Fuel Monitoring at Oil Production Sites

Customer	oil production company
Machinery	diesel engines of mobile oil production units
Task	• fuel consumption monitoring • tank fuel level monitoring
Solution	• DUT-E S7 fuel level sensors • DFM D S7 fuel flow meters
Result	• uninterrupted operation of production units • fuel level control in tanks • accurate fuel consumption tracking

CUSTOMER

An international company based in Ecuador that specializes in integrated energy solutions for the oil & gas, mining, and power industries.

The company develops and deploys proprietary technologies and equipment, including solutions to monitor and optimize oil well operations.

1000 employees

30 years in the market

Operations in **27** countries

MACHINERY

General view of the MTU mobile unit

The company uses Mobile Test Units (MTUs) to assess reserves and well production in geologically complex formations. Mounted on a chassis, the units are designed for rapid deployment.

Each MTU includes a pump for fluid extraction, a separator for oil, gas, and water separation, control and shut-off valves, a pressure and temperature sensor system, and a control unit.

The unit is powered by a CAT 3406C diesel engine – an inline six-cylinder engine with a 14.7-liter displacement and 347 kW output. It is equipped with an integrated fuel tank with a capacity ranging from 400 to 800 l.

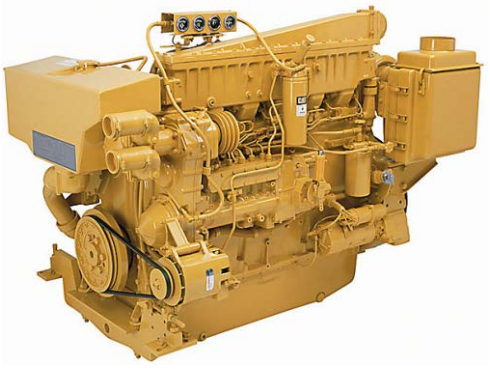
TASK

Fuel is supplied to the unit's engine from an integrated fuel tank. As the tank is depleted, it is refilled from an external storage tank with a height of 3,000 mm and a capacity of 3,000 liters. Fuel volume in all tanks is monitored manually.

Actual engine fuel consumption is not tracked.Fuel costs are calculated based on standard norms that do not reflect real operating conditions. **Fuel consumption data is manually entered into accounting systems, making the process time-consuming and inefficient.**

The client needed to address the following challenges:

- ✓ accurate fuel level control in tanks and storage units;
- ✓ online monitoring of engine fuel consumption;
- ✓ data export to accounting and management software.



CAT 3406C industrial engine

SOLUTION

Technoton delivered an end-to-end fuel monitoring solution that includes:

- ✓ DUT-E S7 fuel level sensors,
- ✓ DFM D S7 fuel flow meter,
- ✓ CANUp telematics gateway,
- ✓ Technoton cloud software.

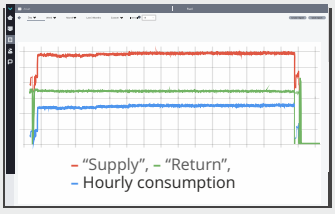
Quick installation with minimal wiring and no complex setup.
Fuel level sensors and flow meters communicate wirelessly, eliminating the need for power and communication cabling and significantly reducing deployment time. All data is transmitted via Bluetooth over distances of up to 50 meters and received by the CANUp telematics gateway, which sends all data to the cloud platform.

Fully self-powered operation.
The fuel monitoring system requires no external power supply. Fuel level sensors and flow meters operate on built-in batteries, while the CANUp gateway is powered by a solar panel.

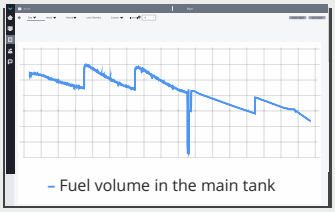
Clear analytics and seamless business system integration.
Fuel analytics reports and charts are available in the online software in real time. Via API, the data can be easily integrated into accounting and management systems.

Fuel monitoring system components:
❶ DUT-E S7 fuel level sensor in the main storage tank
❷ DUT-E S7 fuel level sensor in the day (consumption) tank
❸ DFM D S7 fuel flow meter installed in the fuel line
❹ CANUp telematics gateway

Installation of the DUT-E S7 fuel level sensor



Fuel consumption, 4-day report



Fuel volume,4-day report

Valeria Sharko, sales manager, Technoton

"Technoton's partners in Ecuador have been working with oil and gas companies for many years and clearly understand the challenges of delivering and installing equipment in remote rainforest areas. That is why a wireless solution was selected.
An additional advantage was the ease of transportation and installation of the fuel level sensors: they are supplied in 1,000 mm sections with optional extensions of the same length. On site, the sensors can be assembled to a total length of up to 3,000 mm, significantly simplifying logistics and installation."

RESULT

After the equipment is installed, the client gains real-time online access to all data. Required reports are generated in minutes, saving dozens of hours of manual work every month. Real-time monitoring of equipment operation significantly improves fuel efficiency.

Integration with accounting systems via API automates internal processes and simplifies reporting and cost planning. The system has been deployed on 12 MTU units. Installation on the remaining 238 units operated by the company is planned.

Business analyst, client company*

"Why we chose Technoton — three key reasons:

- ***Full fuel control.*** *Any deviations are detected immediately and verified during operation.*
- ***Less manual work means fewer errors.*** *Personnel no longer need to climb four-meter-high fuel tanks – fuel data is collected automatically, safely, and accurately.*
- ***Reliability in real-world conditions.*** *The solution is designed for continuous operation in harsh environments and has proven its effectiveness when equipment is moved between oil production sites."*

** Details are withheld to comply with GDPR. Additional information may be disclosed upon signing an NDA.*