Rating Criteria –Upstream Oil and Gas Sector

Executive Summary

The upstream oil and gas sector is a critical cornerstone of global and national economic security, driving energy independence, industrial growth and fiscal revenues. This sector encompasses the high-stakes processes of acquiring land rights, conducting geological and geophysical surveys, drilling exploratory wells and ultimately developing and operating fields to extract crude oil and natural gas. The sector is characterized by a continuous, non-negotiable reinvestment cycle as hydrocarbons are finite, depleting assets. An E&P company's survival and creditworthiness depend entirely on its ability to efficiently replace the reserves it depletes, managing a complex balance between immediate production revenues and long-term asset development. Operating at the very beginning of the supply chain exposes upstream companies to intense structural volatility. Unlike midstream (transportation) or downstream (refining and marketing) sectors, which often operate on stable, fee-based or margin-driven models, upstream earnings are directly tethered to highly cyclical global commodity prices. Characterized by high capital intensity, geological uncertainties, complex regulatory frameworks and exposure to volatile global commodity markets, the sector demands a specialized analytical approach.

Scope of the Criteria

The scope of this document is to capture the primary qualitative and quantitative risks assessed by BWR while arriving at credit ratings for upstream oil and gas entities.

The evaluation framework incorporates four primary pillars—Industry Risk, Business Risk, Financial Risk, and Management Risk. Additionally, given the carbon-intensive nature of fossil fuel extraction, Environmental, Social and Corporate Governance (ESG) risks and opportunities are heavily factored into the credit profile assessment, primarily influencing management and operational sustainability parameters.

BWR has an established rating criteria for manufacturing companies, under which this document forms part of the broader sector-specific criteria applicable to various industries within the manufacturing sector. The detailed criteria for manufacturing companies is available on the BWR website:

www.brickworkratings.com.

A. Industry Risk:

Nature of Industry:

The upstream oil and gas industry is inherently capital intensive, requiring substantial investments across the exploration, appraisal, development and production phases. Significant expenditure is incurred on seismic surveys, drilling exploratory and development wells, field infrastructure, production facilities and transportation networks. Given the long gestation period between initial investment and commercial production, companies often face extended payback periods and elevated funding requirements. Consequently, prudent capital allocation, access to long-term financing and effective project execution are critical determinants of credit quality.

Commodity Price Volatility:

The earnings profile of upstream companies is highly exposed to fluctuations in crude oil and natural gas prices. Realizations are generally linked to international benchmarks such as Brent and WTI for crude oil, while domestic gas revenues may be influenced by government prescribed pricing mechanisms. Commodity prices are driven by global demand-supply dynamics, geopolitical developments, currency movements and macroeconomic conditions. Sustained periods of low prices can significantly compress cash flows, weaken profitability and adversely affect debt-servicing capability, while high-price environments can enhance earnings and liquidity.

Regulatory and Fiscal Regimes:

The upstream oil and gas entities operate within a highly regulated environment and remains sensitive to changes in government policies and fiscal frameworks. Credit profiles can be materially influenced by revisions in Production Sharing Contracts (PSCs), taxation policies, environmental regulations, licensing terms and royalty rates. Additionally, governments may impose windfall taxes or special levies during periods of elevated commodity prices, limiting the sector's ability to fully benefit from favourable market conditions. Regulatory uncertainty can impact project economics, investment decisions and long-term profitability.

Barriers to Entry:

Significant barriers to entry are common in the upstream oil and gas industry owing to the substantial capital requirements, technological complexity, geological risks and lengthy development timelines associated with hydrocarbon exploration and production. Companies must possess specialized technical expertise, advanced drilling and reservoir management capabilities and the financial strength to absorb exploration risks, including the possibility of unsuccessful drilling campaigns. Furthermore, obtaining exploration licenses, environmental clearances and regulatory approvals can be a lengthy and complex process. These factors collectively restrict new entrants and support the competitive positioning of established players with proven reserves, operational expertise and strong financial resources.

B. Business Risk:

Reserve Base and Asset Life Analysis:

The reserve base is the primary determinant of an upstream company's long-term production profile and cash flow generation capability. BWR evaluates the quantity, quality and economic recoverability of hydrocarbon reserves through industry standard classifications:

Proved Reserves (1P) represents a high certainty of recovery under current economic, regulatory and operating conditions, 1P reserves form the bedrock of near-term liquidity and debt serviceability assessments. Proved + Probable Reserves (2P) serves as the core baseline metric for mid-to-long term cash flow generation, 2P reserves reflect a realistic and statistically balanced estimate of economically recoverable volumes. Proved + Probable + Possible Reserves (3P) incorporates the highest-risk category and reserves to quantify the company's maximum upside potential and geological footprint. 3P metrics are evaluated to gauge long-term scalability, exploration efficiency and future infrastructure-utilization runways.

Particular emphasis is placed on the Reserve Replacement Ratio (RRR), which measures the company's ability to replenish reserves depleted through production. An RRR consistently above 100% indicates successful reserve additions through exploration, appraisal activities or acquisitions, supporting production sustainability and long-term credit strength. The reserve life index and reserve concentration` across fields are also assessed to evaluate the longevity of operations.

Operational Efficiency:

Operational efficiency is a critical driver of profitability and resilience across commodity cycles. BWR analyses Finding and Development (F&D) costs to assess the capital efficiency of the firm, calculated as total exploration and development costs divided by the number of barrels of oil equivalent (BOE) added to the reserve base. Lower F&D costs per barrel generally indicate superior capital allocation and technical capabilities. In addition, lifting or production costs are evaluated to determine the ongoing expenditure

required to extract hydrocarbons from producing fields. Companies with lower operating costs typically possess greater flexibility to withstand periods of depressed commodity prices while maintaining healthy cash generation and profitability.

Asset and Geographic Diversification:

The extent of diversification across producing assets, hydrocarbon basins and geographic regions significantly influences business operations. Excessive dependence on a single field, basin or production cluster can expose companies to operational disruptions and reservoir underperformance. BWR therefore evaluates the diversity of the asset portfolio, including the balance between onshore and offshore operations, mature and growth-oriented fields and crude oil versus natural gas production. Diversified portfolios generally provide greater production stability and reduce concentration risks.

Evacuation Infrastructure:

The ability to efficiently transport and market produced hydrocarbons is essential for converting reserves into cash flows. BWR assesses the adequacy and reliability of evacuation infrastructure, including access to pipelines, processing facilities, storage terminals and refining hubs. Companies with dedicated or strategically located infrastructure benefit from lower transportation costs, improved operational reliability, and stronger realization levels. Conversely, dependence on third-party infrastructure or limited evacuation capacity may increase operational vulnerabilities and constrain production growth.

C. Financial Risk:

Financial risk assessment of the upstream oil and gas entities focusses on the company's ability to generate sustainable cash flows from hydrocarbon production, withstand commodity price volatility, fund capital-intensive exploration and development activities and meet its debt servicing obligations. Given the cyclical nature of crude oil and natural gas prices, financial performance is closely linked to reserve quality, production levels, operating efficiency and commodity market conditions.

Profitability is a key indicator of financial strength and reflects the company's ability to efficiently develop and produce hydrocarbons while managing operating and production costs. Upstream companies with low production costs, favourable reserve economics and stable production profiles are generally better positioned to maintain profitability across commodity price cycles. Key metrics such as EBITDA margins, operating cash flow generation and reserve replacement economics are evaluated to assess earnings sustainability.

The capital structure is analyzed to assess the extent of financial leverage and its impact on the company's risk profile. Upstream operations require substantial investments in exploration, field development, drilling and production infrastructure, often resulting in higher debt levels. Metrics such as Debt to EBITDA, Debt to Proved Reserves, Interest Coverage Ratio and Cash Flow from Operations (CFO) to Debt are critical indicators of financial resilience. Conservative financial policies and disciplined capital allocation enhance credit quality, particularly during periods of weak commodity prices.

Liquidity assessment focuses on the company's ability to fund ongoing capital expenditure requirements, exploration commitments, working capital needs and debt repayments. Significant liquidity is required in upstream operations to support drilling programs and field development activities. Strong operating cash flows, adequate cash balances, committed credit facilities and manageable debt maturities contribute positively to the liquidity profile. Companies maintaining sufficient liquidity buffers are better equipped to withstand production disruptions, project delays or commodity price downturns.

Upstream companies operate in a highly capital-intensive environment, requiring continuous investments to replace reserves and sustain production levels. Financial flexibility is therefore a key consideration and reflects the company's ability to access funding during periods of elevated capital expenditure or market

stress. Companies with strong banking relationships, access to domestic and international capital markets, diversified funding sources and support from parent entities are better positioned to fund growth initiatives and manage cyclical downturns. The ability to monetize non-core assets, divest mature fields, farm out exploration blocks provides additional financial flexibility and liquidity support. Such options can help companies raise capital, reduce leverage during periods of financial stress or elevated investment requirements.

Overall, BWR evaluates an upstream oil and gas company's financial risk profile through a comprehensive assessment of profitability, leverage, liquidity, capital expenditure commitments, financial flexibility and exposure to commodity and foreign exchange risks. Companies with strong cash flow generation, prudent leverage levels, adequate liquidity and disciplined capital allocation practices are generally better positioned to maintain stable credit profiles across commodity cycles.

D. Management and Corporate Governance

The quality of management and corporate governance practices is a critical factor in determining the overall credit profile of an upstream oil and gas (Exploration and Production) company. BWR's assessment focuses on the technical expertise, operational track record and strategic vision of the management team, as well as its ability to navigate highly volatile global commodity cycles and technical sub-surface risks. Companies with a history of consistent production performance, prudent financial management across market cycles, and effective execution of complex capital projects are viewed more favourably.

The high-stakes nature of exploration requires seasoned management capabilities. BWR evaluates the management's track record in reservoir management, deploying advanced drilling technologies, and safe operational execution. The company's ability to bring complex discoveries from exploration to commercial production within budgeted costs and timelines is assessed. Many upstream assets are frequently operate via consortia to split risks. The financial strength and alignment of interests among JV partners or operators are carefully reviewed. BWR reviews whether the rated entity is the designated "Operator" (controlling the timeline and technical execution) or a "Non-Operator" (dependent on a partner's execution capability and financial health).

Corporate governance practices, including transparency in financial and reserve reporting, adherence to stringent environmental regulations, and ethical business conduct, play a significant role in building stakeholder confidence. Given the high-stakes nature of hydrocarbon extraction, any instances of governance lapses, regulatory non-compliance, environmental negligence, or lack of transparency can have a severe negative impact on the credit assessment.

The management's ability to respond to external challenges such as shifts in global energy policies, technological disruptions in drilling, and stringent climate-related regulatory developments is also evaluated. Effective capital allocation decisions, particularly in areas such as exploration drilling, asset acquisitions, production optimization and decarbonization technologies, reflect the long-term sustainability of the business. Additionally, robust succession planning and the presence of a strong second line of technically proficient leadership are important in mitigating key-man risks and ensuring the continuity of highly specialized operations. Overall, BWR's management risk assessment focuses on the ability of the leadership team to sustainably grow reserves and production, execute technically complex projects, maintain strong governance standards, manage environmental responsibilities and navigate cyclical industry challenges while preserving financial discipline and stakeholder confidence.

Environmental, Social and Governance:

In addition to the risks discussed above, BWR believes that Environmental, Social, and Governance factors are increasingly important in the upstream oil and gas sector, given rising consumer awareness and regulatory focus on sustainability. Environmental factors primarily relate to greenhouse gas (GHG) emissions management, methane leak detection and mitigation, flaring and venting reduction initiatives, water sourcing and disposal practices, biodiversity protection, spill prevention measures, and compliance

with environmental regulations governing exploration and production activities. BWR also evaluates a company's exposure to climate-related transition risks and its preparedness for evolving decarbonization policies.

Social factors encompass workforce health and safety performance, process safety management, employee welfare, community engagement, indigenous and land-use considerations, security of operations, and the company's ability to maintain its social license to operate in areas where exploration and production activities are conducted.

Governance factors include the quality of board oversight, risk management frameworks, reserve reporting transparency, regulatory compliance, ethical business conduct, stakeholder disclosures, capital allocation discipline, and the alignment of management incentives with long-term value creation.

Companies that effectively embed ESG considerations into their operational and strategic decision-making processes are generally better positioned to manage regulatory and reputational risks, maintain access to capital, and enhance the resilience of their business models. Conversely, weak ESG practices may expose companies to operational disruptions, environmental liabilities, legal penalties, reputational setbacks, and increased financing costs.

Group or Parent Support: In cases where the upstream oil and gas entity is part of a larger group, the willingness and ability of the parent or affiliate companies to provide financial, operational or strategic support is examined. The strength of such linkages enhances overall management credibility.

Conclusion

The final credit rating of an upstream oil and gas company reflects BWR's assessment of its reserve strength, production sustainability, cost efficiency, financial flexibility, liquidity and ability to manage commodity price and operational risks. By focusing on reserve life, cash flow resilience, balance sheet strength and funding access BWR seeks to determine the company's capacity to withstand industry cycles, sustain operations and meet its financial obligations on a timely basis.

This is the first criterion document, so no prior version or reference link exists.

About Brickwork Ratings: Brickwork Ratings (BWR) is a registered credit rating agency by Securities and Exchange Board of India (SEBI) and a recognised External Credit Assessment Institution (ECAI) by the Reserve Bank of India (RBI) to carry out credit ratings in India. Established in 2007, BWR provides rating services for bank loan, NCD, commercial paper, bonds, securitised paper etc. It also provides investors and lenders timely and in-depth research across the structured finance, public finance, financial institutions, project finance and corporate sectors. BWR has Canara Bank, a leading public sector bank, as its promoter and strategic partner. BWR has its corporate office in Bengaluru and a country-wide presence, with offices in Ahmedabad, Chandigarh, Chennai, Hyderabad, Kolkata, Mumbai and New Delhi, along with representatives in 150+ locations.

For more information on Brickwork Ratings, please visit www.brickworkratings.com.

Disclaimer: It must be clearly understood that a rating opinion is based on multiple factors, including the application of specific rating criteria. The criteria applied depend on several considerations such as the sector/industry, historical performance, cyclical trends, prevailing economic conditions, group support, and other relevant aspects. Rating opinions incorporate numerous assumptions, and the application of any particular criteria may be full or partial depending on the unique circumstances of each case. Accordingly, the use of rating criteria should not be construed as conferring finality or completeness to a rating assessment. References to criteria should be viewed broadly, only as an aid to the rating decision.

BWR informs all persons accessing its rating rationales and reports that ratings are based on information obtained from issuers and other sources deemed reliable, in BWR's best judgment. Rating rationales, reports, and related communications are intended solely for use within India. They should not be relied upon as the sole or primary basis for any investment decision under any law or regulation, including those applicable in Europe or the USA.

Accessing or using these documents does not create a client relationship between the user and BWR. Ratings represent BWR's opinion on the entity or instrument and must not be construed as recommendations to purchase, hold, or sell any instrument. Ratings are not investment advice in any jurisdiction and should not substitute independent financial judgment or advice from the user's financial advisors. BWR shall not be liable for any losses incurred by users of its rating rationales, reports, or content. BWR reserves the right to vary, modify, suspend, or withdraw ratings at any time without assigning reasons.

Ratings reflect BWR's opinion as of the date of publication and do not account for subsequent developments. BWR is not obliged to update its opinion following public notifications, though it may disseminate updated analysis when deemed appropriate.

Neither BWR nor its affiliates, third-party providers, directors, officers, shareholders, employees, or agents (collectively, "BWR Parties") guarantee the accuracy, completeness, or adequacy of ratings. No BWR Party shall be liable for errors, omissions, interruptions, or results arising from the use of rating rationales or reports. Each BWR Party disclaims all express or implied warranties, including merchantability, suitability, or fitness for a particular purpose. In no event shall any BWR Party be liable for direct, indirect, incidental, exemplary, punitive, special, or consequential damages, including lost income, profits, or opportunity costs, even if advised of the possibility of such damages. BWR or its associates may, however, have commercial transactions with the rated entity. BWR and its affiliates do not act as fiduciaries.

BWR maintains separation between certain business units to preserve independence and objectivity. Consequently, some units may possess information not available to others. Policies and procedures are in place to safeguard the confidentiality of non-public information received during analytical processes.

BWR may be paid fees by issuers, underwriters, or obligors of instruments, facilities, or securities. BWR's public ratings and analyses are made available on its website (www.brickworkratings.com). More detailed information may be provided for a fee. BWR's rating criteria are generally available free of charge on the BWR's website.

This disclaimer forms an integral part of all rating rationales, reports, press releases, advisories, and communications issued by BWR. Circulation of ratings without this disclaimer is prohibited.

BWR is bound by the Code of Conduct for Credit Rating Agencies issued by SEBI and governed by applicable SEBI regulations, as amended from time to time.