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**Tom Karier**  
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Oregon

**Joan M. Dukes**  
Oregon

May 27, 2010

## MEMORANDUM

**TO:** Council Members

**FROM:** Jeff Allen  
Idaho office

**SUBJECT:** Presentation by Idaho National Laboratories

### Summary of Energy-Water Presentation:

The Idaho National Laboratory is looking forward to addressing the Council on INL's Energy-Water Program capabilities and technologies which match quite well with the issues the Council is currently addressing, such as hydro-thermal power, the Columbia River System and the need to be prepared to address serious energy-water issues by properly balancing the needs.

INL is centrally located in one of the region's richest energy resources: The Western Energy Corridor.

Their presentation will concentrate on the issues that directly affect the Council, where they have state-of-the-art capabilities and technologies that we feel may be of benefit to address the Council's main areas of concern.

### Summary of Presentation on Nuclear Energy:

By most reasonable measures, the nuclear renaissance has truly started in the US. An improving public image of nuclear energy and recognition of the ability for base-load power generation without GHG emissions have combined for a resurgent look at nuclear power in different regions across the nation. What has changed since the last time we built nuclear reactors in the US, and where are we going with the troublesome aspect of nuclear waste? What about the huge upfront costs for this arguably "clean" energy? A brief overview is provided in this discussion on the status and direction of nuclear energy, along with the role Idaho National Lab can and does play in developing nuclear energy for the region, nation, and world.

**Biography of Presenter:**

Phil Sharpe (Ph.D. Nuclear Eng., North Carolina State University, 2000; B.S. Physics, NCSU, 1995; B.S. Nuclear Eng., NCSU, 1995) is manager of the Thermal Sciences and Safety Analysis Department in the Nuclear Science and Technology Directorate at Idaho National Laboratory. His main responsibilities are developing and evaluating advanced safety assessment tools for nuclear energy systems, safely engaging in basic and applied science and engineering experiments in laboratory facilities, improving the performance of energy systems in a water-constrained world, and studying the prospects for advanced nuclear energy sources - including fusion energy.

**Biography of Presenter:**

Richard A. Rankin (holds undergraduate and graduate degrees in Chemistry, with additional graduate work in business management, environmental science and engineering management). Richard A. Rankin is the Program Director for the Integrated Environmental Science and Technology Business Line at the Idaho National Laboratory. In this role, he manages the development of the INL's environmental R&D program. The environmental business line includes activities in a wide range of areas, ranging from environmental restoration or remediation oriented activities, to mitigation of environmental impacts associated with energy resource recovery and use, to the management of nuclear materials, to water quality and natural resource management. Associated with this role, Rich is also the INL's Relationship Manager for the U.S. Department of the Interior and the U.S. Environmental Protection Agency. With more than 30 years experience in technology development, deployment and management, Rich has worked with technologies and processes in a wide variety of areas, including: biotechnology, chemicals, defense, environment, manufacturing, materials, nuclear and fossil energy. He has conducted laboratory research and managed projects in areas focused on the design and development of processes, instruments and sensors for demanding chemical measurement applications. He is a recipient of the INL Lifetime Achievement Award for Inventorship and is included in the INL Inventors Hall of Fame, has received an R&D 100 Award for one of the top 100 technical products in the world.

Jennifer Jorge (B.S., M.S. and Ph.D. in Civil Engineering) will also be attending the meeting with Phil Sharpe and Richard Rankin, and will be happy to address any questions that may arise in her areas of expertise: Environmental Stewardship and Water Management. Dr. Jorge comes to INL after being the Deputy Director of Everglades Restoration in the State of Florida (largest ecosystem restoration project in the country) and Director for Kissimmee Restoration at Florida (a project that represents decades of work and remains the largest riverine restoration project in the country).

They look forward to providing this timely briefing on two areas of great regional interest: Nuclear Energy and the Energy-Water Program at INL.

**INL is centrally located in the Western Energy Corridor, where it shares a common vision for energy and water resources.**



## INL Water Program

### *Sharing a Vision for Energy and Water*

**I**NL is centrally located in one of the nation's richest energy resources – the Western Energy Corridor. This region also hosts natural beauty, sensitive environmental systems and major life-supporting water systems. Here, INL shares a common vision for energy and water resources, and partners with state and federal land managers to sustain the region's natural resources and economy.

The Mountain West—as well as the nation—is faced with

emerging critical management challenges associated with increasing and competing demands for limited water resources to meet growing demands for energy production, agriculture, industry, domestic use and for sustaining our environment. Drivers for these challenges are many, and include: climate change, population increases and migration patterns, changes in land use, changing resource uses associated with energy production, industrial development, domestic consumption,

agriculture initiatives, transportation fuels, recreational demands, and ecosystem protection and sustainability.

Given the Mountain West's snowpack-dominated hydrological system, adapting to these changes requires reliable projections of future demands and conditions, and the resulting impacts on the region's energy-water systems. Meeting these challenges within individual states, regions, and across regions will require

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