Cleaning up:

By taking the lead on greenhouse gas emissions, can energy companies gain a competitive advantage?

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Petroleum companies are coming under increasing pressure from investors, regulators and consumers on their greenhouse gas footprints.

This may in the relatively near future expose them to carbon pricing and tariffs, exclusion from key markets such as the EU, bans from financiers and insurers, public protests, and litigation. Energy firms can reduce their emissions at relatively low cost, but also need to safeguard their contractual relations and business strategies. In the new world of climate policy and activism, what do companies need to look out for?

DWF Energy Insights

Executive Summary

- There is growing attention on oil and gas companies' greenhouse gas (GHG) emissions – mostly carbon dioxide, methane and nitrous oxides.
- This attention comes from policymakers and governments, who are seeking to reduce emissions; financiers who are themselves under stakeholder pressure, and concerned about future climate exposure; environmentally-aware consumers; and activist groups.
- Various jurisdictions, led by the EU, are imposing carbon taxes and/or considering restricting the import of high-carbon products. Other jurisdictions may fall in line, putting stress on companies and countries to meet these standards to maintain market access.
- GHG can be reduced at reasonable costs, but there are often practical barriers to be overcome by careful engagement with host governments and partners.

Implications for companies

- Oil and gas companies are increasingly paying attention to monitoring, reporting and reducing their upstream emissions. They also need a long-term strategy to limit the emissions from the life-cycle and end-use of their products.
- Contractual provisions need to be carefully considered to ensure they are robust to changes in GHG footprint regulations.
- Although the GHG footprint issue is currently most salient in the EU, and gaining pace there, it will spread to other jurisdictions, either via their own actions or via the need to comply with European and international financial institutions regulations.
- Alliances such as the Oil & Gas Climate Initiative are bringing together large European, North American, Latin American and Asian international and national oil firms to work collaboratively on GHG footprint reductions. Engagement with such partnerships can be valuable for more companies.

Contact us to discuss your challenges

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GHG emissions are a growing concern for oil and gas companies, financiers, governments and consumers

In December 2019, the Netherlands' supreme court upheld a 2015 ruling[i] that the Government must reduce emissions by 25% over 1990 levels by 2020[ii]. The implications of the judgement, given to protect citizens' human rights, are as yet unclear. Similar cases could follow in other European countries. In both the Netherlands and New York, environmental groups have brought cases against oil companies over lack of action on climate change or alleged attempts to mislead investors on the risks they face[iii]. The New York case, against ExxonMobil, was dismissed, but climate litigation in various jurisdictions is a growing feature of the landscape.

Investors and financial institutions are increasingly eliminating funding for coal and now for oil and even natural gas. The European Investment Bank (EIB) has decided that from 2021, it will cease funding for unabated fossil fuel projects[iv]. Some international banks, such as DNB, are also reluctant to finance fossil-fuel projects. For now, such moves will affect debt more than equity funding, and power projects more than upstream production.

17 of the world's 35 largest insurers now do not insure coal projects[v], and if this spreads to other fossil fuels, it would limit options significantly. A number of funds, including TCI, Legal & General and BNP Paribas Asset Management, have decided to vote against directors at corporations that do not disclose their GHG emissions or have material climate risks[vi]. Activist investor fund Follow This has filed resolutions at ExxonMobil, Chevron, Shell, BP and Equinor asking them to align their investment plans with the Paris Agreement[vii]. Other funds so far have concentrated on engaging on environmental issues, but may be pushed to become more aggressive if their invested companies do not improve.

Carbon taxation generally worldwide remains zero or low, but it is expanding. Norway imposes about $55 per tonne of CO2 on oil and gas company operations[viii]. Prices in the European Emissions Trading Scheme (ETS) have risen steadily since 2018, from very low levels to about 25 €/tonne. This year, China's national ETS will come into force, initially covering only the power sector. Several US states and Canadian provinces have their own carbon taxes or trading schemes[ix]. This will gradually raise the cost of emissions to companies.

Environmental groups and other campaigners are also mounting high-profile opposition to fossil fuels such as through activist Greta Thunberg and the Extinction Rebellion group in the UK, so far mostly in Western countries.

Climate campaigner

Oil companies have faced lawsuits, particularly in the US, alleging their culpability for climate change, or at least in failing to inform shareholders properly of the risks. Higher-carbon producers may be more exposed to such litigation in future.

Beyond their own emissions, oil and gas companies also face growing scrutiny on the emissions from their products when used (i.e. combusted). They can change this by shifting the mix of their products from oil towards gas, by introducing zero-carbon business lines (for instance, biofuels and renewable electricity), or by offsets (bio-sequestration or direct air capture of CO^2).

Shell offers its Netherlands fuel customers a choice of paying an extra 1 cent per litre for carbon offsets via reforestation and reduced deforestation[xi].

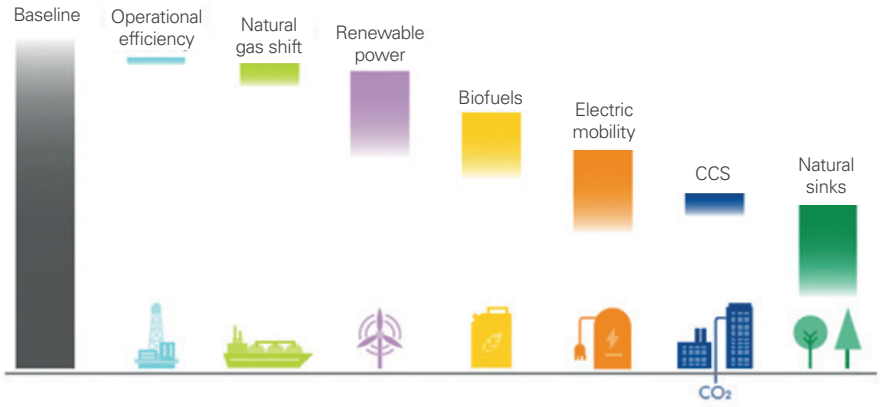


Figure 1. Shell's plan to halve its net carbon footprint (schematic)[xii]

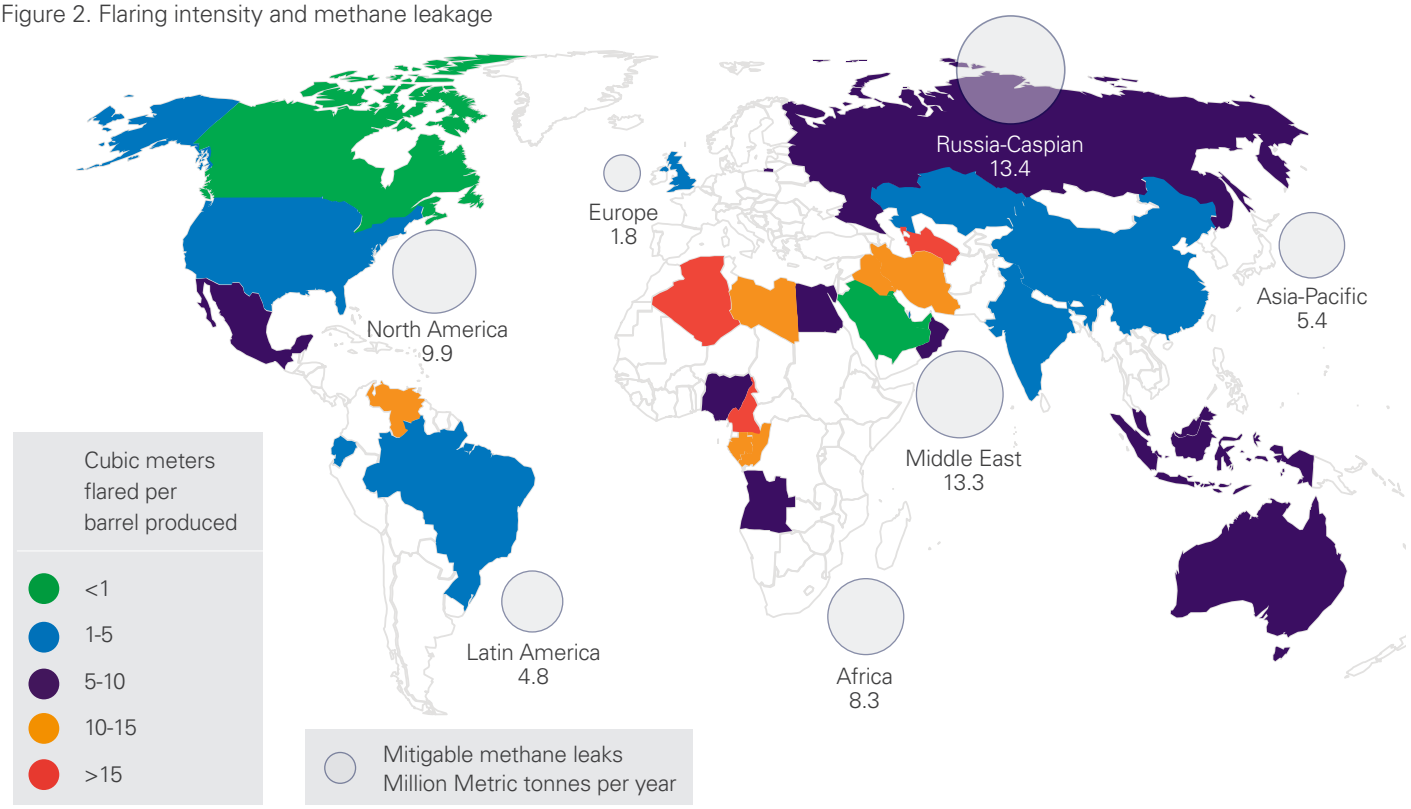
Corporate disclosure and targets are becoming more stringent

Corporate emissions are divided into Scope 1, 2 and 3:

- Scope 1: the company's direct emissions;
- Scope 2: from the generation of energy (electricity, heat or steam) purchased for its own operations; and
- Scope 3: from its full value chain, including the life-cycle use of its products[xiii]. Scope 3 for an oil and gas firm would include the emissions when its products are burnt by the end-consumer.

Oil companies have increasingly made commitments to reduce emissions under all three scopes. Repsol has gone furthest, promising to eliminate Scope 3 emissions by 2050[xiv]. Shell will cut its emissions in half by 2050[xv]. Baker Hughes has committed to reduce its Scope I emissions by 50% by 2030 (so far it is down 34%), and to be carbon-neutral by 2050[xv]. In a wider sense, 40% of North Sea oil operators and contractors are concerned about energy transition and diversification, and 49% are working to reduce their carbon footprint[xvii]. Oil & Gas UK, an industry body, has produced a blueprint for 'net-zero' by 2035, while the Netherlands Oil and Gas Exploration and Production Association signed an agreement with the government to cut methane emissions by half between 2017 and this year[xviii].

Figure 2. Flaring intensity and methane leakage



So far, these concerns are mostly limited to Western European international oil companies (IOCs). But the expansion of carbon pricing, restrictions on financing and insurance, and carbon footprint import standards, will increasingly impact oil and gas corporations around the world. Saudi Aramco's IPO prospectus[xix] lists its Scope 1 and 2 emissions, and notes its carbon footprint is one of the world's lowest.

"African jurisdictions are yet to adapt to growing environmental pressures and make amendments to their environmental law/ regulations, but are showing growing willingness to improve efficiency and carbon abatement."

Anne-Sylvie Vassenaix-Paxton, Partner, and Head of Oil and Gas, DWF

Thirteen major oil companies have joined the Oil & Gas Climate Initiative (OGCI)[xx], representing 30% of global oil and gas production. These include six European IOCs, three American, and four national oil companies (NOCs), including Aramco. The OGCI aims to reduce industry GHG emissions, with specific goals to limit upstream methane emissions to below 0.25% by 2025 (from 0.32% in 2017), and reach zero routine flaring by 2030.

Anne-Sylvie Vassenaix-Paxton, Partner and Head of Oil and Gas at DWF notes that, *"In sub-Saharan Africa, Angola may be making most strides in environmental improvements in oil and gas production, with the Angola LNG plant serving to reduce flaring by providing a profitable offtake for gas. Congo faces different issues, due to its large forestry sector and potential for reduced deforestation offsets."*

Countries, companies and fields vary widely in GHG intensity

GHG intensity of oil production worldwide is estimated as 62kg CO_2 equivalent per barrel of oil[xxi]. This varies widely, with Algeria the highest at 122 kg and Denmark the lowest at 20kg. Individual companies and fields will have an even wider spread. About two-thirds of emissions come from CO_2 (mostly fuel combustion for in-field energy, and gas flaring), and a third from methane leaks and venting. A smaller part is nitrous oxide, mostly from gas turbines. Some of this variation is down to the technical characteristics of the field (e.g. heavy oil), but more is determined by operational practices and infrastructure.

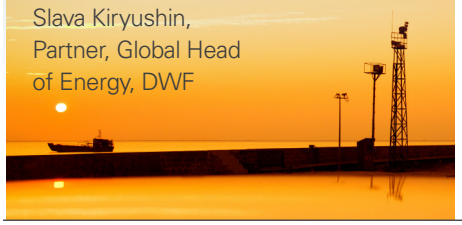
Monitoring and reporting of emissions is becoming more stringent. The Global Gas Flaring Reduction Partnership, managed by the World Bank and including governments, oil companies and institutions, already uses satellite data to estimate gas flaring[xxii]. In 2022, the Environmental Defense Fund plans to launch MethaneSAT, a satellite that

will find the location of major methane releases, shaming perpetrators and encouraging them to reduce leaks (this will include agricultural, waste and other sources of methane as well as the petroleum industry)[xxiii]. Figure 2 shows flaring intensity per barrel (red:high to dark green: low)[xxiv], and methane leakage abatement potential (blue circles, Mt, 2018[xxv]).

Liability will make its way down the corporate value chain. Industry associations, contractors and service companies will have to ensure that they can meet new environmental standards for their customers. As Slava Kiryushin, Partner and Global Head of Energy at DWF notes, "*There are usually no penalties for environmentally non-compliant providers. However, Shell recently terminated its association with the American Fuel & Petrochemical Manufacturers, as it was 'seriously misaligned with the company's climate agenda' according to Shell.*"

"There will be $160B of refining investment in the next decade in the Middle East alone. How much of an environmental footprint will these refineries have? Who will take the liability if they are not built to new international standards – the sponsor or the contractor?"

Slava Kiryushin,
Partner, Global Head
of Energy, DWF



Significant upstream GHG cuts are achievable at moderate costs

Companies have a number of options to reduce their Scope 1 and 2 emissions. These include:

- Reducing flaring, venting and methane leakage, as noted above. The IEA estimates that approaches such as 'green completions', regular monitoring and valve replacements would cut 38% of the current 80 Mt of annual methane leaks at negative or zero cost (by selling the captured gas)[xxvi];
- Improving energy efficiency, for instance by turbine upgrades, waste heat recovery, process optimisation, motor improvements, better process design, re-use of byproducts, LED lighting, insulation, and other methods, to reduce the amount of fuel and electricity consumed in operations;
- Moving to grid electricity where this is lower-carbon than self-generated gas power, for instance Norway's power-from-shore initiative for offshore oil-fields, or electric drive for LNG plants;
- Using renewable or other low-carbon power, which can be co-located or synergistic with petroleum facilities, for instance offshore wind turbines, solar thermal steam generation for heavy oil as used in Oman[xxvii], and solar PV panels for remote desert locations;
- Implementing carbon capture, use and storage (CCUS);
- Restructuring the portfolio to avoid high-carbon assets (such as heavy oil, or fields with high water-cuts), and to emphasise gas over oil – although this may arguably just shift the burden to another company.

Even in jurisdictions without an explicit carbon price, implementing an internal price can act as an indicator for making decisions between different investments, and provide some robustness against future legislation.

Vassenaix-Paxton observes that *"environmental compliance, including GHG footprint reduction, is a competitive advantage for the best companies. It is essential for obtaining favourable environmental impact assessments for new projects, and state petroleum companies and ministries seek out operators with environmental skills."*

Monetising captured gas is not straightforward or possible in many jurisdictions. Figure 2 shows that flaring intensity and methane abatement potential is particularly high in parts of Africa, the Middle East and Russia-Caspian, although the absolute level of flaring is also high in the US. So reduction of both has to contend with less-developed legal systems, weaker infrastructure and less stringent climate policy, regulation and enforcement.

The rights to gas may be held by the government, a state partner may not pay its share of costs, gas prices may be very low or pipeline access unavailable, or local utilities may not have the financial capacity to pay for gas. This warrants careful attention when negotiating production sharing or other contractual terms and financing agreements.

International financial institutions and non-governmental organisations (NGOs) may be potential partners for oil and gas companies to finance required GHG reduction projects, and encourage required legal and policy changes.

The EU in particular is moving to limit the upstream GHG footprint of oil and gas

At UN climate change conference COP26 in Glasgow in November 2020, the signatories of the Paris Agreement on climate change will meet to review and probably strengthen their 'nationally determined contributions' to reducing GHG emissions. In many cases, this is likely to involve further reductions in petroleum industry emissions.

The EU is considering imposing standards for domestic oil and gas production as well as imports, that would ban supplies above a certain GHG footprint. The Environmental Defense Fund has advocated this approach[xxviii]. Yet at the same time, the European gas market is undergoing major changes. For instance, Oskar Waluśkiewicz, DWF Partner in Poland, notes that. "*Polish Oil and Gas Company PGNiG is diversifying its gas portfolio by increasing the share of imported liquefied natural gas (LNG), and expanding international upstream activities in various jurisdictions.*"

These moves raise tricky compliance questions for companies

For importers of gas into Europe, these diversified supply sources, and the rise of new LNG providers, including those from unconventional sources, make compliance with emissions benchmarks more complicated. Contracts will have to be written to ensure they have the ability to reject non-conforming deliveries. Close engagement with the authorities and suppliers is necessary to make sure that major oil and gas exporters to the EU are not suddenly excluded. Destination clauses preventing resale of gas within the EU have been outlawed for some years[xxix], but non-compliant LNG cargoes would have to be resold outside the EU.

From the point of view of producers and exporters, the EU regulations would initially only affect companies producing in, or exporting to, that market. However, other jurisdictions may adopt comparable standards, particularly if the EU moves to impose 'carbon border tariffs' or similar measures on the full life-cycle emissions of products[xxx]. Incoming European Commission president Ursula von der Leyen has backed such taxes. This limits 'carbon leakage' whereby European energy-intensive industries shut down as they become uncompetitive against high-emitting companies elsewhere, with no global fall (or even a rise) in emissions.

In this case, countries supplying Europe would impose carbon prices of their own to maintain access to the European market while retaining the tax revenues within their own economies.

Robust tools to determine and track life-cycle emissions through complex value chains will need to be developed. This includes accounting for hydrocarbons that are used to make petrochemicals or are combusted with CCUS, so not contributing to atmospheric emissions.

Regulation of oil-industry methane emissions in the US, for instance, has been criticised as inflexible and impermissive of modern monitoring methods such as drones and satellites[xxxi].

"Compliance with the emission-standards will have its impact on the trading and the preferred sources of supply. It will become increasingly important in the future."

Oskar Waluśkiewicz
Partner, DWF

Conclusions

1. **Regulation focuses on 3 areas:** The GHG footprint of oil and gas firms (direct and indirect emissions) is attracting growing attention from a wide group of stakeholders. The response of companies can centre on three areas: their own operations; their engagement with stakeholders; and their management of contractual risks.
2. **Straightforward improvements can be made:** Effective management of GHG footprints is vital for companies, to ensure continuing access to markets and financing. Considerable improvements in footprint can often be made by relatively straightforward technical fixes. However, these often face commercial, legal and contractual obstacles. Many developing-country governments are keen to see environmental improvement, but may need guidance in best practices and regulatory capability.
3. **Plan ahead for future regulation changes:** Unexpected scope changes can lead to major delays and budget over-runs. Therefore companies have to plan ahead for future, more stringent, GHG footprint regulations, instead of merely meeting today's standards.
4. **Engage with investors and financiers:** Companies need to engage closely with their potential investors and financiers, and tell a compelling low-carbon story. They should also work with governments to ensure that GHG regulations that are introduced are clear, practical and do not have negative unintended consequences. For instance, would the GHG footprint be calculated per company, per state or per country? What measurement methodologies and certification would be acceptable, particularly for methane leakage which is notoriously subject to varying estimates? Would the upstream producer, the shipper or another party be responsible for the certification? Would LNG or power projects using flared gas be penalised, or rewarded for reducing that flaring?
5. **Risk assessment in new contracts is essential:** New contracts, whether with host governments, contractors, clients, or oil and gas suppliers and customers, have to be negotiated bearing in mind the potential for future environmental regulations. Past contracts typically do not refer to environmental standards except in a fairly basic and retrospective manner. The risk of future restrictions on hydrocarbons with high GHG footprints has to be appropriately allocated between buyer and seller. Price review clauses in gas sales contracts may have to take into account the reduced value of cargoes with high GHG footprint. If oil or LNG cargoes could not legally be sold into a jurisdiction such as the EU, they could be resold (in the absence of destination clauses), but possibly only at a lower price or with higher logistical costs. However, for pipeline gas, no alternative delivery point may be feasible.
6. **More disputes are inevitable:** More disputes are coming up for cargoes, in relation to fuel quality. Normally, this could be decided by quality discount. But it is a different issue if a cargo cannot be taken at all because of environmental regulations, already a possibility with the IMO marine fuel regulations. Otherwise alternative markets may develop for distressed or non-compliant cargoes.
7. **Taking the lead can deliver competitive advantage:** Although GHG footprints are primarily a European issue today, local governments elsewhere could make a dramatic change in legislation without much warning. Petroleum companies need to be ahead of the game.

Done well, leadership in GHG footprint reduction and management can be a competitive advantage for companies. Otherwise, it can be a serious risk to project viability. Petroleum corporations need to stay ahead of fast-evolving legislation and public opinion.

"Engineering, procurement and construction (EPC) contracts could also face challenges if environmental standards change during the project, for example for oil product specifications from a refinery. Project companies would be likely to try to shift the liability on to the EPC firm, which could lead to lengthy disputes and cost escalation."

Slava Kiryushin, Partner, Global Head of Energy

References can be found at: **www.dwf.law/energy-cleaningup-references**

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