Hansen, Allen & Luce (HAL) is an award-winning civil engineering firm and a recognized leader in water system optimization. We have helped dozens of water utilities optimize their systems by aligning level of service, energy efficiency, and water quality. Water system optimization is a growing best practice that benefits the provider, consumer, and the environment.

AWARD-WINNING RESULTS
Almost every water system can benefit from optimization. After implementing our recommendations, the Logan, Utah, water system cut annual energy costs by 32%, while at the same time reducing water use by 17% and mainline breaks by 40%. Customer complaints dropped and staff could then focus on preventive rather than reactive maintenance. The effort eliminated the need for a $3 million transmission project and delayed the need for a new water source. We have found these types of benefits to be common among water utilities, regardless of size.

Our innovation in this field has earned us several awards. Utah Governor Gary R. Herbert recognized us as “Energy Innovator of the Year” in the 2015 Governor’s Excellence in Energy Awards. Our firm also won the 2015 Best of State Award for civil engineering. Logan’s optimization project was recently selected as “Public Works Project of the Year” by the American Public Works Association Utah Chapter.

TOOLS
The main tool we use for water system optimization is an extended-period hydraulic model—a computer simulation that describes how a water system performs under various conditions. The model helps us understand a water system’s behavior, identify problems, test changes, and recommend improvements. We have exceptional insight and experience that enable us to develop an effective model and analyze the water system for optimization opportunities. We also complete a mass balance to understand where water is being used and an energy map to determine the energy requirements of each water system facility.

LEVEL OF SERVICE
Fulfilling a critical human need, water systems must be reliable. As demands for better water service increase, providing that service will be a challenge. Our optimization techniques help manage water sources, pressures, storage, and distribution to maintain a high level of service, regardless of the system’s size. Spanish Fork, Utah, observed that its water system actually performed better during a drought than before thanks to optimization.

ENERGY EFFICIENCY
Energy is usually the largest operational cost for water utilities but is often not considered during design. The result is inefficient operation and high costs due to excessive pumping. With proper engineering that considers energy requirements, water delivery can be much more efficient. We have helped clients save over 30% on energy costs through operational and capital improvements that resolve common inefficiencies. A project in Spanish Fork, Utah, is saving the city 29% on its annual energy costs. This year, we helped Jordan Valley Water Conservancy District save over 2.8 million kilowatt-hours.

WATER QUALITY
Delivering a high-quality product is one of a water system’s main objectives. The hydraulic model can simulate chemical reactions throughout a pipe network and identify potential water quality problems such as low chlorine, high disinfection byproducts, poor blending, and stagnant water. We then recommend actions to improve water quality. Our optimization study for Blanding, Utah, included a plan for arsenic control and sampling to meet state standards.

FULL-SERVICE ENGINEERING
Beyond optimization, we offer complete planning and design services for water infrastructure. Over the past 40 years we have completed hundreds of projects throughout the Intermountain West. Our high rate of repeat business testifies of clients’ satisfaction with our work.

Please contact us to discuss optimization and other opportunities for your water system. Funding assistance for an optimization study or an energy-related capital project may be available.