ACCELERATING INNOVATION TOWARDS NET ZERO

SHAPING FUTURE SUCCESS

How technology can lower your CO₂ emissions, reduce costs and boost profitability

CONTINUE YOUR JOURNEY
Science is creating momentum for the adoption of low-carbon technologies. Aggressive targets are being set by governments and trade organizations – and taxes, incentives and subsidies are being established to ensure they’re met.

The oil and gas industry has been focused on environmental improvements, but the road is long and many of the challenges are complex.

At Honeywell, we believe that the energy transition presents oil and gas companies with opportunity. Indeed, that “sustainability” and “profitability” have become synonymous ideas. You can reduce costs, achieve competitive advantage and actually improve profitability.

68% of executives say: ‘building a sustainable future is a top priority for our board of directors.’

44% report improved profitability, with that figure expected to grow to 54% within two years.

29% recognize that: ‘our sustainability program enables us to deliver better financial results.’

25% of CEO’s now strongly agree that investing in climate-change initiatives could lead to significant new product and service opportunities for their businesses.

1Source: Innovating for a sustainable future, NTT, 2022
2Source: PricewaterhouseCoopers 23rd Annual Global CEO Survey 2020

IMPROVING ENVIRONMENTAL PERFORMANCE CAN ENHANCE PROFITABILITY
At Honeywell, we have built sustainability directly into our operating system. We have pledged to make all our facilities and operations carbon neutral by 2035. We’ve already reduced the greenhouse gas intensity of its operations and facilities by more than 90% since 2004 and have implemented more than 5,700 sustainability projects since 2007.

More than 60% of our revenue and 60% of our research and development investments are focused on solutions for improved environmental and social outcomes. Oil and gas is an intrinsic part of that and Honeywell has technologies that can help you improve both your industrial and operational processes.

This e-book provides an overview of some of those operational solutions and shows how other businesses have been able to implement them and make progress on sustainability.

The journey to net zero can seem daunting, but by following a proven plan and committing to dedicated efforts for change, your organization can be well on the way to meeting its defined sustainability goals. Please contact Honeywell if there are any operational solutions you would like to discuss in greater detail.
Becoming a sustainably managed and operated company is increasingly becoming a business and social imperative. Employees, supply-chain partners, customers, investors and regulators expect it. Some demand it.

Our experience ranges from single-building civic installations to multi-regional projects with complex and prestigious enterprises, and from small manufacturing plants to complex refineries and the planes in the sky – making us uniquely qualified to help you chart your path to net zero using comprehensive, outcome-based strategies that reduce complexity and optimize your results.

With Honeywell as your guide, we can help your organization take its first steps on the path to net zero, and we can provide a step-by-step framework to help you hit each of your targets along the way.

Our approach has helped clients, big and small, achieve successes. Their route to tangible results can be summarized in these six steps.

1. **Baseline**
   Understand where you are, what you’re consuming and where it’s coming from.

2. **Define Your Target**
   Where do you want to be? When do you want to achieve it?

3. **Build Your Walk**
   Identify key initiatives to meet your targets within a timeline.

4. **Walk The Walk**
   Commit to the project, secure the funding and execute on the plan.

5. **Continuously Measure**
   Demonstrate auditable progress.

6. **Monitor**
   Mitigate the risk to sustain the level of performance.
INDUSTRIAL TRANSFORMATION

We have been providing innovative hydrogen processing solutions for more than 50 years and are continuing to innovate with Honeywell H₂ Solutions, covering the entire hydrogen value chain. Across production and conversion, transmission and storage, and distribution and use, our solutions can help operators and OEMs operate more safely and profitably.

Honeywell’s hydrogen-ready systems, instruments and software support the widest range of applications. From modular systems for local production to industrial control solutions for the biggest organizations, we have proven experience in providing viable, energy-saving industrial solutions.

Reduce greenhouse gas emissions for diesel by up to 85% with renewable fuels

Honeywell’s Ecofining™ technology produces Renewable Diesel that’s chemically identical to petroleum-based diesel. The same technology also converts waste oils, fats and greases, other non-edible plant waste, and even algae into Honeywell Renewable Fuel.

Both Renewable Diesel and Sustainable Aviation Fuel (as a 50% blend with conventional jet fuel) can be used as drop-in replacements for vehicles and aircraft, with no modifications necessary, and no losses in performance.

POWER THE CO₂ COUNTDOWN WITH H₂

As the world strives to reduce greenhouse gases, Honeywell H₂ Solutions are a viable way for you to reduce carbon emissions and meet your emissions goals.
Help secure your energy supply and optimize your energy costs

Optimize the consumption of energy from your wind and solar energy investments by storing electricity in Honeywell’s Battery Energy Storage System (BESS).

Honeywell’s BESS Platform enables you to store electricity, and so helps you improve grid stability and sustainability, while decreasing your supply costs.

If a generator fails or goes offline for any reason, the BESS platform reduces the need to bring additional, non-renewable power generators online. A remote facility can therefore maintain operations with the platform running in parallel with traditional generators.

In addition, the BESS Platform can reduce the need for non-renewable power sources – such as gas turbines and diesel generators, which have high associated gas consumption rates – and so contribute to a smaller carbon footprint.

Combined with energy-management software, you can optimize the use of your assets and enhance grid reliability, making renewable energy a viable challenger to fossil fuels.

Honeywell’s new battery solution can store and discharge electricity for up to 12 hours, exceeding the duration of lithium-ion batteries, which can only discharge up to 4 hours.
Reduce your combustion flue gases

Your industrial plants can lower their combustion flue gas emissions, and more effectively meet their regulatory and sustainability goals.

Honeywell has been a leading provider of multiple technologies including advanced solvents, absorbents, membranes and cryogenic systems to capture CO2 for over 50 years. We also partner with the University of Austin over its proprietary advanced solvent technology.

**CO₂ capture solutions**

30M TONS

installed carbon capture solutions capacity

Equivalent to removing

7M PASSENGER VEHICLES FOR ONE YEAR

from the road. Industry-leading suite of technologies delivers lowest available cost of CO₂ capture.

*Source: Innovative Carbon Capture and Storage, Honeywell, 2021
*Source: Greenhouse Gas Equivalencies Calculator
There are major opportunities for oil and gas companies to improve productivity, boost efficiency, and slash CO₂ production with the latest digital technologies.

Honeywell is at the forefront of operational innovation. For four decades, we’ve provided the know-how that’s helped oil and gas producers transform safety, reliability, and efficiency. We’re your trusted partner to provide the latest technology – including robotics, artificial intelligence and automation – and the deep expertise to deliver on your business objectives.

**Improve and measure your energy consumption with digital technology**

Digitalization is key to measuring and reducing your CO₂ emissions. The Honeywell Forge enterprise performance management solution enables you to transform your operations. Its mix of software products and enabling services help you to first, gain insights on where process improvements can be made. You can then drive increased productivity, sustainability initiatives and other advances, and measure and report on their success.

69% of executives say: “digital innovation is key to achieving our sustainability goals.”

---

1. Source: Price Waterhouse Coopers 23rd Annual Global Survey 2020
**Continuously monitor your systems and applications**

Honeywell Enabled Services offerings help you always stay alert to potential technology issues. The full-service offering is like having the world’s best service technician monitoring your systems 24/7.

**Create remote operations centers to oversee plant operations**

The Honeywell Experion® Process Knowledge System (PKS) is the first enterprise-wide technology solution designed to unify people with process, business requirements and asset management.

**Implement intelligent and predictive operations**

With Honeywell Forge Asset Performance Management (APM) your systems are modelled against decades of Honeywell data. Honeywell digital twins can then predict machinery availability, identify root causes of inefficient machine operations, and so improve reliability and maintenance planning.

Also, Honeywell Operational Intelligence provides workflow automation to prevent issues before they happen, helping to ensure maximum productivity and reduce your IT support costs.

**Drive excellence in your workforce**

Honeywell can also supply workforce technology including:

- **Connected Competency** – a digitally-enabled training and education solution to ensure your workers can perform their jobs.
- **Workforce Excellence** – a technology-enabled, role-based service program that boosts workforce productivity and competency.
- **Honeywell Process Solutions** – these include automation control, safety systems, field instrumentation, fuel delivery and burners, connected plant offerings, and much more.
These are just three examples of how Honeywell’s advanced technology has supported oil and gas companies in dramatically lowering their CO₂ emissions – and increasing profitability.

**BP produces sustainable aviation fuel**
BP has implemented Honeywell’s Ecofining process at a former conventional refinery site in Western Australia to produce 10kbd diesel and sustainable aviation fuel (SAF) from renewable feeds.

The aim is to build a fast-to-market, highly efficient facility, in place of spare operating capacity, to produce diesel and SAF. Depending on the choice of feedstock, the diesel and SAF produced is delivering substantial reductions to greenhouse gas emissions compared with alternative processes.
Adnoc maximizes efficiency with predictive analytics
Abu Dhabi National Oil Company (Adnoc) adopted Honeywell Forge Asset Performance Management (APM) to maximize its operating efficiency as part of a ten-year initiative.

The company is using Artificial Intelligence (AI) technologies, including machine learning and digital twins, across all its operations. The goal is to better predict equipment failures, reduce unplanned maintenance, increase reliability and safety – and so lowering CO₂ production, and boosting efficiency and cost savings.

Petronas pursues growth and low-carbon strategies
Petroliam Nasional Bhd (Petronas) is working with Honeywell to deliver an ambitious package of digital transformation and digital transformation and emissions management solutions, as well as a number of other projects.

A wide range of Honeywell technologies – including productivity, carbon capture and utilization, energy storage and digital twins – are being used to harmonize Petronas’s business processes into a fully-integrated operational platform. The overall objective is no less than helping the organization hit their sustainability goals, while achieving best-possible reliability and profitability.
For more information, or if there's anything you would like to discuss in greater detail, please contact Honeywell.