Working with DOE's National Labs

Idaho National Laboratory (INL) Capabilities and Contacts

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INL Overview

- As DOE's Lead Nuclear Energy (NE) Lab, the INL mission is to *"Ensure the nation's energy security with safe, competitive, and sustainable energy systems and unique national and homeland security capabilities".*
- **Laboratory Objectives:**
  - Nuclear Energy Research
  - Multi-program Activities
  - Advanced Capabilities
  - Applied Engineering

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INL Operations

- Began as the U.S. Naval Proving Grounds in the 1940s
- DOE reservation: 890 sq miles, 25 miles west of Idaho Falls
- Nation lead in reactor research: 54 built and tested - 1 remains active
- 579 Facilities (5.7 million sq ft)
  - 231,000 MWh of electricity
  - 2.5 million gallons of fuel oil and propane
  - 265,000 therms of natural gas
  - 1.1 billion gallons of water
  - Annual cost of well over $11 million

"INL site has reduced energy use by 49% since FY 1990 with cumulative savings of over $11M"

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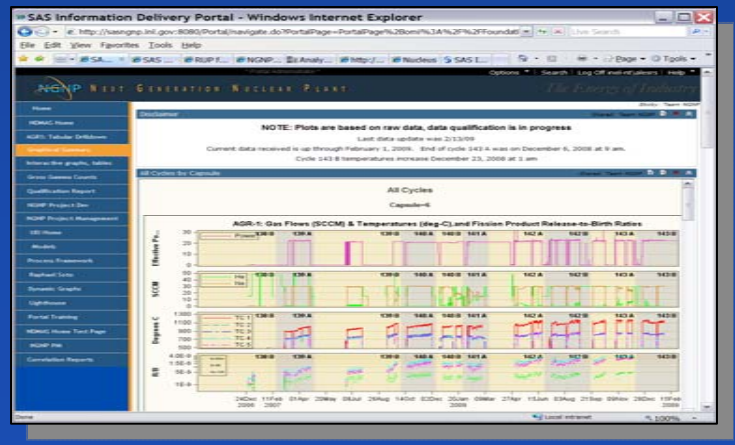
Core Competencies

- Energy and Fuels
  - Wind and geothermal power research and application
  - Natural gas liquefaction with an emphasis on vehicle fueling
  - Development of ESPC and Utility Energy Services Contract (UESC) projects including analyses for practicality and measurement & verification activities
  - Energy data analysis and modeling
    - Data integration
    - Statistical analysis
    - Business intelligence



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Energy and Fuels - Examples

- **ESPC:** Currently in the design phase of a ***$33M ESPC*** for one of the INL's primary research areas

- **Wind Energy:** INL, in conjunction with the US Air Force and other partners, developed and designed a hybrid wind farm at Ascension Island

- **Natural Gas Liquefaction:** The INL Natural Gas Products Team has designed small-scale LNG plants capable of producing an output of up to 30,000 gallons of LNG per day

Ascension Island

INL/PG&E Small-scale liquefaction plant, Sacramento, CA

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Core Competencies – Cont'd

- High Performance Green Buildings
  - LEED-accredited professionals
  - Three new state of the art LEED buildings constructed or under construction

ATR Test Train Assembly Facility (Silver)

ATR Common Support Facility (Silver)

Center for Advanced Energy Studies (Gold)

Core Competencies – Cont'd

- Fleet Operations:
  - Advanced vehicle testing with particular expertise on battery power and data analysis
  - Vehicle fleet transformation and migration to General Services Administration (GSA) ownership
  - Fleet data management capabilities and expertise
  - Long time experience in fleet operations (heavy, light and construction), mass transit logistics, intra modal transportation planning and system dynamics




Fleet Operation - Examples

- Long time participant in *Advanced Vehicle Testing Activities (AVTA)* and DOE's *Vehicle Technologies Program*. Recent projects include a Plug-in Hybrid Electric Vehicle (PHEV) testing program in the Seattle area that is using 13 hybrid Toyota Priuses

- The INL maintains the *Federal Automotive Statistical Tool (FAST)* and *Vehicle Management Information Systems (VMIS)*. We are experts in EPAct asset reporting requirements and help support the annual FAST data call

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Fleet Operation Examples – Cont'd

- The INL operates a fleet of over 1,642 vehicles (light and heavy) and closely monitors its fuel composition and use including: diesel, biodiesel, gasoline, E-85, LNG & CNG

- Efforts are underway to establish a pilot project with NREL & Fuel Master® using GSA vehicle modules and a secondary module to automatically control vehicle fueling, and monitor vehicle data such as engine performance and fuel mileage

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