CIRCULAR ECONOMY SPOTLIGHT

PIONEERING CIRCULAR ECONOMY IN LUBRICANT LIFECYCLE

A Green Unicorn in Making

Mission: Abate **860 Gg CO_2e** by 2034

Category I: Resource Efficiency & Circular Economy Innovations "Emerging"

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COMPANY INTRODUCTION

Who We Are

- Founded in 2012, Pune, Maharashtra
- Cleantech enterprise focused on industrial lubricant circularity
- Serving Steel, Power, Cement, Mining & 10+ other heavy industries
- 350+ industrial plants across India

The Industry Problem

- 85% of used industrial oil is burned or wasted
- Premature disposal = avoidable emissions
- High virgin oil consumption drives carbon footprint
- Reactive maintenance = energy inefficiency

6M+
Litres of Oil Purified

73.35 Gg
CO_2e Reduced

350+
Industrial Plants Served

₹550 Cr+
Savings for Customers

The Problem

India's lubricant industry faces a critical sustainability crisis driven by linear consumption patterns

50%
of all lubricants
end up in environment

70%
of base oil demand
in India is imported

85%
oil improperly
disposed

3x
more energy to
refine crude vs used oil

90%
re-refining plant
capacity underutilized

$4Bn+
annual base oil
import bill (India)

Minimac's 3-Tier Circularity Framework

India's only integrated lubricant lifecycle circularity system

TIER 1

Nano Circularity™

Mid-life lubricant treatment. Advanced purification, dehydration, and electrostatic separation extend oil life at the end-user site

- 32% reduction in fresh oil consumption
- Real-time oil health analytics
- Zero-CAPEX via RoW service model

TIER 2

Micro Circularity™

End-of-life treatment. Oil reclamation and reconditioning for direct reuse, diverting lubricants from hazardous disposal

- Oil reclamation & reconditioning
- Improper disposal prevention
- Feedstock quality improvement

TIER 3

Macro Circularity™

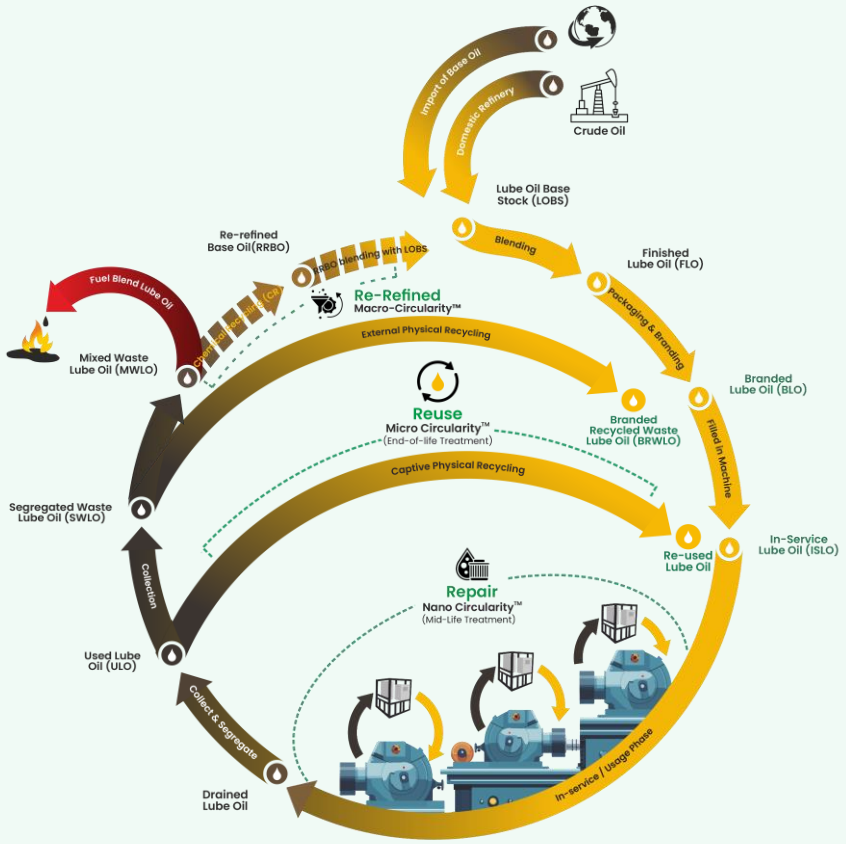
Used oil collection and re-refining enablement. Pre-processing technologies to improve RRBO yield and quality

- Used oil collection at doorstep
- Re-refining feedstock preparation
- 30%+ RRBO adoption target by 2030

Nano → Micro → Macro | A complete circular lubricant ecosystem under one roof

Minimac's Circularity Model

- Nano Circularity™
- Micro Circularity™
- Macro Circularity™



Innovation & Technology

Disruptive technologies enabling circular lubrication at industrial scale

- **Advanced Filtration Systems**
- **Vacuum Dehydration Technology**
- **Electrostatic Separation**
- **Recycling on Wheels (RoW)**
- **Digital Condition Monitoring**
- **Data-Driven Diagnostics**

Recycling Technologies OEM (RTO)

We design and manufacture advanced oil purification, flushing, reconditioning, & re-refining technologies. This in turn helps to extend lubricant life, improve equipment reliability, and reduce dependance on virgin base oil

Recycling on Wheels (RoW)

Mobile purification units deployed directly at industrial worksites. Zero CAPEX for clients. Immediate circularity without process disruption

Lubricant-with-a-Service (LwAS)

Lubrication with a Service — outcome-based model. Clients pay for reliability, not product. Minimac manages full lube lifecycle, reducing oil purchases by 32% per site

Measurable Impact & Value Creation

6Mn+
Litres of Oil Purified

73.35
Gg CO_2e Abated

₹50Cr+
Saved in Lube Costs

₹500Cr+
Downtime Cost Savings

35%
Fewer Equipment Breakdowns

Environmental & Social Benefits

- Prevents hazardous oil disposal into soil & water
- Reduces India's $4Bn+ annual base oil import burden
- Supports EPR & BRSR compliance across industries
- Stronger energy security & industrial safety
- Healthier communities, lower carbon intensity

Competitive Advantage

- 82% repeat client engagement rate
- 350+ industrial worksites engaged
- 75+ OEM partnerships secured
- GreenPro-certified solutions
- Policy-aligned: EPR, BRSR, ISO, ESG

Leadership & Multi-Stakeholder Ecosystem

Board-Level Commitment

- Publicly declared 860 Gg CO_2e mission by 2034
- R&D investment approved for all 3 circularity tiers
- Full EPR, BRSR, ESG framework alignment
- ISO-driven process excellence mandated
- Monthly Circularity Review Meetings tracked at board level

350+

Industrial Worksites Engaged

75+

OEM Partnerships Secured

4,800+

Training Hours Delivered

1,500+

Participants Trained

5 academic collaborations with IITs & NITs validating purification efficiency | **18 pilot programs** with heavy industries

The Hidden Cost of Waste Oil

India's lubricant problem — and Minimac's answer

85%

of used oil burned
or improperly disposed

3.7M

tonnes
lubricants consumed
in India annually

~11 kg

CO_2
per litre of
oil burned

~3×

more energy to make
virgin vs recycled oil

Minimac's Answer:
Extend oil life · Reduce waste · Abate carbon — across the full lubricant lifecycle

Our Product Portfolio

Engineering solutions across the full lubricant lifecycle

Oil Purification Systems

FS · ELC · LVDH · FRF · Coalescer

GreenPro-certified multi-stage filtration down to 0.01 micron. Removes solids, water & varnish

Flushing Skids

Chemical Cleaning · Hydraulic

Pre-commissioning and hydraulic fluid flushing to ISO 28521/28522. Removes mill-scale & weld debris

Particle Counters & Diagnostics

ICM Online · Laser · Patch Testing

Real-time ISO 4406 cleanliness measurement. 8-channel contamination display up to 400 bar

Moisture & Viscosity Tools

Hydrogauge · Visgauge · Karl Fischer

Precision on-site measurement of water contamination, viscosity grade and oil degradation

IoT / Digital Monitoring

I/O Sense · MOMS · CBM

Drag-and-drop dashboards, multi-site alerts, API integration and mobile-ready progressive web app

Filters & Consumables

20+ filter types · Make In India

Full range of replacement filter elements compatible with all purification and hydraulic systems

Case Studies — Real-World Savings

Power Plant — North India

Indo-Japanese Turbine EHC System

Oil replacement cost:	**₹44 Lakhs**
Downtime cost (15 hrs):	**₹1.05 Cr**
Reconditioning cost:	**Only ₹2 Lakhs**

Power Plant — West India

Chinese Technology Turbine EHC System

Oil replacement cost:	**₹21 Lakhs**
Downtime cost (48 hrs):	**₹2.8 Cr**
Reconditioning cost:	**Only ₹3 Lakhs**

Thermal Power — Chhattisgarh

2×600 MW Coal Plant, 16 KL control fluid

Oil replacement cost:	**₹3.2 Cr**
Downtime cost:	**₹3.15 Cr**
Reconditioning cost:	**Only ₹9 Lakhs**

UMPP — 2×800 MW Plant

Ultra Mega Power Project, 72 KL oil

Delayed startup saved:	**₹3.25 Cr**
Filtered in 40 hrs:	**72 KL (target: 72 hrs)**
Cleanliness achieved:	**NAS 10 → NAS 5**

And many more — Refinery in Oman · Steel Plants · Cement & Mining · International Projects

Where We Are Going

Improve Energy Usage

Integrating IoT-based real-time energy monitoring across our facility. Targeting measurable reduction in per-unit energy consumption in manufacturing

Better Waste Tracking

Full digital traceability for every litre of oil processed — from intake to reconditioning to dispatch. Aligned to EPR documentation requirements

Waste Lubricant Centres (WLCs)

Decentralised collection and re-refining hubs across India's industrial corridors. Making circular oil management accessible at scale

Lubricant as a Service™ (LaaS)

Subscription-based circularity model — performance guarantees, predictive diagnostics, and recurring climate reporting for customers

By 2030: 30%+ RRBO adoption in India | National WLC network | Full LaaS rollout | 860 Gg CO_2e abated by 2034

Thank You!

Key Takeaways

- Industrial oil circularity is a scalable, climate-positive opportunity
- Minimac's 3-layer model addresses the full lubricant lifecycle
- Proven impact: 6M+ litres purified, 73.35 Gg CO_2e abated
- We are growing - and your partnership can accelerate change

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