

# CASE STUDY

**Data-Driven Emissions  
Optimization With a Cloud-Based  
Solution**



**CYANERGY**

**softserve**

**A** long-term goal in the oil and gas industry is to reduce greenhouse gas (GHG) emissions. Energy companies use diesel engines across the entire value chain, contributing to the increase in global emissions. The major challenge — actual GHG emissions from oil and gas drilling rigs, fracking units, onshore equipment, or marine vessels are not being measured.

There is an answer. Energy industry leaders can implement an innovative emission tracking and reduction strategy to get actionable data-driven insights, improve long-term ESG impact, and increase revenue. Discover how state-of-the-art cloud technologies, the internet of things, and data science come together to proactively monitor emission levels, detect optimization opportunities, and improve operational efficiency.

## Client background

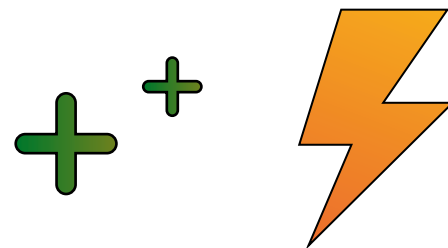
TS Cyanergy (Cyanergy) is an innovative startup driven by its founders' motivation to address a drawback in the global emission tracking approach. Energy companies tend to calculate approximate emissions based on the volume of purchased fuel and data tables provided by the engine manufacturer or by manual measures of fuel consumption recorded by hand. This approach does not reveal the actual level of emissions; thus, these methods may over-report emissions based on conservative one size fits all situations conversions.

Cyanergy offers energy companies that want to reduce emission levels a unique solution that combines the installation of their sensor-based equipment to measure emission levels along with the engines' power load and state-of-the-art custom software to aggregate data for onsite management and ESG reports.

## Business challenge

The absence of appropriate emissions tracking and measuring combined with the poorly optimized power load of diesel engines generates additional issues for teams on a rig or a platform, such as the inefficient use of engine resources and excessive fuel consumption. These problems result in increased emission of three main GHGs: methane (CH<sub>4</sub>), carbon dioxide CO<sub>2</sub>, and nitrous oxide (N<sub>2</sub>O) into the atmosphere.

Currently, there is a problem with measuring the amount of these gases and reducing the emissions to the norms and rules established by the regulators. Not solving the problem of hydrocarbon emissions can lead to significant financial losses, inefficient engine power usage, and decreased employee motivation.



# CO2 GAS EMISSIONS

Analysis Period

R&G No.

Comparison date by date

Last 4 months

R&G No.

day

Gas Emission by R&G

Main Page

Total Emissions

407.3

Emissions Previous Period

16.68

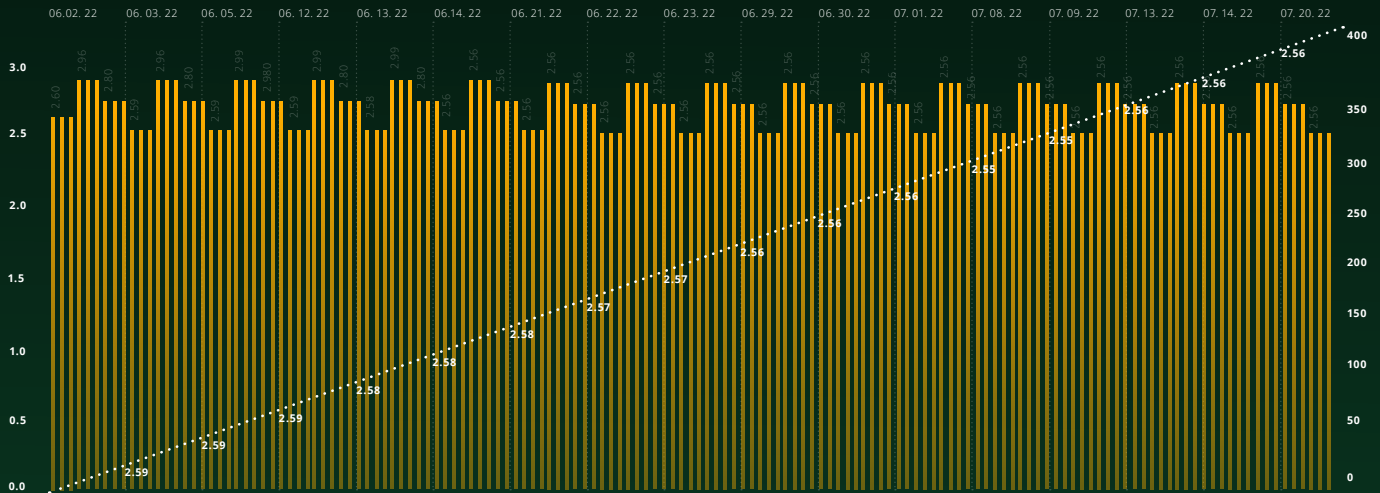
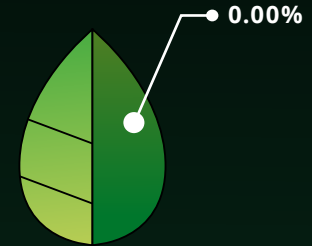
Emissions Current Period

16.68

GAS EMISSIONS

July 22, 2022	10:28:40	2.56	0.63%
	10:41:40	2.94	0.72%
	10:11:0	2.79	0.69%
July 16, 2022	10:28:36	2.56	0.63%
	10:28:39	2.56	0.63%
	10:41:38	2.94	0.72%
July 14, 2022	10:41:39	2.94	0.72%
	10:50:58	2.79	0.69%
	10:50:59	2.79	0.69%
	10:28:36	2.56	0.63%
	10:28:37	2.56	0.63%
	10:41:36	2.94	0.72%
	10:41:37	2.94	0.72%

TREND TO DATE



CO2 emissions dashboard

TS Cyanergy partnered with SoftServe to develop a custom software solution that leverages the power of Cyanergy's sensors. The goal was to measure emissions more accurately and provide guidance and recommendations for optimizing engine performance.

## Project description

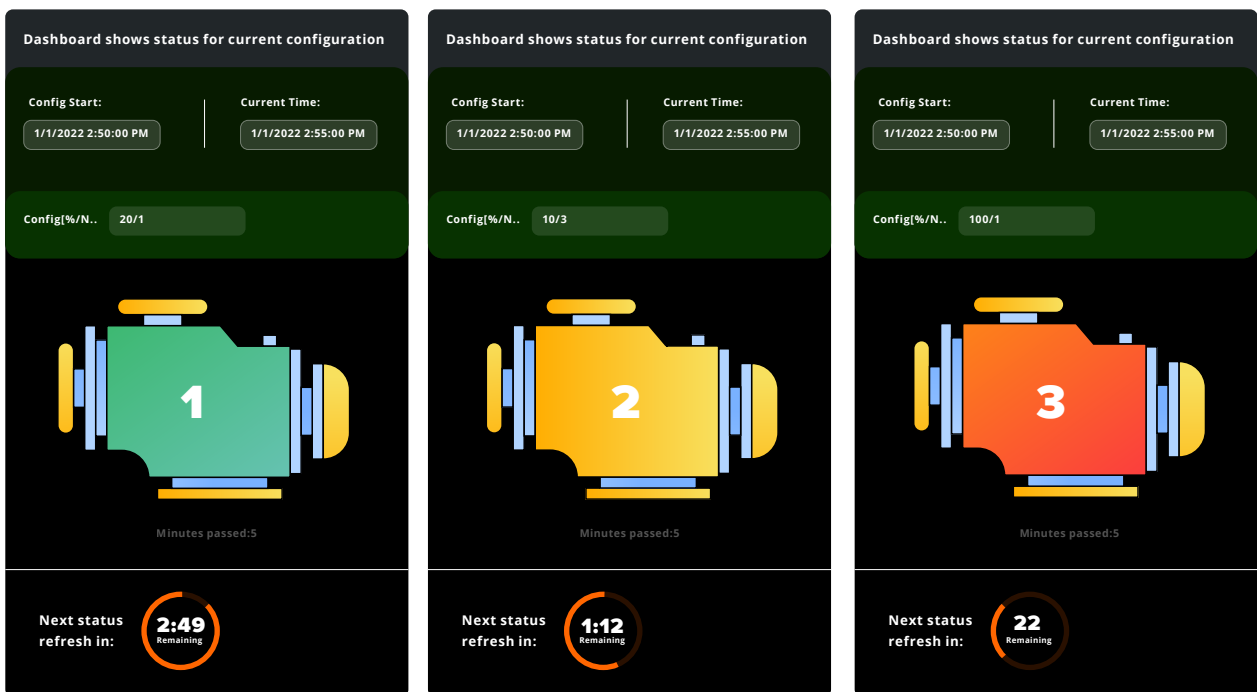
The SoftServe team developed a cloud-based solution that simplifies the collection of drilling rig data, tracks performance over time, and unlocks cost savings across many operations in the oil and gas production stages.

This cloud-based solution allows accurate measurement of the emissions data in real time. Accurate emissions data is a crucial element necessary to understanding how to optimize the onshore and offshore production activities in the oil and gas industry. Our solution is built to aggregate data for onsite management and ESG reporting.

Cyanergy installed a gas analyzer to measure actual gas emissions and a data collector to gather engine data. They are

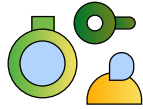
working with large amounts of raw data integrated and aggregated from multiple sources.

The solution that we created consists of several dashboards analyzing engine load, fuel consumption, emissions statistics, etc. Access to certain dashboards depends on the user's role permission. The following dashboards were created: Rig operator dashboard, Rig superintendent dashboards, Engineer/ESG and Cyanergy BI analyst dashboards, Gas emissions dashboard, Operations manager dashboards, and Auditors dashboards. There is a possibility of requesting the CSV reports to complete the necessary comparisons.



## Value delivered

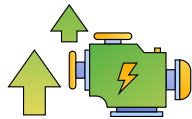
SoftServe helped TS Cyanergy focus on company-level decisions based on these additional benefits:



- **Simplified workflow:** Data is collected automatically, saving employees time so they can focus on other tasks.



- **Improved operational efficiency:** Optimization decisions are made promptly and more safely.



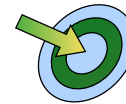
- **Enhanced productivity:** Engine productivity will increase by 25% (as per client comments).



- **Cost savings/cost reductions:** By increasing the engine performance, we can reduce GHG emissions and fuel consumption, resulting in significant savings.



- **Reduced paperwork:** The application automatically displays the data, sending it to the database, effectively eliminating paperwork.



- **Improved accuracy/quality:** Data can be accurately calculated, allowing the user to build dependency points and use them more efficiently.



- **Maximized business growth:** The application can be expanded to include up to 90,000 active units on drilling rigs, oil and gas pipeline compression stations, and ships.

**LET'S TALK** about how SoftServe can help you develop a cloud-based solution capable of accurate measurement of the emissions data in real time and help you track the performance over time.

## ABOUT SOFTSERVE

We are a digital authority made up of advisors, engineers, and designers who deliver innovation, quality, and speed to elevate and accelerate our clients' digital journeys.

Our approach is built on a foundation of empathetic, human-focused experience design that ensures value and continuity from concept to release.

**WE IDENTIFY WHERE YOU ARE.**

**WE PREPARE YOU FOR THE ROAD AHEAD.**

**WE TAKE YOU WHERE YOU NEED TO GO.**

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