Refrigerant Use and Control Policy

Background

Accounting for 7% of global greenhouse gas (GHG) emissions, cooling related GHG emissions, including through use of Hydrofluorocarbons (HFCs) continue to increase rapidly across the world.

Given their zero impact on depletion of the ozone layer, whilst HFCs are currently being used to replace Hydrochlorofluorocarbons (HCFCs) and chlorofluorocarbons (CFCs) they are still powerful greenhouse gases.

Recognizing this, the Kigali amendment to the Montreal Protocol aims for a gradual phase out of production and consumption of HFCs with a goal to achieve 80% reduction in HFC consumption by 2047 with most countries now signatories to this commitment.

Building on the Kigali Amendment, Tabreed is a member of the Cool Coalition, a global multi-stakeholder network of government, international organizations, businesses, financial institutions, academia, and civil society that is facilitating a more rapid global transition to efficient and climate-friendly cooling, including a recent commitment to a net-zero cooling vision.

Under the net zero cooling vision, the Cool Coalition is promoting a 'reduce-shift-improve-protect-leverage,' cross-sectoral approach to meet the cooling needs of both industrialized and developing countries through better building design, energy efficiency, renewables, thermal storage and phasing down of HFCs.

Tabreed's Baseline Approach

A. Refrigerant usage policy:

Currently, R134a (Tetrafluoroethene) is the preferred refrigerant for use in Tabreed's operations.

A multi-pronged approach is adopted in refrigerant use and management that includes:

A. Refrigerant leakage policy:

Achieving zero refrigerant leakage through an 'Improve-contain' approach wherein;

Improve

- Selection of sophisticated and intelligent chillers from global leading OEMs that are equipped with smart sensors, to measure and manage pressure drops in refrigerants through a dedicated control system.
- Specific training for operations and maintenance (O&M) staff in carrying out O&M processes for chillers.
- Plant automation systems to monitor and alert staff in case of chiller issues that could result in potential refrigerant leaks, and to initiate prompt action to prevent chiller outages.

Contain

- Installation of RRU (refrigerant recovery units) to minimize wastage of refrigerant.
- RLDS (refrigerant leak detection systems) interfaced with public address systems
- Integration of RLDS with fire alarm panels for alerts in case of leak detection
- Data repository for preventive corrective action.

B. Refrigerant disposal policy:

Zero refrigerant disposal is strictly followed by Tabreed in all its projects. Any contaminated refrigerant is sent to a third-party reclamation facility, prequalified by Tabreed and approved by local regulators. Reclaimed refrigerant after necessary testing is generally received back at respective plants for re-use.

Future Refrigerants:

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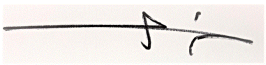
As a developer, owner and operator with a strong ESG mandate, Tabreed continues to monitor market/OEM developments to potentially consider use of refrigerants that have Zero Ozone Depleting Potential (ODP) and low Global Warming Potential (GWP) including HFOs (Hydrofluoroolefin) like HFO-1234YF etc).

A shift to use of HFOs is envisaged first for greenfield projects through chiller selection process when new district cooling schemes are being designed keeping in mind product range, support from OEMs and life cycle costs at relevant points of time. A broader replacement strategy for existing fleet of chillers will only be considered after sufficient market maturity and scale is available for broader deployment.

Tabreed India has in practice started using HFO's through the third chiller installed at the TRIL Intellion Gurugram project.



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