

### Production Automation (Oilfield AI)

These systems utilize Machine Learning and Neural Networks to boost production and decrease well intervention. Targeted areas include: Full Artificial Lift Automation and Optimization; Predictive Maintenance which minimizes downtime by alerting in advance of adverse events or when chemical treatments should (or shouldn't) be administered; Advanced Analytics and Reporting to help operational teams spend less time navigating through data and more time making informed decisions.

**This solution is best suited for:** wells with beam pumps having problems related to underpumping, overpumping, gas-locking, paraffin buildup, or scaling; wells in remote locations or under contract pumping; teams with a high number of wells per pumper or wells per engineer; personnel relying on time-consuming workflows in order to visualize field data, diagnose, or troubleshoot wells.



### Electric Power Demand Response Automation



An elegant way to leverage the time-of-day variability of electricity costs in deregulated markets in order to minimize the operational costs of high-output field machinery. While a monthly electric bill may reflect a flat \$/kWh rate, the daily, real-time market for electric power behaves much like the stock market. A Demand Response system can determine real-time electricity prices and adjust power to field machinery when it is most cost-effective to do so, considerably lowering the effective operating cost of running the machinery. Even in places where electric power rates are low, up to 10% of total annual electricity costs can be traced to only 1% of the year<sup>(\*)</sup>. (\*) thgenergy.com

**This solution is best suited for:** wells in the state of Texas producing via ESP pumps.

### Field Telecommunications, Surveillance, and Backup Systems

Today's latest technological solutions for the oilfield require a reliable and cost-effective way to transmit and receive data between sensors, aggregators, servers, and networks relays. A well-designed system should account for all available communication infrastructure, as well as provide remote surveillance on key equipment, along with a proper backup system to ensure critical functions are preserved amidst unforeseen events such as a power loss or component malfunction.

**This solution is best suited for:** teams seeking a robust yet competitive telecommunications system to handle all field data Tx/Rx; wells in remote locations; teams wanting remote site view or asset surveillance (i.e. cameras, infrared, alarms, etc.); critical systems needing emergency backup battery power or data protection; remote systems requiring off-grid power.



A novel approach to reduce water disposal costs. These systems work by recycling available waste heat from nearby compression stations in order to evaporate produced water. Up to 90% evaporation can be achieved with this process, with the remaining unevaporated liquid is a high TDS brine that can be safely disposed of by traditional means such as SWD well injection or water hauling.

**This solution is best suited for:** Fields with significant water cuts, incurring high water disposal costs per produced barrel, and with access to compression stations; fields in earthquake-sensitive geographical areas where injection permitting may be limited; midstream companies wanting to implement fuel-and-engine-transparent water disposal services as an additional revenue stream.

### Supplemental Water Disposal Systems