

Oil and Gas

Indian Oil & Gas industry gearing up for Net Zero

We went through various Indian oil and gas (O&G) companies' FY23 annual reports and their sustainability reports to understand their plans and likely contribution to enable India achieve its COP-26 commitments, which include achieving Net Zero by 2070 and increasing non-fossil fuel based energy capacity to 500GW by 2030. Indian O&G majors have already announced plans to set up RE (renewable energy) capacities, which will not only help them achieve their Net Zero targets but also aid them in business diversification. RIL aims to achieve Net Zero by 2035, followed by ONGC by 2038, HPCL/BPCL/Oil India/GAIL by 2040 and IOCL by 2046 while various gas companies are in the process of firming up their Net Zero targets. India plans to increase non-fossil fuel based energy capacity to 500GW by 2030 (from current 186GW); of this, ~125GW is likely to be added by India's O&G companies (100GW by RIL, 10GW by ONGC, 5.5GW by IOCL, ~3GW each by GAIL/BPCL and 2GW by HPCL). Led by aggressive plans by RIL, India also aims to be a global leader in green hydrogen powered by renewable energy. RIL recently highlighted its readiness to double its announced clean energy capex of INR 750bn for 3 years and may potentially take this to ~INR 5trln over 10-15 years; ONGC has committed ~INR 2trln, Oil India ~INR 250bn and GAIL ~INR 260bn for this. With the proposed rights issue, OMCs are also planning to boost clean energy capex to support their Net Zero targets.

- **India committed to achieve Net Zero by 2070; RIL targeting Net Zero by 2035, followed by ONGC (2038) HPCL/BPCL/Oil India/GAIL (2040) and IOCL by 2046:** At the 26th UN Climate Change Conference, 2021 (COP-26), Gol (government of India) committed to achieve: **a)** Net Zero by 2070, **b)** increasing non-fossil fuel based energy capacity to 500GW by 2030 (from ~186GW in Aug'23), and **c)** meeting 50% of the country's energy requirements from renewables by 2030 (from ~15.3% in Jul'23), amongst other targets. As contribution to India's key COP 26 commitments, India's oil and gas (O&G) majors have already announced their Net Zero targets with RIL targeting to achieve Net Zero by 2035, followed by ONGC by 2038, HPCL/BPCL/Oil India/GAIL by 2040 and IOCL by 2046. Gas companies are yet to announce their respective Net Zero targets.
- **India targeting to increase non-fossil fuel based energy capacity to 500GW by 2030 (from current 186GW); of this, ~125GW is likely to be added by Indian O&G companies:** India plans to increase its non-fossil fuel based energy capacity to 500GW by 2030 (from ~186GW in Aug'23) via a target of around 300GW (vs. ~72 GW in Aug'23) for solar energy, around 140GW (vs. ~44 GW in Aug'23) for wind energy and the balance via a mix of bio-energy, hydro and nuclear energy. To meet these commitments, India's oil & gas companies have so far announced plans to add RE capacity of up to ~124GW by 2030 (vs. ~1GW at the end of FY23) and increase that to ~171GW by 2040. RIL will be the biggest contributor among all oil and gas industry players, having announced an RE capacity target of 100GW by 2030. Out of the remaining 24GW RE capacity target, ONGC has announced setting up of 10GW capacity, IOCL 5.5GW, GAIL 3GW and HPCL 2GW whereas BPCL should be having ~3GW by 2030. It is to be noted that IOCL has increased its RE capacity target from 3GW to 5.5GW for FY30 and eased its FY40 target from 35GW to 31GW while keeping the FY50 target unchanged at a massive 200GW.
- **India aims to be global leader in green hydrogen powered by renewable energy; RIL has laid down aggressive plans:** Gol's National Green Hydrogen Mission aims to make India a global leader in production, usage and export of green hydrogen. It is targeting a green hydrogen capacity of 5mtpa by 2030 with an associated RE capacity addition of ~125GW; apart from the initial outlay of INR 197bn, this will entail over INR 8trln of investments by 2030. RIL has laid down aggressive plans and aims to bring down the cost of green hydrogen to under USD 2 per kg initially and ultimately to even under USD 1 per kg (from ~USD 3.0-6.5 per kg in 2021) in a decade to make green hydrogen more affordable. IOCL is also developing a 10ktpa green hydrogen capacity at its Panipat refinery while HPCL and BPCL has planned to install annual green hydrogen production capacity of 29ktpa and 10ktpa respectively by 2030. Other oil and gas companies have

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also started planning their green hydrogen capacities but the scale remains relatively small. In the gas segment, PNGRB has given approval for 5% green hydrogen blending with PNG, which can be taken up to 20% in phases.

- **RIL willing to double its announced clean energy capex of INR 750bn for 3 years and may potentially take this to ~INR 5trln over 10-15 years; ONGC has committed ~INR 2trln, Oil India ~INR 250bn and GAIL ~INR 260bn:** RIL has recently highlighted its readiness to double its committed clean energy capex of INR 750bn for 3 years which was announced in the 2021 [AGM](#). The committed capex of INR 750bn includes INR 600bn for setting up new energy integrated manufacturing facilities and remaining INR 150bn for investments in value chain, partnerships, and future technologies, including upstream and downstream industries, to create a fully integrated, end-to-end renewable energy ecosystem. RIL has also signed an [MoU](#) with the government of Gujarat in Jan'22 to incur a capex of ~INR 5trln over 10-15 years to build its target RE capacity of 100GW as well as develop the green hydrogen ecosystem. ONGC has also recently announced the plan to invest ~INR 2trln to achieve its Net Zero Target by 2038 including ~INR 1trln for investment in various green initiatives by 2030. Further, Oil India has also recently announced the investments of ~INR 250bn to achieve its Net Zero target while GAIL plans to invest ~260bn for building its target RE capacity of 3GW by 2030.
- **OMCs planning to boost clean energy capex, with the proposed rights issue, to support their Net Zero targets:** Government had budgeted infusing INR 300bn into OMCs in FY24 for emission reduction and other clean energy projects; hence, IOCL and BPCL's boards had approved rights issue proposals for INR 220bn and INR 180bn, respectively, while HPCL is evaluating fund infusion via preferential allotment. OMCs plan to use the proposed right issue proceeds to significantly boost clean energy capex towards three categories of projects: **a)** Energy security related projects, which will primarily focus on E&P projects; **b)** Energy transition related projects, which will focus on investment in EV infrastructure, CGD business, renewables etc.; and **c)** projects for achieving Net Zero ambition by 2040. IOCL has recently announced its plan to invest ~INR 2.4 trln in projects that will help it achieve its Net Zero target. BPCL is planning capex of INR 1,400-1,500bn over the next 5 years, partly to help achieve Net Zero emissions by 2040 and is working on finalising project-wise break-up. Earlier, BPCL's renewable energy head had also shared that BPCL will require an investment of ~INR 500bn to build 10GW of RE capacity by 2040. HPCL has estimated capex of INR 8bn for the biofuels and renewables segment, which is 6% of total capex for FY24.
- **Oil and gas companies ramping up efforts to give a big push to Bio-Energy and EV charging infrastructure:** Gol had announced the SATAT Scheme in 2018 under which it is targeting production of 15mmtpa of compressed bio-gas (CBG) by 2023 through 5,000 commercial CBG plants. This scheme is being promoted by five oil and gas companies — IOCL, BPCL, HPCL, GAIL and IGL. Though there has been limited progress under this scheme so far, these companies have recently ramped up their efforts to establish more CBG plants. Recently, RIL also made its entry in CBG segment by commissioning its first commercial scale CBG plant in UP. Further, it claims to have become India's largest bio-energy producer. Separately, Gol aimed to achieve blending of 10% ethanol in petrol by Nov'22 and 20% blending by Ethanol Supply Year 2025-26. IOCL, BPCL, HPCL and Jio-BP have even already started selling 20% blended petrol through their select retail outlets in 2023. Further, though Gol has not set any deployment target for EV charging facilities IOCL, BPCL and HPCL are aiming to install 10k, 7k and 5k EV charging facilities respectively by FY26; Jio-BP and city gas distribution (CGD) companies are also setting up EV charging facilities and battery-swapping stations at their outlets.

Oil and Gas industry to play a decisive role in India's climate change action plan

At the 26th UN Climate Change Conference, 2021 (COP-26), GoI introduced India's climate action plan with five major commitments termed as "Panchamrit": **a)** Net Zero by 2070, **b)** increasing non-fossil fuel based energy capacity to 500GW by 2030 (from ~186GW in Aug'23), **c)** meeting 50% of the country's energy requirements from renewables by 2030 (from ~15.3% in Jul'23), **d)** reducing carbon intensity of the economy by 45%; and **e)** reducing total projected carbon emissions by 1bn tns from 2022 till 2030. It is to be noted that solar energy, wind energy, bio-energy and energy generated from small hydro projects (capacity up to 25MW) are classified as renewable energy in India, whereas non-fossil fuel based energy not only includes renewable energy but also nuclear energy and energy generated from large hydro projects (capacity > 25MW).

The oil and gas industry has been directly or indirectly responsible for greenhouse gas emissions, which is one of the primary drivers for climate change. Hence, India's oil and gas industry players need to play an important role in helping the nation achieve its climate change plan objectives. As contribution to India's COP 26 key commitments, the country's oil and gas majors have already announced their Net Zero targets. Moreover, oil and gas companies have announced plans to set up renewable energy capacities, which will not only help them achieve their Net Zero targets but also help them in their business diversification efforts.

India committed to achieve Net Zero by 2070; RIL targeting Net Zero by 2035, followed by ONGC (2038) HPCL/BPCL/Oil India/GAIL (2040) and IOCL (2046)

India's oil and gas majors have announced their Net Zero targets for Scope 1 and 2 emissions with RIL targeting to achieve the same by 2035, followed by ONGC by 2038, HPCL/BPCL/Oil India/GAIL by 2040 and IOCL by 2046; gas companies are yet to announce their respective Net Zero targets.

Exhibit 1. Net Zero target years for oil and gas companies

Company	Net Zero Target Year
RIL	2035
ONGC	2038
HPCL	2040
BPCL	2040
Oil india	2040
GAIL	2040
IOCL	2046

Source: Company, JM Financial

India targeting to increase non-fossil fuel based energy capacity to 500GW by 2030 (from current 186GW); of this, ~125GW is likely to be added by Indian O&G companies

In addition to announcing their Net Zero targets, the country's oil and gas industry players have already announced their individual RE capacity targets in order to contribute towards India's second commitment of increasing non-fossil energy capacity to 500GW by 2030. RE capacity targets announced by India's oil and gas companies add up to ~124GW of RE capacity by 2030 (vs. ~1GW at the end of FY23), which is further targeted to increase to ~171GW of RE capacity by 2040. RIL will be the biggest contributor among all oil and gas industry players, having announced an RE capacity target of 100GW by 2030. Out of the remaining 24GW RE capacity target, ONGC has announced setting up of 10GW capacity, IOCL 5.5GW, GAIL 3GW and HPCL 2GW whereas BPCL should be having ~3GW by 2030. It is to be noted that IOCL has recently increased its RE capacity target from 3GW to 5.5GW for FY30 and eased its FY40 target from 35GW to 31GW while keeping FY50 target unchanged at a massive 200GW.

Exhibit 2. Major oil and gas companies have set out their RE portfolio targets

Company	RE Portfolio Target (in GW)	Target Year
RIL	100	2030
IOCL	5.5 / 31 / 200	2030 / 2040 / 2050
ONGC	10	2030
BPCL	1 / 10	2025 / 2040
GAIL	1 / 3	2025 / 2030
HPCL	2	2030

Source: Company, JM Financial

Solar and Wind energy to drive India towards 500GW non-fossil fuel based energy capacity

As part of India's commitment to increase non-fossil fuel based energy capacity to 500GW by 2030, MNRE aims to meet the target of around 300GW (vs. ~72 GW in Aug'23) through solar energy and around 140GW (vs. ~44 GW in Aug'23) through wind energy, and the balance via a mix of bio-energy, hydro and nuclear energy. This sets the direction and composition of India's future RE portfolio, in which solar and wind energy will constitute the dominant RE source driven by India's geographical location, which favours solar and wind energy generation. O&G companies in India have not only announced their future plans for solar and wind projects but have also started generating energy through their installed capacities. However, the installed solar and wind capacities are still very low and most of the generated energy is consumed by them for captive purposes. Even during FY23, the solar capacity additions remained muted and wind energy capacity remained unchanged as all the Indian oil and gas companies cumulatively added only 45MW of solar capacity, of which HPCL added 30MW. Therefore, the cumulative solar and wind installed capacity of these oil and gas companies stood at ~270MW and ~780MW at the end of FY23. HPCL had the highest installed solar capacity of 84MW followed by IOCL (71MW), BPCL (45MW), ONGC (37MW), GAIL and Oil India (14MW each) while IGL and PLNG having less than 1MW at the end of FY23; Oil India had the highest installed wind capacity of 174MW, followed by IOCL (168MW), ONGC (153MW), GAIL (118MW), HPCL (101MW), GSPL (53MW) and BPCL (12MW).

Even though the current cumulative installed capacity is very low, RIL has expressed its aggressive aspirations for solar by announcing multiple solar energy projects with a total capacity of 140GW (100GW in Gujarat, 20GW in Rajasthan, 10GW each in UP and AP). Of this 140GW, RIL plans to set up 20GW of solar capacity by 2025 and 100GW by 2030. Moreover, RIL recently announced its plan to foray into the wind power generation also at its [latest AGM](#). Although it has not explicitly announced any wind energy project it shared that it had already made significant progress in developing a manufacturing ecosystem critical to achieving cost-efficient wind power generation at giga-scale. Further, its planned 20ktpa carbon fibre manufacturing will reduce the cost of wind turbines. ONGC has also announced that it will build 1.5GW solar energy capacity by 2025 and 2GW wind energy capacity by 2030. BPCL is also aiming to have 1GW of solar energy capacity by 2025. Moreover, Oil India has recently announced that it will invest INR 90bn in solar and onshore wind energy projects with the cumulative capacity of 1,800MW.

Exhibit 3. O&G companies currently have low installed solar and wind capacities

Company	Solar Capacity (MW)*	Wind Capacity (MW)*
IOCL	71	168
ONGC	37	153
Oil india	14	174
GAIL	14	118
HPCL	84	101
BPCL	45	12
GSPL	-	53
Total	265	779

Source: Company, JM Financial Note: The capacity is reported by respective companies as at FY23 end.

RIL ready to double its announced clean energy capex of INR 750bn for 3 years and may potentially take this to ~INR 5trln over 10-15 years; ONGC has committed ~INR 2trln, Oil India ~INR 250bn and GAIL ~INR 260bn

RIL in its FY23 annual report had highlighted its readiness to double its committed clean energy capex of INR 750bn for 3 years, which was announced in its 2021 [AGM](#). The committed capex of INR 750bn includes INR 600bn for setting up new energy integrated manufacturing facilities and the remaining INR 150bn for investments in value chain, partnerships, and future technologies, including upstream and downstream industries, to create a fully integrated, end-to-end renewable energy ecosystem. In this direction, RIL has made a few acquisitions and entered into key partnerships with leading companies in the new energy industry through its wholly owned subsidiary RNEL (Reliance New Energy Ltd)—**Exhibit 4**. RIL also signed an [MoU](#) with the government of Gujarat in Jan'22 to incur a capex of ~INR 5trln over a span of 10-15 years to build its target RE capacity of 100GW and develop the green hydrogen ecosystem. ONGC has also recently announced the plan to invest ~INR 2trln to achieve its Net Zero Target by 2038 including ~INR 1trln for investment in various green initiatives by 2030. Further, Oil India has also recently announced investments of ~INR 250bn to achieve its Net Zero target while GAIL plans to invest ~260bn for building its target RE capacity of 3GW by 2030.

OMCs planning to boost clean energy capex, with the proposed right issue, to support their Net Zero targets

Government had budgeted infusing INR 300bn into OMCs in FY24 for emission reduction and other clean energy projects; hence, IOCL and BPCL's boards had approved rights issue proposals for INR 220bn and INR 180bn, respectively, while HPCL is evaluating fund infusion via preferential allotment. OMCs plan to use the proposed right issue proceeds to significantly boost clean energy capex towards three categories of projects: **a)** Energy security related projects, which will primarily focus on E&P projects; **b)** Energy transition related projects, which will focus on investment in EV infrastructure, CGD business, renewables etc.; and **c)** projects for achieving Net Zero ambition by 2040.

IOCL has recently announced its plan to invest ~INR 2.4 trln in projects that will help it achieve its Net Zero target. BPCL is planning capex of INR 1,400-1,500bn over the next 5 years, partly to help achieve Net Zero emissions by 2040 in Scope 1 and Scope 2 and is working on finalising project-wise break-up. Earlier, BPCL's renewable energy head had also stated that BPCL will require an investment of ~INR 500bn to build 10GW of RE capacity by 2040. HPCL has estimated capex of INR 8bn for the biofuels and renewables segment, which amounts to 6% of total capex for FY24.

Exhibit 4. RNEL's (RIL's wholly owned subsidiary) various acquisitions and strategic investments in last few years

Brand / Company	Segment	Amount (INR bn)	Details
NexWafe	Silicon Wafers Manufacturing	2.3	Acquired stake
REC Solar	Solar Panel Manufacturing	61.7	Acquired 100% stake
Sterling & Wilson Renew able Energy	Solar EPC Solutions	28.5	Acquired 40% stake
Ambri	Energy Storage	4.0	Made strategic investment
Faradion	Energy Storage	12.5	Acquired 100% stake for ~ INR 10bn and invested ~INR 2.5bn as grow th capital
Lithium Werks	Energy Storage	4.9	Acquired 100% stake
SenseHaw k	Solar Industry Softw are	2.6	Acquired majority stake
Caelux	Solar Pow er Solutions	1.0	Acquired 20% stake
Altigreen	EV Solutions	0.5	Acquired stake
Total		118	

Source: Company, JM Financial

India aims to be global leader in green hydrogen powered by renewable energy; RIL has laid down aggressive plans

Gol National Green Hydrogen Mission aims to make India the global leader in production, usage and export of green hydrogen. Gol expects India's green hydrogen capacity to reach 5mmtpa by 2030 with an associated RE capacity addition of ~125GW, which is expected to result in cumulative savings of ~INR 1trln in the fossil fuel import bill by 2030. This should also result in 50mmtpa reduction in annual CO₂ emissions by 2030. This involves an initial outlay of INR 197bn and will require over INR 8trln of investments by 2030. RIL had also expressed its aspiration to make India a world leader in new energy manufacturing with the company aggressively aiming to bring down the cost of green hydrogen to under USD 2 per kg initially and ultimately to even under USD 1 per kg (from ~USD 3.0-6.5 per kg in 2021) in a decade to make green hydrogen more affordable.

In the [2020 AGM](#), RIL shared its 15-year vision to emerge as one of the leading new energy companies in the world. Next year, in the [2021 AGM](#), RIL shared its ambitious strategy to implement its vision and green hydrogen was at the core of the strategy. It aims to create a fully integrated new energy ecosystem. In the [2023 AGM](#), RIL shared that it's making rapid progress in developing five Giga-factories at Dhirubhai Ambani Green Energy Giga Complex in Jamnagar, which will manufacture and completely integrate all the critical components of the new energy ecosystem. These five Giga-factories are: **a) Integrated solar photovoltaic module factory** for end-to-end manufacturing of solar panels used in solar energy generation; **b) Advanced energy storage battery factory** for storing the solar energy in large scale grid batteries utilising advanced electro chemical technologies; **c) Electrolyser factory** for manufacturing modular electrolysers used in making green hydrogen, **d) Fuel cell factory** for producing fuel cells powered by green hydrogen, and **e) Power electronics factory** for designing and manufacturing power-electronics-based systems for telecommunications, cloud computing and IoT platforms. Further, it reiterated that the 10GW solar PV cell and module factory at Jamnagar will commence production by 2024 and will be scaled up to 20GW in a phased manner by 2026. Battery packs production is slated to start and scale up to 5GWh capacity by 2024 and 50GWh capacity by 2027. RIL has not explicitly announced its planned green hydrogen capacity but it aims to begin transitioning from manufacturing of grey hydrogen to manufacturing of green hydrogen by 2025. Moreover, RIL also developed India's first hydrogen combustion engine technology for heavy-duty trucks and buses during FY23, enabling hydrogen as an efficient alternate transportation fuel for these vehicles.

IOCL initially shared its plan to set up 5ktpa and 2ktpa green hydrogen capacities at its Panipat and Mathura refineries respectively. However, it dropped hydrogen plans for the Mathura refinery but increased the planned hydrogen capacity at the Panipat refinery to 10ktpa during FY23. HPCL has also planned to install annual green hydrogen production capacity of 29ktpa by 2030. Further, BPCL plans to install annual green hydrogen production capacity of 10ktpa by 2030. Other oil and gas companies have also started planning their green hydrogen capacities but the scale remains very small in relation to Gol's green hydrogen mission target. In the gas segment, PNGRB has given approval for 5% green hydrogen blending with PNG, which can be taken up to 20% in phases. Gujarat Gas, IGL and GSPL have started working on green hydrogen blending projects.

Exhibit 5. Green hydrogen plans announced by different oil and gas companies

Companies	Green Hydrogen (fuel cell)
RIL	Announced ambitious hydrogen generation plans utilising planned RE generation but not explicitly provided for planned capacity.
HPCL	Planned Annual Capacity - 29ktpa (2030)
BPCL	Planned Green Hydrogen Capacity - 145MMW (2030)
IOCL	Planned Annual Capacity - 10ktpa Targeting 5% of hydrogen produced by it as Green Hydrogen by FY28 and 10% by FY30.
ONGC	Signed MoU with Greenko for developing annual green hydrogen capacity through JV - 180ktpa
Oil India	Green Hydrogen Capacity as at FY23 end - 100KW. Hydrogen Capacity under construction - 18 MW
GAIL	Planned Green Hydrogen Capacity - 10MMW (2023) 2ktpa ; Invst - INR2.31Bn
IGL	Engaged in green hydrogen blending with PNG.
Gujarat Gas	Pilot project to blend Green Hydrogen in PNG
GSPL	Engaged in green hydrogen blending with PNG.

Source: Company, JM Financial

Oil and gas companies ramping up efforts to give a big push to Bio-Energy and EV charging infrastructure

a) SATAT (Sustainable Alternative Towards Affordable Transportation) scheme on CBG: Gol had announced the SATAT Scheme in 2018 under which it is targeting production of 15mmtpa of CBG by 2023 through 5,000 commercial CBG plants. This scheme is being promoted by five oil and gas companies — IOCL, BPCL, HPCL, GAIL and IGL. However, only 48 CBG plants have been commissioned till date under this scheme, a majority of which are commissioned by these five companies only. During FY23, HPCL commissioned three CBG plants, IOCL and IGL added two each while BPCL commissioned only one CBG plant. However, IOCL still leads with the most number of commissioned CBG plants at 22 as at end of FY23, followed by BPCL with eight plants, HPCL with four plants and IGL with three plants. Recently, RIL also made its entry in CBG segment by commissioning its first commercial scale CBG plant in UP. Further, it claims to have become India's largest bio-energy producer.

Though there has been very limited progress under this scheme so far, these companies have recently ramped up their efforts to establish more CBG plants. Under the SATAT scheme, IOCL had released ~3,300 Lols (as at the end of FY23) for production and supply of CBG of ~8.5mmtpa. IOCL plans to have a portfolio of: **a) 0.7mmtpa** of biofuel by 2025; **b) 4mmtpa** of biofuel including biogas by 2030; and **c) 7mmtpa** of biofuel and 9mmtpa of biogas by 2050. BPCL has also planned 1,000 CBG plants to be commissioned by FY24 with a total capacity of 3mmtpa. HPCL has also released ~480 Lols as at the end of FY23 for production and supply of CBG of ~1mmtpa. Recently, RIL, GAIL and ONGC have also announced that they will commission 500, 400 and 25 CBG plants by FY28, FY25 and FY26 respectively. Other oil and gas companies in this segment include Oil India, PLNG, IGL and MGL.

b) Ethanol blending programme: As part of National Policy of Biofuels, 2018, Gol aimed to achieve blending of 10% ethanol in petrol by Nov'22 and 20% blending by Ethanol Supply Year 2025-26. IOCL, HPCL and BPCL achieved 10% blending target in FY22 and aim to achieve 20% blending target by Ethanol Supply Year 2025-26. In this direction, IOCL, BPCL, HPCL and Jio-BP have already started selling 20% blended petrol through their select retail outlets in 2023. Moreover, Oil India, which also holds a majority stake in NRL, has recently shared its ambition in 2G ethanol space by announcing a planned investment of INR 80bn.

c) Building EV charging infrastructure: Gol has not set any deployment target for EV charging facilities but IOCL, BPCL and HPCL are aiming to install 10k, 7k and 5k EV charging facilities respectively by FY26. During FY23, HPCL commissioned ~1000 EV charging facilities during FY23 while IOCL and BPCL added ~800 and ~600 respectively. Therefore, IOCL had +5,500 installed EV charging facilities while HPCL and BPCL had +2k and +700 respectively as at the end of FY23. Jio-BP also added +1000 EV charging facilities during FY23, taking its EV network strength above 1,400. IGL and MGL didn't add any EV charging facility during FY23 and had 4 and 1 installed EV facilities at the end of FY23. However, IGL shared that it is currently working on commissioning +50 battery-swapping stations.

Exhibit 6. Bio-energy plans announced by different oil and gas companies

Companies	Biofuel - Ethanol	Biofuel - CBG
RIL	Jio-BP JV launched E20 blended petrol in 2023.	CBG plants commissioned - 1; Planned CBG plants - 100 (FY28)
HPCL	Achieved 10% ethanol blending target in FY22; Launched E20 blended petrol in 2023.	CBG plants commissioned - 4; Total LOIs released - 476 (implied capacity of ~1mmt)
BPCL	Achieved 10% ethanol blending target in FY22; Launched E20 blended petrol in 2023.	CBG plants commissioned - 8; Total LOIs released - 322; Planned CBG Production - 3MMT (FY24); and Planned CBG plants - 1000 (FY24)
IOCL	Achieved 10% ethanol blending target in FY22; Launched E20 blended petrol in 2023.	CBG plants commissioned - 22 LOIs released - 3,267 for 8.5mmt of CBG capacity Targets 0.7 MMT Biofuel (2025), 4 MMT Biofuels including Biogas (2030), 7 MMT Biofuels and 9 MMT Biogas (2050).
ONGC	-	Planned CBG plants - 25 (FY26)
Oil India	Planned Invnt of INR 80bn in 2G Ethanol capacity	Planned CBG plants - 25
GAIL	-	Total LOIs released - 327 (implied capacity of ~0.4mmt); Planned CBG plants - 400 (FY25)
IGL	-	CBG plants commissioned - 3
MGL	-	Planned CBG plants - 1
PLNG	-	Planned CBG plants - 5

Source: Company, JM Financial

APPENDIX I

JM Financial Institutional Securities Limited

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