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## Cairn Oil & Gas' low carbon trajectory to achieve Net Zero by 2030

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India is the third largest consumer of energy in the world and imports 87% of its crude requirements. The impending rise in energy demand for a fast-growing large economy, driven by a growing population and per-capita consumption, underscores the need for energy self-sufficiency. Along with this, India is also leading global energy transition efforts to achieve Net Zero goal, while balancing its needs for energy security, affordability and sustainability.

As the leading private oil and gas exploration and production (E&P) company in India, Cairn, part of Vedanta Group, has been leading the strategy for innovative technological solutions to decarbonise its operations and accelerate efforts to achieve 'Net Zero Carbon by 2030'.

Cairn has a vision of contributing 50% domestic oil and gas production and supporting India's journey towards achieving energy security. For us, growth and sustainability are mutually reinforcing, and we aim to use this synergy to ensure that our

business remains resilient while also contributing to the environment and society. To drive energy transformation, we have embedded sustainability at the core of our business strategy.

We have adopted a comprehensive Environmental, Social and Corporate Governance (ESG) strategy, implementing innovative technological solutions in the E&P industry to significantly decarbonise our operations through renewables, flare gas reduction, energy efficiencies, carbon sequestration and nature-based solutions.

Minimising dependence on more polluting sources of power and setting a precedent in the industry, our aspirations are to enhance our operational performance in synergy with climate change mitigation. To ensure this, we are enabling use of clean and renewable energy sources, upsurge energy efficiency, reduce flaring and minimise fugitive emissions. This is done through process optimization, improved reliability, innovative low carbon technologies, opportunities in Waste to Energy and Carbon Capture Utilization & Storage (CCUS or CCS) and adoption of GHG reduction measures.

## Renewable Energy Sourcing

- Cairn is sourcing up to 70 MW of renewable energy by 2030, with a renewable Power Delivery Agreement for 25 MW set to commence in FY'25.
- With the aim to harness solar energy and reduce reliance on conventional energy sources, Cairn has installed solar rooftop Photovoltaics of 2 MW across all locations.

## Flare Gas Reduction

Cairn has made significant progress in flare gas reduction and witnessed a 60% decrease in potential gas flaring volume over the past four years.

- Flare Gas utilisation from KW-02 through gas cascading and bottling (annual GHG reduction potential ~6,000 tonnes of CO<sub>2</sub> e/annum).
- Utilisation of flare gas from satellite fields through bottling and cascading to CNG players.
- Transporting gas from satellite fields to terminals through pipelines.
- Optimization of recycled gas compressors and installation of ejectors to reduce flaring in terminals.
- Process interventions and digital solutions to optimize parameters and reduce flare gas volumes.

## Waste to Power and Carbon Capture Utilization and Storage (CCUS)

Cairn is conducting a feasibility study on the 'Waste to Power' project to utilise lean gas, CO<sub>2</sub> rich gas, solid waste and other industrial waste, to generate power through pressurised oxy combustor technology. The resulting CO<sub>2</sub> gas can then be further utilised for enhanced oil recovery.

## Electrification and Energy Efficiency

To optimise fuel gas consumption and energy requirements in our operations, we are aggressively working on the electrification of our equipment and adopting energy efficient solutions.

- Installation of variable frequency drives and replacement of conventional lighting fixtures with energy-efficient LEDs.

- Deployment of more energy-efficient equipment, fittings, and technologies has been prioritised to enhance operational efficiency and reduce energy waste.
- Induction motors are being converted to Permanent Magnetic Motors (PMMs) to improve energy efficiency, reducing power consumption and operational costs.
- Conversion of steam-driven pumps to electric motor-driven pumps.
- Energy-efficient lighting systems and solar lightings across fields.
- Commissioned motor-driven power fluid pump at one of the largest oil processing facility - Mangala Processing Terminal in Rajasthan to replace the stream-driven pump. This has an Annual GHG reduction potential of ~86,000 tonnes of CO<sub>2</sub> e/annum. Conversion of 2 more steam driven pumps to motor is underway which will reduce the emission by 1,36,000tCO<sub>2</sub>e/annum.
- Introduction of Electric Vehicles at our facilities.

## Tree Plantation & Nature-based Solutions for Carbon Offsetting

- We are committed to preserving our biodiversity to create a positive impact on the environment and society. This is reinforced by our ongoing tree plantation initiatives across the regions of our operations. We have pledged to plant 2 million trees by 2030, supporting the local biodiversity of the region, ensuring No Net Loss.
- Cairn has developed 2,835 acres of greenbelt across our operational areas in Rajasthan, Gujarat and Andhra Pradesh, including 458 acres of mangroves.
- Ravva, our offshore asset in Andhra Pradesh has now been transformed into a vibrant wetland of mangroves spread over 86 acres.
- In Barmer, Rajasthan, we have planted 0.2 million trees across 988 acres of forest land and are reviving Khejari (*Prosopis Cineraria*) with 15,000 plants in the Thar Ecosystem. The overall greenbelt in Rajasthan covers 1600 acres.
- Gujarat coastal areas have been transformed with 372 acres of mangrove forest.

## Innovations and New Technologies

- Cairn is also looking at the adoption of alternative cleaner fuels like synthetic hydrocarbons, biodiesel, biomethanol, and refused-derived fuel.
  - We are exploring possibilities for incorporating green hydrogen into the energy mix.
- By prioritising renewable energy sourcing, reducing flare gas, enhancing energy efficiency, and adopting innovative technologies, we are not only reducing our carbon footprint but also contributing significantly to India's energy independence.

We strongly believe that it is possible to meet the rising energy demands while minimising environmental impact. This responsible approach to energy production underscores our dedication to both operational excellence and the well-being of the planet, ensuring a resilient and sustainable business model for years to come.

