# BOOSTING PERFORMANCE OF BOTH NATURAL GAS ENGINE AND COMPRESSOR PACKAGE WITH ENHANCED REMOTE MONITORING

## SkidIQ brings real-time improvements with secure remote management of natural gas engine and compressor performance

### Background

INNIO Waukesha Gas Engines Inc. and Detechtion Technologies Inc. are working together to expand asset connectivity, drive a customer-centric digital ecosystem, and empower our customers' transition to decarbonization. SkidIQ, our cloud-based digital solution, provides a new depth of remote asset insights and analysis across a fleet of installed natural gas engine and compressor packages.

SkidIQ combines INNIO's Waukesha engine analytics with Detechtion's compression monitoring and optimization technology into a single solution for both new and existing compressor skids. The solution helps customers remotely manage their assets securely and in real-time, anticipating unexpected events and determining if assistance is required. The results: improved energy production and reduced plant downtime.

"Most systems on the market today monitor the performance of either the compressor or the engine—never both," said Bud Hittie, president of INNIO Waukesha Inc. and leader of the Waukesha product brand. "This comprehensive solution combines INNIO's strength in engine analysis with Detechtion's wide range of compressor diagnostics. Our collaboration strengthens our customer-centric strategy, helping drive the transition to net zero."


### Delivering proof of concept

For the collaboration, INNIO and Detechtion worked with a large international fleet rental company on a proof of concept. Seven assets were selected by the customer, with three in Bolivia and four in Oman.

To ensure that the hardware would be plug and play once it arrived at site, various information was obtained from the customer ahead of time, including make/model, compressor geometry (bore, stroke, rod length, rod load limits, etc.), engine geometry, and gas composition (fuel and compressed gas).

After receiving installation training, the customer installed SkidIQ's Hub—a process that averages 1 hour per device with remote support. Because the Oman site didn't have all the necessary data requirements to enable the full functionality of the SkidIQ Optimize digital twin, an expansion module was quickly shipped to the site. The customer then was able to install pressure and temperature transducers without the need for costly controller reprogramming.

The digital twins were built in the SkidIQ Optimize digital twin simulator, the preferred predictive SaaS system developed for natural gas compressor fleet optimization. After the Hub communication was established and the data was confirmed to be valid, the SkidIQ Hub data began feeding into the SkidIQ Optimize digital twin simulator to generate exception-based diagnostic reports.

Some of the calculations that the SkidIQ Optimize digital twin simulator provides are:

- Incremental production
- Fuel gas used
- CO2 and NOx emissions
- Expected discharge temperature
- Compression ratio
- Volumetric efficiency
- Blowby
- Rod load compression and tension—static and net
- Minimum degrees reversal
- Minimum rod load net ratio
- Cylinder flow
- Horsepower used—overall and at RPM
- Cylinder capacity used

Once the systems were installed and running, the assets were monitored remotely by the Remote Operations Center (ROC) at Waukesha, which teamed up with the engineering account managers (EAMs) at Detechtion.

## Results

When the ROC identified "blowby" on one of the assets, it quickly sent this information to an EAM for verification. If left untreated, blowby leakage on a compressor can be expensive and even catastrophic. The customer was proactively contacted by the ROC and EAM teams and was able to respond to the issue in a timely manner, avoiding failure and minimizing production losses.

The collaboration will continue to remotely monitor the assets and proactively identify issues as they arise.

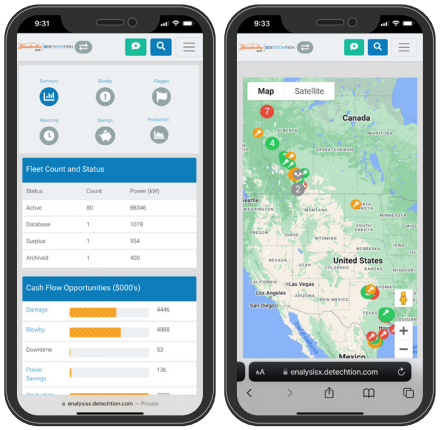
## Customer benefits

Through the SkidIQ collaboration between INNIO and Detechtion, the customer gained full visibility into the compressor package (engine and compressor), which often results in:

- Lower operating costs
- Reduced asset downtime
- Increased asset availability
- Increased runtimes
- Increased production and/or lower emissions and fuel gas usage
- Decreased risk of catastrophic failure
- Reduced number of trips to field locations

*"This collaboration will benefit the industry's need for solutions that provide deeper visibility and better control throughout the compressor skid while optimizing operators' operations. Both Detechtion's and INNIO's Waukesha teams have a wealth of knowledge and are energized to create an even more powerful solution that achieves the accessibility customers deserve. Detechtion has been creating digital twins and smart solutions to provide our compression customers with optimization and monitoring capabilities for over 20 years. We are excited to develop a combined solution alongside the Waukesha team."*

**Christopher Smith**
President and CEO
Detechtion Technologies




## Key Technical Data

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|---|---|
| **BOLIVIA** | |
| Engine | Waukesha L7044GSI<br>1680 HP at 1200 RPM |
| Compression Package | Ariel JGK/4; 2 stage;<br>9-3/4KM (1700 psig MAWP),<br>6-1/4K (2050 psig MAWP) |
| **OMAN** | |
| Engine | Waukesha L7044GSI<br>1680 HP at 1200 RPM |
| Compression Package | Ariel JGK/4; 3 stage;<br>12-1/2K (635 psig MAWP),<br>8-3/8K (1895 psig MAWP),<br>6-1/4K (2050 psig MAWP) |
| Monitoring Year | 2022 |

**Waukesha – an INNIO® brand** - INNIO's Waukesha engines are at the forefront of the energy transition, providing reliable and compliant energy solutions for distributed gas compression and power generation applications. The brand's rich and lean-burn engines, ranging from 335 hp to 5,000 hp, set an industry standard for low emissions, high reliability, and fuel flexibility.

Waukesha products are continuously upgraded to help operators stay emission-compliant without sacrificing operational excellence. These upgrades include new and remanufactured engines and parts, as well as conversion and modification kits, all of which are backed by OEM warranty and more than 115 years of engine expertise. Additionally, our Waukesha digital solutions include a collaborative solution with Detechtion Technologies for gas compression applications and INNIO's myPlant platform for power generation applications. Both solutions provide customers with enhanced monitoring and optimization capabilities, resulting in improved performance and reduced downtime.

We connect locally with our customers to enable a rapid response to their service needs, providing enhanced support through our broad network of distributors and solution providers with parts, services, and digital offerings.

Waukesha engines are engineered in Waukesha, Wisconsin, U.S., and manufactured in Welland, Ontario, Canada. To learn more about the company's products and services, please visit INNIO's website at **www.waukeshaengine.com** or follow Waukesha engines on **LinkedIn**.

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