

Northwest Energy Efficiency Alliance

One-2-Five[®] Energy Demonstration Project



One-2-Five Energy Identifies Cost Savings that are "No Small Potatoes" for JR Simplot





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Project Background

J.R. Simplot Food Products Group (Simplot) elected to participate in a demonstration program, jointly sponsored with the North West Energy Efficiency Alliance (NEEA) to show the benefits of improving energy management systems and the potential untapped savings available. This program utilized the methodologies and processes developed by EnVINTA and encapsulated within the One-2-Five[®]Energy software program as a means to diagnose gaps within the management system and develop implementation strategies to enable companies to take advantage of the identified opportunities and create real savings.

Having already adopted a corporate strategy for energy procurement, Simplot found this process to fit neatly within the existing philosophy. The demonstration program involved the following activities:

Diagnostic	-Initial One-2-Five Energy session to establish the "line in the sand"
Validation	-Confirm the diagnostic results and potential for improvement
Investigation	-Development of key opportunities (one demonstration project per site)
Implementation	-Planning support for the selected demonstration project

One-2-Five Energy Management System Pyramid



One-2-Five Energy establishes a level of development across a comprehensive framework of energy management issues necessary to drive long-term sustainable improvements. The process identifies gaps in the 10 Key Areas that make up the Energy Management System Pyramid and focuses attention on the five most critical areas for improvement. This process is designed to integrate traditional technical approaches with management system improvements and raise awareness of how management decision can affect overall energy usage.



General Findings – One-2-Five Energy Diagnostic Results

Upon validation of the resulting One-2-Five Energy Star score, each site broadly accepted the indicative potential savings in the range of 12% to 14%. The individual sites scored:

Site	One-2-Five Star Score
Aberdeen	1.48
Caldwell	1.16
Hermiston	1.23
Moses Lake	1.58
Nampa	1.23
Othello	1.61
Moses Lake Nampa Othello	1.23 1.58 1.23 1.61



Each individual facility then selected one specific demonstration project for development that illustrated the linkages between One-2-Five®Energy and improved management practices. Detail findings for the Aberdeen and Caldwell sites follow in the next section.

Site	Demonstration Project	One-2-Five Link	Annual Savings
Aberdeen	Dryer Optimization	Understanding of Opportunities Training and Awareness Operating Procedures Reporting, Feedback and Control Systems	\$35,000
Caldwell	Boiler and Steam System Optimization	Understanding of Opportunities Training and Awareness Operating Procedures Maintenance Procedures Metering and Monitoring Reporting, Feedback and Control Systems	\$90,000
Hermiston	Refrigeration Controls	Understanding of Opportunities Training and Awareness Operating Procedures Procedures - Plant Design/Retrofit	\$90,000
Moses Lake	Heat Recovery from Blanchers	Understanding of Opportunities Procedures - Plant Design/Retrofit	\$150,000
Nampa	Condenser Upgrade and Control	Understanding of Opportunities Training and Awareness Operating Procedures Procedures - Plant Design/Retrofit	\$60,000
Othello	Compressed Air System Review	Understanding of Opportunities Training and Awareness Operating Procedures Maintenance Procedures	\$9,000



Detail Findings – Aberdeen Site

The Aberdeen team used One-2-Five®Energy to focus on operating practices as an area for improvement. The dryer operations were assessed and significant opportunities for improvement were identified.

Historically, operations personnel focused solely on product quality and throughput. While this focus is certainly vital to the site's success, there appeared little real understanding of the impact of operational decisions on energy usage. Analysis confirmed that a substantial reduction in energy utilization could be available at no capital cost by adopting an education and awareness raising exercise and coupling this with updating of operating procedures, backed up with improved operational information tracking and compilation.

The team put the operations personnel through "Dryer School" which engaged with staff to:

- Indicate why energy management is important
- Show ideal energy consumption of the dryers
- Illustrate current performance in energy utilization
- Determine the operating decisions that affect energy usage

The operations staff fully engaged in this process and actively pursued the The graphical trend lines savings. comparing changes in % Relative Humidity of the dryers with corresponding reduction in gas consumption illustrate the substantial gains realized. Savings in excess of \$35,000 have been gained with no capital investment – simply, an improved level of understanding and involvement from site staff.

- Identify improvements to the Standard Operating Procedures to allow tighter control on energy utilization
- Identify key parameters that need to be trended and displayed for operators





Detail Findings – Caldwell Site

Caldwell were in the process of updating their boiler systems to incorporate low NOx burners, however, it was broadly recognized that additional focus on energy management initiatives would be required in order to maximize the effectiveness of the enhancement.

The site team commenced an evaluation of the opportunities available and undertook a series of group discussions and reviews, which identified a range of improvements for consideration. These improvements included:

- Improved metering and monitoring
- Improved calibration procedures
- Improved boiler controls



- Measure and trend boiler efficiency
- Operator training and awareness raising

The site has been able to totally shut down one of their boilers with confidence that no disruption of site steam supply will result. The site team has been implementing the range of improvements and is confident of continued savings in excess of \$90,000. Additional sessions with operators to reinforce practices are planned and the site team has been encouraged by these results and is now expanding the focus to include the reticulation system and condensate return improvements.





Sustainable Change - The Search for Additional Improvements Continues

The Demonstration Project has shown the One-2-Five Energy Process provides a framework for long-term sustainable change as each of the sites continue to seek additional projects for evaluation and development. In many cases, early adoption of these potential projects would not have been undertaken without this demonstration project.

The current potential projects being investigated and pursued at each site include:

Site	Project	Potential Annual Savings
Aberdeen	Condensate Recovery	>\$100,000
	Operating Procedures – Additional Areas	
	Boiler Efficiency Improvements	
	Leak Reduction Program	
Caldwell	Leak Reduction Program	>\$250,000
	Insulation	
	Condensate Recovery	
	Economizer Review	
Hermiston	Increase Biogas Recovery (Already Achieved 5% Improvement in Biogas Usage)	>\$120,000
	Condensate Recovery	
	Compressed Air System Controls	
	High Efficiency Motor Applications	
	Optimal Selection for Replacement Compressor	
	Improved Boiler Controls	
Moses Lake	Reviewing Applications for Additional Waste Heat Usage	>\$80,000
	Assessing Opportunities for Increasing Usage of H2 in place of Natural Gas – including Gas Quality improvements	
	Gas Drving	
	Training and Awareness Raising	
	Reviewing VSD Applications	
	Improving Blowdown Procedures	
Nampa	Training and Awareness	>\$55,000
	Pressure Reduction – CA System	
	Air Compressor Allocation	
	Condensate Recovery	
Othello	Condensate Recovery	
	Blancher Heat Exchanger Options	
	Training and Awareness Programs	
	Demand Control and Power Factor Correction	



Opportunities to Participate

Previous to this Demonstration Project with Simplot, the Northwest Energy Efficiency Alliance had demonstrated that Envinta's One-to-Five Energy management diagnostic workshop software is a useful tool in collecting key information about the barriers to efficiency in management decision-making processes in the industrial sector. This Demonstration Project with Simplot has demonstrated the ability of follow-up management consulting to change actual management practices and result in real energy savings.

NEEA is extending the benefits of this demonstration project scope to a select group of companies in the following industry sectors:

- Pulp and Paper
- Food Products
- ➤ Transportation

- ➢ Wood Products
- Microelectronics

For more information on this program or to express an interest in participation, please contact us at either of the following individuals:

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