



RELIABLE POWER FROM ASSOCIATED GAS WITH H₂S

APPLICATION

Wide Range
Gas Solution for
Remote Power
Sites

EQUIPMENT

Flex Turbine®

LOCATION

Alberta, Canada



THE CHALLENGE

Access to power in remote areas is an ongoing problem for the oil and gas industry. Reliable, continuous electricity at facilities is needed to run the artificial lifts, ESPs, transfer pumps, and other equipment, so the production revenue is realized. When site gas contains H₂S (Hydrogen Sulfide), producers are forced to run diesel generators since natural gas engines get corroded by the sulfur in the fuel. Using diesel generators contributes to high lease operating expenses due to diesel fuel cost and downtime for frequent generator maintenance. Additionally, bad weather limits access to remote sites making fuel deliveries and required monthly service calls very difficult during stormy or wintry conditions.

THE SOLUTION

The Flex Turbine® is built for running on a wide range of gases containing H₂S ($\pm 1\%$). The problematic gas is now a fuel source for reliable, onsite power. Flex Turbines deliver high uptime power, requiring only one 8-hour scheduled maintenance per year, even on H₂S gas. The Flex Turbine reduces a lease operating expense by turning unusable waste gas directly into clean power with greater than 99% availability while avoiding diesel expense. Each Flex Turbine is remotely monitored 24/7 through a turbine control and data system. Full, 24/7 service coverage is included with any customized lease package.

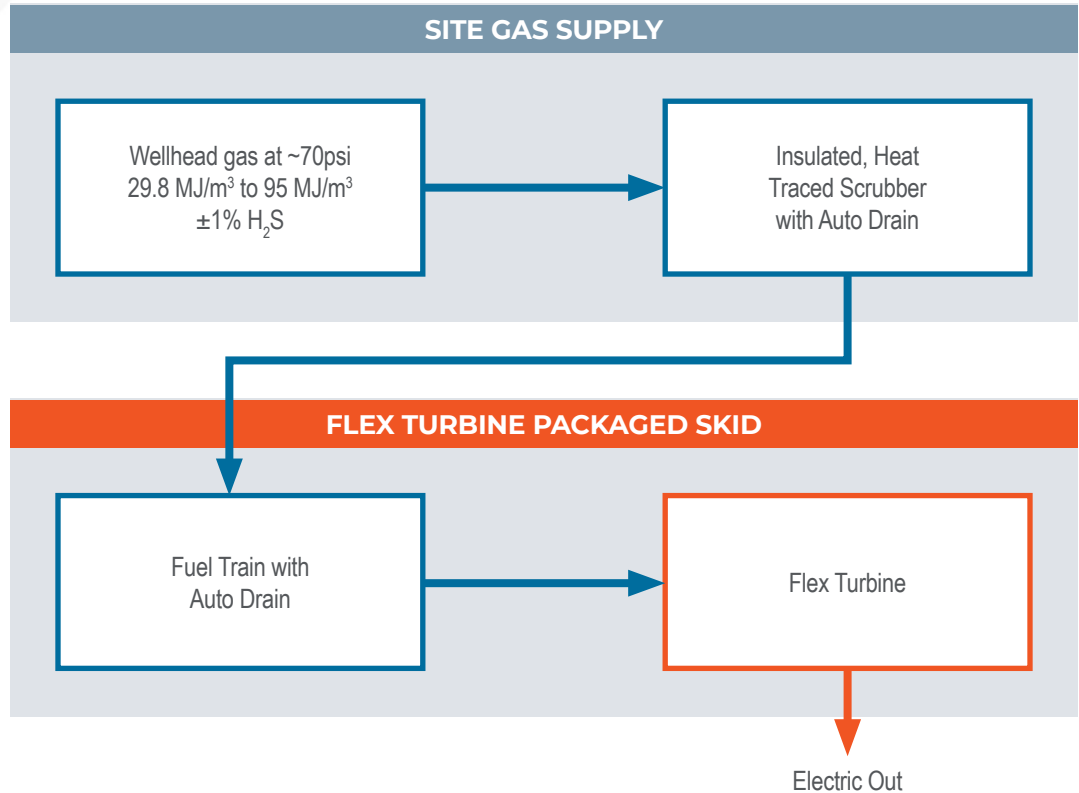
Flex Energy Solutions deploys modular Flex Turbines to fit a remote power site's needs. Multiple units self-parallel and automatically actively synchronize to run high horsepower loads. When a producer expands production, adding higher load ESPs or additional pump jacks, more Flex Turbines are deployed to run the increased site loads. A site has built-in redundancy when multiple Flex Turbines are operating. Flex Turbines are set up to operate on primary fuel gas (casing gas, wellhead gas, flare gas, tank vapors) and have an option to automatically switch to a backup fuel gas, such as propane or other available gas, when the primary fuel gas is not available. Flex Turbines will continue to run when the primary fuel switches back on. This seamless fuel supply switching is only available with fuel gas tolerant Flex Turbines.

Flex Energy Solutions partners with producers to supply the correct capacity power systems for specific well pad or facility needs. Flex Turbine technology has been engineered to match oil and gas power applications.

SITE SETUP

Up to 10000 ppmv ($\pm 1\%$) H₂S in Wellhead Gas - Flex Turbines are able to use the widest range of oil field gases. Standard system fuel tolerance includes gas heating values from 29.8 MJ/m³ to 95 MJ/m³ (800 Btu/scf to 2500 Btu/scf). The diagram below illustrates the simple connection required at a field site to use the wellhead gas supplied at approximately ~70psi.

1. Site's existing gas collection delivers ~70psi gas to a two-phase separator or gas scrubber.
2. The liquids are knocked out of the wellhead gas.
3. The wellhead gas is fed to the Flex Turbine Packaged Skid with onboard final liquid knockout.
4. The Flex Turbine turns the problematic gas into valuable, reliable power for ESPs, pump jacks and facility loads.



RESULTS

The Flex Turbine's fuel tolerant capability enables producers to use problematic gas for reliable power. At sites with H₂S gas, Flex Turbines help by using the available onsite gas and avoiding multiple diesel deliveries each month. For example, a remote site with a 200 kW power requirement will spend over \$30,000 CAD per month on diesel fuel alone. Partnering with Flex Energy Solutions brings that diesel fuel cost down to zero via utilization of the H₂S gas. The producer gets more than 99% runtime availability from Flex Turbines, resulting in increased production revenue and reduced lease operating expenses.

FOR MORE
INFORMATION
PLEASE VISIT
flexenergy.com

BENEFITS

- Reliable clean power for production loads on pipeline gas, propane, tank vapors, or a mixture of gases
- One 8-hour scheduled maintenance per year, even with H₂S in the wellhead gas
- High uptime remote power increases production revenue by avoiding power outages.
- Reduction/use of flare gas and tank vapors, complying with environmental regulations