Meeting EO 13514 for GHG Compliance using the Air Program Information Management System (APIMS)

E2S2 Conference
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Agenda

• Overview of EO 13514

• Keys for Meeting Requirements of EO 13514

• Overview of APIMS

• APIMS System Examples
• Executive Order 13514 establishes numerous goals for DoD agencies.

• EO 13514 represents a transformative shift in the way the government operates by:
  ✓ establishing GHGs as the integrating metric for tracking progress in DoD sustainability
  ✓ requiring a deliberative planning process
  ✓ linking to budget allocations and OMB scorecards to ensure goal achievement.

• E.O. 13423 *Strengthening Federal Environmental, Energy, and Transportation Management* (January 29, 2007) is not revoked by the new E.O.; the requirements of that Order remain in effect.
Key Dates for EO 13514

1/4/10
• Complete top down agency-wide GHG inventory
• Submit Scope 1 & 2 target goals for 2020

6/2/10
• Submit Strategic Sustainability Performance Plan, in concert with 2012 budget submission
• Submit Scope 3 target goals for 2020

10/5/10
• Submit to CEQ input on agency adaptation actions

1/3/11
• Complete comprehensive 2010 GHG inventory
Approaches for Tracking GHGs in the DoD - optional

- Top-down
  - Headquarters level
  - Use existing data systems
  - Standardized calculation

  ✓ Faster
  ✓ Less Resources
  ✓ Not accurateLess Detailed
  ✓ No Installation Ownership

- Bottom-up
  - Equipment level
  - Detailed site-specific data
  - Customized calculation
  - Rollup to headquarters level

  ✓ Time Intensive
  ✓ Resource intensive
  ✓ Very accurate
  ✓ Owned by Installations
GHG Emissions by Scope

• Compliance with EO 13514 means agencies will have to gather data on Scopes 1, 2 and 3 emissions from a number of sources.
GHG Requirements applied to DOD

- **Organizational and location based accounting**
  - Executive Reporting
  - Cross Cutting Information
  - Joint Basing, tenants and leased facilities
  - Example: Navy ODOB at Hill AFB

- **Transparency to GHG Sources**
  - Process Management
  - Who is generating what, why and for who
  - Landing gear for Army and Navy at AF installation
  - Example: Bead Blast vs Laser Strip

- **Accountability for GHG Emissions and Reductions**
  - Setting and meeting reduction goals
  - DOD is cutting GHG by 32% by 2020
  - Where are the opportunities to improve without impacting mission
  - Budgeting: Purchasing Credits

- **Transformation to non-GHG processes**
  - Process Re-Engineering
  - Example: Converting Jet Fuel to Bio Fuels (algae)
    - Retrofit Planes for fuel conversion
Key Issues for the Implementation of GHG Management System

- Web-Based and Accessed Anywhere in the Enterprise
- Process Based Approach
- Capabilities to Roll-Up Detail Data at an Enterprise Level
- Capability to Provide Leading Metrics Integrating Multiple Data Feeds
- System of Systems Capability, Integrate with other Authoritative systems (DMDC, GovTrip)
- Capability to Generate Decision Support Metrics
- Ability to Track, Measure and Compare Emissions Based on Identified Goals and Standards
APIMS 6.0 – The Proven Solution

- APIMS 6.0 Has just been released on DISA
- Web-Based Application
- Enterprise Data Rollups and Dashboards
- Greenhouse Gas Inventories (EO 13514 Compliance)
- Online AEI Submittal
- Scalable to any Sized Air Program
- Permit and Inspection Management
- Material Management System Interfaces
- Interactive between other systems
- Goals and Objective Tracking and Reporting
APIMS - Process Centric Approach

Source Category
- Parameters
- Emission Factors
- Build Algorithm
- Define Algorithm

Unique Process

Chemical Data
- Material Product
- Material Issues

Emission Units
- Equipment
- Stacks
- Tanks
- Controls

Regulatory Compliance
- Regulatory Documents
- Applicable Requirements
- NESHAP
- Checklists
- Inspections

Annual Air Emission Inventory

GHG Emission Inventory

Air Management Tool
- Data Manipulation
- Custom Reports
APIMS – Source Information

Edit Process Information

Process ID: IFU12175606 Permit ID: SC3VEH
Unique ID: 5608
Start Date: 1901/01/01

Source Category: VEHE
End Date:

Process Definition

Information

- Building No.: BASEWIDE
- Location: FORT HOOD (Verified)
- Office Symbol:
- Source Type: MOB
- Permitted Source:
- Emission Point: ATMOSPHERE (Unverified)
- Next Higher Process:
- EPA Source Class Code:
- EPA Industry Group:
- GHG Scope: 3 (Unverified)
- For Processes using JET Usage Log, specify the Default Fuel for the Process:
- Exclude Consumption records from HMMS or EESOH-MIS Interface?
- Comments:

Save Cancel
### APIMS - Calculations

**Permit ID:** SC3VEH
**Unique ID:** 5608
**Start Date:** 1901/01/01
**End Date:**

#### Process Algorithm Assignment
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<th>FR Set Id</th>
<th>Specification</th>
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<th>End Date</th>
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<td>2014</td>
<td></td>
<td>1901/01/01</td>
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<td>EFVWVM-000268</td>
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#### Calculation Parameter Assignment
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#### Emission Calculations
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<th>Calculation Name</th>
<th>Emission Type</th>
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<tbody>
<tr>
<td>SCOPE 3 GHG EMISSIONS (EO15514.2C)</td>
<td>ACTUAL</td>
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**APIMS - Permits**

**Regulatory**

**Process ID:** IFU12175608--SC3VEH  
**Unique ID:** 5608  
**Start Date:** 1901/01/01

**Regulated Unit Group**

<table>
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<th>RUG Code</th>
<th>Description</th>
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<tr>
<td>EO13514.2B.3</td>
<td>EXECUTIVE ORDER 13514, SECTION 2B, REQUIREMENT NUMBER 3</td>
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**Process Questions**

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<th>Question</th>
<th>Y/N</th>
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No records found.
Edit Consumption

Process ID: RUT13905505...  Local Process Name: PURCHASE POWER - FACILITY WIDE  Process Start Date: 1901/01/01

Start Date/Time: 2007/12/01 0000  End Date/Time: 2007/12/31 2359

Source Category: PPWR

Amount: 30282.397 MWH - MEGAWATT HOUR

Usage Type: ACT

Emission Type: ACTUAL

Source of Record: HAND-ENTER

Cancel
APIMS - Reporting
Generation of Leading Indicators

APIMS has the ability to provide leading indicators and metrics through process based management.
Integration with Other Systems

APIMS has the ability to interact with other systems to obtain critical data to calculate Scope 1, 2 and 3 Emission Sources.

- Purchased Energy Data
- Process Data
- Material Consumption
- Employee Travel Data
- Employee Travel Data
- Commuter Data

Systems Integrations:
- DTS
- DIHRMS
- EESOH
- DMDC
- GovTrip
- Energy Providers
Questions ???

Data - Information - Knowledge - Power
Mark pages according to the proprietary level of information as described in Company Procedure J103 (or remove)
Background of DOD Reporting of GHGs

- Executive Order 13423 (Jan. 2007) directs Federal Agencies to reduce GHG emissions through reduction of “energy intensity”

- GHGs: CO2, CH4, N2O, HFCs, PFCs, SF6

- Annually, DoD reports energy/fuel use data to the Department of Energy

- Annually, DoD reports military “bunker fuels” (international ship/aviation fuel use) to the Environmental Protection Agency

- DoD developed a GHG inventory - June 2000
  - For 1990 (base year) and 1996

- Comprehensive: Included DoD-wide GHG emissions & sinks

- New Executive Order 13514 for GHG Scope 1, 2, and 3 Emissions Reporting (Oct. 2009)
Perspective on DOD

- Single largest energy consumer in the United States
- Accounted for over 60% of energy consumption in the Federal Government in 2006
- If DOD were a state it would be the 35th and 36th largest states based on total electricity consumption
- DOD spent nearly $4 billion on facility energy in 2008
- DOD has over 300,000 buildings and 160,000 fleet vehicles
DOD GHG Sources

- **Stationary sources**
  - generators, boilers, and fuel cells

- **Mobile sources**
  - tactical and non-tactical vehicles

- **Fugitive sources**
  - munitions detonation, prescribed burns, refrigerants, landfills

- **Purchased sources**
  - electricity, steam, and hot water
DOD Energy Consumption

- Buildings: 75%
- Molbility (Aircraft, Ships, Vehicles): 25%

- Fuel Oil, Coal, Auto Gas, Other: 11%
- Jet Fuel: 12%
- Electricity: 8%
- Marine Diesel: 8%
- Auto Diesel: 8%
- Natural Gas: 53%
Average GHG Sources at an Installation

- Stationary Combustion Engines: 26%
- Mobile Combustion Emissions: 13%
- Fugitive Emissions: 11%
- Purchased Electricity & Steam Eng: 50%