

## RATING METHODOLOGY FOR OIL & GAS (UPSTREAM)

August 2023



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### Table of Contents:

Overview .....	1
Business Risk Assessment.....	4
Financial Risk Assessment.....	8
Assessment of Environmental, Social and Governance (ESG) Risks .....	10
Other Elements of Credit Risk Assessment.....	11
Management Quality.....	12
Summing Up .....	12
ANNEXURE.....	14

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This rating methodology updates and supersedes ICRA's earlier methodology document on this subject, published in August 2021. While this revised version incorporates a few modifications, ICRA's overall approach to rating upstream oil companies remains materially similar.

### Overview

Upstream oil and gas companies engage primarily in the exploration, development, production and sale of crude oil and natural gas. ICRA's assessment of the upstream oil companies is influenced by the fact that these companies' assets are finite depleting resources, subject to unpredictable commodity prices. These companies also need to reinvest substantial amounts to replace depleting reserves. The reserve replacement and financial position of these companies can be affected by volatility in commodity prices and by geological surprises during exploration and production.

The different stages of the Exploration and Production (E&P) value chain are geological & geophysical study, exploratory drilling, developmental drilling and commercial production. The objective of geological and geophysical study is essentially to identify the presence of hydrocarbons in a particular area/ block. Based on the inputs received from the above stage, exploratory drilling activities are undertaken with the intention of discovering hydrocarbons (crude oil or natural gas or both). The operational risk in the E&P business primarily pertains to the uncertainty associated with striking oil & gas after undertaking these activities. The block could be abandoned at any of these stages, with the probability of abandonment being the highest in the exploratory drilling stage. The process following exploratory drilling, in case oil/ gas is struck, is the process of reserve development, which involves identification of areas where the probability of finding oil and/or gas are the highest and drilling wells for optimal exploitation of these reserves, besides setting up pipelines and processing infrastructure.

Demand for crude oil for domestic consumption has increased at a CAGR of 3.6% to 248 million tonnes per annum (MMTPA) in FY2023 from 174 MMTPA in FY2013 while the domestic production of crude oil has declined from 37.9 MMT to 29.2 MMT during the same period. The domestic gas consumption has increased at a CAGR of 0.7% to 159 mmscmd in FY2023 from 148 million standard cubic meter per day (mmscmd) in FY2013, whereas the domestic production has declined from 111 mmscmd to 94 mmscmd over the same period. The domestic upstream industry is dominated by large public sector undertakings (PSUs), who contribute around three-fourths to India's oil and gas output by volume. Though the Government of India (GoI) has tried to incentivise private sector participation, the PSUs still dominate.

This rating methodology explains ICRA's approach to assessing the business and financial risk profiles of upstream oil companies. It aims to help issuers, investors and other interested market participants understand ICRA's approach to analysing the quantitative and qualitative risks that are likely to affect rating outcomes in this sector. The list of rating drivers covered in this methodology is not exhaustive by itself but provides an overall perspective on the rating considerations that are usually considered the most important. For analytical convenience, the key factors are grouped under the following broad heads— Industry Risk Assessment, Business Risk Assessment, and Financial Risk Assessment etc.

### Industry Risk Assessment

- Regulatory risk
- Volatility in crude oil and natural gas prices

### Business Risk Assessment

- Scale and experience
- Asset diversification
- Reserves and Production characteristics
- Replacement of Reserves and Operating and Capital Efficiency
- Subsidy sharing burden

### Financial Risk Assessment

- Profitability
- Leverage and Debt Coverage Ratios
- Cash Flows and Liquidity
- Foreign Currency related Risks
- Capital Expenditure and Investment plans
- Tenure Mismatches, and Risks relating to Interest Rates and Refinancing
- Accounting Quality

### Assessment of Environmental, Social and Governance (ESG) Risks

- Environmental (E) and Social (S) Risks
- Governance Practices

### Other Elements of Credit Risk Assessment

- Parentage/ Group Support
- Financial Flexibility
- Contingent Liabilities and Off-balance Sheet Exposures
- Event Risk

### Management Quality

## Industry Risk Assessment

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### Regulatory Risk

The upstream oil and gas sector in India is regulated with significant Government involvement, given the high strategic importance of the sector for ensuring energy security and the need to regulate the prices, given the ripple down effect of the crude / gas prices on the various sectors in the economy. While the crude oil prices are now largely linked with global benchmarks, in the past the PSU upstream companies had to share the under-recovery burden of the PSU oil marketing companies and also supplied crude at a discount to the downstream companies. Moreover, during the sharp surge in the crude prices in FY2023, the Government levied a cess/windfall tax on production of crude oil by upstream oil and gas producers. The Government exercises significant control on the prices of domestically-produced gas through price-setting formula. Besides, the Government determines the prioritisation of the customers for gas sales, differential pricing for customers in India's North-East region for domestic gas and methodology for computation of the royalty payment. The price control on the gas prices and the subsidy-sharing burden and levy of ad hoc taxes have had a significant bearing on the profits of these companies. Besides the GoI, the Director General of Hydrocarbons (DGH) also regulates the industry in several ways, which includes approval of development plans of discovered fields and monitoring the performance obligations of the successful awardees under the NELP auctions.

ICRA also analyses the profit or revenue-sharing parameters of the producing blocks. From March 2016, the earlier New Exploration Licensing Policy (NELP) has been replaced with the Hydrocarbon Exploration Licensing Policy (HELP). Under the NELP the bidding parameter was the profit share of the GoI and the same was given after the capex and other operating costs were recovered by the contractor. This in turn required a close scrutiny of costs, and approvals had to be obtained before incurring any material capex. The process led to delays as well as disputes over the capex amount, to which the GoI's share of profit was linked. Under the HELP, the bidding parameter is the revenue share of the GoI and accordingly, the GoI will not be involved in monitoring the costs incurred and the related approvals and will directly get its share from the revenues.

The revenue-sharing model allows greater transparency and reduces the room for Government interference in terms of capex approvals; however, it also raises the risks for operators by de-linking profit sharing from capex recovery. Additionally, from July 1, 2017 bidding for oil and gas acreages through an open acreage licensing policy (OALP) was started, which allows companies to carve out their areas of exploration. Under the OALP, blocks are awarded after obtaining the necessary environmental and other clearances, which is expected to speed up the exploration process. Besides these, ICRA also analyses if any penalties have been or may be imposed for not meeting the minimum work programme of the various blocks. In February 2019, the GoI announced that in basins where commercial production has not started (category II and III basins<sup>1</sup>), exploration blocks would be bid out exclusively on the basis of exploration work programme without any revenue or production share to the GoI.

ICRA also notes that, in a bid to increase the energy security, leading upstream oil companies in India have made investments in blocks in several overseas countries, which have different regulatory regimes governing the sector. This exposes such companies to a different set of regulatory, geological, geo-political and event risks. The risk is partially mitigated for PSU upstream oil companies, who are aided by the bilateral treaties at the Government-to-Government level for investment protection. Besides, some of them acquire assets in a consortium with other oil companies, thereby diversifying their acquisition risk. Moreover, the funding mix adopted for acquisitions can also influence the risk profile of the acquired blocks.

### Volatility in crude oil and natural gas prices

The domestic volumetric demand for crude oil and natural gas is pegged to the GDP growth and the energy intensity of the GDP growth. However, the realisation of crude oil depends on the international prices as well as exchange rates, which exhibit

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<sup>1</sup>Category-I: Basins with established commercial production; Category-II: Basins with known accumulation of hydrocarbons but no commercial production achieved so far; Category-III: Basins having hydrocarbon shows that are considered geologically prospective; Category-IV: Basins having uncertain potential which may be prospective by analogy with similar basins in the world

a high level of volatility. The realisations for the natural gas sales are relatively less volatile than crude oil prices as they are revised at a periodic interval, though they remain pegged to historical crude oil prices leading to fluctuations. This has implications on the profitability and the credit metrics of the industry players.

## Business Risk Assessment

### Scale and experience

The scale of operations of an upstream company, in terms of production volume, is an important consideration as it indicates the i) past track record of successful exploration and development across basins and geologies and ii) the ability to undertake the large capex and deploy the latest technologies required for exploration and development of an oil and gas field over many years before production and commencement of cash flows. Along with scale, a mix of oil and gas in production is considered wherein higher proportion of crude oil is more favourable owing to higher realisation on an energy equivalent basis and ease of transportation.

Upstream companies with large reserves usually have economies of scale, a large resource base (including in-house rigs and other oilfield infrastructure) and a strategic importance for the sovereign in terms of meeting the nation's energy requirements. Thus, the larger players are better placed to handle the risks related to the commodity price cycle, the sudden rise in cost of oil field services, and surprises related to geological risks.

As India has been in deficit in both crude oil and natural gas production, marketing of these commodities is not a challenge for the producers. Under the production-sharing contracts (PSCs), the Government of India (GoI) itself either nominates the buyers for crude oil or sets the priorities for the allocation of natural gas. However, in the case of international blocks, the type of crude (waxy, high sulphur etc) and off take risk need to be evaluated. The credit worthiness of counter parties is also a factor that needs to be evaluated.

### Asset diversification

Diversification of producing fields across basins, geologies, geographies and countries are assessed to determine the vulnerability of cash flows to any operational or force majeure risks which might lead to loss of production from any one field. In case the cash flows are derived from only one producing field, the company is exposed to asset concentration risk and accordingly the proportion of production from the single largest asset is assessed. Diversification of oil & gas assets in multiple geographical regions and geological basins mitigate geopolitical and geological risks attached with asset concentration in terms of field, geology or block.

### Reserves and production characteristics:

Central to the evaluation of an upstream company's credit risk profile is an assessment of the quality, reserve life and nature of its existing geological reserves. A company's reserves are expressed in terms of barrels of oil equivalent (BOE), which are crude oil, natural gas and condensates expressed on an energy equivalent basis, usually obtained by considering 1000 m<sup>3</sup> (standard cubic metre – scm) of natural gas to be equivalent to 1 Metric Tonne (MT) of crude oil. The reserves of an upstream company are classified on the basis of the certainty of being commercially extractable, and in terms of the capital and time required to be invested to exploit those reserves. The major classifications are as follows:

- i) **Proved Reserves (1P):** In analysing a company's reserve data, the focus is primarily on proved reserves (1P). Proved reserves come from known reservoirs and can be produced with 'reasonable certainty' under existing economic and operating conditions. These can be further sub-divided into categories that reflect differences in timing, certainty and capital required to bring these reserves into production. Proved Developed (PD) reserves are those which pertain to existing wells, from where production levels are the most certain. Proved Undeveloped (PUD) reserves are ones that are expected to be recovered from new wells on undrilled acreage or from existing well for which a relatively major expenditure is required to restore the well's productivity.

- ii) **2P and 3P Reserves:** Probable and Possible reserves reflect lesser certainty levels due to higher geological, drilling or technological risks. These (in the form of 2P (Proved + Probable) and 3P (Proved + Probable + Possible) combinations) too need to be evaluated, as they provide an indication of the amount of exploratory capital, which may have to be deployed to bring them to the production stage. While upstream oil companies also consider contingent reserves<sup>2</sup> (in the form of 1C, 2C and 3C) in addition to 1P, 2P and 3P for possible development, they would entail additional risks for upgrade to higher category as they are contingent on achieving several milestones.

**In-place reserves:** Another reserve terminology which is frequently used by upstream companies is 'In-place reserves', which is the total quantum of petroleum known to exist in a given region, which may not be fully recoverable and is largely theoretical in nature. The portion of "In-place reserves" that is possible to be extractable practically is referred to as the 'Recovery factor', which tends to vary from around 30%-60% in India, depending on the reserve (oil or gas) and basin geology.

ICRA considers the following parameter as part of the reserve assessment:

Reserve Life Index (RLI):

RLI measures how many years a company can produce hydrocarbons at current production rates until the reserves are depleted, assuming there are no replacement of reserves. It is expressed in years, can be measured on a BOE basis, for either oil or natural gas, or on a total proved or a PD basis. A longer PD reserve life generally affords the producer more capital investment flexibility and should offer higher comfort to the debt holders. The RLI does not address reserve quality and it needs to be analysed along with other reserve characteristics. For example, a long RLI can indicate a higher proportion of PUDs. Diversification measurement typically includes an assessment of geological basin concentration, number of different basins, percentage of oil versus natural gas, onshore versus offshore and number of wells.

Additionally, reserve complexity and development challenges are also evaluated in terms of geological risk, land acquisition issues, status of approvals etc.

As the quality of reserves largely determines the credit risk profile of upstream oil companies, ICRA takes comfort if the reserves are audited & certified by reputed third party reservoir engineering firms. Periodical review of such audits, for the entire portfolio of blocks or the key blocks, also add comfort from the rating perspective as reserves can deteriorate within a short span of time making sustained production a challenge.

For unconventional resources such as Coal Bed Methane (CBM), even if access to reserves may be in place, the acquisition of land, besides environmental approvals, is critical for increasing production as CBM production entails drilling large number of wells on a geographically spread-out area unlike conventional oil & gas where the span of drilling is relatively more concentrated. Moreover, because of the generation of vast quantity of water during drilling, which needs to be treated before disposal and presence of CBM reserves in agricultural areas, the environmental approval process can get prolonged and sometimes may not even be received.

An assessment of a company's current and projected production growth and where it will come from is essential to judging credit risk. In addition, the depletion profile of a producing property is essential to assess cash flow coverage, reserve life and reinvestment risk. Public sector upstream companies typically have PD reserves to the extent of 75-80% of the proved reserves. While a higher share of PUD is not necessarily a negative, PUDs require capital investment and carry higher geological risk than developed reserves.

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<sup>2</sup>Contingent resources are less certain than reserves. These are resources that are potentially recoverable but not yet considered mature enough for commercial development due to technological or business hurdles.

### Replacement of Reserves

Reserve replacement is the most fundamental challenge an upstream oil company faces. As the upstream companies sweat their assets to generate cash flows, they in effect consume such assets over time. To sustain the cash flows and service the debt in future years, oil and gas that is produced must be replaced with newly discovered or purchased reserves. An upstream oil company that consistently replaces the oil and gas it produces with fresh reserves, and does so at economic rates of return, is more likely to survive economic, industry and commodity cycles. Key rating metrics which are considered by ICRA are Reserve Replacement Ratio (RRR) and three-year finding & development (F&D) costs in \$/BOE. The RRR, a key measure of drilling & operating success, is the ratio of reserves added in a given year versus that year's production. F&D costs/BOE is a unit measure of the total cost incurred to add and develop a barrel of new reserves to the point of production. The lower a company's F&D costs in relation to BOE, the more profitable its oil & gas activities will be under a wider range of price environments. F&D costs are best measured over a period of three years to factor in the inherent lag between capital spending and booking of reserves and to reduce distortions caused by one-time events. F&D costs can be further analysed to look at all components (acquisitions + exploration + development) and from drilling alone (exploration + development) to assess a company's drilling efficiency. For most of Indian upstream companies, F&D costs have increased in the last one decade due to i) increase in the cost of oil field services, iii) increase in manpower costs and equipment cost (pipelines, platforms, compressors etc), iii) more exploration efforts in difficult terrain (like offshore and deep-water blocks) where exploration costs are higher and iv) redevelopment of mature fields involving significant development capex including high cost of Enhanced Oil Recovery/Improved Oil Recovery techniques due to use of specialised chemicals/polymers for flooding of fields.

### Operating and Capital Efficiency

Upstream oil companies are in a business where the product is a commodity, such that every company is a price taker. To improve competitive position, companies must control both their operating costs as well as capital costs. Furthermore, upstream oil companies are highly capital intensive, constantly reinvesting capital and raising external debt and equity capital. The upstream oil companies' operating and capital efficiency is measured through the full cycle costs metric. Full cycle costs include cash operating and financing costs on a per BOE produced basis plus three-year all sources F&D costs. Another key metric that is considered is Leveraged Full Cycle Ratio (LFCR). LFCR is a comprehensive metric, which factors in the realisation, operating costs and investments to add/replenish reserves. LFCR reflects the return on invested capital on a BOE basis, comparing the cash generated by a BOE of production relative to the capital required to replace that BOE (based on F&D costs). Leveraged full cycle ratio is computed as follows:

$$\text{Leveraged Full Cycle Ratio} = \text{Cash margin per BOE production} / \text{Three year average all sources F\&D costs per BOE}$$

where Cash Margin per BOE production = Sales realisation per BOE production - (operating costs + G&A expense+ Interest costs) per BOE production

### Subsidy-sharing burden

Owing to elevated crude oil prices the upstream companies provided discounts/subsidies on crude oil sales to downstream companies. The subsidy-sharing has been nil since FY2017, however, in a scenario of high crude oil prices it is not clear whether the PSU upstream oil companies will bear the subsidy or prices will be passed on to the consumers. Also, this subsidy-sharing is largely applicable to the PSU upstream companies only.

Summary of the Salient Business Risk Factors

	Strongest		Weakest
Resources	Relatively larger reserves provide visibility on ability to scale up	➔	Relatively lower reserves limits the ability to scale up
Reserves - Proved	Higher the proved reserves, greater the certainty on future production volumes	➔	Lower the proved reserves, lower the certainty on future production volumes
Production	Higher production provides economies of scale and better negotiating power with suppliers	➔	Lower production limits economies of scale and negotiating power with suppliers
RLI - Proved Basis	Higher production provides economies of scale and better negotiating power with suppliers	➔	Lower production limits economies of scale and negotiating power with suppliers
Reserve replacement ratio	Higher the reserve replacement ratio, better the track record in replenishment of reserves	➔	Lower the reserve replacement ratio, poorer is the track record in replenishment of reserves
3-year F&D costs	Lower the costs, lower is the expense for replenishment of reserves	➔	Higher the costs, higher is the expense for replenishment of reserves
Full cycle costs	Lower the costs, lower is the expense for production and replenishment of reserves	➔	Higher the costs, higher is the expense for production and replenishment of reserves
Leveraged full cycle ratio	Higher the ratio, higher is the return on capital on a per BOE basis	➔	Lower the ratio, lower is the return on capital on a per BOE basis
Experience in E&P activities	Greater is the experience, better are the technical and geological capabilities	➔	Lesser is the experience, weaker are the technical and geological capabilities
Number of blocks in which present	Greater the blocks, greater the diversification	➔	Lesser the blocks, lower the diversification
% of overseas resources of total	Greater the overseas resources, greater the diversification	➔	Lesser the overseas resources, lesser the diversification
% production from single largest asset	Lesser the percentage, lower is the concentration risk	➔	Higher the percentage, higher is the concentration risk
% of gross crude realisation of last year	Lower the subsidy sharing, higher the realisations	➔	Higher the subsidy sharing, lower the realisation
Reserve complexity/ Development challenges	Lower the complexity and challenges, easier the monetisation of reserves	➔	Higher the complexity and challenges, more difficult the monetisation of reserves

## Financial Risk Assessment

ICRA analyses past financial performance trends as well as estimates future financial performance to assess the financial risk exposure of an entity. The future performance is evaluated on various possible scenarios depending on the movement in the key variables such as crude prices etc. The financial metrics provide a useful reference not only to evaluate the performance trends of an entity over a given time horizon, but also enable a comparison with its peers. This document provides a summary of some critical ratios that ICRA considers important in its assessment. For a more detailed description, readers may refer to the note titled *Approach for Financial Ratio Analysis* published on ICRA’s website. Some of the key metrics analysed are discussed below.

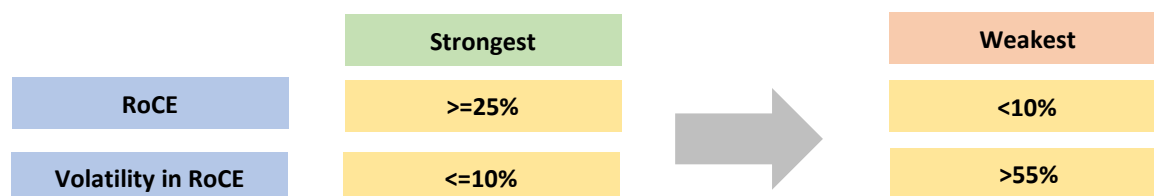
### Profitability

The analysis here focuses on determining the trend in the companies’ operating profitability vis-a-vis the peers in the industry. Further, the Return on Capital Employed (RoCE) needs to be analysed to measure the efficiency with which an entity utilises the capital deployed in its business. An entity’s ability to consistently generate RoCE over and above its cost of capital would reflect well on its long-term business viability.

Cost structure of upstream oil companies is influenced by the statutory levies (royalty, cess, profit petroleum<sup>3</sup> and sales tax), besides the operating costs. While the statutory levies for nominated blocks are set by the GoI and which are subject to change from time to time, in the case of NELP<sup>4</sup> blocks and pre-NELP<sup>5</sup> blocks, the parameters (profit petroleum and cost-recovery<sup>6</sup>) have been the bid parameters for the upstream oil companies. In the case of HELP blocks, revenue share<sup>7</sup> to be provided to the GoI has been the bid parameter. Depending on the life-cycle of the E&P field and cost recovery, cash outflow towards profit petroleum or revenue share can vary according to the level bid.

### Validation of Business Risk through Profitability Metrics

[Indicative Metrics<sup>8</sup>]



<sup>3</sup> Profit petroleum is a biddable component as part of the bidding under NELP and Pre-NELP regimes. Simply put, after recovering the costs (exploration costs, development costs and operating expenditure), the operator shares the profit with GoI based on certain Investment Multiple or on Pre-tax IRR basis (for some Pre-NELP blocks).

<sup>4</sup> New Exploration Licensing Policy (NELP) was launched by GoI in 1999 to attract the much needed private sector investment in E&P sector with attractive fiscal terms.

<sup>5</sup> Privatization of E&P sector was carried out on a limited scale by GoI in the early 1990’s and upto 1999, when NELP was launched. Blocks awarded during this limited privatization are referred to as Pre-NELP blocks. Till the aforementioned limited privatization, blocks were awarded to the PSU upstream oil companies on a nomination basis.

<sup>6</sup> Cost recovery is a biddable parameter which reflects the portion of costs (development costs and operating expenditure) which is recoverable from the revenues before sharing the profit petroleum with the GoI.

<sup>7</sup> Bidders quote a different share at two levels of revenue called “lower revenue point” and “higher revenue point”. The bidder giving the highest net present value of revenue share to the Government, is scored the highest under this parameter.

<sup>8</sup> The indicative financial metrics mentioned here and elsewhere in the document are intended to provide a broad overview to the readers regarding what ICRA generally considers as ‘relatively strong’ or ‘relatively weak’ metrics. It is, however, possible that an entity has relatively weaker metrics on one or more financial parameters, but its credit risk is assessed to be low because of other mitigating factors, including (but not limited to) stronger metrics on other financial parameters, a healthy business risk profile, strong financial flexibility or a strong promoter group that is willing to extend distress support to it.

Evacuation arrangements for oil and gas can also influence profitability. While pipeline is the most preferred and economical mode of transportation for both oil and gas, producers sometimes resort to other modes of transport such as trucks in the case of oil fields where the pipeline option is not feasible or where there are delays in laying the pipelines. Additionally, delays in setting up pipelines in case of remotely located fields can impact the monetisation and /or returns from the field.

### Leveraging and debt coverage ratios

The objective here is to ascertain the level of debt in relation to the companies’ own funds and is viewed in conjunction with the business risks that the entity is exposed to. For higher rated upstream oil companies, inter-alia, ICRA expects them to have low financial leverage to offset the high business risk. Leverage and cash flow coverage factors measure financial risk by comparing a company’s debt to the assets that supports its debt and by analysing post capex cash flows in relation to its debt. Key metrics analysed under this include Debt/PD reserves, (Debt + future development capital + abandonment costs)/total proved reserves and [Retained Cash Flows (RCF)-sustaining capex]/Total Debt.

ICRA also notes that leading upstream oil companies in India have been acquiring assets abroad on a limited scale and may like to expand their scope further. As such acquisitions could be at high valuations, because of competition, and also capital intensive, an under leveraged capital structure could support such acquisitions without materially affecting the credit risk profile.

The trends in the entity’s leverage and debt service coverage ratios like Interest Coverage, Total Debt/OPBDITA and Net Cash Accruals/Total Debt, Debt Service Coverage Ratio are examined.

#### Assessment of Leverage

[Indicative Metrics]

	Strongest		Weakest
Indebtedness Ratio	$\leq 0.9x$	➔	$> 3.0x$
Debt to Profit Ratio	$\leq 0.5x$		$> 5.0x$

#### Assessment of Coverage

[Indicative Metrics]

	Strongest		Weakest
Interest Coverage	$\geq 18.0x$	➔	$< 2.0x$
DSCR	$\geq 4.0x$		$< 1.1x$

### Cash Flows and Liquidity Profile

The rating exercise is primarily focused on assessing the future debt servicing capability of a company. Since it is cash that is required to service the debt obligations, it is imperative that a cash flow analysis is undertaken to evaluate the external funding requirements and likely financial position of the company, going forward. A cash flow statement represents the sources from which cash is generated, as well as its deployment. Analysed here are the trends in an entity’s funds flow from operations, cash consumed to fund the working capital, the retained cash flows after paying out dividends or carrying out share buybacks, and the free cash flows after meeting debt repayment obligations and capital expenditure needs.

ICRA also evaluates the liquidity profile of the company to assess its ability to meet short-term fund requirements from various internal and external sources. The existence of adequate buffers of liquid assets and bank lines are viewed as a credit positive, and the same is evaluated alongside the drawing power available with the company to assess its ability to meet temporary

shortfalls in funding requirements. ICRA notes that an entity with strong liquidity can mitigate the impact of any short-term exigencies or events that might adversely impact cash flows in the interim. While evaluating the liquidity profile of a company, ICRA takes into consideration the unencumbered cash balances and liquid investments available to the company, unutilised bank/credit limits available, and its internal cash generation capability. ICRA evaluates the free cash flows of the company and its variability to determine its ability to meet cash obligations like debt repayments and investments from its own internal cash flows. Higher the cushion available between the resources available (especially internal resources) and the obligations, better is the liquidity profile of an entity. ICRA also notes that the liquidity available with an entity may be for a temporary period and, hence, its overall policy towards maintaining adequate liquidity (given the trade-off between returns and liquidity) is accorded due importance in the analytical approach.

### Foreign currency-related risks

Upstream companies have forex exposure on account of pricing of crude and natural gas in USD, payments for some contracts (for rigs etc) in foreign currency and foreign currency loans. The foreign currency risk can also arise from unhedged liabilities. The focus here is on assessing the hedging policy of the company concerned in the context of the tenure and nature of its contracts with clients (short term/long term, fixed price/variable price).

### Capital Expenditure and Investment Plans

The capex plans of upstream oil companies may be large considering that these companies need to continuously invest to explore and develop new reserves to replenish their existing depleting reserves. Though the company would be exposed to project execution risks as well as geological risks, the past track record of the company in executing such projects may moderate the risks. The quantum of the capex and the funding plans for the same are also evaluated to understand the overall impact on the credit risk profile of the company.

### Tenure Mismatches and Risks Relating to Interest Rates and Refinancing

Large dependence on short-term borrowings to fund-long term investments can expose a company to significant re-financing risks, especially during periods of tight liquidity. The existence of adequate buffers of liquid assets/bank lines to meet short-term obligations is viewed positively. Similarly, the extent to which a company would be impacted by movements in interest rates is also evaluated.

### Accounting quality

Here, the Accounting Policies, Notes to Accounts, and Auditor's Comments are reviewed. Any deviation from the Indian Accounting Standards is noted and the financial statements of the company adjusted to reflect the impact of such deviations. As per Ind AS any impairment in the exploration and evaluation assets is measured, presented and disclosed when facts and circumstances suggest that the carrying amount of the exploration and evaluation asset may exceed its recoverable amount.

## Assessment of Environmental, Social and Governance (ESG) Risks

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### Environmental (E) and Social (S) Risks

As this methodology highlights, while undertaking credit assessment of entities, ICRA seeks to incorporate all relevant credit considerations into its rating decisions while taking a forward-looking view on the risks and the mitigants. The relevant credit considerations include (sometimes overtly, sometimes covertly) the E&S factors that could affect the rated entity/ transaction. While ICRA's analytical approach does not explicitly disaggregate these risks to assess their impact on the rating, these risks are often assessed broadly. Further, it is not always feasible to fully or precisely disaggregate the sub-components of E&S risks in credit analysis since these considerations often tend to overlap.

That said, the materiality of the E&S risks and the time horizon over which they are expected to crystallise differs widely across sectors and entities. In some cases, while the E&S risks could be material but their effect on the credit profile may be muted because

of other fundamental strengths of the entity. In other cases, the adverse impact of the E&S risks is expected to play out in the distant future, and hence these considerations do not necessarily weigh on the rating today—with the expectation that when these risks manifest in the distant future, the rated entity by then would possibly adapt itself by realigning its business model.

While evaluating E&S risks, ICRA's objective is only to assess the direct and indirect risks that an entity faces and how it already is or is intending to mitigate the impact of such risks on its credit profile. As an example, ICRA only assesses whether an entity is exposed to physical climate risks, or carbon transition risks such as those arising from changes in regulations or other environmental and social risks; and seeks to understand the various mitigation and adaptation approaches that the entity is implementing to mollify these risks. Upstream companies, especially oil companies are exposed to carbon transition risk and subject to environmental regulations for emissions. Global efforts towards transition to low-carbon energy may gradually lower the demand for petroleum products in the coming decades. However, the carbon transition risk for domestic upstream companies is mitigated by India's significant dependence on the imports of oil and gas. The upstream sector also remains exposed to industrial accidents, spills and disasters, especially offshore, gas leakage, etc, which can translate into cash outflows towards monetary liabilities/compensation/litigation for upstream oil companies. Issues around health and safety of employees, especially for offshore fields exposes the company to social risks. The Covid-19 pandemic is an example of social risk, given its substantial implications on health and safety. Hence, there is moderate exposure to social risk.

Issues around health and safety and responsible production also exposes the company to social risks.

### Governance Practices

A sound corporate governance structure attempts to make clear the distinction of power and responsibilities between the Board of Directors and the management. The constitution of an entity's Board and the Board of Directors' participation in strategy formulation, besides the entity's adherence to legal and statutory compliance requirements are factored in during credit assessments. ICRA seeks to gain a qualitative understanding of an entity's commitment to following transparent and credible practices by the way its financial statements are reported, their level of disclosures, consistency in communication and the openness about sharing information during the credit rating exercise. Besides, the corporate group structure (whether simple or complex), the rated entity's related party transactions and instances of supporting group entities at the expense of debt holders are assessed.

## Other Elements of Credit Risk Assessment

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### Parentage/ Group Support

Apart from standalone credit considerations, the likelihood of extraordinary support coming in from the parent to an entity or the support that an entity is likely to extend to the other group companies is factored while assessing the credit profile of the entity. This process involves an assessment of the ability and willingness of the parent to extend support to the entity (and vice-versa), in addition to evaluating the entity's own fundamental credit strength<sup>9</sup>.

### Financial Flexibility

As the E&P business is capital intensive, the ability to raise resources from the capital or loan market at competitive rates will be a key rating strength, especially if a larger share of the fields is in exploratory or developmental stage. On the other hand, if a company has a large proportion of its assets in the production stage, cash flows from them can partly/fully support the exploration and development capex, besides also enhancing the company's ability to raise capital from the markets. The entity's financial flexibility is assessed from the nature of its relationship with banks, financial institutions and other intermediaries, strategic importance of the entity to the Group to which it belongs, along with the financial strength of the Group entities.

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<sup>9</sup> For more details on this, readers may refer to the document titled, "Rating Approach—Implicit Parent or Group Support", available on ICRA's website

## Debt Servicing Track Record

The debt servicing track record of the company forms an important rating consideration. Any history of past delays or defaults in meeting interest and principal repayment obligations reduces the comfort level with respect to the company's future debt servicing capability and willingness. Nevertheless, the reason behind past defaults is also analysed, which could also be due to adverse demand situations in the underlying industry. The company's ability to honour its debt obligations during the period of challenging operating environment is also factored in.

## Contingent Liabilities and Off-balance Sheet Exposures

ICRA reviews the contingent liabilities and off-balance sheet exposures as disclosed by the entity in its Annual Report and evaluates the likelihood of their devolvement and the financial implications of the same.

## Event Risk

ICRA recognises the possibility of events, such as unrelated diversification, mergers and acquisitions, business restructuring, asset sales and spin offs, capital restructuring; and litigations, which could have a material impact on the credit profile of a company. Incorporating the impact of such discrete events in the credit rating, from the beginning, is often difficult. Depending on whether and when such events occur, the rating opinion could be different. To take rating decisions in such cases, ICRA applies its analytical judgment based on the rated entity's track record, the credibility of the management and the experience of having seen similar situations play out in other entities. However, given the nature of such events, it is possible that the rating may undergo a material change later, upon the occurrence of the event.

## Management Quality

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In addition to the business and financial risk analysis, all debt ratings incorporate an assessment of the quality of the entity's management and its financial policies. An experienced management and independent directors on its board are considered positive factors.

In addition, the likely cash flow impact on the rated entity, from the possible need to support other group entities are of importance, in case the rated entity is among the stronger entities within the group. Usually, a detailed discussion is held with the management of the rated entity to understand its business objectives, plans and strategies, and views on past performance, besides the outlook on the rated entity's industry.

Some of the points assessed are:

- Experience of the promoter/ management in the industry
- Commitment of the promoter/ management to the concerned line of business
- Risk appetite of the promoter/ management and risk mitigation plans
- The rated entity's plans regarding new projects, acquisitions, and investment in non-core business segments
- The rated entity's policies on leveraging, interest risk and currency risks

Periodic interactions with the management also help to estimate the possibility of the management's tendency to deviate from its core philosophy in times of stress.

## Summing Up

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ICRA's credit ratings are a symbolic representation of its opinion on the relative credit risk associated with the instrument being rated. This opinion is arrived at following a detailed evaluation of the entity's business and financial risks, its competitive strengths, its likely cash flows over the near-to-medium-term and the adequacy of such cash flows vis-à-vis its debt servicing

obligations and other funding requirements. ICRA's approach to rating upstream entities incorporates both quantitative and qualitative factors such as scale, diversification, reserve and production characteristics, evacuation risk and regulatory risks.

ANNEXURE

Summary of rating factors and an example to illustrate the key building blocks of a credit rating

		Strong			Comfortable			Adequate			Moderate			Weak		
<b>Industry Risk</b>	Regulatory Risk															
	Resources- MMTOE															
<b>Business Risk</b>	Reserves - Proved- MMTOE															
	Production- MMTOE															
	RLI (years)- proved basis															
	RRR (%)															
	3 year F&D costs- US\$/barrel															
	Full cycle costs- US\$/barrel															
	Leveraged Full Cycle Ratio- times															
	Experience in E&P Activities															
	No. of blocks in which present															
	% of overseas resources out of total															
	% production from single largest asset															
	Subsidy Sharing Burden															
	Reserve Complexity/Development Challenges															
<b>Financial Risk</b>	Leverage															
	Coverage															
		Enhance					Support/ Neutral					Hinder				
	Diversification															
<b>Do these factors enhance or hinder the credit profile?</b>	Refinancing Dependence, Liquidity and Financial Flexibility															
	Currency Risk															
	Financial Policy															
	Management, Governance & Reporting															
		Very High			High				Moderate				Low			
<b>Parent Support</b>	Likelihood of Parent Support															
	Rating of Parent	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B/ C category	
	Final Rating	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B/ C category	

The above graphic is only for illustration purpose and does not represent a rating output from a formulaic model. The ratings assigned by ICRA are determined by Rating Committees based on both quantitative and qualitative considerations.

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### About ICRA Limited:

ICRA Limited was set up in 1991 by leading financial/investment institutions, commercial banks and financial services companies as an independent and professional investment Information and Credit Rating Agency.

Today, ICRA and its subsidiaries together form the ICRA Group of Companies (Group ICRA). ICRA is a Public Limited Company, with its shares listed on the Bombay Stock Exchange and the National Stock Exchange. The international Credit Rating Agency Moody's Investors Service is ICRA's largest shareholder.

For more information, visit [www.icra.in](http://www.icra.in) and [www.icraresearch.in](http://www.icraresearch.in)

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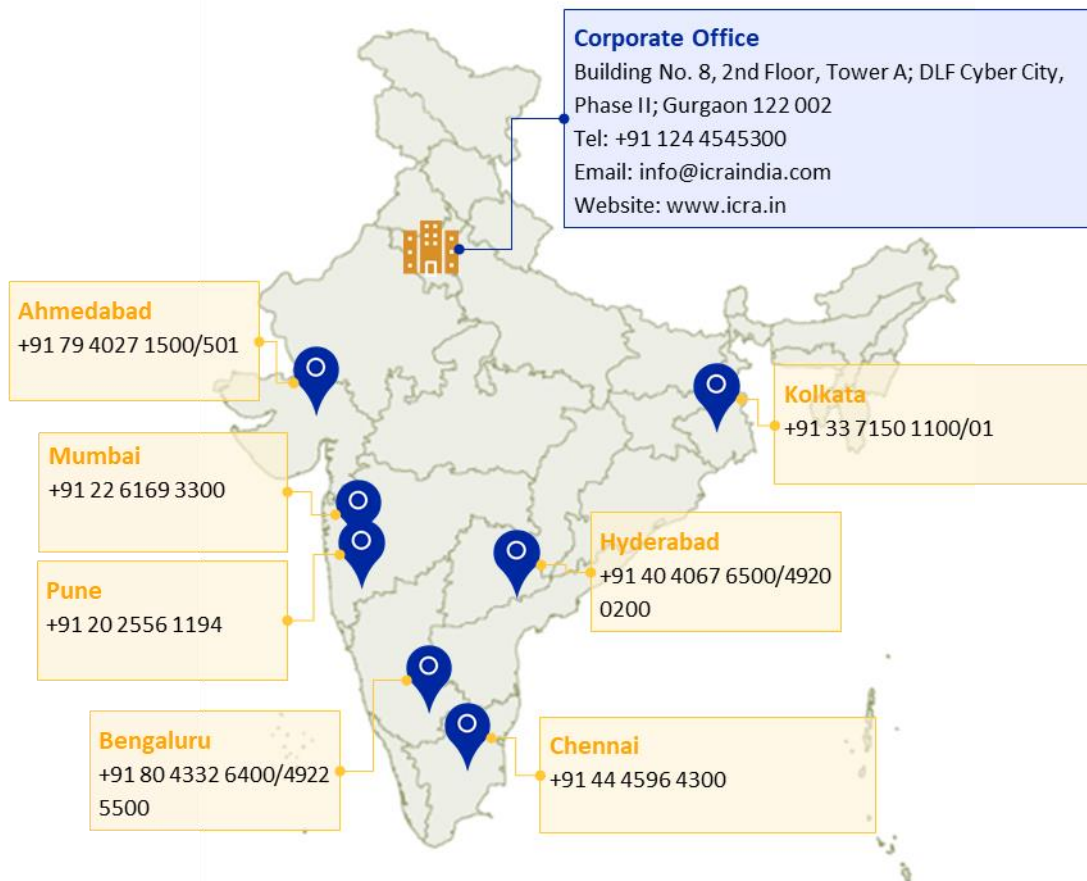
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