FORT CARSON 25-YEAR SUSTAINABILITY GOAL PLAN
GOAL: AIR QUALITY (AQ)

Goal Statement:
Reduce installation greenhouse gases (scope 1, 2 and 3) and other air pollutants to the lowest achievable emission rates.

25-Year Vision
The long-term goal for this plan is to reduce installation greenhouse gases and other air pollutants to the lowest achievable emissions rates by 2027. The goals to improve regional air quality and achieve reductions of absolute emissions is dependent on the overall success of several other sustainability teams, top down Garrison Management support, and successful implementation and appropriate balance of all Team initiatives by all advocates and Fort Carson personnel.

Ownership and Involvement (Resources, Roles and Authority)
Goal Proponent: DPW, Director
Goal Lead & Fort Carson Partners:
DPW: Air Program Manager, Pollution Prevention Program Manager, Utilities Manager
DOL: Work Force COR, Environmental Health and Safety Coordinator, HMCC COR
DOC:
DFMWR: Chief Supplies & Services
Off-post Partners:
Pikes Peak Area Council of Governments
CDPHE
EPA
Southern Colorado Clean Cities Coalition

Fort Carson SEMS – Significant Aspects and Impacts
Fort Cason's Sustainability and Environmental Management Plan (SEMS) cites eight activities on the Installation that have significant aspects and impacts on sustainability. The following are air emissions related activities and operations associated with the significant aspects and impacts:

- Facilities Heating and Cooling Operations
- Military Training
- Employee Commuting and On-Post Transportation
- Tactical Equipment Maintenance Operations
- Land Use Management and Changes
- Materials and Resource Procurement
- Facilities Energy Use (Electricity)
- Facilities Construction & Maintenance Operations

Legal and Other Requirements

- CAA
- EO 13150, *Federal Workforce Transportation* – This EO, dated 21 April 2000, was enacted to help reduce Federal employees' contribution to traffic congestion and air pollution and to expand their commuting alternatives. Federal agencies are required to implement mass transportation fringe benefit programs under this EO.

- EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* This EO, dated 24 January 2007, requires Federal agencies to lead by example in advancing the nation's energy security and environmental performance. In relation to air emissions management, the agency, relative to agency baselines for fiscal year 2005 must:
  1. reduces the fleet's total consumption of petroleum products by 2 percent annually through the end of fiscal year 2015,
  2. increases the total fuel consumption that is non-petroleum-based by 10 percent annually, and
  3. use plug-in hybrid (PIH) vehicles when PIH vehicles are commercially available at a cost reasonably comparable, on the basis of life-cycle cost, to non-PIH vehicles.

Additionally, agencies must reduce greenhouse gas emissions of the agency, through reduction of energy intensity by:

1. 3 percent annually through the end of fiscal year 2015, or
2. 30 percent by the end of fiscal year 2015, relative to the baseline of the agency's energy use in fiscal year 2003.

- EO 13514, *Federal Leadership in Environmental, Energy, and economic Performance*

This EO, dated 5 Oct 2009, "…The Executive Order builds on and expands the energy reduction and environmental requirements of Executive Order 13423….". In response to the agency target setting mandate DoD has set as its goal a 34% reduction in GHG emissions by 2020 form the 2008 baseline level.

- Title V Operating Permit 95OPEP110
- SEMS goal – Sustainable Transportation
- SEMS goal - Energy & Water Resources
- SEMS goal - Sustainable Development
- SEMS goal — Sustainable Training Lands
- SEMS goal - Sustainable Procurement
- SEMS goal – Zero Waste
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Background

The original goal from the Sept 2002 sustainability conference related to hazardous air pollutants (HAPs) was Zero Waste Disposal. Analysis of the HAP emission portion of the Zero Waste Goal revealed that reduction of HAP emissions would require a complicated and more extensive than expected list of initiatives. Thus the HAP portion was removed and set up as a stand alone goal. In 2008 the goal was reviewed again and it was decided to expand on the goal to include other classes of pollutants, such as Criteria and Green House Gases. During the 2010 GC sustainability brief, recommendations were made by the GC and senior Command leadership to drop the mandate of zero emissions based on the technical infeasibility of attaining the goal given the complex and diverse list of contributing sources. The goal statement has been revised to instead focus on reducing the HAP and other pollutant emissions, including all criteria and Green House Gases to the lowest achievable emissions rate that is technically feasible, while considering the overall balance of competing goals and missions essential elements.

Desired end states for the newly revised goal are still in line with the statements from 2002 sustainability conference, including cleaner air for everyone in the community and a healthier regional environment, better working conditions for those at Fort Carson, continued mission flexibility free from burdensome regulatory requirements, and the following;

- Decrease in the use of hazardous materials that create HAPs.

- Cost analyses take total environmental and social costs into consideration.
- Product life-cycle costs are shared from user to producer.
- Better influence what suppliers provide to increase shelf-lives and decrease hazardous contents.
- Overall reductions in per capita emissions of all air pollutants.
- Support increased use of renewable energy to avoid air emissions.
- Elevated awareness, and training of environmental issues.

Challenges & Barriers

From the 2002 Conference:

- Elimination of all HAP emissions from Fort Carson is not technically feasible at this time
- Regulatory conflicts
- Equipment

From the 2003 5-Year Plan:

- Inflexible maintenance specifications; alternative processes are slow to be approved.
- The DoD does not exert enough influence on what suppliers provide.
- There is a perception that alternative products perform poorly.
- Government agencies are not coordinating on sustainability issues.

From the 2007 FY Update:

- While BRAC and Grow the Force is happening total emissions of HAPs from Fort Carson could see substantial increases before any progress toward overall reductions can be made. The numbers as they are tracked will be skewed through 2012.

From the 2010 FY Update:

- Goal attainment restructured to Lowest Achievable Emissions Rate from zero for all Air pollutants. Provides flexibility to take a holistic approach to managing emissions from competing goal priorities.
- Air Program role revised to SME and metrics management from primary goal driver. The aspect owners must be the drivers for implementing opportunities to meet the goal desired outcomes.
- Baseline for HAP emissions recalculated for 2002 to reflect balance sheet shift.

Training

SEMS Awareness
GHG accounting and reporting standards

Communication

External (Coordinated with PAO and aligned with Installation strategic communication strategies)
Internal:

- GC breakfast
- SEMS structures team meetings
- Meetings with aspect owners

Document Control

Air permits – Sharepoint portal

Air management plans – Sharepoint portal
Other air program documents – Sharepoint portal
Air program management records – K:\\Drive

Operational Controls – if there are any

Smoke and other operating procedures and operational controls
Air permit operational controls
Equipment calibration procedures

Monitoring & Measurement

Annual Emissions Inventory Report
Air permit monitoring requirements
Equipment calibration records

Evaluation of Compliance

Semi Annual Title V Monitoring Report
Regulatory agency inspections
Environmental Compliance Assessment Team (ECAT) inspections
External EPAS Inspections

Nonconformity

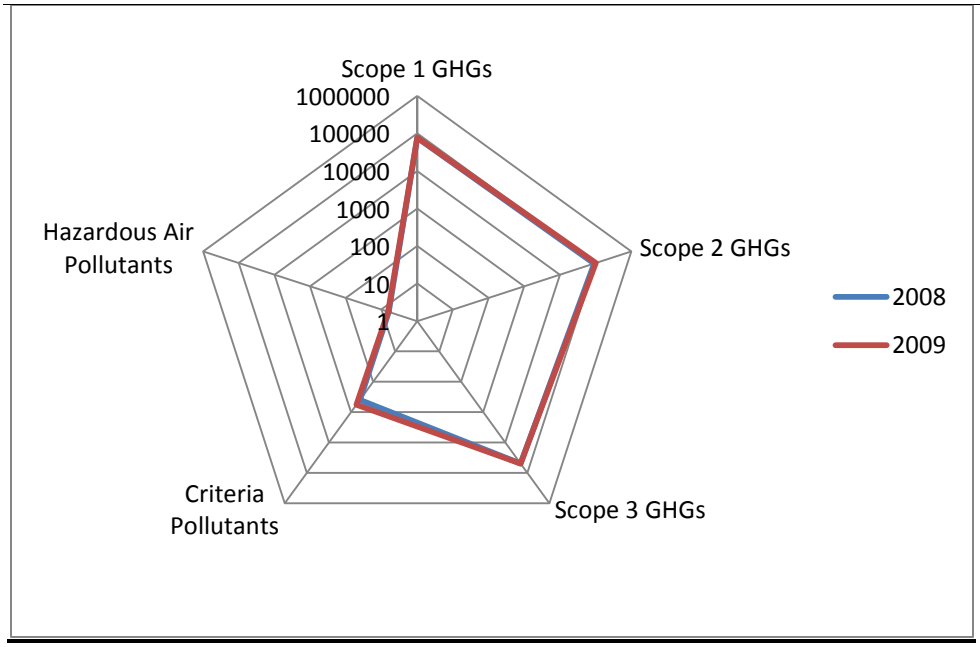
Environmental Performance Assessment System
SEMS Audit Corrective/Preventive Action
ECAT tracking
Program Manager tracking

Control of Records

Air inspection reports
Hazardous material usage reports
Training records
Inspection, maintenance and calibration records
Incident reports
Records of meetings
Records of communication with regulators

Annual Review

Annual SEMS Management Review



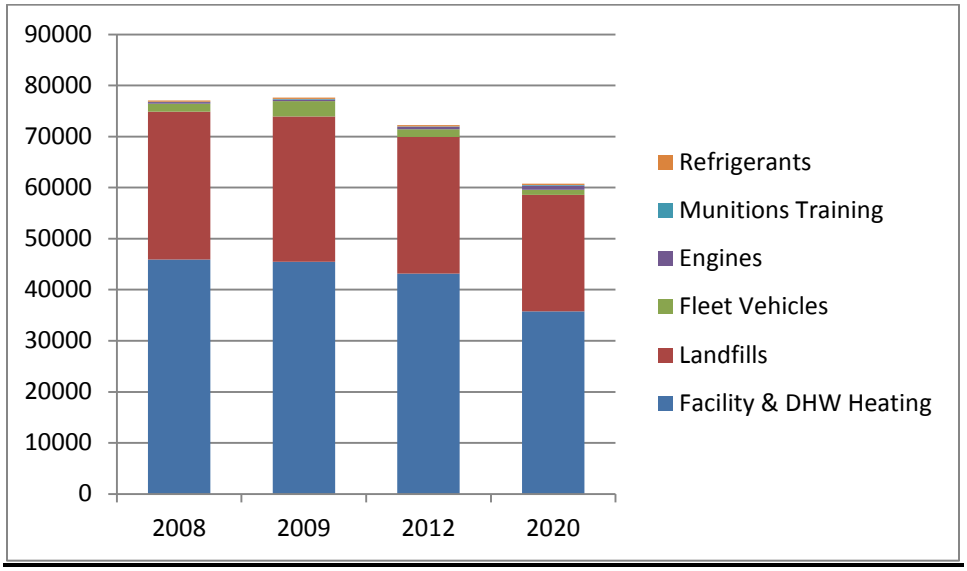
% Change from 2008 to 2009

-4.767 %

(Negative Percent Change Indicates Emissions Growth)

Goal Objectives and Targets

Objective AQ1: Reduce Scope 1 (Directly Emitted) GHG Emissions.



Target by FY12: 6% reduction of Scope 1 GHG emissions

Target by FY20: 22% reduction of Scope 1 GHG emissions

Details on Objective Target Graph AQ1

Measure: Carbon Dioxide Equivalents (tons of CO_2e)
Scope: Government owned and controlled stationary and mobile sources (excludes tactical vehicles)
Source: Title V Rolling Totals, Annual Emissions Inventory Data, Annual EPA GHG Emissions report
Baseline: 2008
Limitations: Numerous assumptions for Fleet Data, and Landfill Emissions, seasonal feedback variations
Verification & Validation: Source Data Reports
Comment: NA

Initiatives in support of Objective AQ1 (FY10/11)

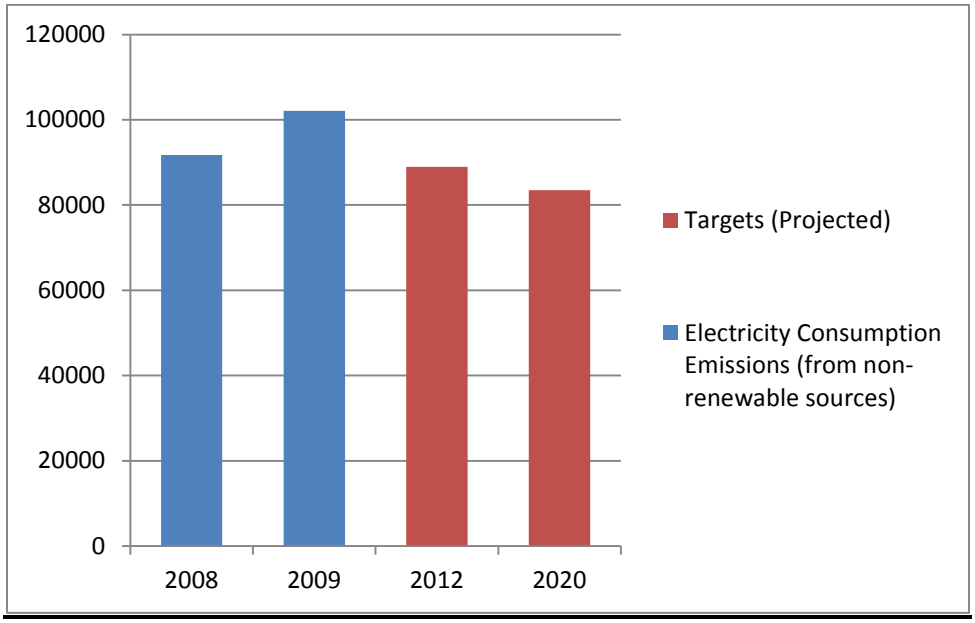
Initiative AQ1.1: Develop metrics for standardizing the way emissions intensity is reported for Facility & DHW Heating to account for the AR4GEN Cycle (population), Facility Growth (total sqft), and Climate Feedback indicators such as Heating Degree Days (HDD).

Initiative AQ1.2: Work with the Energy Goal Team on renewable energy and energy conservation initiatives. Serve as GHG accountant and SME for Air requirements. Provide resources and analysis to team members to enhance decision making capability.

Initiative AQ1.3: Work with the Transportation Goal Team on fleet and transportation alternatives initiatives. Serve as GHG accountant and SME for Air requirements. Provide resources and analysis to team members to enhance decision making capability.

Initiative AQ1.4: Implement garrison wide ODC plan to obtain refrigerant management records to estimate annual losses from refrigerant containing sources.

Objective AQ2: Reduce Scope 2 (Indirectly Emitted) GHG Emissions.



Target by FY12: 3% reduction of Scope 2 GHG emissions

Target by FY20: 11% reduction of Scope 2 GHG emissions

Details on Objective Target Graph AQ2

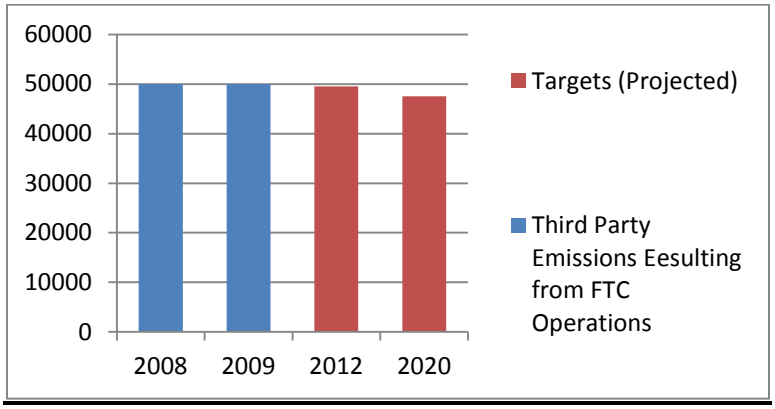
Measure: Carbon Dioxide Equivalents (tons of CO_2e)
Scope: Emissions from Electricity Consumption (from Non-Renewable Sources)
Source: DPW Utilities Report, CSU Monthly Bills
Baseline: 2008
Limitations: Annual variations in source generation profiles, seasonal feedback variations
Verification & Validation: Source Data Reports
Comment: NA

Initiatives in support of Objective AQ2 (FY10/11)

Initiative AQ2.1: Develop metrics for standardizing the way emissions intensity is reported for Electricity Consumption to account for the AR4GEN Cycle (population), Facility Growth (total sqft), and Climate Feedback indicators such as Cooling Degree Days (CDD).

Initiative AQ2.2: Work with the Energy Goal Team on renewable energy and energy conservation initiatives. Serve as GHG accountant and SME for Air requirements. Provide resources and analysis to team members to enhance decision making capability.

Objective AQ3: Reduce Scope 3 (3rd Party Emitted) GHG Emissions.



Target by FY12:
1% reduction of Scope 3 GHG emissions

Target by FY20:
5% reduction of Scope 3 GHG emissions

Details on Objective Target Graph AQ3

Measure: Carbon Dioxide Equivalents (tons of CO_2e)
Scope: Stationary and Mobile Sources
Source: Air Quality Assessment Forms, Surveys*, Contract Requirements*
Baseline: 2008
Limitations: Numerous assumptions for non-owned sources
Verification & Validation: None
Comment:

- No Baseline Data or 2009 Data Available (* Future Provisions)

Initiatives in support of Objective AQ3 (FY10/11)

Initiative AQ3.1: Develop metrics for standardizing the way emissions intensity is reported for Scope 3 emissions sources to account for the AR4GEN Cycle (population), and facility business practices. Develop Baseline data set for 2011 and 2012 to use as a surrogate the 2008 baseline (baseline will be set 1% below the 2012 dataset).

Initiative AQ3.2: Work with the Sustainability Team on developing the data resources and tools necessary to set appropriate targets and to report progress on achieving the goals. Serve as GHG accountant and SME for Air requirements. Provide resources and analysis to team members to enhance decision making capability.

Initiative AQ3.3: Work with the Transportation Goal Team on employee commuting alternatives & initiatives. Serve as GHG accountant and SME for Air requirements. Provide resources and analysis to team members to enhance decision making capability.

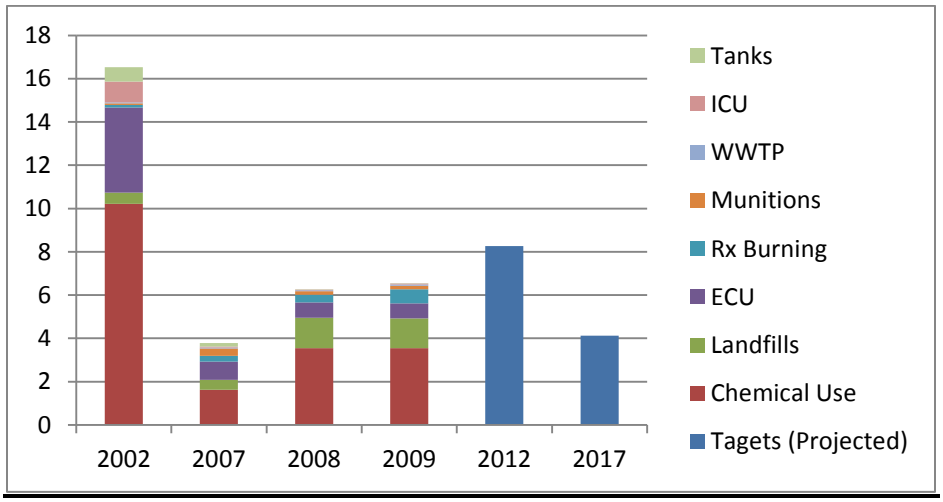
Initiative AQ3.4: Work with the appropriate Garrison Teams to develop an annual sequestration model to account for land management practice changes, and annual CO_2 uptake. Serve as GHG accountant and SME for Air requirements. Provide resources and analysis to team members to enhance decision making capability.

Initiative AQ3.5: Re-work the current AQA form to capture CO_2e emissions from project reviews involving contractors.

Initiative AQ3.6: Work with DOC to develop a contract addendum that captures 3rd party metrics on CO_2e intensity for a given SOW. Give preference for awarding contracts to

innovating green companies and contractors that avoid GHG emissions as part of their business process (within all confines of existing legal requirements).

Objective AQ4: Reduce HAP Emissions.



Target by FY12: 50% reduction of HAP emissions

Target by FY17: 75% reduction of HAP emissions

Details on Objective Target Graph AQ4

Measure: Total Hazardous Air Pollutants (tons)
Scope: Stationary and Fugitive Sources
Source: Title V Rolling Totals, Annual Emissions Inventory Data
Baseline: 2002
Limitations: Data quality from numerous unpermitted sources, emissions factors changes and calculation methodology changes
Verification & Validation: Title V Compliance, EPAS reviews, EMS Audits
Comment:

- 2002 baseline data recalculated to account for disaggregation of AAFES source contributions.
- Several sources cannot be reduced since they are tied to other essential processes, such as ECU, ICU, Landfills, Munitions
- 2007 data is skewed by HMCC shut down, change in emissions factors (updated) for several sources

Initiatives in support of Objective AQ4 (FY10/11)

Initiative AQ4.1: Develop metrics for standardizing the way emissions intensity is reported for HAP emissions sources to account for the AR4GEN Cycle (population), and absolute mass purchased relative to a toxicity scale.

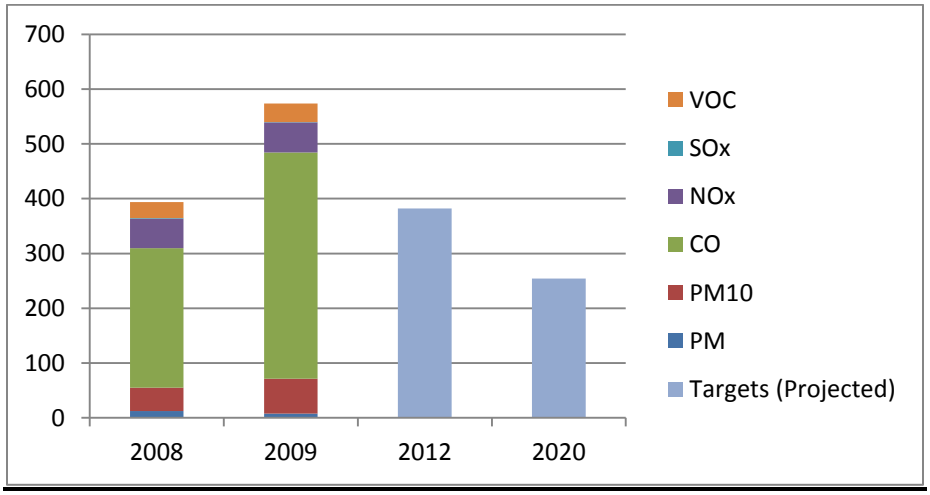
Initiative AQ4.2: Work with the Green Procurement Team to develop the policies and tools necessary to report progress on achieving goal targets. Serve as SME for Air requirements, and provide resources and analysis to team members to enhance decision making capability.

Initiative AQ4.3: Work with the HMMP committee to enhance data capture and policy enforcement activities to support goal progress and target acquisition. Serve as SME for Air

requirements, and provide resources and analysis to team members to enhance decision making capability.

Initiative AQ4.4: Work with the DPW Engineering Division to ensure AQA requirements are met so the Air Program can inventory all sources of HAP emissions as they occur.

Objective AQ5: Reduce Criteria Pollutant Emissions.



Target by FY12:
3% reduction of Criteria emissions

Target by FY20:
10% reduction of Criteria emissions

Details on Objective Target Graph AQ5

Measure: Total Criteria Pollutants (tons)
Scope: FTC Controlled Stationary and Fugitive Sources
Source: Title V Rolling Totals, Annual Emissions Inventory Data
Baseline: 2008
Limitations: Data quality from numerous unpermitted sources
Verification & Validation: Title V Compliance
Comment:

- Goal is closely tied to GHG initiatives. Reductions in GHG will result in reductions to criteria pollutants, although the ratio is not 1 to 1 since numerous Criteria sources are not also GHG sources.

Initiatives in support of Objective AQ5 (FY10/11)

Initiative AQ5.1: Continue to enforce Installation Design Guide criteria for adding or retrofitting air emissions sources on the installation.

Initiative AQ5.2: Work with the DPW Engineering Division to ensure AQA requirements are met so the Air Program can inventory new or modified sources as they occur.