aggreko

The complete turnaround service

Working with you to deliver safer, sustainable turnarounds.

Everything you need for a successful turnaround. All from one team of experts.

At Aggreko, we understand the huge pressures process industries face to continually improve turnaround schedules and limit costs, as well as prioritising the safety of every member of your workforce.

With Aggreko, you're partnering with global experts in petrochemical and refining turnarounds.

From initial planning through to final delivery, we're with you every step of the way, helping to ensure that every turnaround is safe, efficient, cost-effective, and much greener than you might have expected.

Key benefits at a glance

World-leading equipment

We have everything you need: Power, temperature control, oil-free air compressors and more. All available for hire without CapEx.

A single source of expertise

Our experience and expertise is invaluable in planning, installing and managing all the systems needed for your turnaround.

World class engineering

Our engineering expertise is second to none. So you can count on us to understand the challenges you face and provide solutions that are tailored to you.

Dedicated to safety

Safety for life, our all-encompassing health, safety and environmental programme, is an integral part of all our global operations. The framework is designed to eliminate or manage risks, and to deliver continuous improvement.

Innovative thinking

Smart services such as right sizing for more efficiency, load on demand and alternative solutions – such as transformers to reduce the number of generators needed – are all part of the service.

Sustainable solutions

With our Greener Upgrades®, we can help you to reduce the environmental impact of your turnaround and make it more sustainable.

Planning. The secret to cutting a turnaround's cost, duration, and lost productivity.

Essential maintenance is simply unavoidable.

Even so, you can reduce the impact that turnarounds for planned maintenance or other shutdowns have on your plant's productivity.

With Aggreko as part of your turnaround team, it's reassuring to know that our experts are with you every step of the way.

While many of our customers plan turnarounds up to three years in advance, our global reach and wide range of available equipment means that we can also respond rapidly to deliver turnarounds in shorter timescales where needed.

Here are the key stages that exist in any turnaround planning cycle:

All the equipment you need.
Anywhere you need it.

Our fleet of specialist hire equipment includes everything you need to deal with any type of turnaround, from full to partial shutdown.

This includes, for instance, maintaining production through a coker outage, reducing time and costs when drying and cleaning an alkylation unit, unit decoupling, or providing cooling for a refinery.

Whatever equipment you need, Aggreko's experts will ensure it is sized and configured to match the specific needs of your turnaround project.

Stage V generators

The UK's largest Stage V generator fleet, with models ranging from 30 kVA - 1350 kVA. These fuel efficient, low noise, low emission generators deliver your power needs without sacrificing performance.

Battery Energy Storage Systems (BESS)

Our battery fleet, from 45 kVA - 1 MVA, can be used across a variety of applications, enabling you to maximise your operational output whilst minimising downtime and emissions.

PowerMX2

Our fuel efficient, load-flexible, low emission generator. With two Stage V engines in one compact 20ft container for maximum power with reduced emissions and fuel consumption.

PowerMX3

Unique to Aggreko, PowerMX3 houses three 450 kVA Stage V engines in a single 20ft ISO container, delivering flexible, efficient, resilient power in a small footprint, even at low loads.

Biofuels

Our generators can run on biofuels including Hydrotreated Vegetable Oil (HVO) and B10. These can be used as drop-in fuels, significantly reducing carbon and other harmful emissions.

High voltage

Power generation with different possible fuel types. A range of transformers and switchgear. Sync to grid applications with temporary power plants (up to several hundred MW if needed).

Heat exchangers

Different plate types, shell and plates, shell and tubes, free flow and titanium heat exchangers that serve different applications and are suited for hydrocarbon use.

Cooling

Chillers, cooling, and very low temperature equipment (GWP1) to meet unique requirements.

Steam boilers

We provide reliable steam on demand with our fast start-up equipment. Our coil steam boilers use less water, enhance safety, and reduce flaring issues, providing high quality dry processed steam.

Oil-free air compressors

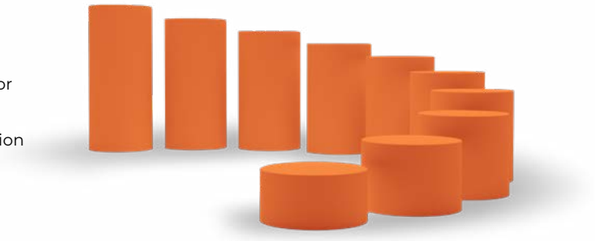
Our electric driven VSD and Stage V 100% oil-free air compressors deliver the cleanest air to protect your processes, products, and people. They operate at peak efficiency, resulting in lower energy costs and, with no oil to consider, a reduction in maintenance costs and downtime too.

Smart services for turnarounds

Our range of smart design and operational services ensure greater efficiency for your turnarounds. With Aggreko, you can count on a seamless operation that counters risks and negates the danger of critical power failures.

Rightsizing

Generators that are oversized or poorly matched for their chosen application will lead to inefficiencies. With rightsizing we can match the power generation capacity with your specific power demands, maximising efficiency, minimising fuel usage and reducing emissions.

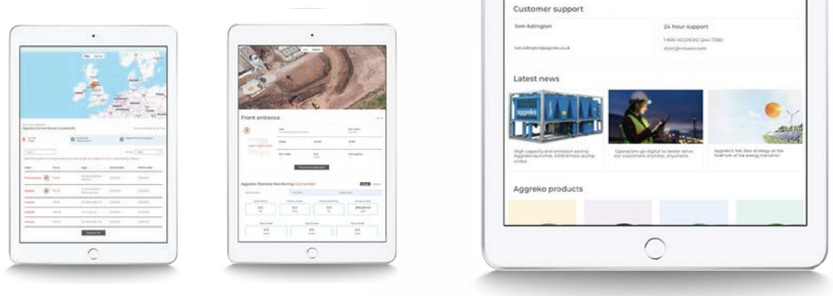


Load on demand

Load on demand is a smart solution that can be used to accommodate fluctuating demand, delivering scalable power when you need it most. The fully automated system can switch the engines on and off to produce only as much power as is needed for better efficiency, reduced fuel and lower emissions.

Aggreko Connect

Our online hub provides access to all your information in one central place, delivering actionable insights and enabling you to maximise your operational efficiency.



Aggreko Remote Monitoring

We can monitor the health of our equipment from a central operation centre and remotely control it to ensure maximum efficiency, reducing emissions and saving fuel costs.

Solutions engineered to succeed: consultative approach

All our solutions are engineered to meet the unique operating circumstances of each turnaround.

We aim to have a consultative approach, for instance, we provide alternative solutions using transformers over generators when powering equipment, once it is established that this could move the project forward and reduce the overall impact. This preference – based on extensive petrochemical and refining experience – is driven by the fact that transformers can be used to increase or decrease voltage to match varying system requirements. Models are often large enough to replace the need for a generator, minimising carbon emissions. Whether it's an islanded package to load test or power provision as a distribution transformer, you can be sure that Aggreko will engineer the right solution.

Committed to sustainable, innovative solutions

GREENER UPGRADES®

Introducing Greener Upgrades®

Our investment in new technologies such as Stage V generators and Battery Energy Storage Systems (BESS), alongside our consultative approach, delivers sustainable solutions that improve efficiencies and lower costs.

To reduce emissions further, our generators can run on a range of biofuels including Hydrotreated Vegetable Oil (HVO) and B100, which can be used as drop-in fuels to significantly reduce carbon and harmful emissions. This ability to make small changes that make a big difference – Greener Upgrades® – also supports you in meeting your own sustainability targets.

Innovation: looking at today and to the future

From developing new products and services to exploring new technologies, Aggreko never stands still. As a result, you benefit from our innovative approach to decarbonisation, digitalisation and more.

Innovations include Aggreko Remote Monitoring, enabling us to monitor all equipment from anywhere. We've also invested in Augmented Reality technology, batteries, hybrid solar-wind, Stage V engines, dry coolers, oil-free air compressors, Smart Energy Management software, and new digital platforms to manage customer satisfaction.

Support for all applications

We offer our customers reliable and cleaner solutions during turnarounds in order to minimise time scheduled for these operations, eliminate costs, improve safety, avoid duplication, and limit decoupled units.

Turnarounds utilities

- Dry air supply
- FCC: Create safekeeping conditions during turnaround
- Power distribution replacement
- Power distribution switchgear test
- Transformation and distribution of energy from HV to LV - CO2 emission-free
- Comfort cooling during asbestos removal
- Confined spaces comfort cooling
- Heat load or cooling test during commissioning of trains or equipment
- Reheating water for pressure testing of vessels columns and reactor
- Supplement or reduction of recirculation temperature related to decoupling
- Water treatment: Additional cooling to meet environmental directives
- Pipeline drying
- Columns and vessels: drying of complete units
- Supply of modular steam boilers for different applications

Reactor

- Reactor cooling
- Dry air supply
- Comfort cooling for confined spaces
- Create air supply with specific dew point before opening the vessel
- Steering clear of catalyst caking
- Unit degassing
- Oil-free air for internal transport inside the refinery

Flare

- Flare unloading / flare gas quality improvement
- Reduce emissions / flareless turnaround
- Condensing steam to avoid flaring

Keeping units running

- Replacement island cooling tower during turnaround in order to keep other process units in operation

Power plant

- HV hotspot testing of turbine
- Keeping the turbine dry to maintain safety whilst idle
- Load test of switchgear, circuit breakers and protections
- Synchronised on-grid power supply or replacement power supply, both with generators (gas, diesel, hybrid)
- Supplement or replacement of HV transformers (LV & HV)
- Supplement or replacement of distribution equipment (LV & HV)
- Multi MW load test of turbines

Contractor village

- Power supply for contractor village (tent or cabins) with standalone generators (hybrid)
- Mini grid power station to improve safety and reduce emissions and costs
- HVAC for contractor village (tent or cabins)
- Hot water for showers
- Welding hooch power supply

Fire pump network

- Temporary power supply during maintenance
- Installation of emergency motor-driven pumps on the fire water network

Rotating equipment

- Motor load test
- Chiller and cooling tower test

Ammonia

- Temporary replacement of ammonia refrigeration units

Catalyst

- Rapid reactor cooling

Coker unit

- Forced air induction

Tank storage

- Vessel drying
- Drying and heating equipment for paint work
- Create strict conditions for maintenance work
- HVAC supply for confined spaces or inspection works
- Heating heavy hydrocarbons for unloading storage tank

Proven in practice

Whatever the challenge, the chances are that, somewhere in the world, Aggreko's team of turnaround specialists has already come up with a solution. We have the technical know-how. We have the equipment. And we have the experience to provide solutions that are efficient, effective, and fast.

Case study

On-demand air returns plant to operations

THE CHALLENGE

A large European refiner needed an innovative solution for scraping and drying operations during the planned shutdown of their alkylation unit. The shutdown required effective drying and inertisation of the unit's lines and capacities within operational deadlines.

The challenge was to create a solution that would reduce operating costs and limit environmental impact compared to traditional techniques, while still ensuring superior efficiency.

Successful completion of water drainage, drying and inertisation is a very important step, limiting the risks of corrosion and leakage in the alkylation unit during its 7-year operational cycle.

THE SOLUTION

Aggreko designed a bespoke system comprising a 100% oil-free air compressor operating at 45 m^3/min at 7 barg. The solution also included an air dryer capable of achieving a dew point below -18°C and all accessories for regulating the various stages of drying.

These two pieces of equipment were tailored to the European industry and designed to offer energy savings. Their protective chassis and ISO 20-foot certified CSC container ensured easy transportation, quick installation, and minimised disruption onsite. Furthermore, compressors were equipped with Variable Speed Drives (VSD), adsorption air dryers, and integrated air coolers, ensuring energy savings, optimal performance, and adequate air temperatures across the range of equipment that was deployed.

Installation and commissioning of the solution was completed within three days, in accordance with the established schedule, with no delays.

THE IMPACT

Our solution enabled our client to carry out drying operations within the agreed timeframe. The approach reduced the overall cost of the service by €20k and reduced CO2 emissions associated with conventional techniques by 44 tonnes.

Overall cost of service
reduced by €20K

Case study

Replacing diesel with battery power delivers cheaper and more sustainable energy during turnarounds

THE CHALLENGE

Our customer requested a traditional diesel generator setup to keep them powered during the turnaround. This incorporated a continuous 60 kW generator with a redundant backup and a fuel tank. The total cost of this application would be $15,000 per month for equipment and fuel.

As part of our consultative approach, we explored replacing the historical package with a more cost-effective and sustainable solution.

THE SOLUTION

Our solution was to replace diesel with low-emission battery power. We installed a hybrid solution consisting of a 30 kVA battery and a backup generator to recharge it. Instead of running off diesel 24/7, this enabled power to be drawn from the battery most of the time, only using diesel when the battery needed to be charged.

Our remote monitoring service (ARM) ensured that we proactively captured data throughout the project to guarantee safe and reliable operation. This enabled us to rapidly identify and fix any issues before they affected performance, giving us valuable insights to help improve future performance.

THE IMPACT

Our solution delivered significant savings. Under the previous diesel-only approach, the customer was spending over $9,000 per month on fuel alone, as the diesel generator ran 24/7. Running the generator for only 2-5 hours daily reduced fuel use to just $2,400 per month.

Maintenance costs were also much lower. With reduced usage as part of the hybrid system, generator maintenance only needed to be carried out every nine weeks, instead of every two weeks for a generator operating 24/7.

Overall, this led to total savings of almost $8,000 per month, and emissions being reduced by 82%. The data captured by ARM also enabled analysis that will lead to even greater savings in the future, as we can improve sizing or recommend alternative applications.

Total savings of almost
$8,000 per month

Case study

Reduced hydrocarbon emissions during a cracking unit turnaround

THE CHALLENGE

Our customer needed to reduce hydrocarbon gas load to their flare system during a cracking unit turnaround. The reduction was needed to comply with environmental emission limits. Without implementing a temporary project to condense the extra steam and hydrocarbons due to the turnaround, there would be an additional gas load to the flare system, resulting in violation of environmental regulations.

THE SOLUTION

The steam and light hydrocarbons were condensed using plant cooling water with two trains of Aggreko shell and tube heat exchangers, process tanks and hydrocarbon pumps. Each heat exchanger train consisted of two parallel condensers, a common subcooler and pumps. The process tanks were used for separation and level control.

THE IMPACT

By utilising the Aggreko solution, the refinery was able to greatly reduce hydrocarbon emissions, unload the flare and shorten the critical path of this step during the initial phase of the turnaround.

Hydrocarbon emissions **significantly reduced**

Case study

Powering blast resistant modules with a plant-supplied power source

THE CHALLENGE

Because there's always the possibility of an explosion within a refinery, our client rented Blast Resistant Modules (BRMs) to give contractors a safe place to rest and eat meals during an electrical distribution system turnaround. The client challenged us with providing the most cost-effective, reliable, and safe means to provide power to the BRMs.

THE CHALLENGE

Aggreko supplied a high voltage load interrupter fused switch, a 12.47kV –208Y/120V step-down transformer, and 208Y/120V distribution switchgear.

Each BRM is equipped with a 100A main breaker rated 240/120V single-phase. We were able to use more cost-effective 3-phase equipment to take plant-supplied 12.47kV from an adjacent operating unit, tap our transformer to deliver 220/127V secondary voltage, and distribute that power to the BRMs without utilising any generators or fuel.

220V is within 10% of nominal 240V, and 127V is within 10% of nominal 120V, and so all the BRM 240V equipment (e.g. cooking equipment and HVAC) and 120V equipment (e.g. lighting, TVs, computers, and chargers) operated satisfactorily. Our solution was a fraction of the cost of competitors who had proposed using generators.

THE IMPACT

Using a plant-supplied power source rather than generators reduced rental costs, eliminated fuel costs, removed the complex logistics of re-fuelling and servicing generators, completely removed exhaust emissions, and reduced noise levels experienced by

Case study

Innovative reactor cooling shortens turnaround

THE CHALLENGE

Traditionally, cooling processes such as hydrotreater, hydrocracker and reformer catalysts have been major bottlenecks during maintenance, often dictating the duration of entire plant shutdowns. During these periods, outdated cooling methods are not only costly and logistically challenging, but also pose questions for on-site safety and sustainability.

Aggreko recently faced a formidable challenge from one of Italy's largest refiners. The company was asked to reduce the standard five-day reactor cooldown period to three days, while also optimising maintenance efficiency to save €1 million per day.

THE SOLUTION

With no margin for error and immense cost implications, the Aggreko team delivered a solution from design to decommissioning in just three weeks.

In a groundbreaking move, the team shifted from traditional nitrogen to hydrogen for rapid cooling. Aggreko's bespoke system included mechanical chillers, heat exchangers, centrifugal pumps, process drums, power generators and extensive pipework.

THE IMPACT

Our innovative approach exceeded expectations, reducing the cooldown to just one day and saving €4 million in potential downtime.

Cooldown period reduced from **5 days to 1 day**

Your expert partners

Whatever turnaround challenges you face, it's probable that our expert team already has the answers, based on years of petrochemical and refining experience around the world. Our turnaround team understands the huge pressures process industries face to continually improve turnaround schedules and limit costs, while prioritising workforce safety.

In fact, we can provide a full turnaround consultancy service so that you can be sure the whole process is in experienced, professional hands. Working with us as your main partner can also help to reduce the risk of duplicating efforts during the scoping stage of your turnaround.

Combining the talent of process engineers with our specialist temporary fleet means that we can leverage our vast experience in a range of process environments to find innovative, cost-effective solutions.

Even better, because our engineering office "Aggreko Process Service", dedicated to turnaround projects, are based on hiring equipment and expertise, most projects are typically expensed through operating and maintenance budgets, with no need for CapEx.

> The "Aggreko Process Services" team, established in 2003, is a staff of chemical and mechanical engineers. They plan more than 20 turnarounds annually.

Dedicated to safety

Safety for life, our all-encompassing health, safety and environmental programme, is an integral part of all our operations, in all parts of the world. The framework is designed to eliminate or manage risks, and to deliver continuous improvement. This means that we are:

- Clear on HSE rules, standards and processes, with clarity on accountabilities and responsibilities.
- Committed to driving best practice and as a minimum comply with legal requirements. We deliver results we can be proud of.
- Committed to driving accountability through communication, setting targets, delivering on plans and actions, measuring performance, and providing assurance that whatever we report is what happened.
- In short, we ensure working with Aggreko is always a safe experience.

Quality guaranteed

All our turnaround services meet exacting industry standards and are fully certified, including both MASE and Ecovadis certifications.

ISO 45001 · ISO 9001 · ISO 14001 · SILVER 2023 ecovadis Sustainability Rating · MASE

aggreko

How can we help you?

To find out how we can minimise downtime and maximise your productivity through expertly planned and managed turnarounds, talk to us now.

aggreko.com