Production and Optimization

Lower the cost per barrel for the life of your well
From first oil to plug and abandonment, the focus is on finding and eliminating every unnecessary penny in the final cost per barrel of oil — without sacrificing production performance. You need technologies and products that effectively balance cost and recovery.

Baker Hughes, a GE company (BHGE), helps you protect your assets and achieve optimal production to deliver the most value to your bottom line.

With BHGE, you can draw on the industry’s most comprehensive production portfolio to:

- Produce at lower lifting costs
- Keep production flowing
- Pump up reserve recovery
- Protect your assets
- Boost production with a digital industrial solution
- Increase reliability and uptime with digital-enabled services
PRODUCTION AND OPTIMIZATION

Produce at lower lifting costs

Because production rates and the associated operating costs determine the ongoing profitability of your operations, you need access to a full portfolio of production solutions that address both sides of the equation.

BHGE experts help you select a life-of-well artificial lift program that strikes the perfect balance between flow rates and lifting costs. From first oil to tertiary recovery, we can help you craft a reserve recovery plan that addresses both your production goals and your economic realities.

Eliminate the rig to save time, cut costs, and reduce risk

Rig availability and high intervention costs have a significant impact on the economics of installing and retrieving traditional electrical submersible pumping (ESP) systems. The TransCoil™ rigless-deployed ESP gives you all of the advantages of ESP technology without the associated intervention costs. The inverted ESP system is connected directly to the power cable, eliminating failure risks due to in-well electrical connections.

Adapt to declining production rates

An ESP began experiencing frequent shutdowns due to high gas content and variable production rates in an operator’s unconventional well. After replacing the previous ESP with a system featuring FLEXPumpER™ extended-range pump technology, the well produced effectively at rates from 2,000-800 barrels of fluid produced per day — without requiring a change-out — and handled the gas slugs with no shutdowns.

Enhance lift and minimize maintenance

The Lufkin Well Manager 2.0 remote monitoring solution for rod lift systems improves reliability and drives down costs. It automatically adjusts the gearbox load control and intra-stroke speed to optimize production and reduce rod wear. The solution’s 3D downhole inspection tools detect tubing wear from the surface, so you can perform condition-based maintenance before you have a problem.
Keep production flowing

From enhanced recovery projects to complex subsea fields, you can proactively manage flow challenges with a flow assurance solution matched to your specific well and environment. With the BHGE portfolio of chemical and mechanical solutions, you can keep your production flowing at optimal rates and reduce the likelihood of production interruptions and costly interventions.

Eliminate flow constraints before they happen
Regardless of whether your flow assurance problem is caused by scale, paraffin, asphaltene, or hydrates, the best approach is to stop it before it can lead to costly problems. With a FORSA™ flow assurance chemical solution, BHGE oilfield chemical experts diagnose potential risks, implement the right chemistry, and continuously monitor and adjust the treatment to keep your production flowing — safely and efficiently.

Achieve better inhibition performance at lower dosage rates
An operator of a deepwater well experienced asphaltenic solids in the produced water, which prevented discharge overboard. BHGE worked with the operator to implement a field-wide FATHOM™ XT asphaltene inhibition program that used proprietary asphaltene stability analysis to track performance improvement. Compared to the incumbent chemical product, the program improved inhibition cost-performance and effectively maintained overboard water quality while also reducing dosage rates by 30%.

Improve uptime and safety
The Integrated Compressor Line delivers exceptional reliability and availability, no matter where it’s installed. The high-speed electric motor is fully integrated with the compressor in a single sealed casing. The rotor is levitated by active magnetic bearings that reduce parts contact and wear, and eliminate the need for lube oil systems and a dry gas seal — so there is no depressurization required on shutdown. And, it produces zero emissions.
Pump up reserve recovery

Extending the economic life of your field takes a long-term production plan and a partner that can help you execute on that plan. BHGE’s portfolio of production solutions can take you from first oil to last. Even after the last drop of oil has been produced, we can help you devise a cost-effective plug-and-abandonment plan.

Get more compression and less package

Our High Pressure Ratio Compression technology delivers up to a 50% smaller train footprint, 30% lighter weight, 5% less power consumption, lower downtime, and easier maintenance. It uses a combination of unshrouded and shrouded impellers on a single high-speed shaft to achieve higher pressure ratios and efficiency levels. One unit will do the job in applications that typically require multiple compressor bodies. The technology is suited for upstream gas compression services aimed at enhancing oil and gas recovery.

Keep producing oil, not water

In many horizontal wells, zonal control is essential to delaying water breakthrough and balancing production. The MultiNode™ all-electric, remote-controlled intelligent well system monitors and precisely controls multiple production zones to improve recovery. The system can be installed in cased and openhole wellbores, allowing you to manage production over the life of your well with no interventions.

Identify and mitigate water breakthrough

Over time, a horizontal gas well developed a high water cut — producing 2,000 barrels of water per day (BWPD) for every 1.8 thousand cubic feet of gas per day (mmcf/d). A BHGE production logging service was deployed to pinpoint water entry along the undulating lateral. Using the data from the logging service, the operator was able to precisely place a series of bridge plugs along the wellbore to reduce water production by 85% to just 300 BWPD. By mitigating water ingress, gas production increased 277%, to 5 mmcf/d.
Protect your assets

From the rock face to the pipeline, the BHGE portfolio of chemical and mechanical equipment integrity solutions can help you proactively prevent infrastructure damage and maintain your equipment over the productive life of a well. Whether you’re operating a subsea field in 10,000 ft (3,048 m) of water or a mature field with hundreds of wells, we can partner with you to design an effective protection plan that aligns with your field economics.

Protect flowlines for the long term

A producer operating an extremely sour gas field required a treatment to defend against general and localized corrosion in the presence of elemental sulfur. BHGE developed and implemented a CRONOX™ corrosion inhibitor, which has continued to protect all wellstream flowlines in the field for 25+ years without a single failure.

Minimize risks and improve production system efficiency

Hydrogen sulfide (H₂S) causes many challenges in oil and gas production systems, including HSE risks and fouling and corrosion problems, which lead to increased maintenance costs, shutdowns, and non-productive time (NPT). PETROSWEET™ H₂S scavenger programs offer a robust portfolio of scavenging technologies coupled with application expertise to effectively remove hydrogen sulfide from a system — delivering a cost-effective solution to eliminate H₂S-related upsets while improving system efficiency.

Enable a key United Kingdom energy resource

Located west of the Shetland Islands, the Laggan Tormore deepwater development is expected to meet 8% of United Kingdom gas demand. At the core of its processing plant are three BHGE compression trains, each with two centrifugal compressors driven by a compact, powerful PGT25+ gas turbine. The trains were designed and delivered as fully assembled and tested modules that greatly simplified installation and operation, while providing vital resilience and reliability. The PGT25+ is built for this extreme environment — with specialized aeroderivative fuel nozzles in the annular combustion chamber, advanced materials, and overall engineering simplicity that extends maintenance intervals and reduces lifecycle costs.
Optimize production with a digital industrial solution

You can manage the lifecycle of your reservoir by uniting upstream data and models on GE’s Predix™ cloud-based software platform. With one standard way to connect the reservoir, wells, equipment, data, people, and processes, BHGE applications built on the Predix platform can help you achieve scale, manage complexity, optimize operations, and reduce risk.

Enhance oil recovery to deliver revenue and optimize production

IntelliStream™ software represents a new frontier in upstream productivity. Built on the GE Predix™ platform and Asset Performance Management, IntelliStream enterprise software reduces operational complexity, addresses nonproductive time, and enhances productivity through a single view. This cloud-based technology removes silos and delivers complete onshore integration and visibility by connecting data from the reservoir, wells, network, facilities, and people. With a focus on increasing efficiency and profitability, reducing costs, and managing resources, IntelliStream software helps you get the most from your onshore operations.
Increase reliability and uptime with digital-enabled services

The BHGE portfolio of data collection, modeling, and analysis software — combined with services aimed at improving equipment reliability and uptime — create actionable insight into your operations, revealing new business opportunities.

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**Reduce costs with proactive ESP optimization**

A field with more than 200 ESP systems made it difficult for field personnel to keep each of the wells producing continuously. To address this issue, the operator connected the entire field to BHGE’s AMBIT™ PLUS ESP optimization services. Highly trained experts monitored the wells remotely and proactively optimized ESP performance to keep the wells on line. Within one year, this service prevented 234 potential production disruptions, resulting in $7.7 million USD in savings.

**Get a clear view of past, present, and future production**

FieldPulse™ real-time monitoring and predictive analytics software helps you validate the data you gather to monitor key performance indicators and calibrate your well models. This permits model-based well surveillance, virtual metering, and — using predictive analytics — can even forecast future production.

**Use real-time data to reduce NPT during well interventions**

The xSight™ intelligent intervention service uses real-time downhole data to optimize well intervention operations and reduce NPT. The xSight suite of services delivers continuous data to help intervention crews be more effective, efficient, and precise when running mills, fishing tools, wellbore cleanup tools, whipstocks, and other intervention technologies.
Production and optimization

Artificial lift
- Electrical submersible pumping systems*
- Rod lift systems
- Progressing cavity pumping systems
- Gas lift systems
- Gauges*
- Monitoring and control systems*
- Surface pumping systems*

Production monitoring and optimization
- Artificial lift remote monitoring and optimization*
- Chemical automation services
- Condition monitoring and protection

Production chemicals
- Flow assurance
- Production optimization
- Asset integrity management
- Deepwater subsea-certified chemicals
- Aquaness chemicals

Intelligent production systems
- Intelligent well systems
- Well monitoring systems

Well intervention
- Fishing services
- Casing exits
- Wellbore cleanup
- Through-tubing intervention
- Service tools
- Inflatable systems
- Coiled tubing services
- Smart intervention
- Plug-and-abandonment services

Production logging
- Cased-hole logging services

Turbomachinery
- Turbines
- Compressors

Comprehensive service solutions
- Contractual service agreements (CSA)
- Condition monitoring and vibration monitoring
- Upgrades
- Spares, repairs, and field service engineers (FSE)
- Advisory Services
- Customer training

Processing and control
- Valves
- Actuators
- Pumps*
- Flow meters
- Control systems
- Fuel gas systems
- Turboexpander-compressors
- Turboexpander-generators
- Condition monitoring and protection

Subsea production
- Wellheads
- Trees and manifolds
- Control systems
- Power and processing
- Flexible pipeline solutions
- Integrated life-of-field services
- Seabed boosting systems

*Combined Baker Hughes / GE Oil & Gas portfolio

For more information:
bhge.com