A conundrum exists between
The growing demand on limited energy and water resources in the west
The 450 Northwest Food Processors Association (NWFPA) goal to reduce energy (electricity and water) consumption 50% by 2030.
The large energy and water use (FEW) needs of food production processors
To exploit the physical facilities, equipment, and support staff of the INL, UI, and CAES
The University of Idaho (UI) and Idaho National Laboratory in partnership with the Center for Advanced Energy Studies (CAES) proposes to:
To exploit the expertise and acumen of leading academic and industrial professionals
Deploy graduate student with computational modeling skills and experience to conduct the analysis
Support and collaborate the students using leading academic and industrial professionals
Deploy a suite of mathematical models to crunch the numbers and to provide a state-of-the-art analysis of complex problems:
(1) Aspen HYSYS process modeling software
(2) Dynamic Balanced Scorecard (DBSC) simulation model
To access the resources of leading organizations in water and energy use and conservation
To identify and select a regional food processor to analyze for this project
The reasons for the analysis includes:
Provide meaningful research and degree opportunities for graduate students
Provide solutions to complex problems with scientific and engineering methods
Provide access for the regional NWFPA to the power and combined resources of a national laboratory, a university and an energy organization which are world leaders in water and energy use and conservation
Reduce impact to regional electrical and water providers
The results for the analysis includes:
To identify methodologies, techniques, and methods for end users to reduce usage
To estimate the impact of water and energy saving
To identify the waste streams and points of conservation
To maximize water and energy savings
To lead to cost savings and increased profits
To identify the energy/water footprint of a food processing facility
To share results with other MWFPA members
To provide data to create plans and road maps for implementation of new technologies and methods for other facilities
To establish a model for use on subsequent facilities to leverage the initial investment
To reduce need for new power plants and transmission line
to significantly reduce energy and water consumption in the food production industry
Providing support for regional engineering and science graduate students and university
Funded by Avista Power
Providing reduction of regional natural resources and an ultimate savings to the ratepayers in reducing electric generation and distribution
Proposed cost: $90,645.06
Proposed time period of project: 12 months beginning TBD
Proposed cost saving to Avista and water providers could be millions of dollars and millions of gallons of water in the future