future of the EV program.

## **5 CONCLUSION**

In order to fulfill the goals and objectives of the FPA the following actions are required on behalf of each XL/ENVVEST stakeholder.

### **5.1 *VANDENBERG AFB STAKEHOLDER REQUIREMENTS***

First, Vandenberg AFB is updating the original emission reduction plan submitted to the SBCAPCD pursuant to the first FPA milestone requirement. The original plan was partially approved by the SBCAPCD on 20 February 1998. This plan is being updated to reflect inclusion of the alternative implementation strategy previously discussed in this report and will be submitted to the SBCAPCD this summer.

Second, Vandenberg AFB shall continue to expand the EV Pilot Program to the extent practical with the availability of ENVVEST Program funds identified in the FPA through fiscal year 2001. These efforts shall be documented in future progress reports.

Third, all previous air quality initiatives implemented under the ENVVEST Program (with the exception of the Low NOx Boiler Retrofit and Replacement Program) shall be combined with the Vandenberg AFB Pollution Prevention Program and not relied upon for purposes of ENVVEST.

Finally, the purchased ERCs will be applied to meet the fifth program milestone. This will allow Vandenberg AFB to meet the ENVVEST Program goals set forth in the FPA while freeing up ENVVEST funds to implement an EV Program.

### **5.2 *SBCAPCD STAKEHOLDER REQUIREMENTS***

Upon receipt of the updated emission reduction plan, the SBCAPCD shall be asked to review, approve, and forward the plan to EPA Region IX for inclusion in the SIP. Based on preliminary meetings with the SBCAPCD and their verbal support on this alternative implementation strategy, they shall be asked to formally apply the 12 tons of purchased NOx ERCs to the ENVVEST Program. This action shall meet the fifth program milestone, by Vandenberg AFB giving up the ERCs for the benefit of ENVVEST and clean air. In return, Vandenberg AFB will continue to invest ENVVEST Program funds (approximately \$1,000,000) to expansion of the EV Pilot Program through fiscal year 2001.

### **5.3           *EPA REGION IX STAKEHOLDER REQUIREMENTS***

Upon receipt of the District approved emission reduction plan, Region IX shall be asked to include the plan into the SIP for purposes of fulfilling all ENVVEST Program goals and objectives. Although staff members from Region IX have been briefed and have conceptually agreed with the Vandenberg AFB alternative implementation strategy discussed herein, no formal concurrence has been received from Region IX. In order to insure that ENVVEST Program resources are used effectively to fulfill the goals and objectives of the program, Vandenberg AFB requests written concurrence from Region IX on the alternative approach. With this concurrence, Vandenberg AFB may continue its efforts towards fostering a successful EV Pilot Program.