

AXORA

Metals & Mining, Oil & Gas

Machine-learning software that identifies opportunities to cut CO2 emissions

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www.axora.com



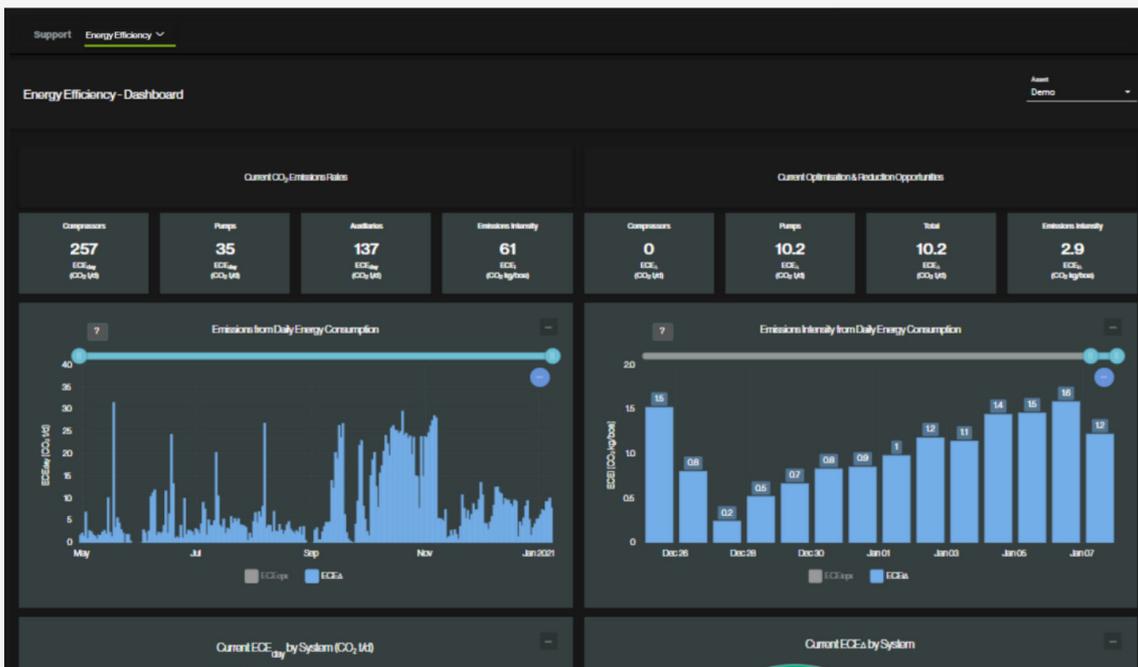
Contents

▶ Solution Provider Profile Solution Summary	3 - 4
▶ Business Benefits Summary	5
▶ Solution Specification/How it works	6 - 7
▶ Sample customer Success Stories	8
▶ FAQ	9

Solution Provider Profile

This solution provider is a UK based AI company founded in 2010, that has deep experience in the energy sector. Starting in the field of traditional condition based maintenance solutions and over the past 6 years moving into AI based innovation. There is now a strong focus on accelerating the drive to net zero, using the power of AI to push down emissions in energy and mining organisations, led by this innovative emissions reduction digital solution.

Solution Summary



Emissions reduction is a huge priority for oil, gas, energy, metals, mining and many other heavy industries. In some parts of the world, in addition to the critical reduction itself, it can save significant operating costs by reducing carbon trading charges, and in all regions emissions reduction can normally be associated with fuel cost reduction for direct benefits.

This is a cloud-based AI solution specifically built for complex assets such as oil and gas onshore/offshore installations, mining concentrator plants, metals processing plants and petrochemical operations, and it helps operators quickly reduce their emissions through helping you answer the following questions:

- /// What is my asset or installation currently emitting, and where are these emissions coming from – can we narrow it down to the precise source?
- /// My operations are dynamic and constantly changing. Can I work out how much lower our emissions could be at any moment?
- /// Can we automate this to allow us to see emission reduction opportunities as they occur?
- /// Can we reduce the overhead of emissions calculations, reporting and forecasting?

The application then works for you across 6 dimensions:



Monitor
emissions



Predict
emissions



Reduce, control
and optimize



Demonstrate
compliance



Real time
reporting



Reduce carbon costs
(in carbon trading regions)

Through a proven modular approach, many data sources can be processed very quickly and you can be up and running, saving costs and reducing emissions within weeks.

Business Benefits Summary

With investor, employee and government pressure, there is unlikely to be any heavy industry company anywhere in the world not focussed on reducing emissions – carbon dioxide of course but also others such as methane. Whilst the scientists work on large scale reduction with Direct Air Capture and other approaches, companies have a responsibility to reduce their current emissions and use innovative approaches to achieve every % reduction that they can. In many geographies carbon trading regimes put a price on carbon emissions that are directly affecting operating budgets.

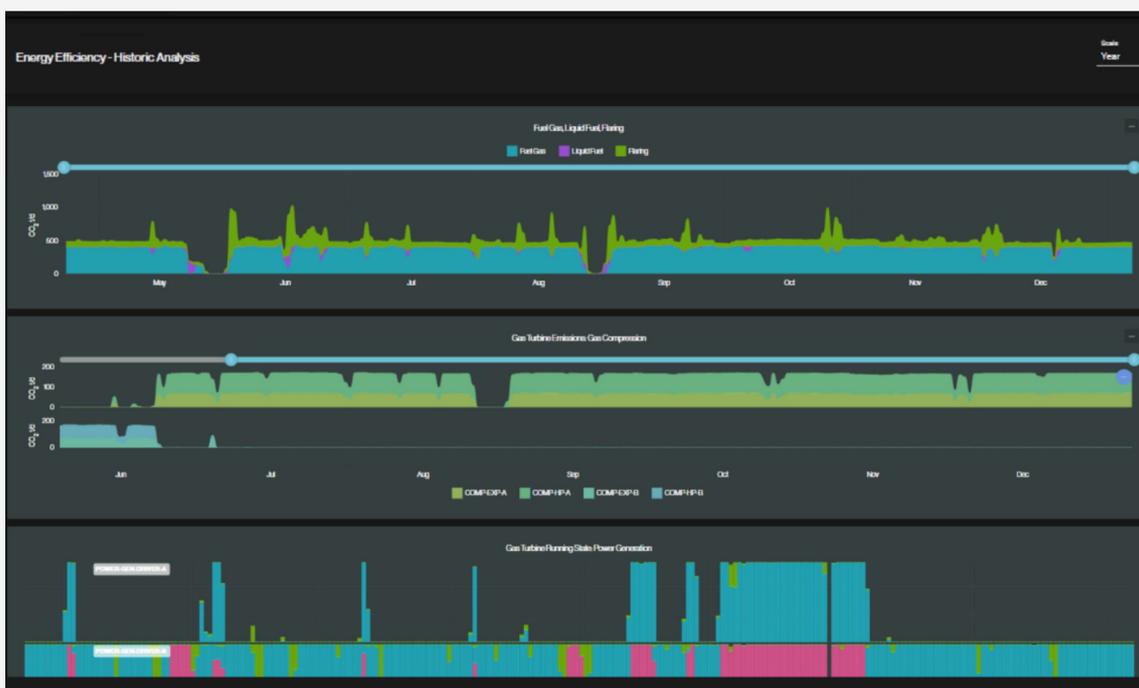
This flexible and modular solution gives you a platform for measurement, monitoring, optimising and reporting of emissions in a simple cloud-based AI solution. The implementation can lead to immediate cost savings and emissions reduction just by putting the power of AI and data to work on your asset, installation or operation.

In addition to genuine emissions reduction there are numerous business benefits, and in general we see payback in less than a year through carbon, energy and fuel (cost) reduction.

- /// Measure and monitor live emissions down to individual sources
- /// Automatically detect excess emissions as they occur and pinpoint causes
- /// Inform which daily operational actions should be taken to reduce fuel consumption, flaring, venting and control and optimise energy use
- /// Save time and resources by removing manual calculations and reporting burden
- /// Demonstrate compliance, improve stakeholder relations and reduce carbon costs
- /// Seamlessly integrate emissions reduction and real time reporting as part of daily workflows
- /// Save costs in carbon trading regimes, and save fuel costs in any region

Solution Specification/How It Works

The solution operates as a SaaS platform and can be set up very quickly, with in built modules for specific circumstances including Energy Efficiency, Flaring and Venting, Methane and Oil in Water, with more modules coming.



Feature set data sheet as follows:

<p>MULTIPLE DATA SOURCES</p> <p>Leverage multiple data sources (process, equipment, historian, OEM design data, metering data, gas composition, etc.)</p>	<p>INTUITIVE INTERFACE</p> <p>Integrate with existing digital architecture or operate stand-alone with access at anytime, anywhere, through an intuitive web-based interface.</p>	<p>IN-BUILT WORKFLOWS</p> <p>Share and track insights, opportunities, recommendations and operational actions across the organisation with in-built workflows.</p>
<p>VISUALIZE</p> <p>Visualise aggregated, multi-level data across process, systems, equipment, ancillaries, including performance and costs.</p>	<p>DRILL DOWN</p> <p>Drill down in granular detail to all energy and emissions sources, individual components and energy consumers.</p>	<p>OPTIMISE</p> <p>Optimise for changes in output targets, fluid rates, degradation, configuration and emerging constraints.</p>
<p>AUTO DETECT</p> <p>Automatically detect excess emissions and contextualise by source or emitter using AI and machine learning.</p>	<p>PRIORITISE</p> <p>Proactively prioritise and raise actions to avoid, manage and control excess emissions and optimise energy use.</p>	<p>UNDERSTAND</p> <p>Perform detailed analysis to understand, calculate and track emissions profiles by operational scenarios, events and modes.</p>
<p>OVERCOME GAPS</p> <p>Overcome missing instrumentation, metering and data gaps using physics guided work arounds.</p>	<p>SIMPLIFY REPORTING</p> <p>Simplify and streamline regulatory and stakeholder emissions reporting; take advantage of carbon trading market dynamics.</p>	<p>COMPARE</p> <p>Benchmark emissions performance by asset, compare emissions by intensity, volume and composition contextualised to plant configurations.</p>

Sample Customer Success Stories

The solution, whilst relatively new (launched in the past 2 years), has already achieved a lot of traction, and case studies of successful deployments are available.

Here are two examples:

- /// A global oil and gas operator with production assets in the North Sea needed to reduce their operational CO2 emissions and the associated costs. They undertook a short field trial, with the energy efficiency and flaring + venting modules. The solution was put live within 8 weeks and then after a successful trial was rolled out to asset support teams and control rooms offshore and onshore. The solution identified that the asset had average daily excess emissions of 57 tonnes of CO2 providing an opportunity to realise potential cost savings of up to \$4K per day of EUTS costs (nearly \$1.5m p.a.)
- /// A global oil and gas operator who had already deployed predictive maintenance solutions from this solution provider, turned to them for help with CO2 reduction. Having been deployed for 6 months, the operator calculated that working with the application had helped them to identify and reduce their emissions by more than 7000 tonnes CO2 annually. Through an asset wide adoption approach, these reductions were achieved by day to day insights and interventions..

FAQ

1. Can the solution be deployed on prem?

- No, this is a cloud based application using advanced cloud features to power the AI models.

2. How do I get started?

- Most customers start with a demo which can be arranged through Axora and then move to small pilot.

3. How many customers do you have?

- The solution is relatively new but we are pleased with market acceptance. We have several top 50 energy customers using this solution.

4. What is the average installation and setup time?

- Typically 6-8 weeks depending on the availability of sensors, data sources etc.

5. Who implements this?

- The solution provider themselves will do all installations.

6. We don't have a lot of data – can it still be useful?

- Our experience is that the required data can be made readily available with relatively low effort even for legacy systems. The solution provider can work around missing data sources with virtual sensors when required. We have experience of sensors and integrations that might be useful as recommendations.

7. Is there a target for emission reduction?

- Every installation is different. The average reduction is between 4-6% but some assets can drive a 10% reduction in emissions which can translate of course to huge savings on carbon trading and fuel costs.

8. How is the solution priced?

It is priced on a per asset/installation basis:

- One off setup fee
- License fee per month
- Optional service Pack fee per month (amount of support hours provided by Solution Provider)