

## Case Study

Project: McDonald Island NG Facility Overhaul  
Date: 2024

### Project Plan Perfected

#### Project Overview

Energy Link recently completed a high-profile facility overhaul project for the McDonald Island natural gas storage facility in the Sacramento-San Joaquin River Delta. McDonald Island is an essential natural gas storage field with connections to 87 wells for gas withdrawal and 81 wells for injections. It can meet up to 25% of Northern California's peak winter gas demand. Given the facility's critical role in the energy infrastructure, the overhaul project was important to ensure its continued reliability and efficiency.

#### Scope of Work

Energy Link was tasked with overhauling the facility including three Waukesha L7044 GSI ESM engines that drive the Ariel JGD/4 compressor. The overhaul aimed to restore the engines, compressors, and operating systems to near-new conditions, ensuring optimal performance and compliance with operational standards, including meeting Air Permit Limits.

#### Challenge Met

The annual CARB test on blow-down valves had yet to be completed before shutting down the units. Failure to have this test done could result in a huge monetary loss for the customer. Energy Link devised a plan to get the compressors running long enough to test and continue their scope.

“Energy Link’s turnkey services made this project easy to manage. It’s good to see the site up and running in top performance. We have a lot of gas to push.”

Energy Company Project Manager





## Why Energy Link was Chosen for this Important Project

Energy Link was uniquely qualified to be the best provider of the services requested for the following reasons:

- Extensive history of operating and maintaining the engines and compressors at the McDonald Island facility.
- Demonstrated how to work safely, properly, and in accordance with the operator's expectations.
- Experienced Mechanical Services Group
- Comprehensive Construction Group
- Qualified credentials: UL Certified Panel Shop, Factory trained mechanics for Waukesha and Ariel equipment, ASME Code Shop (fabricating, repairing, and installing pressure vessels), and Personnel are OQ Qualified, eliminating the need for an onsite operator.

## Project Plan Perfected

The following is a streamlined project plan and equipment updates outline key steps refined over 25 years, ensuring engines and compressors meet performance standards and comply with emissions regulations.

<b>Pre-Safety</b>	<ul style="list-style-type: none"> <li>▪ Review, outline, and detail all tasks with everyone involved.</li> </ul>
<b>Control Power</b>	<ul style="list-style-type: none"> <li>▪ Lockout/Tagout</li> <li>▪ Remove Local Control Panels (LCPs)</li> <li>▪ Design and install New Unit Control Panels (UCPs) to replace LCPs.</li> <li>▪ Redesigned and built the power gas supply system.</li> </ul>
<b>Engines</b>	<ul style="list-style-type: none"> <li>▪ Engines were removed and transported to the WPI Overhaul facility in Bloomfield, New Mexico. The engines were completely disassembled, and every component was carefully inspected, cleaned, repaired, or replaced as necessary.</li> <li>▪ Update and Add 2 ECM systems.</li> <li>▪ Dyno Test Engines with the ESM2 systems installed.</li> <li>▪ The Time frame was 8 weeks.</li> </ul>
<b>Compressors</b>	<ul style="list-style-type: none"> <li>▪ Removed the three compressors and shipped them to Energy Link's facility.</li> <li>▪ Compressor Overhauls were completed within 8 weeks.</li> </ul>
<b>Gas, Fuel, and Process Gas Piping</b>	<ul style="list-style-type: none"> <li>▪ All gas piping spools were transported to the Energy Link's Bakersfield, CA, facility for Hydro-Testing Work, internal and external cleaning, sandblasting, and coating.</li> <li>▪ Automated Fuel Gas Block Valves and Fuel Gas Actuated Vent (Blowdown) Valves were added to the appropriate spools.</li> </ul>
<b>General Actions</b>	<ul style="list-style-type: none"> <li>▪ The skids received grout services, packers were upgraded to liquid-cooled, and compressor valves were upgraded to Ariel CP.</li> <li>▪ Coolers were cleaned/repared onsite.</li> <li>▪ Commissioning and Start-Up were completed.</li> <li>▪ Final Documents and Reports were submitted for review.</li> </ul>