# Environmental Performance Review 2021

SPIRIT ENERGY

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# 1.0 FOREWORD

I am pleased to share Spirit Energy's Environmental Performance Review for 2021.

During 2021, Spirit Energy continued as an energy company, focused on optimising the potential of our assets in the basins of north-west Europe. We are meeting this challenge as a lean, agile and sustainable business which is adaptable to changing market pressures, whilst maintaining our focus on operating in a safe, socially conscious and environmentally responsible way.

Spirit Energy recognises that the upstream oil and gas industry has an important part to play in reducing global greenhouse gas emissions. At the same time, the Covid-19 pandemic has underscored the importance of our industry in delivering secure energy supplies when the world needs them most. For Spirit's part, we are committed to becoming a Net Zero company by 2050 and have set ourselves ambitious targets along the way to make sure we are making the right progress towards that goal.

To minimise our impact on the environment, Spirit Energy adheres to a robust Environmental Policy. This captures our responsibilities for environmental stewardship and our commitment to the continual improvement of our environmental performance. We use an integrated approach which embeds the environmental management of our operations into our business management practices. This report summarises our environmental performance across our operated assets in the UK, Norway, and the Netherlands.

During 2021, our teams across the UK, Norway and the Netherlands produced 36.8 million barrels of oil equivalent (mmboe). In doing so, we had no Tier 1 or Tier 2 process safety incidents and a small number of incidences of unplanned releases to sea. This is great testament to the hard work and commitment of our teams – particularly those in operational roles – which have continued to secure energy supplies in extraordinary circumstances. Our total recordable incident frequency decreased significantly, from 0.21 in 2020 to 0.11 in 2021, we believe an Incident Free Workplace is possible and this will remain a focus both for us and our supply chain partners in the years to come.

Our industry is faced with the responsibility to supply reliable and affordable energy products, whilst also providing solutions to climate change. We take that dual responsibility seriously – throughout our operations, the safety of our people and our commitment to the environment remain foremost in our minds and a critical part of our strategy.

Gerry Harrison

EVP HSE, Subsurface and Non-Operated Production

# 2.0 HEALTH, SAFETY, ENVIRONMENT AND SECURITY POLICY

At Spirit Energy, creating an incident free workplace is our top priority. All employees and business partners are required to comply with this policy and our commitments outlined below.

We are committed to:

**Assessing**, understanding and managing our HSES risks and impacts

**Enabling** the creation of a positive culture holding each other accountable, helping us to: achieve our HSES goals; support business growth; and realise our vision of an incident free workplace

**Proactively** supporting employee health and safety, seeking ways to protect the environment, including the prevention of pollution, efficient use of resources and the reduction of waste and carbon emissions

**Empowering and encouraging** personnel to work in a safe way

**Intervening** if we believe that the work environment or task is unsafe or may cause environmental damage, or we see an unsafe act

**Learning** from our successes and incidents, and freely sharing lessons with business partners

**Working with stakeholders**, suppliers and business partners in the pursuit of good practice in HSES

**Continually improving** and setting measurable objectives and targets in business plans to enhance HSES performance

**Developing** and testing prioritised incident response and recovery plans to protect our people, the environment and minimize business impact

**Ethically conducting our business** and complying with regulatory and other applicable requirements

**Playing our part** in helping to sustainably meet energy demand and to become net-zero company for our operational emissions

**Minimizing** our impacts and those of suppliers through innovation, technology, and cultural change

**Exploring** how we could reuse our infrastructure to support net zero obligations

Our HSES management system enables the delivery of these policy commitments, is structured in line with recognised good practice, and is routinely assured. Independent certification to ISO 14001 shall be maintained for our environmental material operations.

Our performance is reviewed regularly, and relevant results published.

Neil McCulloch

Chief Executive

# 3.0 OUR OPERATIONS

Spirit Energy has a diverse portfolio of operated and non-operated assets, shown in Figure 3-1.

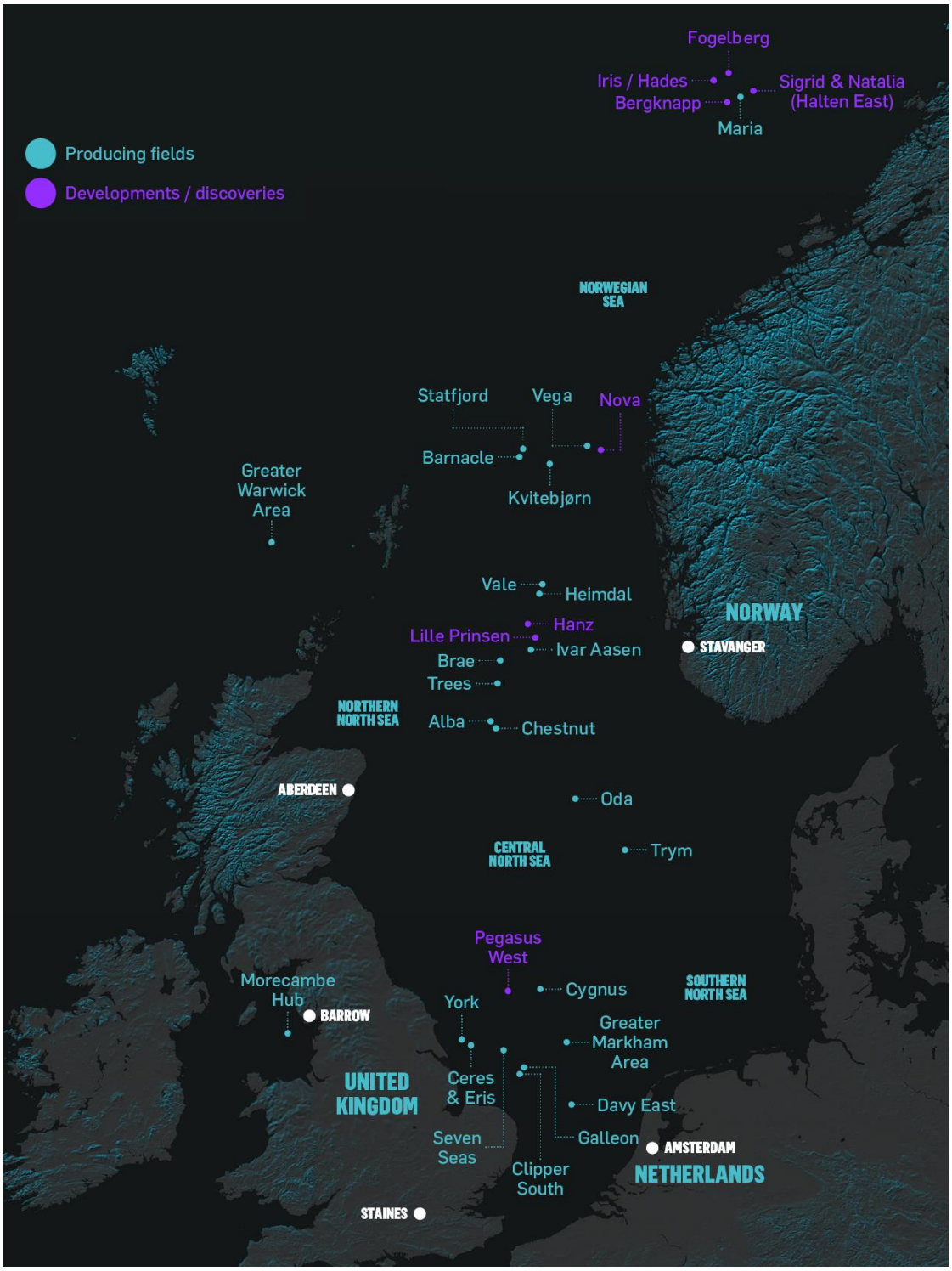


**Figure 3-1 Spirit Energy Operations**

# 4.0 OPERATIONS PORTFOLIO

Our operations are organized into three asset groups – the North Sea (including facilities in both the UK and the Netherlands), Morecambe Bay and Norway.

**North Sea**

Our operated assets in the North Sea include the Chestnut oil field located in the central part of the UK North Sea, which is produced via the Hummingbird Spirit floating production, storage and offloading (FPSO) vessel. In the southern North Sea, operated assets include the York NPAI and the Greater Markham Area (GMA). GMA straddles the UK and Dutch sectors and produces from a number of fields (Markham, Chiswick, Grove and Kew) tied back to the J6A platform.

In addition to routine operations at these facilities, York achieved first gas in April 2021 after the completion of the life extension project which included the re-routing of the pipeline and installation of methanol injection skid offshore. A corrosion and scale inhibitor skid was commissioned in Jan 2022. The field has shown continuous and steady operation since first gas. We also achieved first gas after successful drilling of the Grove G7 well. Our activities also included further progress on decommissioning the A-Fields (Alison, Annabel, Ann and Audrey).

**Morecambe Bay**

The combined fields of Morecambe Bay continue to provide a significant portion of the UK's gas supply, having produced more than 6.5 trillion cubic feet of gas for UK homes and businesses since coming on stream in 1985. The Morecambe Bay fields are produced via the South Morecambe platform and the Central Processing Complex (comprising three bridge-linked installations) as well as seven NPAIs and two subsea tiebacks.

Decommissioning of two NPAIs in Morecambe Bay, DP3 and DP4, continued in 2021 reducing our footprint in the region as we remove infrastructure which is no longer required. Both jackets are now scheduled for removal during 2023. The Millom West Platform, Millom East and Dalton tiebacks are due to be handed back to the owner, Harbour Energy in 2022.

The Barrow Gas Terminals (Barrow North and Rivers) process all the gas from Morecambe Bay including gathering and processing services for third parties.

**Norway**

Operated assets in Norway include the Vale field which flows back to Equinor's Heimdal platform, and the Oda field which is tied back to the Ula platform operated by Aker BP ASA. Our non-operated interests include stakes in major Norwegian fields such as Statfjord, Kvitebjørn, Heimdal and Ivar Aasen.

There was no exploration drilling conducted during 2021. Spirit Energy entered into agreements to divest its Norwegian business including the Statfjord UK field, concluding in 2022.

# 5.0 OUR ENVIRONMENTAL MANAGEMENT SYSTEM

The Spirit Energy Health, Safety, Environment and Security (HSES) Policy outlines our responsibilities in relation to environmental stewardship and our commitment to continually improve our environmental performance. The environmental management of our operations (shown in Figure 5-1) is incorporated into our fully integrated business management system. This integrated system ensures the embedding of environmental requirements into all of our business practices to deliver maximum benefit.

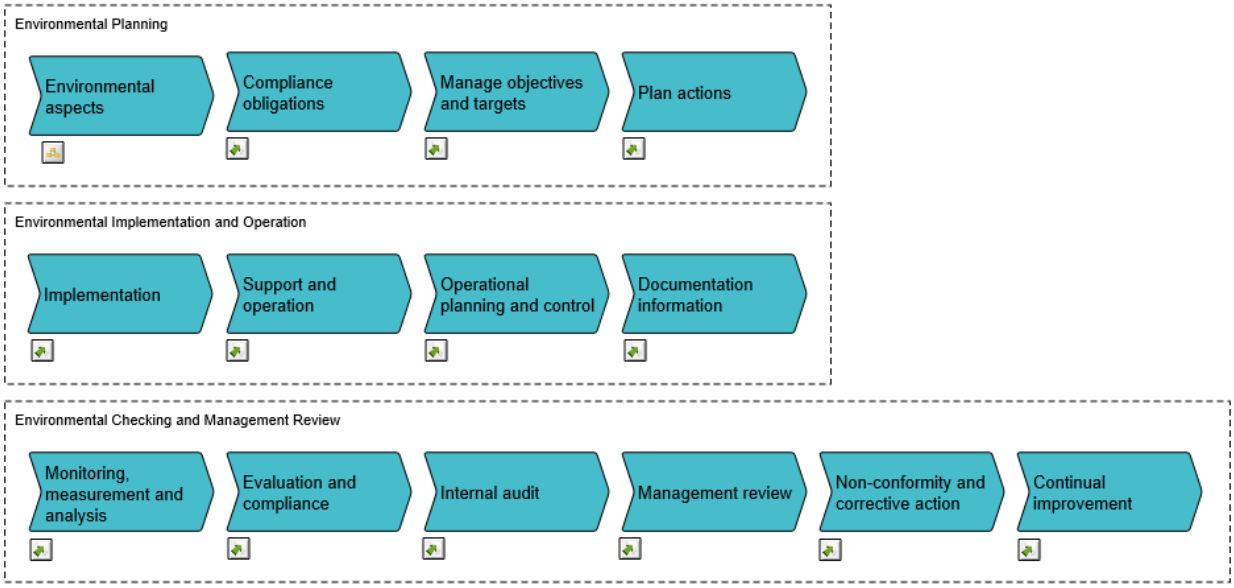


**Figure 5-1 Environmental Management System Structure**

The following key impacts and risks are managed within routine operations:

- Greenhouse gas emissions from power generation, flaring and venting
- Air pollutant emissions
- Oil discharged in produced water
- Chemical use and discharge to sea
- Surface water and effluent discharge
- Waste generation and disposal
- Unplanned events – emissions, discharges and permit non-compliances

Performance is reported externally to the regulators and internally to operations and senior management. Performance data are also reported to other forums such as to the Carbon Disclosure Project and are available on our shareholders website (www.Centrica.com).

Improvements in performance are planned and managed within the annual improvement planning cycle. These improvements are approved by senior leadership and aligned with business operational plans. Maximum benefit from strategic initiatives and improvements can be achieved across the business through this planning process.

The activities in our operated assets from exploration to decommissioning are certified to the Environmental Management System ISO 14001:2015.

This report summarises the performance and initiatives of Spirit Energy's exploration, production, and decommissioning operations in 2021 and the planned improvements for the coming years.

# 6.0 OUR PERFORMANCE

The environmental performance of our activities in 2021 is summarised in the following sections.

## 6.1 GREENHOUSE GAS EMISSIONS

The majority of emissions to atmosphere from our installations are from gas-fired turbines used for power generation and gas compression. The lack of process and compression equipment on the smaller NPAIs results in considerably lower emissions from these installations. Carbon dioxide from the combustion emissions at the Hummingbird Spirit FPSO, J6A platform, Morecambe Hub and the Barrow Gas Terminals are part of the UK Emissions Trading System (UK ETS).

A wider scope of greenhouse gas (GHG) emissions are also reported under Streamlined Energy and Carbon Reporting (SECR) as tonnes of carbon dioxide equivalent ($TeCO_2e$). This includes the emissions covered by UK ETS, combustion emissions from non-EU ETS installations/equipment, flaring and venting emissions, formation $CO_2$ and purchased electricity.

The way in which Spirit Energy reports GHG emissions has been updated, therefore historical data is not included in this report. Historical data from 2020 onwards will be reported as our baseline in the following years so that trends in these data can be shared going forward.

The reduction in emissions from 2020 – 2021 is in part due to asset shutdown periods and natural production decline. During the 2021 reporting period, Spirit Energy initiated a project to operationalise GHG emissions. An emissions management framework (EMF) was created and implemented on a pilot basis at the Morecambe Bay offshore upstream and onshore midstream assets. The framework aligns with Spirit Energy's existing production management system, and facilitates real-time intra-day emissions monitoring, interventions, and management. It is conservatively estimated that operational interventions from the EMF could result in approximately 5%-10% reduction in emissions. Following the successful pilot phase, Spirit Energy intends to roll-out the EMF across all operated assets.

Figure 6-1 shows the total emissions from Spirit Energy's operated offshore installations, drilling operations, onshore terminal, and offices during 2021. Figure 6-2 shows the breakdown of these emissions by source for the same installations/facilities.

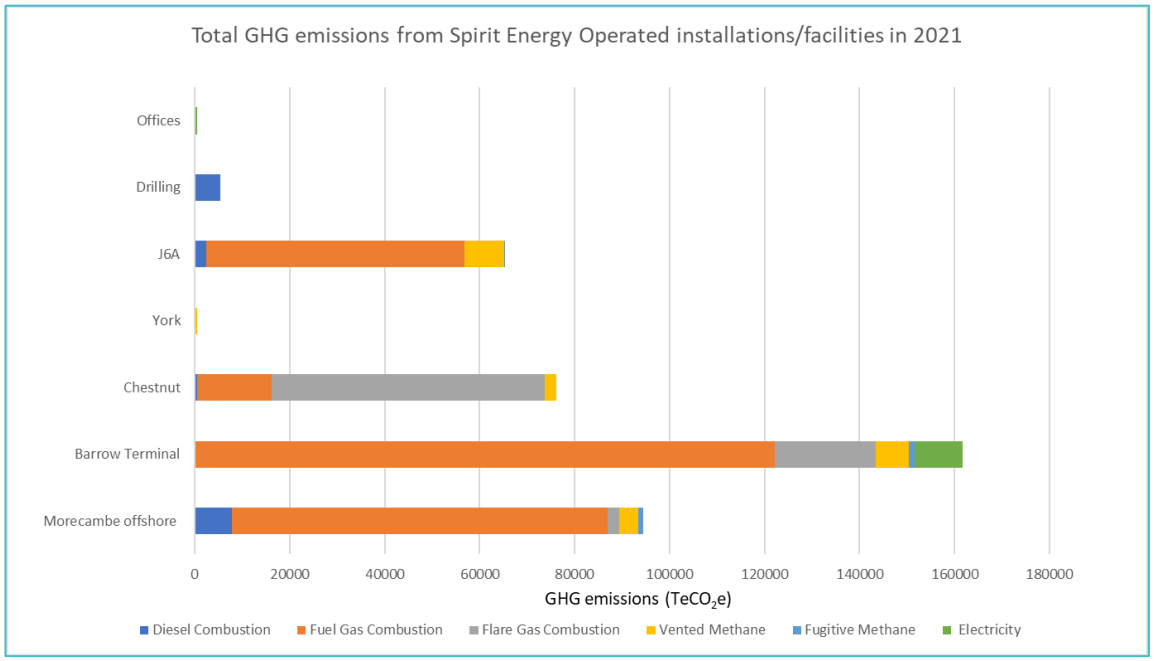


**Figure 6-1 Total GHG emissions from Spirit Energy operated installations/facilities in 2021**

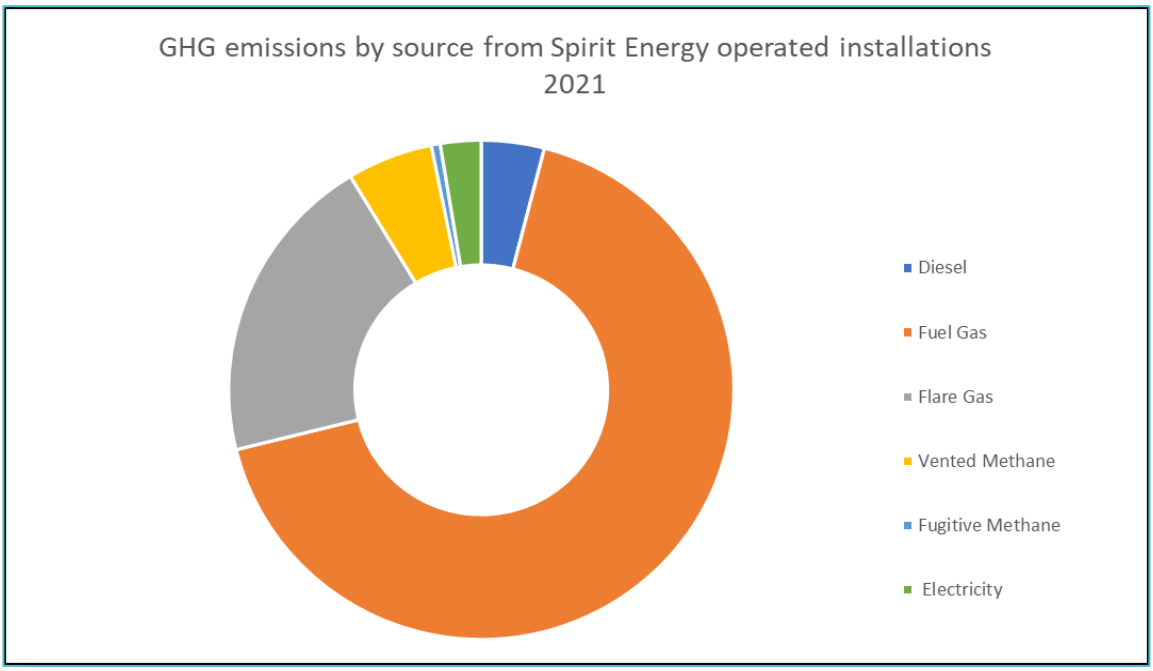


**Figure 6-2 GHG emissions by source from Spirit Energy operated installations/facilities in 2021**

## 6.2 ONSHORE PERFORMANCE - TERMINAL EMISSIONS

The Barrow Gas Terminal operates under an Environment Permit which is regulated by the Environment Agency (EA) and an annual performance report is submitted to the EA for the site.

Emissions to air from the process and discharges to water are monitored and managed within the limits specified in the permit. Any deviation from these limits is investigated to prevent a reoccurrence. Emissions to air from the Barrow Gas Terminal are monitored and managed within the limits specified in the Environmental Permit. The emissions of specific atmospheric pollutants are shown in Figure 6-3 below. The low emissions in 2017 and 2018 reflect extended shutdown periods, whilst the 2019 emissions reflect more stable production through the year. The emissions in 2020 and 2021 also show a decrease on the 2019 emissions due to maintenance shutdowns.

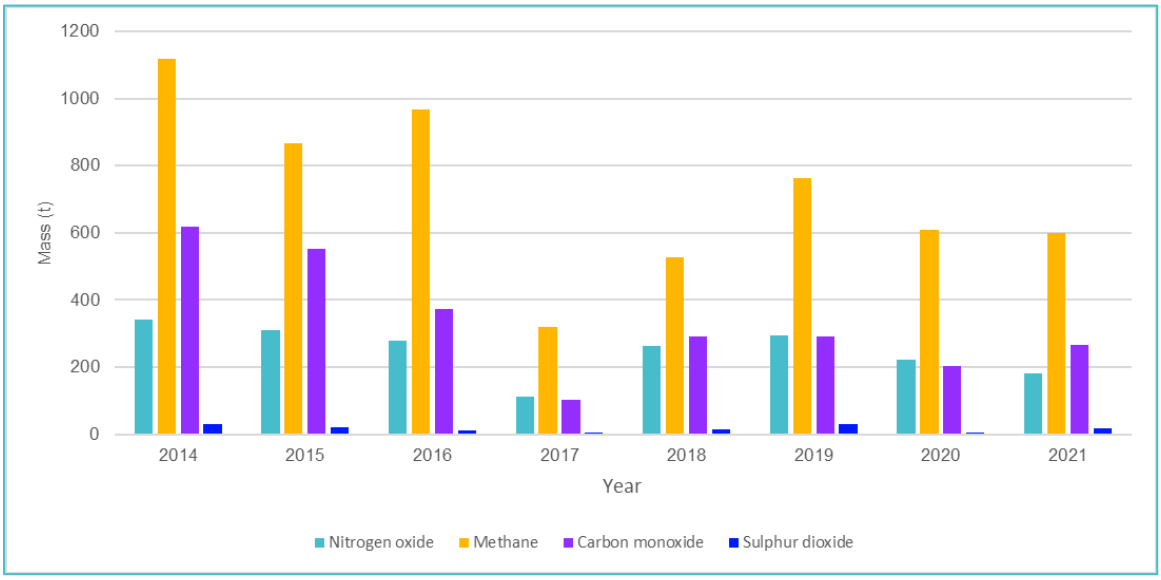


**Figure 6-3 Emissions of nitrogen oxides, methane, carbon monoxide and sulphur dioxide from Barrow Gas Terminal 2014-2021**

## 6.3 OIL IN WATER

Oil is discharged to sea under Spirit Energy's oil discharge permits at the South Morecambe and J6A platforms. The oil discharge permit for the Hummingbird Spirit FPSO Chestnut field is managed by Altera Infrastructure Hummingbird Production Limited (was named Teekay). Small volumes of oil were also discharged as part of drilling operations (well testing and cleanup) at the Chestnut and Chiswick fields.

The oil discharged in produced water from our Morecambe Bay assets is consistently very low due to the nature of the gas reservoir. Our North Sea assets show a decreasing trend due to extended shutdown periods and improved process efficiencies.

The mass of oil discharged from Spirit Energy's assets between 2011 and 2021 is shown in Figure 6-4.

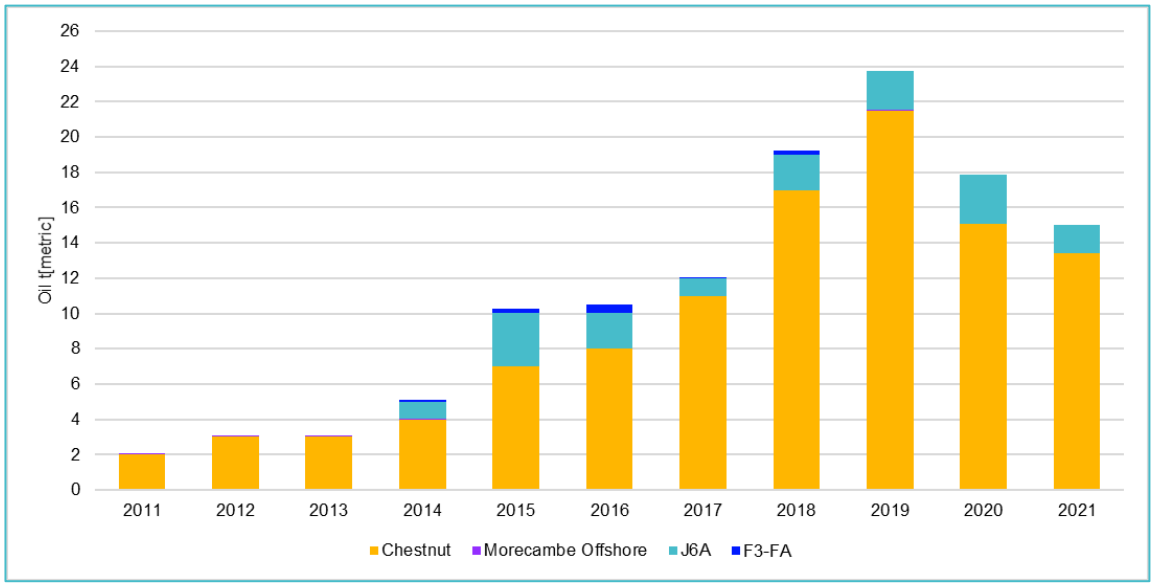


**Figure 6-4 Oil discharged to sea in produced water 2011-2021**

## 6.4 CHEMICAL USE AND DISCHARGE

The amount and type of chemicals used and discharged during our offshore operations differ depending on the activities and reservoir types, for example the rock type to be drilled, well design and production functions. Spirit Energy works with its suppliers to ensure that the least harmful chemicals are used in our operations and all chemical use and discharge is permitted by the appropriate authority.

There are no chemicals with substitution warnings on Spirit Energy's operated production installations (except for a hydraulic fluid on the Calder platform which is used in a closed loop system). There are chemicals with substitution warnings or red category labels in use on our term chemical permits for drilling and intervention operations in the UK and Norway.

In some applications, the use of red category chemicals or those with substitution warnings is unavoidable, for example to ensure well integrity. In the UK sector during 2021 there were 12 substitution chemicals included in term permits for wells activities. Significant number of these were not used at all or used (but not discharged). In the Norwegian sector, there was some use of red category chemicals, but these were not discharged. Work continues to identify replacement products across our activities and is summarised for the UK in the review of the technical justifications for chemicals flagged for substitution carried out within Spirit Energy.

## 6.5 WASTE

Waste is a key area for environmental impact, from the potential for contamination from hazardous wastes to long term impacts of waste such as plastics in our environment. As decommissioning activities including well plug and abandonment are increasing in our operations schedule, we are working to minimise the production of waste such as disposing of cleaning fluids downhole instead of bringing them back ashore.

The final fate of waste from our operated installations and drilling operations are waste to energy, reuse, recycle, other, landfill and incinerate and are shown in Figure 6-. Due to differences in reporting, Norwegian operations are reported separately. The average recycling percentage of all production, well operation, development and decommissioning projects in the UK and Netherlands was 74 % in 2021.

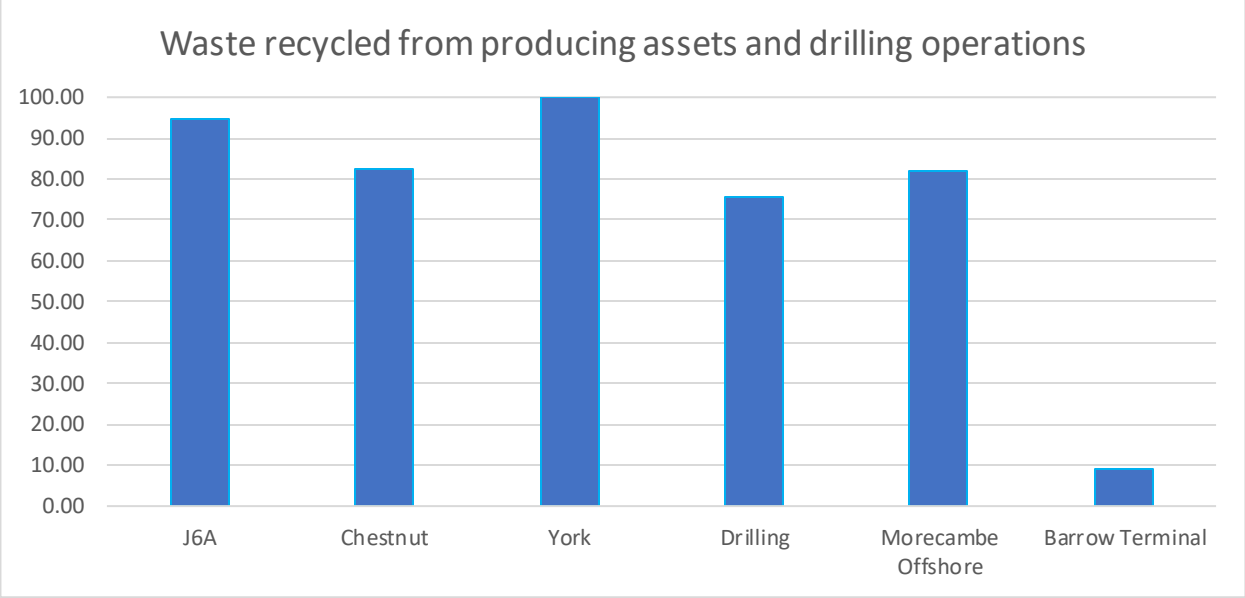


**Figure 6-5 Fate of wastes in UK and Netherlands**

## 6.6 UNPLANNED EVENTS

In 2021 there were six unplanned releases to sea, a small increase from the previous year 2020 of three, however there were less permit non-compliances in 2021 recorded than the previous year, due to improved processes and operational efficiencies (Section 6.3).

### 6.6.1 Spills to Sea

We reported six spills to sea from Spirit Energy assets in 2021 that were mostly small volumes of isolated chemicals. However, the largest spill was 250 kg of methanol at Eris & Ceres and the methanol line was shut in promptly. A DSV was mobilised for investigation and the leak was repaired and tested. Investigations were carried out as standard practice into all our unplanned releases and lessons learned captured where appropriate, for example equipment changeout and increase in assurance activities.

### 6.6.2 Other Regulatory Non-Compliances

The non-compliances recorded in 2021 included some permit breaches of the oil in water discharge limit attributed to poor oil in water performances. The J6A platform had ongoing produced water issues during the latter part of 2021 being investigated. All events have been investigated and addressed at both an asset and cross asset basis to ensure learnings are captured for Spirit Energy.

The Barrow Gas Terminal operates under an Environmental permit which is regulated by the Environmental Agency (EA) and an annual performance report is submitted to the EA for the site.

The Hummingbird Spirit FPSO (Chestnut field) also reported oil in water performance issues. The Chestnut oil discharge permit is managed by Altera Infrastructure (Teekay) and is out with the scope of this report.

Spills and non-compliances from Spirit Energy's operated offshore installations are shown in Figure 6-6.

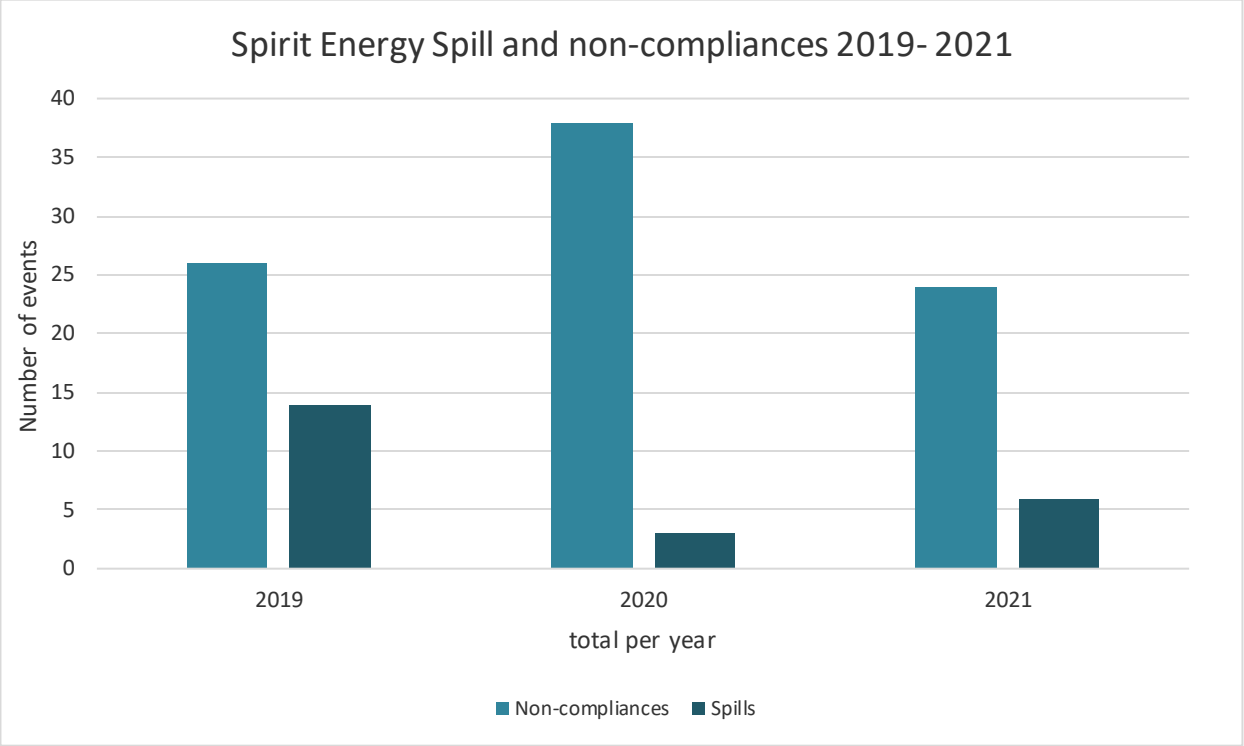


**Figure 6-6 Unplanned events**

# 7.0 2020-2021 ENVIRONMENTAL IMPROVEMENT PLANS AND PERFORMANCE

**Table 1 Improvement plans and progress**

| *Area* | *Initiatives* | *Progress* |
|---|---|---|
| *Risk management – environmental integrity* | *Continued cross-asset focus on the management of regulatory compliance.* | *Audit and assurance focus on spill prevention, chemical and oil management, and oil spill response. Second line of defence audit was carried out on Spirit Energy's Environmental Management Systems (EMS) and was successfully completed in 2021. The focus for 2022 will be on waste, minimising waste and promoting resource efficiency.* |
| *Reporting and Performance* | *Common reporting system across the E&P business and review all performance metrics.* | *The standalone online observations reporting tool is now embedded in throughout the business.*<br>*Ongoing planned enhancements to our internal reporting tool to streamline our internal reporting was successfully rolled out.* |
| *Awareness and training* | *Improvements in environmental awareness across North Sea and Morecambe assets.* | *The Energy Institute modules have been implemented both for Spirit Energy staff and contractors e.g. for rig or vessel activities. Bespoke Computer Based Training (CBT) courses will be created during 2022.* |
| *Carbon/energy management* | *Development of carbon savings and energy efficiency opportunities.* | *We continued reporting carbon intensity of our major emitting installations in 2021. Energy efficiency and reduction opportunities identified our assets are being evaluated into our business planning cycle and a register was created* |
| *Waste management* | *Development of waste key performance indicator and opportunities for improvement.* | *We will be focusing on the waste to energy, landfill and liquid treatment in 2022 and re-establishing an updated baseline to measure and monitor against.* |
| *Maintenance of social license* | *Energy Transition (ET).* | *Development of a roadmap to support the 2050 net zero timeline is ongoing.*<br>*Spirit Energy's SECR (Streamlined Energy and Carbon Reporting) disclosure has been successfully completed for 2021.*<br>*Recertification of our environmental management system to the ISO 14001:2015 standard was successfully completed in 2021.* |