FINANCING

FUNDERS' EVOLVING ENVIRONMENTAL DUE DILIGENCE REQUIREMENTS IN THE FLOATING PRODUCTION SECTOR

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Contents

Introduction

Environmental due diligence has always been an important consideration for funders to consider when evaluating an investment decision to participate into a natural resources project. In particular for the offshore oil and gas production sector, environmental impact assessments are inherently embedded within the approval and decision making processes for offshore field development proposals by national regulators.

Funders' environmental due diligence requirements however are changing; this is driven by the ever increasing pressures from governments (from the Paris Agreement to the "net zero" legislation), international institutions[1], regulators, investors and electorates to accelerate the energy transition in order to mitigate the impacts of climate change. There are growing regulatory requirements from prudential authorities/central banks requesting to "stress test" portfolios from a climate risk perspective; additionally, international financing institutions are developing their own industry led initiatives and frameworks to promote financing policies that are consistent with "Net Zero 2050", such as the UN's Net-Zero Banking Alliance ("**UNZBA**")[2], in which MUFG is a recent signatory[3] in order to set a *pathway* and *transition* to a net zero world.

The dilemma for both the global economy and natural resources industry is between needing to achieve lower and eventually net zero emissions, whilst satisfying demand for oil and gas with continued supply which is expected to remain to 2050 and beyond (according to renowned energy consultancies such as DNV[4]) because of the continued expected importance of hydrocarbons within the global energy supply mix. Given funders' commitment to the *energy transition*, environmental due diligence requirements for the financing projects has started to change in order to understand more fully the environmental aspects of an offshore project.

[1] Please see MUFG's recent "Decarbonising the global maritime transport sector" paper published October 2021 for more details on the IEA's Sustainability Development Scenarios and analysis.
[2] UN Environmental Programme (2021) – Net Zero Banking Alliance
[3] MUFG (2021) – MUFG Sustainable Finance
[4] DNV (2021) – Energy Transition Outlook 2021

MUFG has observed that both the *scope* and *focus* of funders' environmental due diligence requirements has changed markedly in the past 12 months, in particular from our own internal requirements and recent experience as environmental due diligence bank in a large Floating, Production, Storage and Offloading ("**FPSO**") financing:

- **Scope (Project):** Funders are interested not just in the specific asset they are financing (i.e. the production unit or FPSO), but also the wider hydrocarbon project, including the overall upstream project and hydrocarbon downstream supply chain; and,

- **Focus (Emissions):** Given that funders are now seeking to pave the path of achieving net zero, there is an ever-greater focus on the quantum (Scope 1, 2 and 3) of all Greenhouse Gas ("**GHG**") Emissions.

As a result, there are increased information requests made by funders that FPSO contractors and stakeholders may have not seen before. Given the agenda set out from governments, regulators, investors and funders to reduce GHG emissions towards net zero by 2050, it is clear is that if enhanced environmental due diligence is not provided to satisfy funders requirements, it inevitably will become more difficult to finance FPSO projects.

The purpose of this paper is therefore to address this question and provides MUFG's recent insights and experiences on the ever-evolving environmental due diligence requirements for financing FPSO units. The approach taken in this paper is to first attempt to explain: (i) **HOW** - funders thought processes when approaching the topic; and second to provide thoughts on: (ii) **WHAT** – funders are increasingly requesting and could potentially require in future in order to complete their environmental assessments.

By dissecting the mind of a funder, this provides stakeholders within the offshore floating oil and gas industry a potential framework, guidance and logic in respect to how to address this changing requirement. There is no definitive answer or "silver bullet" available to help satisfy funders' increasing and future needs, but this paper seeks to create a discussion amongst all stakeholders in the industry by providing a number of potential suggestions that could be considered as key and secondary priorities to improve the level of information that is available to funders.

We are in the interim stages between funders signing the UNZBA pledge and the development of policies to ensure that funders meet and manage such commitments. The final section of the paper considers the "journey to net zero" and outlines the next steps that funders are taking in regards to the setting of interim GHG emission milestones and the development of measurement methodologies that will monitor financing portfolio emissions. The section also addresses how funders could potentially approach project selection in future and begs the questions – *how are offshore project developments going to achieve net zero emissions and what re-assurances are funders likely to require from field operators / developers?*

How can MUFG assist FPSO contractors and industry stakeholders?

As a leading funder in the FPSO market, MUFG can assist FPSO contractors, international and national energy companies and other stakeholders navigate environmental due diligence in transactions, as well as advise on building a more robust information package well in advance of funding launch.

Additionally, MUFG views increased dialogue between funders and industry as essential; greater collaboration across the industry to meet funders requirements. The creation of a standardised and gold standard framework such as FPSO/floating production due diligence principles[5] could be a welcomed development.

We would be pleased to discuss further with funders and industry stakeholders the contents of this paper.

[5] The shipping industry introduced the "Poseidon Principles" in 2019 to align financing portfolios to the International Marine Organisation's 2050 decarbonisation targets. Due diligence principles could be developed specifically for FPSO/floating production.

1. Funders' direction of travel – towards net zero

1.1 UN Net-Zero Banking Alliance initiative

There are many local, regional and international initiatives and targets from governments, regulators and investors to reduce GHG emissions and eventually achieve "net zero" by 2050. Intertwined with such measures and actions, funders are now making emission pledges to their investor base for both their own operations and financing portfolios. Prior to discussing the key topics of this paper, it is important to understand the net zero goals and objectives that funders are pledging that is leading to a step change in how funders are approaching their environmental due diligence.

The founding of the UN Net-Zero Banking Alliance, which was launched on 21 April 2021 was a milestone development from an environmental perspective for the international banking industry, who are seeking to align their businesses with the 2050 net zero targets set by governments and other international institutions. The Alliance consists of 62 members from 31 countries covering almost a ***quarter*** of global banking assets (US$39 trillion)[6].

The key aspects of the commitment[7] are summarised below:

- **Goal:** transition all operational and attributable GHG emissions from [our] lending and investment portfolios to align with pathways to net-zero by mid-century, or sooner, including CO2 emissions reaching net-zero at the latest by 2050...This approach will take into account the best available scientific knowledge, including the findings of the Intergovernmental Panel on Climate Change, so [we] commit to review and (if necessary) revise our targets at least every five years after the target is set;

- **GHG emissions:** refers to banks' [funders] Scope 1, 2 and 3 emissions. Banks' Scope 3 emissions should include their clients' Scope 1 and 2 and Scope 3 emissions, where significant, and where data allow.

- **Prioritise:** our efforts where we have, or can have, the most significant impact, i.e. the most GHG-intensive and GHG-emitting sectors within our portfolios, which are key to the transition to a net-zero carbon economy.

- **Intermediate target:** use the bank-led UN Environmental Programme Financial Institution ("**UNEP FI**") Guidelines for Climate Target Setting for Banks ("**Guidelines**") to set scenario-based intermediate targets for 2030, or sooner, for priority GHG-intensive and GHG-emitting sectors.

- **Monitoring:** publish annually and share with UNEP FI for review...:

    - progress against absolute emissions and/or emissions intensity targets following relevant international and national GHG emissions reporting protocols and/or climate portfolio alignment methodologies;

    - progress against a board-level reviewed transition strategy setting out proposed actions and climate-related sectoral policies; and

    - disclosure for key sectors will be made within one year of setting of the target.

- **Limited use of offsets:** …offsets can play a role to supplement decarbonisation in line with climate science. The reliance on carbon offsetting for achieving end-state net zero should be restricted to carbon removals to balance residual emissions where there are limited technologically or financially viable alternatives to eliminate emissions. Offsets should always be additional and certified.

In summary, the UNZBA is an ambitious funding industry initiative that sets the scene in how funders are set to begin assessing future prospects, in particular industries that have the most significant impact on GHG emissions. There is a pathway to net zero by 2050, with funders individually setting their own individual 2030 intermediate GHG emissions target. Scope 1, 2 and 3 emissions of clients are to be taken into account where significant, and carbon offset schemes are permitted – but subject to there being limited technologically or financially viable alternatives to eliminate emissions.

As the initiative has only been recently published, the policies, procedures and approval processes that are to be put in place by funders are under-development – therefore, the exact approach to how funders will approach environmental due diligence is evolving and subject to change.

In the interim, funders are already increasing their due diligence requirements in recent FPSO financings in preparation for the greater scrutiny transactions are to receive.

[6] UN Environmental Programme (2021) – Members
[7] UN Environmental Programme (2021) - UNZBA Commitment Statement

1.2 Funders evolving approach to environmental due diligence – analysis and scope

A traditional environmental due diligence package for FPSO funders would typically include: (i) an environmental and impact assessment of the field; and (ii) a report from the funders' environmental and social advisor providing an analysis of the project (i.e. FPSO and associated facilities necessary for successful operation) itself from an environmental and social perspective across both the construction and operational phases. The analysis covers: (i) the FPSO contractor's environmental and social management system and controls, as well as corporate environmental and social policies; (ii) project plans; and, (iii) review of the contracts between relevant subcontractors.

The objective of the environmental due diligence is to ensure that the FPSO is compliance with an applicable regulatory framework. The standards/requirements that the FPSO project is typically benchmarked against when financed by international funders are the following:

- **Internationally recognised standards:** International Finance Corporation's Performance Standards, World Bank's Environmental, Health and Safety Guidelines (General, Offshore Oil and Gas, Ports, Harbours and Terminals), Good International Industry Practice ("**GIIP**"), including flag state and marine guidelines (IMO, MARPOL and SOLAS). If applicable, the Equator Principles[8] may apply; and,

- **Host country requirements:** The relevant standards that are set by the host country of the field operator. This is usually included in the environmental and impact assessment of a field development.

The purpose of the internationally recognised standards is to provide an acceptable "minimum" framework for all projects to meet. Between the internationally recognised standards and host country requirements, there will be the differing standards and funders require that the stricter standards to apply.

As part of the assessment, there are likely for "gaps" to be identified between the relevant standards and the FPSO project. In order to ensure there is alignment between the applicable standards and the FPSO project, an environmental and social action plan is devised between the FPSO contractor and the funders' advisor to agree a follow-up and monitoring framework such that there is compliance. An environmental and social report is usually covenanted so funders' are able to monitor both the action plan as well as the contractually agreed environmental and information undertakings as defined within the finance documentation of the FPSO project.

Over the past 12 months, MUFG has observed that funders' *scope* and *focus* has changed in respect to environmental due diligence. This is ultimately driven by the energy transition and funders' initiatives and public declarations in support of reducing GHG emissions in their lending portfolios.

From a scope perspective, funders typically looked at the project financing of the FPSO in isolation to the wider hydrocarbon project. However, funders are increasingly taking a more holistic approach by requesting further due diligence on the hydrocarbon supply chain associated with the FPSO, which is outside of the control of a lease & operate contractor. This includes the upstream and other midstream elements across all Environmental, Social and Governance ("**ESG**") matters (the latter "S" and "G" are not addressed in this paper). Funders have requested a review of the relevant applicable standards (inclusive of Equator Principles) covering the actual offshore / field development plan in order to understand if the project as a whole is compliant with international standards and if not, what "gaps" there are.

The reason why is clear; the FPSO is part of a wider field development and hydrocarbon supply chain, which has an ESG impact. To assess the FPSO solely in isolation therefore does not take into account the "whole" picture of an integrated project (e.g. the emissions of the FPSO are one part only of the overall emissions from the overall field development). Funders would like to understand a project in its entirety and whether it meets their environmental and social policies and objectives. Assessing the environmental impacts of a whole project therefore requires more information and analysis than has typically been provided, as well as understanding the environmental and sustainability of all stakeholders that are involved.

Funders have always paid attention to the GHG emissions of a project, but from a focus perspective, there is more interest on overall GHG emissions (which includes carbon dioxide, methane, nitrous oxide and other fluorinated gases). To date, this has included mainly the Scope 1 and 2 emissions of the FPSO and project, but in future Scope **3** emissions are likely to be assessed. Addressing the GHG emissions across an integrated project is the enhanced due diligence item for funders and where greater attention to detail is required by the industry and stakeholders.

[8] Under Equator Principles 4, FPSOs that are owned by a lease & operate contractor that does not have Effective Operational Control of the underlying field are exempt. See Equator Principles (2020)

2 Inside the mind of a funder

2.1 Overview

It is clear that in the emerging and evolving new paradigm, all stakeholders involved in an offshore oil and gas project and development are subject to enhanced due diligence. Understanding the thought processes of a funder provides an essential insight into what the market requires in order to satisfy the due diligence requirements and how such information should be presented.

To fully understand the environmental dimensions of a project, funders complete their due diligence on a project. Dependent on the institution, there may be (and could be in future) environmental and sustainability approvals, committees or internal guidelines that are required to be met or considered appropriately such that a funder is comfortable to lend to a project from an environmental perspective. Similar to a credit process and to be able to make the relevant arguments, a funder has to have a clear and coherent narrative that is clearly supported by both quantitative and qualitative evidence to demonstrate that the proposed transaction meet internal requirements.

It is useful to breakdown the thought patterns of a funder which we have demonstrated by the four "D"s (Direction, Data, Demonstrate, Deliver). This is how MUFG see funders are increasingly approaching the subject. By understanding "how" funders think, this provides an insight in respect to "what" is increasingly required and could be requested in future.

2.2 Direction

The clear objectives and intent of the field operator / field partners and FPSO contractor in regards to sustainability goals is becoming a key focus for funders. An analysis of companies published sustainability policies (that outlines the targets and proposed strategies) to reduce GHG emissions provides a critical insight in to how a stakeholder is approaching the energy transition.

The direction stakeholders are to take provides a macro-view of the overall approach and philosophy in current and future decision making of all projects. This is incredibly helpful to a funder who can explain and be given comfort that the stakeholders of a project have considered their environmental obligations and will continue to work towards their defined target and plans. In particular, it is useful to understand how the specific upstream / FPSO development fits within the wider field operator / field partner's energy transition plans to put into context where the project fits within the broader decarbonisation and energy transition strategy.

2.3 Data

To support the qualitative arguments, the provision of high quality GHG emission data, information and commissioned reports from the field operator / field partners is also important to funders. Through the provision of data and relevant analysis, this can support the narrative at the macro / corporate level, as well as the project level – both of which are important to funders when considering a project. Benchmarking and comparative analysis is incredibly insightful and useful to funders, such that comparisons can be made against different project developments as well as design concepts.

We consider this to be an exciting new area, where innovation in both data analysis and presentation is expected that will be driven by the collaboration between consultancies, stakeholders and funders.

2.4 Demonstrate

By articulating the "Direction" which is supported by "Data", field operators / field partners and FPSO contractors then have to "Demonstrate" a clear execution plan to reduce GHG emissions.

In particular, how an execution plan considers solutions in respect to GHG emissions reduction is becoming more important. Including a logical and well thought out decision making process that is auditable, and ultimately demonstrates to lenders how field operators / field partners and FPSO contractors have considered the design and technology concepts of both the upstream and FPSO project.

Funders are therefore interested in the considerations that both the field operator / FPSO contractor have made in order to reduce their GHG emissions. Understanding what could have been done and what has been done provides the relevant arguments that environmental considerations have been fully considered. Given that field developments are long-term projects typically in excess of 15-20 years, it would also be beneficial to outline for funders also if there are "future proofed" design concepts included in the project plan such that when a solution becomes technologically and/or economically feasible, it could be implemented (for example, the FPSO design includes the ability to capture, process and then export CO2 that could be shipped to a carbon capture storage facility – this is discussed further in section 3.4 below).

2.5 Deliver

Funders are focused on delivery and the actual execution of a project which seeks to mitigate GHG emissions as much as possible.

Prior to the execution of the project, field operators / field partners can show their past experiences of successfully reducing GHG emissions exercises (such as reduced flaring and other such initiatives). This can demonstrate how emissions have already been reduced and provides confidence in an industry that is serious in reducing its GHG emissions footprint.

Ongoing monitoring of GHG emissions against agreed targets and Key Performance Indicators ("**KPI**") in the operational phase of the FPSO is likely to be considered and required in future in order to monitor portfolio emissions and ensure that agreed commitments made at the initial stage are met by the stakeholders involved.

2.6 Summary

Funders are approaching the subject in a well-reasoned manner and are ultimately seeking to understand clearly how corporate policies and sustainability goals develop into actual action plans in respect to project and development in order to have confidence and comfort that prescribed commitments are to be delivered upon. Funders' logical approach to the matter provides a potential framework in regards to what could be provided to satisfy enhanced due diligence requirements.

3 Discussion - what are funders' emerging / future requirements and how can stakeholders assist?

The next questions to be considered are in respect to: (i) what the specific needs of funders are in the evolving paradigm; and, (ii) what they could be in the future. The discussion in the section below provides a list of suggestions that is non-exhaustive, but seeks to provide ideas and insight, as well as create a discussion amongst the stakeholders in the industry. A renewed approach in a number of areas could significantly help in providing the information that funders need to complete their environmental due diligence processes.

In 3.11, we summarise a list of what we view as emerging funders' requirements, what funders' future requirements could be and how stakeholders can assist in this process.

3.1 Energy transition / ESG policies

Funders are increasingly interested in the field operator / field partners and FPSO contractor's corporate policies towards the energy transition, as well as clear plans in respect to how GHG emissions are to be reduced and achieved. A clearly defined, credible, transparent and public plan to reduce GHG emissions for all participants within the industry is required as funders are requesting such policies as part of their due diligence process. It would certainly help funders if all stakeholders in the industry to have a GHG emissions and energy transition policy to 2050.

Clearly, if a stakeholder does not have such a comprehensive and developed policy, then it is suggested that this is developed as soon as possible in order to provide a deep understanding to funders in regards to achieving lower GHG emissions. If there is an absence of or lack of detail in the strategy and direction of a stakeholder, there is a potential risk that this would protract the due diligence process and require lengthy Q&A to further understand the strategy.

Specific plans relating to the integrated project would be helpful to show to funders how the overall philosophy and approach will be used to reduce GHG emissions in the future.

3.2 Field position within field operator/field partner portfolio

The "Direction" of the field operator/field partners with the regards to the energy transition as mentioned above provides funders with an overarching context and narrative of companies themselves, but further explaining how the specific upstream / FPSO development fits into the overall strategy and energy transition plans is very important to further provide an understanding how broader decarbonisation is to be achieved. It may be the case that particular field may not be part of the wider direct decarbonisation strategy, but cash flow produced by the project may be earmarked or planned to be used for other energy transition projects.

It would be helpful to funder if field operator/field partners provide an overall to funders of how the upstream/FPSO development is to fit within their energy transition plans.

3.3 Environmental commitments and design philosophy / technical design

By a field operator / developer establishing a robust set of environmental and sustainability goals and commitments provides a vision and direction, but clearly articulating how this is to be implemented into the overall design philosophy and basis of technical design requirements of the FPSO and the operations phase (as well as other aspects of the project) shows how such targets are to be achieved. The environmental and social advisor can then clearly opine on whether the field operator's corporate policies (as well as the FPSO contractor's own policies, where specified) have been carefully considered into designing the FPSO.

At this stage, funders have not specifically requested this; however, clearly understanding how the environmental goals (i.e. "Direction") influence design and operating philosophy of an overall project (i.e. "Demonstrate" and "Deliver") would be helpful in joining the dots between the conceptual and practical.

3.4 Design and technology selection

In-depth papers evaluating and auditing the decision, design and selection process of the relevant technology and process concepts relating to the upstream, subsea equipment and FPSO would be incredibly helpful for funders to demonstrate that all options have been considered from a GHG emissions perspective. This would clearly demonstrate to funders "what could be done and what has been done". Typically this is achieved through a Concept Select report (alternatives analysis) that is widened to incorporate the focus on GHG emissions.

Conducting an "alternative analysis" (a requirement under Equator Principles 4) would be a useful study that would form part of a wider discussion as part of the design and technology selection. An alternatives analysis considers a range of solutions which can reduce the level of GHG emissions but are considered on the basis of technical and economic feasibility at the time of project execution. For example, carbon capture storage may not be feasible for a project at the current time, whether from a technical or economic perspective, but by considering approach as part of the decision audit process, this clearly shows to funders that project stakeholders have considered all options in respect to mitigating GHG emissions.

A design and technology selection process could include solutions that range from "easy" to "challenging" to implement, and why the particular solution was and was not considered. Every project is different so a clear explanation evaluating proposals allows a funder to assess that all options have been appropriately considered. This can be supported by a benchmarking analysis (discussed below) against the different design selections to show how a project has been optimised from a GHG perspective to demonstrate the magnitude of emissions "savings".

For example, potential solutions relevant to an offshore FPSO development that could be considered in such analysis:

- **Cargo tank blanketing:** Replace inert gas blanketing with hydrocarbon gas blanketing to reduce emissions.
- **Closed flaring:** Traditionally a source for high CO2, closed flaring significantly reduces emissions.
- **Power Generation:** Traditionally a high source of GHG emissions (see 3.8 and 3.9 below). The selection of power generation solutions and systems that are more efficient could have a material benefit on the environmental footprint.
- **Subsea solutions:** Gas separation subsea could reduce energy consumption, which may have a direct impact on GHG emissions related to power generation.
- **CO2 reinjection:** Dependent on the field, geology and reservoir, the potential for CO2 reinjection to create artificial lift could be considered;
- **Carbon capture storage:** Subject to the technical and economic feasibility analysis, the potential to capture GHG emissions and store underground could be considered to reduce Scope 1 and Scope 2 emissions from the field development and FPSO.

Due diligence requests to date from funders have been to understand how a FPSO has been optimised such that GHG emissions have been fully considered with the technology available. If optimisations have been made compared to base line emission plans, demonstrating this provides funders with the arguments that emissions have been fully considered and where minimised where reasonably practical.

Funders are interested in the optimisations that have been made to the FPSO unit and field. Additionally, it is helpful if a comprehensive alternative analysis is provided to funders in order to assess that all options have been considered as part of the project plan.

3.5 Lifecycle Carbon Assessments

The commissioning of an LCA on the integrated project would demonstrate to funders the overall impact of the project from construction through to operation and ultimately decommissioning, and for upstream to downstream facilities. An LCA can also provide a breakdown of GHG emissions by source (e.g. upstream, FPSO, liquefaction, regasification, combustion) to demonstrate to lenders the source of GHG emissions. Benchmarking the overall lifecycle emissions of a project against other / similar developments can also show to funders how the development is positioned from a GHG emissions perspective. Additionally, understanding the overall emissions intensity of a field and how it compares to other producing hydrocarbon sources is also beneficial to benchmark against other developments.

Funders are increasingly requesting LCAs as part of their due diligence.

3.6 Field economic analysis / energy transition risk assessment

The overall economics (i.e. Net Present Value) and competitiveness (i.e. lifting costs) of the underlying offshore field forms part of a funders' assessment to lend to a FPSO project, with the most competitive fields typically receiving strong funder support.

Given the expected demand reduction of hydrocarbons in future and possible demand shocks driven by a change in government policy, funders are becoming focused on "energy transition" risk and whether a field is economically robust to a range of demand reduction scenarios (and lower oil/gas prices), which is ultimately to avoid an asset becoming "stranded" (i.e. leading to a potential write-down in the value of an asset). Additionally, the emissions intensity of a field/development is also important to understand in the context of the potential imposition of carbon taxes, that would make more emissions intensive fields relatively less competitive against less intensive production sources.

The ability to demonstrate to funders the resilience of the underlying field from an economic perspective therefore warrants much greater attention.

3.7 Enhanced due diligence analysis of the overall offshore field development

Although the focus so far in this paper has been in relation to GHG emissions, funders are increasingly interested in the wider implications of the overall integrated project in relation to ESG aspects and how the project fits within the applicable professional framework.

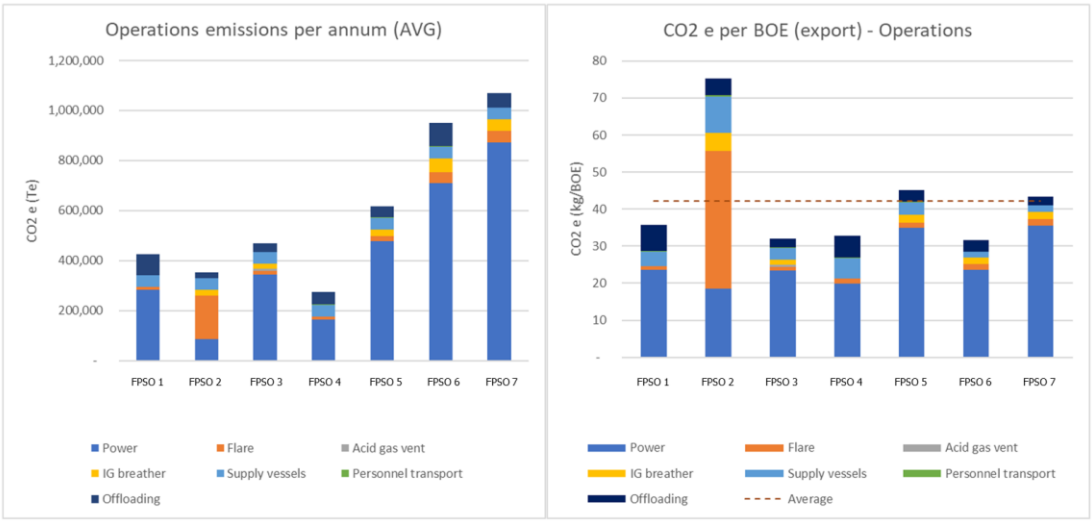
The provision of information and / or the commissioning of a report that considers the ESG aspects of the offshore field development in its entirety would provide comfort to funders that the project as a whole meets GIIP as well as international performance standards.

Funders are starting to request further analysis from a professional / international performance standards perspective of the field development. We would expect that greater scrutiny to continue in future as part of funders overall interest in the integrated project to ensure compliance with the highest possible standards.

3.8 FPSO fleet benchmarking analysis

Consultancies such as Crondall Energy Consultants are building powerful emissions analysis tools, which can be used to assess design concepts at the FPSO level, as well as overall field developments. For example in the graph below, Crondall conducted an analysis benchmarking 7 FPSOs by source of emissions. From such analysis, it can be deduced where the majority of emissions are originated from (e.g. power generation, offloading). The data then could be used to demonstrate a clear logic and audit trail for funders initially at the design concept phase and then throughout project operations.

Benchmarking Analysis



Source: Crondall Energy Consultants

Benchmarking analysis could be conducted on new FPSO units to forecast emissions, which then can be compared to existing units to show the comparative difference to funders. Ultimately demonstrating how the FPSO compares against other units and how it has been optimised from a GHG emissions perspective would show to funders that steps taken by the field operator / FPSO contractor to minimise emissions in their design development.

How can stakeholder assist further in this area?

Knowledge and data can provide impactful and insightful analysis for funders to consider when evaluating a financing proposal. This enables relevant assessments to be made. In order for consultancies and data analytic providers to conduct analysis on projects that are value add to funders, the provision of accurate, high quality, detailed and comprehensive data on emissions would clearly provide the input required.

If stakeholders can provide operational emissions data, a database can be accumulated such that more meaningful, comprehensive and targeted analysis of GHG emissions can take place.

In order to understand overall GHG emissions more widely, a recommendation would be to understand the current source of emissions from the global FPSO fleet in more detail, as well as understand the improvements that have been made to the GHG emissions footprint. Clearly demonstrating such changes from a base year would demonstrate measures taken and progress to date achieved to funders.

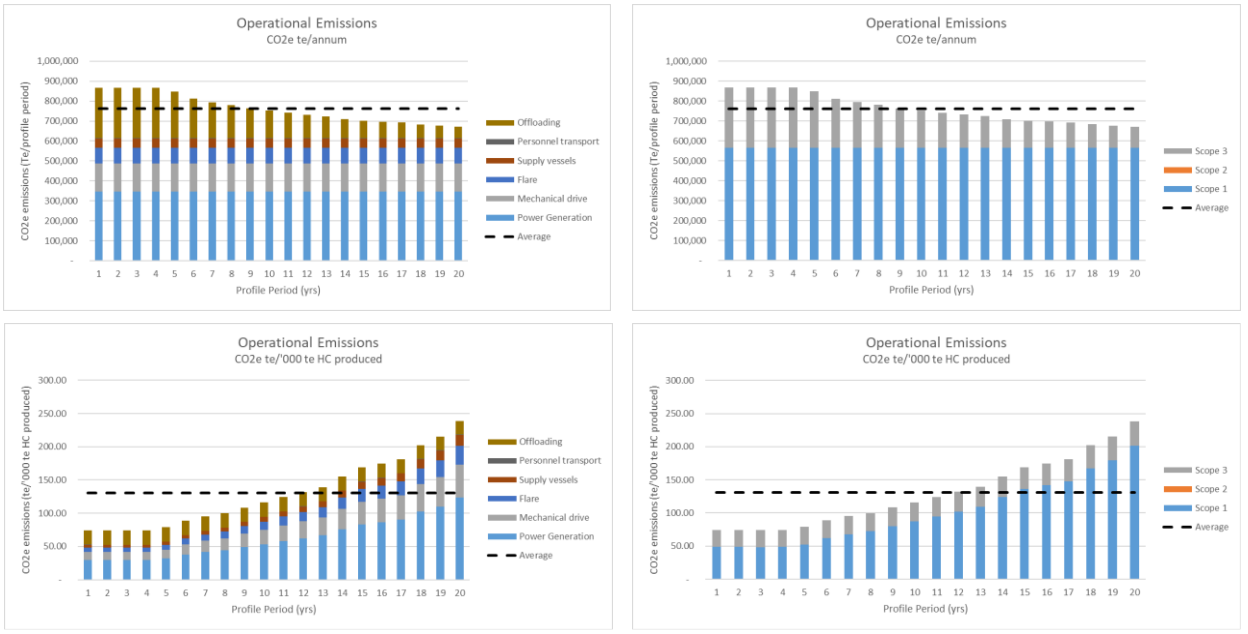
From such analysis, it can be determined which aspects of the FPSO fleet could be improved from both a GHG Emissions / energy efficiency perspective on both the current and the new fleet and the road map being followed towards emissions reduction overall.

3.9 Emissions estimates and profiles

Understanding the emission profiles of an asset could also be helpful for funders to understand the quantum of GHG emissions that a FPSO asset is expected to produce over-time, as well as in context of the overall amount of hydrocarbons to be produced on an annual basis as the production profile changes (so called - CO2e intensity). Crondall have via their Zero Emissions Analysis and Assessment ("**ZETA**") tool produced an emissions analysis estimate over the life of an FPSO on a large development. The analysis includes a breakdown of CO2e emissions by emission source, and includes an assessment of both Scope 1, 2 and 3 emissions from the perspective of the FPSO and the hydrocarbons produced/used. (Note this does not include emissions from subsea infrastructure or the drilling and development programme that are not part of the funder's remit regarding the FPSO development).

The proposed analysis could provide useful perspectives in respect to analysing the expected emissions profile of a FPSO asset as part of the due diligence process. MUFG would expect that funders in future would ask for such analysis.

Emission estimate



Source: Crondall Energy Consultants

3.10 Contractual requirements

The monitoring process connected to the project will become increasingly important to funders, who can assess the current and evolving sustainability goals of the field operator / field partners along with transparent reporting for GHG emissions.

By setting environmental and sustainability goals by both the field operator and FPSO lease-operate contractor, an area that the industry could consider in future is the embedding of KPIs into both the lease contracts, as well as the financing documentation. By defining realistic performance targets, this provides funders comfort that both field operator and FPSO lease-operate contractor have the formal contractually bound embedded incentives to achieve enhanced environmental outcomes.

Although this has not yet been considered to date, stakeholders could consider the extension of emissions reporting into the operational phase. This can be included in the financing covenants of a project (only relation to the FPSO lease-operate contractor, not the wider upstream project) such that funders are able to monitor emissions from projects on an ongoing basis (as part of their portfolio monitoring). Again, tools such as ZETA could be used to develop emissions reporting on an ongoing basis.

3.11 Summary

We are at the early stages of an evolution of changing environmental due diligence that is focused on climate change and GHG emissions and has a wider scope encompassing the wider hydrocarbon project, rather than just the FPSO itself. At the current time, it is clear that funders are currently focused on the qualitative analysis in respect to environmental due diligence, which is then supported by quantitative / empirical data.

What are emerging funders' requirements?

Due diligence area	Overview	Current Priority
Energy transition / ESG policies	Stakeholders to develop clear and credible energy transition / ESG policies to 2050. If GHG emission reductions have been made in the portfolio, this should be clearly illustrated and explained how they were achieved. In the development of an offshore project, understanding where a specific project and asset fits within overall transition plans is essential for a funder.	High
Field position within field operator/field partner portfolio	Putting into context where the upstream/FPSO developments fits within the field operator/field partner energy transition plans provides further understanding how the project fits within the broader decarbonisation/energy transition plan.	High
Alternative analysis / "What could be done, what has been done	Alternative analysis and solutions at both field and FPSO level to understand what GHG emission solutions are technically and/or economically feasible. If reductions in emissions have been made due to a technological design concept, clearly explaining and demonstrating with data the impact provides funders with the evidence that considerations have been made and executed as part of the project plan.	High
LCA / benchmarking analysis	The commissioning of LCA and other benchmarking analysis (i.e. FPSO comparative emissions / field emission intensity) for funders to put into context the GHG emissions of a project vs. other projects.	High
Field economic analysis / energy transition risk	Enhanced analysis with regards to field economics and the resilience to various energy transition scenarios would provide funders with comfort that field would remain competitive to lower oil prices and/or imposition of carbon taxes.	Medium to High
Wider environmental scopes that encompass the broader field development	Field development plans to consider applicable and appropriate international and professional standards in order to ensure that best practice across the overall project is being applied to the highest standards.	Medium

What could form part of funders' future requirements?

Due diligence area	Overview	Current Priority
Data and benchmarking analysis	The commissioning of benchmark analysis that supports the design and technology selection process would inform funders of the quantitative evidence and impact of optimum design selection.	Medium to High
FPSO emissions reporting	Extension of emissions reporting into the operational phase, which is included in the information covenants of projects such that funders are able to monitor emissions from projects on an ongoing basis (as part of their portfolio monitoring).	Medium to High
The link between environmental commitments / goals and technical design	Clearly establishing the link between a field operator's sustainability goals and technical design for upstream / subsea and FPSO units would establish a clear and auditable link between theory and practice and how the targets are to be achieved.	Medium
Design and technology selection process	Papers evaluating and auditing the decision, design and selection process of the relevant technology and process concepts relating to the upstream, subsea equipment would demonstrate how decisions were made and confirm that all options have been considered from a GHG emissions perspective.	Medium
KPIs and Contractual requirements	Embedding KPIs and other incentives within lease and operate contracts to achieve enhanced environmental outcomes.	Low to Medium

How can stakeholders assist?

- **Data availability:** Stakeholders to provide operational emissions data such that databases can be accumulated for more meaningful analysis can be conducted.
- **Benchmarking studies:** Stakeholders to commission / conduct analysis on the current source of emissions from the global FPSO fleet in more detail, as well as understand the improvements that have been made to the GHG emissions footprint. This would inform decisions on future design.
- **Comprehensive information packages:** Prior to FPSO award, field operators could provide the bidding lease-operate contractors with an in-depth "package" of the operator's environmental aspirations and relevant considerations (as described above), as well as the field development plan to support FPSO funders due diligence processes.

4 The journey to net zero

4.1 Overview – development of measurement methodologies, targets and portfolio alignment

There are many international, regional and local initiatives, laws and actions from governments, regulators and central banks that seek to reduce GHG emissions and eventually achieve net zero by 2050. The UNZBA is a voluntary commitment that has been entered into by a large number of international funders and forms part of the overall journey to the desired aim of net zero emissions by 2050. It is useful for stakeholders to understand the various work-streams and developments that are ongoing that are part of the wider initiative:

- **Evaluation of operational and funding portfolios:** Funders are seeking to evaluate the emissions in their operations and lending portfolios. Portfolio emissions are to be reported and to form part of enhanced disclosures (see the Task Force on Climate-related Financial Disclosures)[9] to investors as well as prudential regulatory authorities who are seeking to measure the resilience of funding portfolios[10] to both net zero goals and physical climate change risks through stress testing.

- **Measurement methodologies:** There are many considerations in respect to the methodology approaches that are under development, which would inform how and what GHG emissions are to be calculated, measured and considered in a funders' portfolio. The standardisation of approach is of considerable importance and there are industry led steering groups such as the Partnership for Carbon Accounting Financials ("**PCAF**") (MUFG joined the group in August 2021)[11], which seeks to develop and implement a harmonised approach to assess and disclose the GHG emissions in loan and investment portfolios.

- **Client engagement:** Funders are likely to engage directly with their clients (with an initial focus on higher carbon intensive sectors) in order to better understand further scope 1, 2 and 3 emissions as well as the credibility of the client's overall energy transition plans and ESG policies. The form of such engagement could be through questionnaires and other forms of direct engagement to assess compatibility with the funders net zero plans as well as potential increase in credit risk associated with energy transition.

- **UNZBA interim goals:** Funders making the UNZBA pledge have set a goal of achieving net zero emissions in their lending portfolios by 2050 and are in the process of setting an intermediate GHG emission target for 2030 (which is to be set at the discretion of individual funders). 2030 targets are expected to be set within the next 12 – 24 months.

- **Portfolio alignment:** Funders portfolios are to be measured and monitoring on an ongoing basis (likely annual) in future to ensure their portfolios are aligned with relevant metrics. There are differing portfolio alignment measurement methodologies[12] that are being considered and are subject to further refinement.

The development of measurement, monitoring, goals and targets are all areas that stakeholders in the industry should be aware and funders would appreciate collaboration with industry stakeholders.

4.2 Transition to net zero – potential funder perspective

Funders that have signed up to the UNZBA are in the process of setting their interim GHG emission goals and targets. The next question that stakeholders in the offshore oil and gas industry would like an answer to is what are funders' future attitudes and approaches to lending into the sector in the transition period to 2050.

Trying to predict the future with any certainty is very difficult; there are potential changes in government policies that include the acceleration and compression of timelines to achieve stated goals sooner or political pressure to evaluate hydrocarbon lending in general that would alter any prediction. Reasonable assumptions can be made at the timing of writing this paper which we note below.

A FPSO asset life is 25 years (with offtake contracts typically up to 20/25 years) and lending tenors of up to 20 years, loans that are disbursed now will have maturities up to 2041/2042, which is within the 2050 net zero target date. We note however that regardless of the maturity date of loans and as funders establish their methodologies, targets and policies, funders are likely to become more selective and may only be willing to support projects of field operators / field partners that have clearly demonstrated that they have done all they can to reduce the GHG emissions of a specific project. Other funders may only be willing to support projects that have demonstrated best in class environmental credentials. If GHG emissions can be reduced and / or demonstrated to be reduced further to a funder, this would be of importance in a funders' environmental due diligence process. The overall economics and competitiveness of a field development (which is always an important factor) is also likely to come into greater

[9] TCFD – About
[10] Reuters (2021) – Bank of England launches climate stress tests
[11] ESG Today (2021) – MUFG commits to measure disclose climate impact of finance
[12] For further background on evolving approaches, please see: TCFD and PATCA for reference.

focus to avoid “stranded asset risk” (as explained in section 3.6). It is important for industry stakeholders to work with funders and consultancies now to provide the information to support environmental due diligence processes. Additionally ongoing monitoring by an independent body of the actual emissions is going to be required to achieve transparency of reporting to stakeholders.

The key question going forward however is *how an offshore field development is to achieve net zero emissions?* To reduce emissions from the FPSO, this relies ultimately on the field operator / field partners who develop the underlying upstream project. For net zero to be achieved, the potential solutions that are available are likely to be required and included in the field development plan and / or the field operator’s wider energy transition group strategy.

If an offshore project is to be executed attached with a net zero solution with a high degree of certainty, this of course would give funders a lot of comfort that they are investing in a project that has considered the net zero target from the beginning. However many projects are likely to consider a range of potential and / or combinations of net zero solutions at both corporate and project level (i.e. that may or may not be technically feasible at the moment nor economically viable) but are not implemented from the outset. If this is the case, a funder would like to know the level of comfort that under certain circumstances and / or criteria, a field operator is execute its net zero solution. This could be via verbal commitments or contractual undertakings (with the latter less likely); but ultimately the credibility of the solution and plan, as well as level of reassurance that a funder can receive are what in future will matter. The level and degree of certainty of achievement of stated aims are therefore likely to come into increased focus.

5 Key takeaways and considerations

- The scope and focus of funders’ environmental due diligence is evolving due to new finance industry-led initiatives such as the UN Net Zero Banking Alliance. As funders’ environmental policies develop in respect to GHG emissions and measurement (with an interim target to be set for 2030), due diligence requirements are already changing. **If enhanced environmental due diligence is not provided to satisfy funders requirements, it inevitably will become more difficult to finance FPSO projects.**

- It is becoming increasingly necessary for there to be greater coordination between the financing community, national and international oil companies and FPSO lease-operate contractors to address the ever more rigorous environmental due diligence process and this paper has provided a number of considerations for stakeholders to consider.

- A cross-industry working group could seek to establish industry best practice as well as standardising requirements and methodologies that would provide funders with the relevant information in the form that they require.

- A similar approach to shipping (the Poseidon principles) could be a welcome development for the offshore floating production sector to ensure sustainability principles are aligned across all stakeholders, especially in light of net zero emission targets – which is the question that funders will seek to answer in future of how this is to be achieved.

- MUFG can assist FPSO contractors, international and national energy companies and other stakeholders navigate environmental due diligence in transactions, as well as advise on building a more robust information package well in advance of funding launch.