

Bonneville Power Administration

The gold standard of utility control rooms we can't show you. "You have to see it to believe it!"

The Bonneville Power Administration is a federal agency based in the Pacific Northwest. BPA operates and maintains about 75% of the high-voltage transmission in Idaho, Oregon, Washington, western Montana and small parts of eastern Montana, California, Nevada, Utah and Wyoming. BPA's central control center was built in the early 1970s and had very little modernization since then. As BPA interjected software platforms to better manage and anticipate increased load stress, the operation's physical systems were obsolete and becoming inadequate. BPA needed a major facelift. After an extensive RFP process, BPA selected Mauell to perform design and contract management services.

With 80' x 100' to work with, and after many iterations, Mauell and BPA developed a detailed plan to modernization the space. Affected areas included the ceiling, flooring, walls, office space, cubicle areas, and control room systems. BPA's Facilities, Projects, Operations, IT, EMS, Security, architectural and seismic engineering subcontractors contributed.

Central to the project was a complete evaluation of the operation and recommendation of modified spatial plan.

The construction plan involved the dismantling of the existing space, including consoles, storage furniture, two existing mapboards, chart recorders, flooring, and displays. The work was coordinated with an ongoing seismic structural upgrade project which involved ceiling and flooring supports.



As the contract administrator, Mauell sourced the General Contractor and their subs. Over the course of three months, Mauell oversaw the demolition of 40% of the existing floor-space while operations worked

within the room protected by a false wall. Then operations vacated the space for 2 weeks. During that time, Mauell and the project team worked 20 hour days performing ceiling/lighting upgrades, soffit build-out, raised floor section, carpet tile and erection of a 14' x 50' Mauell dynamic (lighted) mosaic mapboard and 3 high x 9 wide matrix of 67" rear projection cube system. Both structures were seismically qualified and anchored to subfloors and ceiling/wall tie-ins. Behind the video display

wall, cubicles were placed for system engineers. Front console positions for dispatchers and AGC/RAS engineers were installed. BPA operations returned to the room and then vacated a second time for 3 days. During this time final building construction and punch list items were handled as well as installation of seven (7) more positions. Each operator needed to have readability of system-wide content. The ability to view operations activity between both centers was another requirement of the design. After extensive data gathering and a collaborative review process, Mauell designed each control room with the following;

Highlights

Environmentally friendly construction

- low or no VOC paints and adhesives
- sustainable materials for console cladding
- cork based fascia panels on video and mapboard structures
- LED fixtures for lighted pathways

Managed foot traffic significantly reducing operator distractions

Hybrid display approach to situational awareness

- mosaic mapboard provides system status of main and sub transmission grid
- video display provides AGC/RAS scenarios and generation load data

Two tier floor manages sight lines, interpersonal communications and acoustics

Ergonomic features provide customized environments for operators

- waterfall solid surface edging (easy to clean and repair)
- height adjustable work surfaces
- personal climate controls

A/V design follows BPA's CIP guidelines

Contract Management of a major facility renovation from design through build and close-out

Adherence to strict critical facility security policies

BPA's transmission system control center is now a benchmark facility that marries technology (both off-the-shelf and custom) to operations. The new space is a fairly radical departure from the past. Mauell's collaborative process allowed BPA's departments to share ownership in the design, helping to facilitate 'Change Management' within the operations and support staff.

Mauell Corporation is a privately held firm specializing in the supply of mission critical command and control spaces for the utility marketplace. Mauell also provides hardened control systems for nuclear simulation, train control and process control environments. Headquartered in Dillsburg, PA, Mauell provides turn-key services including design, build, installation and support.