## EMISSIONS REDUCTION PROGRESS

Halliburton understands the oil and gas industry has an important role to play to help reduce the world's emissions, and that affordable, secure energy is essential for global economic development. We are dedicated to our work to reduce emissions, improve efficiency, and advance the development of clean energy options. Our Chief HSE Officer has responsibility to define and execute our emissions reduction strategy, which the HSE committee of our Board of Directors oversees. The Board also receives regular updates about Halliburton's progress. You can read our <u>Climate Change Statement</u>, <u>Climate Risk Scenario Analysis</u>, and additional information about our emissions reduction efforts on the Halliburton website.

## FOCUS ON EMISSIONS REDUCTION

In 2023, we continued to invest in innovations and initiatives that support progress toward our 2035 emissions reduction target. We expect total emissions to fluctuate in the near term as market dynamics, our hydraulic fracturing equipment mix, and operational efficiencies affect our emissions. Hydraulic fracturing accounts for about 80% of our carbon footprint, and strong demand for oil and natural gas supply drove demand for our services which resulted in a 15% increase in our absolute Scope 1 and 2 emissions year over year. However, our overall emissions intensity is down 13% compared to 2018, which suggests we are on track to meet our target.

Given the continued expansion of our electric fracturing fleet, our Scope 2 emissions went from 11% of our total reported emissions in 2022 to 20% in 2023. We expect this shift to continue as more of our diesel-powered equipment is replaced by electric units over time. Continued electrification will open new avenues for emissions reduction given power source optionality.

#### **Fracturing Electrification**

We continue to deploy new electric fracturing units, which reduce the emissions intensity of our fleet and

## Our Climate Change Sustainability Commitments

- Achieve a 40% reduction of Scope 1 and 2 emissions by 2035 from 2018 baseline.
- Partner with Tier 1 suppliers to track and reduce Scope 3 GHG emissions.

#### Scope 1 GHG Emissions





MTCO<sub>2</sub>e



help customers reduce their emissions. Over the last two years of electric fracturing deployments, we have reduced our North America fracturing-related emissions intensity by a cumulative 4%.

Our electric fracturing units provide a lower emissions profile relative to other units and offer power source optionality that include grid power and different sources of natural gas. Halliburton's customers recognize our units as valuable options in their emissions reduction journeys.



#### Facilities

Sustainability is integrated into our real estate processes. Due to our efforts to assess and improve the efficiency of our facilities through initiatives such as solar energy, LED lights, renewable electricity procurement, and the optimization of other mechanical systems, we reduced over 39 million kWh in 2023.

Nine of Halliburton's sites located in Canada, India, and the U.S. currently purchase 100% renewable power. In 2023, Halliburton installed LED lighting at 26 sites globally, and we have contracted installations at nine additional sites. This ongoing initiative has shown a 62% average reduction in U.S. lighting-related electricity consumption.

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#### Mapping Carbon in Our Supply Chain

In 2023, Halliburton collaborated with IPIECA and other oil and gas companies to develop a standardized process to define and calculate embodied carbon for select purchased materials.

Halliburton uses analytical tools to assess our suppliers' carbon footprint management maturity. To date, Halliburton has assessed the maturity of over 4,116 suppliers. Aided by direct discussions with our suppliers, we have also started to collect product carbon footprint data. Learn more about the cloud-based platform we use in the <u>Supply</u> <u>Chain Monitoring Platform</u> section of this report.



# THE FUTURE OF ENERGY

The world requires a diversified use of all sources of energy, each of which has a role to play in the future. At Halliburton, we deliver value to the broader energy landscape. Our work is focused in three spaces:

- We provide goods and services to help our customers reduce the emissions footprint of their operations.
- We put our core competencies to work to deliver solutions to low-carbon energy projects such as CCUS and geothermal energy.
- Through Halliburton Labs, we help early-stage companies in emergent energy sectors scale as we learn about where we can strategically engage new markets.

## LOWERING THE CARBON INTENSITY OF OUR CUSTOMERS' OIL AND GAS OPERATIONS

Halliburton helps our customers lower the carbon intensity of their operations through innovative, data-driven solutions in the full well lifecycle. The oil and gas industry provides affordable, reliable energy that is necessary for the global society and its growth. The path toward a lower carbon future includes hydrocarbons produced more efficiently and with a reduced carbon footprint.

Our approach to sustainability is embedded in our new technology development process and customer collaboration. We develop and deliver solutions that help our customers reduce emissions, maximize their assets, and build a sustainable future.



## Our Innovation Sustainability Commitments

- Lead the industry in innovation and conscientious stewardship of global resources.
- Provide solutions that support decarbonizing our customers' production base.

#### **Digital Emissions Calculations**

In 2023, we integrated the Envana<sup>™</sup> emissions data management software with our service delivery workflows and equipment sensors. This integration was accomplished in several product service lines and enables us to generate reliable, repeatable, and detailed emissions data for jobs executed by these product service lines. Halliburton uses this data to report verifiable emissions data, collaborate with customers to identify opportunities to reduce emissions, and inform our product development.



Our data-driven solutions positively impact our emissions footprint and are key to our end-to-end sustainability strategy

#### **Sustainability in the Product Development Process**

All new product-related research and development at Halliburton follows LIFECYCLE, our technology development process. LIFECYCLE's steps consider, among other factors, ways to minimize and quantify potential sustainability-related impacts. It is a rigorous, interdisciplinary, and collaborative stage-gate product development process that facilitates successful technology commercialization.

In 2023, we simplified how we identify products or services that help our customers reduce emissions and standardized how we qualify environmental impact early in the technology development process. We also improved our process controls, which monitors our project launches from inception to commercialization.

If a product or service is determined to have a favorable sustainability impact during the LIFECYCLE process, it is then classified in one of the following categories:

- 1. CO<sub>2</sub>e footprint reduction
- 2. Direct/indirect input (i.e, electricity, raw materials, or logistics) and/or waste reduction
- 3. CO<sub>2</sub>e footprint assessment and/or emissions mitigation
- 4. Low Carbon Solutions

#### Intelevate<sup>™</sup> Platform

Intelevate<sup>™</sup> Platform, developed through LIFECYCLE, is a customizable digital platform that helps operators design, build, and operate end-to-end electrical submersible pump (ESP) monitoring solutions. It facilitates faster, more accurate goal setting and operating plan development. A customer that adopted the Intelevate<sup>™</sup> Platform increased their average equipment run life by over 60%. It enabled the customer to remotely operate around one-third of their ESP operations in the Permian Basin and decreased the number of technician visits made by 50 visits per month.



## 2023 TECHNOLOGY SUSTAINABILITY MATRIX

Halliburton maps the lower environmental impact technologies we launch in our Technology Sustainability Matrix. This reference document identifies our environmental impact-reducing technology offerings according to every stage of the well lifecycle. The excerpt below highlights products and services we launched in 2023. More information can be found on the <u>Sustainability</u> page of the Halliburton website.

Products / Services	Operational Efficiency	Electrification	Customer Emissions Inventory Optimization	Water Optimization and Waste Reduction	Materials and Logistics	Carbon Capture, Utilization, and Storage	Geothermal
ARTIFICIAL LIFT							
Intelevate™ Platform							
BAROID							
BaraFLC® Nano nanoparticle wellbore sealant additive for water-based fluid systems							
COMPLETION TOOLS							
IsoRite® -FT Multilateral completion system							
PRODUCTION SOLUTIONS							
Hydra-Blast <sup>®</sup> Pro wellbore cleaning service							
SPERRY DRILLING							
PulseStar™ intelligent high-speed telemetry service							
GuideStar™ continuous definitive survey measurements service							
iCruise® CX intelligent rotary steerable system							
EarthStar® X near-bit, shallow, and ultra-deep resistivity service							
TESTING & SUBSEA							
Remotely Operated Control System (ROCS)							
Subsea Controls and Intervention Light System (SCILS)							
WIRELINE & PERFORATING							
CoreHD® scientific imaging services							
PorosityHD™ imaging and digital routine core analysis							
FastSCAL™ digital special core analysis							

## LOW CARBON SOLUTIONS

We saw significant growth in 2023 as the global project opportunities for CCUS and geothermal energy increased. Our Low Carbon Solutions offerings apply our experience and preexisting technologies to develop and execute our customers' projects. We include a few highlights below.

#### **CCUS Highlights**

Halliburton provides solutions that help our customers analyze risk in complex CCUS projects. We offer tools that help companies understand the geological characteristics of a potential storage site. Our cementing and completions product lines offer a range of corrosion-resistant solutions that customers can use to construct storage wells.

Halliburton's Neftex<sup>®</sup> FairwayFinder<sup>™</sup> software uses an informed approach to identify and screen potential storage sites. Our wellbore evaluation technologies, such as our IntelliSat<sup>™</sup> pulsed neutron logging service, provide accurate assessments of carbon/oxygen saturation — a critical step before CO<sub>2</sub> injection. A range of formation pressures can be collected when these technologies are paired with our Reservoir Description Tool (RDT<sup>™</sup>) formation tester, which provides information related to storage and containment quantification.

Measurement, monitoring, and verification (MMV) is a required step in storing injected CO<sub>2</sub> underground. Halliburton's solutions include tools that facilitate accurate MMV of formation pressures and temperatures, remote data access, and storage and leak detection alerts. Our DataSphere® continuous monitoring suite delivers subsurface monitoring capabilities. The suite also collects live wellbore data that aids injection and reservoir model enhancement to fulfill CCUS MMV requirements.



#### HyNet UK Carbon Storage Project

In 2023, Halliburton was awarded contracts for work on the HyNet North West CCUS project in the Liverpool Bay area, the first of its kind commissioned in the UK. This project will involve completions, liners, and monitoring products and services. Its goal is to reduce carbon dioxide emissions through use of depleted hydrocarbon reservoirs for geological storage and by providing the region access to low carbon energy.

### SPIDR® Data Acquisition Unit

Halliburton's SPIDR® data acquisition unit is a well-surveillance solution. Both the SPIDR® data acquisition unit and SPIDRlive® streaming surface pressure data retrievers capture high-quality pressure data at the wellhead without wellbore intervention. SPIDRlive® streaming surface pressure data retrievers use the cloud to stream data and provide a wider remote visualization capability for CO<sub>2</sub> injection sites.

#### **Geothermal Energy Highlights**

Global demand for sustainable heat and electricity has led to growth in conventional geothermal projects and advancements in geothermal systems. These advanced systems allow for geothermal energy production in areas without ideal geological conditions for conventional geothermal applications.

Halliburton's technology portfolio, combined with our experience in the geothermal space, positions us to meet the growing geothermal energy market's demands. Our integrated and comprehensive approach to the geothermal project lifecycle delivers a low-cost-per-megawatt solution for our customers. From subsurface software, well construction, and artificial lift to well interventions. Halliburton has a portfolio of products and services to support operators in the geothermal sector. We develop new technologies to drive performance and reliability in this high-temperature, high-pressure environment to make geothermal energy more accessible and affordable.

#### Xaminer<sup>®</sup> Sonic Imager<sup>™</sup> **Logging Service**

Halliburton's wireline product line deployed Xaminer<sup>®</sup> Sonic Imager<sup>™</sup> logging service pairs with our borehole imaging offerings, such as StrataXaminer<sup>™</sup> high-resolution images in oil-based mud, to characterize fracture networks in geothermal projects. The Xaminer<sup>®</sup> Sonic Imager<sup>™</sup> logging service delivers high-resolution characterization of seismic properties, geomechanics, and completion requirements in a wide range of reservoirs. Data acquired by these advanced services is vital for planning induced fractures in the target geothermal zone.





images of the reservoir structure



#### Cape Station: Horizontal **Geothermal Well Project**

We worked with Fervo Energy in Utah, a leading geothermal energy company, to deploy the Halliburton VersaFlex<sup>®</sup> XSL-ZE Liner Hanger system in the world's first commercial enhanced geothermal greenfield development project. Fervo leverages horizontal drilling, distributed fiber-optic sensing, and multi-zonal completion techniques to enhance permeability and water flow through the subsurface, removing the need for naturally occurring hydrothermal resources that are required in conventional geothermal wells. A cross-functional team installed and successfully cemented the technology in three different horizontal wells. Our collaboration helped the customer achieve higher efficiency in their geothermal well projects.

## HALLIBURTON LABS: THE FUTURE OF ENERGY. FASTER.™

Through Halliburton Labs, we provide a wide spectrum of energy system innovators and entrepreneurs with access to our capacity to scale and the vast resources in our global infrastructure and network. We come alongside these organizations to help them further their strategic goals. Participating startups include those engaged in industrial decarbonization; carbon capture and utilization; grid-scale and long-duration energy storage; energy generation and conversion; critical minerals recovery; hydrogen production and transportation; and circular economy. Halliburton Labs creates tangible value for early-stage companies in emergent energy sectors. We grant access to resources that support organizations' efforts to scale and expand their industry networks.

As we support these organizations, we develop new insights and discover opportunities for exploration, investment, and growth. Halliburton also gains institutional knowledge that will enable us to collaborate and engineer solutions to maximize asset value in the energy systems of the future. Participants enter a financial agreement that secures an equity stake for Halliburton Labs at their next round of institutional financing.

Halliburton Labs closed out 2023 with 32 participant and alumni organizations that represent all facets of energy production, storage, distribution, and efficiency, as well as the industrial decarbonization and waste-to-value sectors. We continue to see high levels of interest in Halliburton Labs from investors, startups, and academic institutions. Increasingly, our applicants are referred to us by companies and investors who have seen the value we create firsthand.

#### Halliburton Labs Gives Clean-tech Startups Visibility

We hosted two Finalists' Pitch Day events in 2023. At these events, we showcased 10 early-stage hard-tech companies that innovate solutions in many different sectors of the energy landscape. This was the first year we took our Pitch Day on the road. We collaborated with key energy organizations to deliver a Future of Energy Day at Denver Startup Week, which further expanded Halliburton Labs' and our Finalists' reach, visibility, and networks. Halliburton Labs also hosted its first Company Showcase event in May 2023 for nine of our participant startups. An audience of over 55 clean-tech venture investors attended. At this event, we facilitated live pitches for nine of our participants and more than 174 curated meetings between startups and relevant investors.

# HALLIBURTON

32 Halliburton Labs Participant and Alumni Organizations



Clean tech startups pitch at the Halliburton Labs Finalist Pitch Day for an opportunity to join their accelerator program



#### **Participant Achievements**

In 2023, many Halliburton Labs participants achieved important milestones in their work to scale their operations.

- LiNa Energy reduced its funding needs by 30% in consultation with Halliburton
- Renew Power Systems, Inc. produced its first commercial inverter units
- SunGreenH2 was a 2023 winner of the BloombergNEF Pioneers Award
- Disa Technologies, Inc. closed a \$15 million fundraising round

These examples demonstrate how Halliburton Labs creates tangible value for early-stage companies in emergent energy sectors.

#### Halliburton Labs Innovation Series

Halliburton held three Innovation Series events in 2023 that were open to all Halliburton employees. We invited panels of distinguished industry, academia, and startup speakers to have insightful, stimulating discussions at our Houston, TX, campus. Topics discussed included Nuclear Energy; Carbon Capture at Gigaton Scale; and Carbon Utilization. Employees gained an opportunity to hear new and diverse views about innovation, market drivers, and potential gaps in emergent value chains.

#### Venture Development

Halliburton began to incubate NaviScale in 2023. NaviScale is a Halliburton commercial venture that makes use of Halliburton's experience and expertise to help clean-energy and climate-tech ventures navigate their scale-up journeys. It assists them as they identify unseen risks in equipment design; optimize their designs for manufacturing; verify their readiness to scale, and secure suitable and reliable supplier relationships. With NaviScale, Halliburton will be able to extend the impact of Halliburton Labs beyond participants and alumni. NaviScale will deliver a commercial solution powered by Halliburton to the broader climate tech market.

As Halliburton works alongside a broader range of innovative companies, we expand our access to and insight into promising value chains even further and spark additional opportunities to collaborate and engineer solutions for the energy systems of the future. We use the Halliburton Management System (HMS) to facilitate our environmental management efforts. HMS identifies areas where we can reduce or mitigate our environmental impact. It also helps us manage environmental risks. Additionally, we conduct environmental evaluations during the due diligence phase of every potential M&A transaction. Work done at Halliburton — which includes our environmental management work — is guided by the policies, business practices, and procedures that are comprehensively detailed in HMS. Read more on the <u>HMS</u> page of the Halliburton website. Visit the <u>Environment</u> page of our website to learn about our chemical stewardship.

## ENVIRONMENTAL FACILITY CERTIFICATIONS

The HMS complies with industry-standard certification programs — including International Organization for Standardization (ISO) 14001 and API RP 75 — as do all the processes and procedures it contains. Many of Halliburton's product lines and facilities are externally certified in accordance with ISO 14001 and business requirements. In 2023, 65 Halliburton facilities held ISO 14001 certifications.

## SUSTAINABILITY AWARENESS TRAINING

In 2023, we launched a Company-wide Sustainability Awareness Training course. The course helps employees build foundational sustainability-related knowledge and educates them about Halliburton's guiding principles, commitments, and the initiatives we have undertaken in pursuit of our sustainability goals. The course has been completed by over 90% of our employees. A successful journey toward our goals includes educating employees about Halliburton's sustainability focus and progress.

## Our Environmental Management Sustainability Commitments

- Establish and achieve activity-based waste-reduction targets in our major facilities.
- Create water-use improvement plans in our major facilities located in water-stressed areas.

## BIODIVERSITY

For Halliburton, sustainability includes supporting our customers, employees, and communities. We recognize finding ways to reduce our impact on biodiversity plays a role in this work. Our efforts in this area include environmental evaluations to help reduce our impacts to our land; facility designs that meet regulatory requirements and are energyand water-efficient; promotion of circularity in materials use; targeted water use and waste reduction programs; engagement with local communities to protect and restore sensitive habitats; and cultivation of a responsible supply chain in collaboration with suppliers.

Halliburton respects World Heritage sites and the protections afforded to them. We do not own or lease operational sites on or within 10 km of the locations on UNESCO's World Heritage List.



## WATER STEWARDSHIP

Halliburton stewards water in ways that reduce and optimize our use of water resources. We work internally and collaborate with our customers on a global scale to reduce, reuse, and repurpose — or "3R" — fluid resources to the fullest possible extent.

Halliburton improves water quality, conserves water, and advances sustainable, cost-effective water management processes for ourselves and our customers where we are able. We report water-use data for Company-owned and Company-leased locations in the U.S., Canada, and most of Halliburton's global facilities.

Halliburton has established a water-use reduction toolkit that is available for use at our facilities, which was implemented in 2023 by our top water-consuming facilities in potentially water-stressed areas. We used our Water Calculator to establish a water balance for each of these locations. The calculator helps a facility identify and quantify water sources used at the site, on-location uses of water, and the site's wastewater discharges. From this activity, we noticed that higher volumes of water tend to be required for in-product uses, auxiliary processes, domestic use, and/or landscape irrigation. We then used the Water Reduction PlanTemplate to evaluate water-use reduction opportunities at our top locations. This template facilitates the identification and evaluation of water-use reduction strategies and helps establish site-specific reduction targets. Water-use reduction strategies that have resulted from this process include, but are not limited to, improvements to leak awareness and identification; replacement or enhanced maintenance for older water-consuming appliances and fixtures; adoption of drought-friendly vegetation and xeriscaping; and implementation of systems that recycle and reclaim water. In 2023, we continued our engagement with sites in potentially water-stressed areas to facilitate improvements and monitor progress against location-specific reduction targets.









#### Colombia Team Repurposes Rainwater

Halliburton Colombia's Real Estate team implemented rainwater collection systems at three of our major facilities. The systems feature tanks with a substantial storage capacity of 10 m<sup>3</sup> and enable the team to efficiently collect rainwater that is then stored and filtered for use in our wash areas. The team expects rainwater collection and reuse to reduce its new water use by 120 m<sup>3</sup> per year. These efforts support our strategy to minimize water use through circularity.

# WASTE MANAGEMENT AND REDUCTION

Halliburton has developed a number of tools that support waste management and reduction efforts at our facilities. Our 2023 waste generation data include all manufacturing locations; all U.S. locations; and any non-U.S. locations with building footprints larger than two acres (8,092 m<sup>2</sup>) or that facilitate activities with potential to generate particularly high levels of waste.

The Waste Data App makes it possible to more accurately collect and report on waste generation and disposal data. On a quarterly basis, Halliburton facilities enter data into the app for each waste stream that is sent offsite for treatment, storage, disposal, or recycling. The Waste Stream Identification Template is a step-by-step guide that supports the identification and classification of different types of waste and provides guidance on the segregation, handling, and disposal

methods associated with that waste. Another template, Waste Segregation Posters, provides information on how to create easy-to-understand posters that guide facility personnel on proper waste segregation and storage. Halliburton has also developed a Waste Minimization Decision Guide to help facilities identify opportunities to prevent, reduce, reuse, and recycle waste from their highest-volume and highest-emissions waste streams.

In early 2023, Halliburton locations that generate large volumes of waste used one or more of these tools to identify waste reduction opportunities, set reduction targets, establish reduction plans, and monitor progress against targets.





#### Extending the Life of Oil Used in Our Hydraulic Fracturing Pump Fleet

In 2023, the Halliburton North America Equipment Maintenance organization and Production Enhancement Technology collaborated to maximize oil life for the internally maintained fleet vehicles. Our goal was to extend maintenance intervals and minimize waste from hydraulic fracturing pump oil changes while maintaining service quality and performance.

The team tested different types and viscosity of transmission oil. The best oil blend proved able to improve performance and increase time between rounds of maintenance, which lengthened oil replacement cycles by 317%. This has reduced the amount of oil required to service our North America Land hydraulic fracturing pump fleet by 165,819 gallons per year. The project helped our team reduce waste, reduce equipment downtime, and further improve the reliability of our equipment.





#### Waste Minimization at Our Norway Tananger Main Facility

Our Norway Tananger Main Facility implemented a program in 2023 to segregate waste streams. The program led to a 73% year-over-year reduction in the amount of waste the site generated per hours worked.