



Femto Green Hydrogen Ltd

Pioneering patented Terahertz-frequency wave technologies to deliver commercial-scale green fuel carbon reduction.

Fuel Industry Challenge: Internal Combustion Engine Thermal Efficiency

Today's engines convert only ~35% of the fuel's energy into useful work — The remaining ~65% is lost as heat, pumping losses, friction, and exhaust energy—not because fuel doesn't burn, but because energy is not used efficiently.

01 WHY EFFICIENCY STAYS LOW

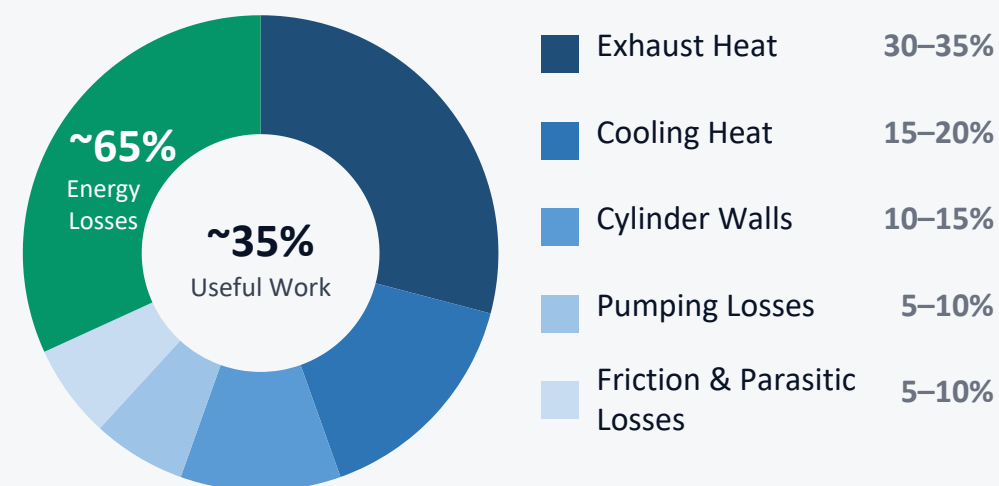
Transportation fuels rarely combust or release energy optimally under real-world duty cycles.

- **Efficiency lost under real-world conditions:** Transient operation, load changes, and thermal management limits.
- **Elevated emissions:** NO_x, CO, HC, and particulates persist.
- **Soot and particulate formation:** Wasted fuel energy and higher aftertreatment load.
- **Increased DEF use & cost:** Higher aftertreatment burden raises operating cost.
- **Performance Variability:** Seasonal fuels, cold starts and temperature reduce consistency & efficiency.

02 WHERE ENERGY GOES (TYPICAL)

Only ~35% is useful work

The rest is lost across five predictable channels.



The Opportunity: Improve how and when energy is released so more of it becomes useful work.

03 CURRENT APPROACHES RELY ON

Today's fixes fall short

Existing options add cost, complexity, or CapEx.

- **Increasing engine and aftertreatment complexity**
- **Chemical additives or catalysts with cost, logistics, and stability challenges**
- **Capital-intensive refinery upgrades (e.g., hydrocracking, hydrotreating)**

Industry need: A low-cost, infrastructure-compatible solution that improves combustion quality and converts more of the fuel's energy into useful work—without additives, engine hardware changes, or refinery upgrades.

Goal: Increase real-world engine thermal efficiency from ~35% to higher levels across duty cycles, delivering better fuel economy, lower cost, and cleaner emissions.

THE PROBLEM

What Femto Solves? : E20 Petrol and Complex Diesel

PETROL & E20 - FEMTO TURNS LOSS INTO GAIN

● 12-15% Net Efficiency Gain on E20

E20's inherent 6-7% calorific loss (acknowledged by NITI Aayog) is not just recovered but reversed. Femto-treated E20 vehicles report net mileage improvements of 12-15%, converting a regulatory mandate into a performance advantage.**

● Hygroscopic Risk Neutralised

Ethanol's moisture-absorbing nature causes phase separation, engine stalling, and fuel line corrosion. Femto treatment alters fuel surface chemistry, eliminating hygroscopic degradation and making E20 stable across humidity conditions.

● 366 Million Legacy Vehicles Protected

With mileage loss recovered and phase separation eliminated, the downstream risks to pre-2023 vehicles, such as fuel pump wear, seal degradation, and injector failure, are naturally resolved. Femto makes E20 legacy-safe without hardware modification.

*Femto does not just absorb the E20 mandate; it makes E20 perform better than pure petrol. ***

DIESEL - FEMTO AS A NATIONAL EFFICIENCY LEVER

● 15-25% Diesel Efficiency Gain

Diesel powers India's freight, agriculture, and industry. From BS4 to BS6, consumption has remained a persistent national burden. Femto-treated diesel delivers 15-25% fuel efficiency gains, translating directly into reduced import dependence and operational cost savings at scale.

● Double Emission Reduction

Femto-treated diesel produces a compounding emission benefit. First, burning less fuel inherently reduces CO₂, soot, and particulate output. Second, Femto's combustion chemistry further reduces residual harmful emissions beyond what fuel reduction alone achieves. One treatment delivers two layers of cleaner output.

● BS6 & RDE Compliance Cost Reduced

RDE Phase II compliance adds ₹1.5L+ per vehicle in sensor and catalytic maintenance. Femto's cleaner burn reduces DPF soot load, DEF crystallisation frequency, and exhaust system stress, lowering the real-world compliance cost burden for fleet operators.

From national fuel bills to urban air quality, Femto-treated diesel addresses both simultaneously.

** Based on multiple field trials.

Sources: [NITI Aayog E20 Roadmap](#) / [ARAI India](#) / [IEA India Energy Outlook](#) / [SIAM BS6 Compliance](#)

MARKET SCALE

The Industry This Problem Sits Inside

Femto sits inside India's fuel supply chain — the country's largest industrial vertical by revenue.

₹26.96 L Cr

Combined Domestic OMC Revenue

IOC, BPCL, HPCL, MRPL, and Reliance domestic ops. Every litre passes through a combustion engine. Femto changes what happens at that point.

₹8.74 L Cr

Indian Oil Corporation Alone

India's largest OMC by FY26 revenue. A single distribution agreement with IOC positions Femto inside the primary fuel delivery network.

Source- Indian Oil Integrated Annual Report

\$260 Billion

India's Annual Loss from Air Pollution

6% of GDP erased by air pollution in 2024 — 90% of the year's GDP growth.
Source: Dalberg & Clean Air Fund, Jan 2026. Femto reduces emissions at source.

\$4.5 Trillion

Global Carbon Market by 2030

India's BEE-CKM carbon exchange launches mid-2026. Every Femto deployment generates registry-grade CO₂ data from day one at zero incremental cost.

Not a niche clean-tech bet — this sits at the intersection of India's largest consumer industry, an active government mandate, and the fastest-growing compliance market globally.

How Femto Fuels with THz Treatment Increases Engine Thermal Efficiency

Not by burning more fuel — by converting more of the released energy into useful work. Better combustion, measurable impact.

01 WHAT THZ CHANGES

Better fuel chemistry

Restructures fuel at five levels for cleaner burn.

- **Reduced aromatics:** cleaner, faster chemical energy release.
- **Reduced viscosity:** better flow and injection control.
- **Smaller droplets:** faster evaporation, better air–fuel mixing.
- **Improved atomization:** more uniform mixture, fewer rich zones.
- **Improved H/C ratio:** More Hydrogen, more complete & efficient energy release.

02 WHAT IT DELIVERS

Cleaner, complete burn

More of the same fuel converted into useful work.

- **Better combustion phasing:** peak pressure closer to TDC.
- **More uniform heat release:** lower variation, less energy wasted.
- **Higher IMEP (Indicated Mean Effective Pressure) :** more work per cycle.
- **Lower heat losses:** less energy to exhaust and cooling.
- **Lower emissions naturally:** less soot, NOx and HC formation.

03 WHY THIS MATTERS

Real-world impact

Higher thermal efficiency, lower cost, cleaner air.

- **Better fuel economy:** more distance per gallon / litre.
- **Lower operating cost:** less fuel, less aftertreatment burden.
- **Cleaner emissions:** lower NOx, CO, HC, PM, CO₂.
- **Works With Existing infrastructure:** no additives, engine or refinery changes.
- **Lower DEF consumption :** reduced aftertreatment burden and cost.

● **RESULT: Better Combustion Quality — Not More Combustion**

● **Same Engine. No Hardware Changes.**

● **Higher Thermal Efficiency. Real-World Impact.**

The Femto Device — Molecular Restructuring Fuel Optimization

A non-contact, fuel-agnostic substrate device that emits Terahertz-frequency electromagnetic waves to restructure fuel molecular clusters — delivering more complete combustion.

What It Is

Non-contact substrate device · Placed in the Proximity of Fuel Storage — zero physical contact · No mechanical modification, no wiring, no moving parts · Self-sufficient — requires zero external power

How It Works

Emits Terahertz-frequency Electro Magnetic waves · Restructures fuel cluster patterns at molecular level · Atomisation for better combustion · Works with petrol, E20, diesel — fuel-agnostic

Why It's Different

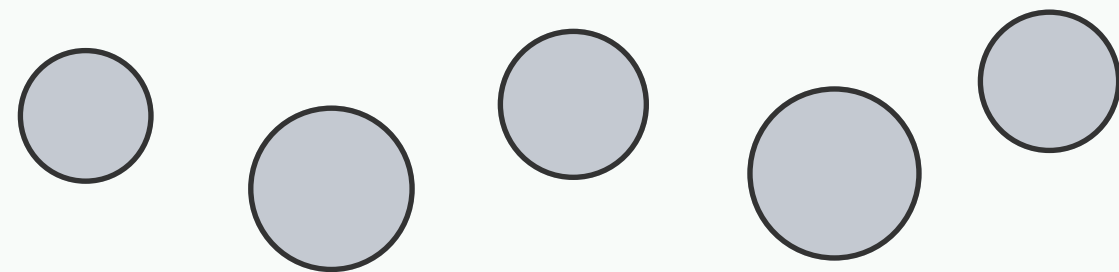
Every other solution requires engine modification or chemical additives · Non Chemical, No Additive base, improvement in efficiency in existing vehicles · Zero ongoing inputs or maintenance

Femto doesn't treat the exhaust. It improves the combustion — before the fuel even burns.

Established spectroscopy. Proprietary execution.

Normal Fuel

Long, complex hydrocarbon chains with irregular molecular structure



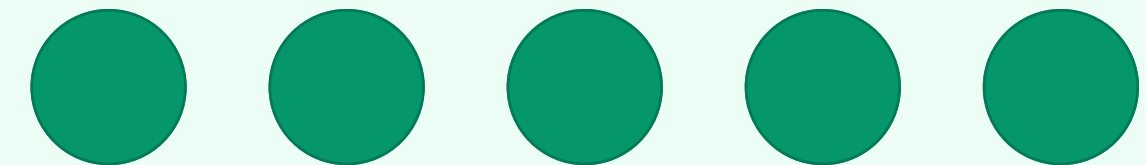
Irregular — incomplete combustion



Terahertz
exposure

Femto-Treated Fuel

Molecular chains partially restructured — more uniform — more complete combustion



Uniform — complete combustion, less waste

Effects on combustion

Higher efficiency per litre

Fewer CO, NOx, HC byproducts

Improved combustion value & providing efficiency

Moisture reduced from ethanol blends

The physics is established spectroscopy — not proprietary. What is proprietary: the device architecture, non-contact targeting, and delivery mechanism.

Independent Test Results

Verified by Purdue University CREATE, Roush Industries (Warren, Michigan)- Validation Study.

PETROL VALIDATION

Roush Gasoline Study

2021 AWD Jeep Compass · Sept 26, 2023

Phase / Date	Miles	Fuel (Gal)	MPG
P1: Baseline	568 mi	22.130	25.620
P2: Treated	745 mi	24.950	29.870
Improvement	+31.2%	+12.7%	+16.55%

KEY RESULTS:

- +16.55% MPG improvement on Jeep Compass petrol platform.
- Treated economy reached 29.87 MPG vs 25.62 MPG baseline.
- Verified under strict daily route, driver, and HVAC controls.

Ref: 131197-00001. Roush Industries.

E20 VALIDATION

Creta BS6 E20 Study **

2021 Hyundai Creta BS6 · E20 Fuel

Metric (100km)	E20	FTE20	Gain
Economy (MPL)	20.64	23.16	+12.21%
Fuel Req. (L)	4.84	4.31	-11.00%
CO2 Emis. (kg)	10.55	9.39	-11.00%

KEY RESULTS:

- +12.21% Fuel Economy (MPL) gain under Femto treatment.
- Fuel consumed reduced by 11.00% (4.84L vs 4.31L baseline).
- Tailpipe CO₂ emissions cut by 11.00% (10.55kg vs 9.39kg).

Ref: Creta BS6 E20 Test Protocol.

**Based on multiple field trials.

DIESEL VALIDATION

Purdue CREATE Study

Carmel-Clay School District · March 12, 2024

Bus Group	Base	Treated	Peak Gain
Control #59	5.53 MPG	5.57 MPG	0% (Feb)
Veh #72	5.93 MPG	6.99 MPG	+31.00%*

KEY RESULTS:

- Peak day efficiency hit 7.28 MPG (+31% vs control bus #59).
- 1+ years of continuous scientific evaluation under Dr. Patankar. Add range
- The treatment delivers proven fuel savings in the range of 18% to 31%.

*vs control bus

A Protected Moat — Patented, Exclusive, Backed

01

PCT Patent Filed — Jan 2026 (Patented on the name of Mr. Nandan Kundetkar)

Application PCT/IN2026/050049 · "Method for Treating Fuel with Electromagnetic Waves" · Enables patent extension across multiple international jurisdictions

02

US Utility Patent — Active

Concurrent US utility patent filed · Mr. Nandan Kundetkar as first inventor · Positions for largest automotive market globally

03

Exclusive Asia + India Rights — Contractual

FGHL holds exclusive commercialization rights for surface transportation · India & Asia coverage · Fastest-growing automotive markets globally

04

Indo Thai Securities — 56.85% Ownership

Listed parent provides capital, compliance infrastructure, investor access · 31-year NSE/BSE-listed firm · Institutional credibility layer

Three Revenue Streams. One Device Deployment.

01 CORE REVENUE

Operating Revenue

Device deployment and service contracts across four customer segments.

- **Fleet Operators:** Revenue-share model tied to verified fuel savings and fleet utilisation, with a minimum guaranteed fee. Zero upfront cost; operators pay via realised savings.
- **OMC Distribution:** Fleet deployment track record enables OMC partnerships, co-distribution revenue sharing, and recurring income from fuel analytics and depot fitments.
- **Government Institution:** We can provide bulk supplies to public transport fleets, paired with ongoing maintenance and environmental reports. This is a great way to reach out to government departments and transport companies and show them how to cut their fuel costs.

02 DATA MONETISATION

Carbon Credit Revenue

Every device generates real-time, registry-grade CO₂ data at zero incremental cost.

\$40 – \$150 per tonne CO₂

- **How It Works:** Femto logs verified, trip-level fuel/CO₂ reductions. Data is registered with BEE Carbon Exchange, VCS, or Gold Standard to issue tradeable credits.
- **Scalability:** Revenue scales linearly without extra hardware or sensors. A fleet of 10,000 vehicles generates massive credit volumes at zero marginal opex.
- **Market Timing:** India's domestic carbon market (BEE-CKM) launches mid-2026, directly aligning with our commercial rollout timeline.

03 IP MONETISATION

International Licensing

Asia-exclusive IP rights on a transition curve.

- **Revenue Structure:** Mirrors domestic model where clients pay for savings. Monetised via master country/OEM license fees and per-unit royalties on vehicles using Femto IP.
- **Why Now:** Southeast Asian OEMs (Thailand, Vietnam, Indonesia) face identical emission penalties and cost pressures. First-mover protection via PCT/US patents.
- **Capital Flow:** Tax-efficient GIFT City IFSC structure. Handles USD international royalty invoicing, collection, and cross-border capital repatriation.

● IP Protection: PCT + US Patent — Filed

● Partial Validation Done: Multiple Validations in Process

● Current Stage: Commercial this through Pilot Deployment — Pipeline

Femto vs Conventional Carbon Capture vs Direct Air Capture

The primary alternatives to source-level emissions reduction are post-combustion carbon capture and direct air capture. Comparing their cost structures and operational realities makes the choice clear.

PARAMETER	CONVENTIONAL CARBON CAPTURE	DIRECT AIR CAPTURE (DAC)	FEMTO EMISSIONS REDUCTION
Installation	High complexity, requires significant downtime	Huge capital Expenditure	External, non-invasive, Easy to install
Power Required	High energy consumption, 15 to 25% additional energy cost on the host system	1.5–2 GJ/tonne CO ₂ ; highly energy-intensive industrial process	No external power required at any point
Chemical Inputs	Often required for solvent-based capture processes	Continuous liquid solvent/solid sorbent with regular replenishment	Zero chemical inputs
Scalability	CapEx intensive, requires dedicated infrastructure per site	Fixed infrastructure; no applicability to mobile emission sources	Modular and plug-and-play across any fleet or oil reservoir.
Approach	Post-combustion, treats emissions after they are already produced	Post-dispersion method targeting ambient CO ₂ at 0.04% concentration	Source-level, improves combustion before emissions occur
Operational Disruption	Downtime during installation and ongoing maintenance cycles	Continuous high-energy plant operation; no vehicle deployment	Zero operational disruption at any stage
Carbon Credit Gen.	Possible but at a net operating cost of \$40 to \$150 per tonne	Possible, but at \$400–\$1,000 per tonne net operating cost	Generates \$40 to \$150 per tonne at zero incremental operating cost

CONVENTIONAL CARBON CAPTURE COST DRIVERS

Point-source capture costs range from **\$40 to \$150 per tonne** of CO₂ captured, before CapEx. Within that, energy accounts for 20–40%, compression 10–20%, and storage/verification accounts for the remainder.

*Recurring operating expenses compound over time.
(Source: IEA Direct Air Capture 2023 Report)*

DIRECT AIR CAPTURE COST REALITY

Operating costs for DAC range from **\$400 to \$1,000 per tonne** of CO₂ captured today. Energy alone accounts for 50–60% of total cost. Global DAC capacity captures under 0.01 million tonnes/year — against 37 billion tonnes of global emissions.

(Source: IEA Direct Air Capture 2023 Report)

FEMTO EMISSIONS REDUCTION ECONOMIC SURPLUS

Cost: one-time infrastructure cost with the devices. Energy cost: zero. Chemical cost: zero. Additional Infrastructure cost: zero. Ongoing Opex: zero.

Every tonne of CO₂ reduced generates **\$40 to \$150 in tradeable carbon credits** registered under BEE-CKM, VCS, or Gold Standard, yielding recurring net surplus.

From Fleet Data to OMC Distribution

Oil companies and OEMs are structurally conservative institutions. They move when the evidence is too substantial to dismiss. Every step below builds that evidence while generating commercial revenue in parallel.

01 Fleet Deployment

Current → Month 12

Direct deployments with logistics, dairy, bus, and trucking fleets. A 10–20% fuel efficiency gain hits the bottom line immediately.

Every deployment generates three outputs:

- Real-world fuel data tied to specific vehicles and routes
- Verifiable CO₂ trail for BEE-CKM carbon credits from day one

02 Validation & Visibility

Months 6–24, parallel

TUV studies in India join existing Roush (US) and Perdue Validations — creating a multi-geography record difficult to challenge.

Milestones:

- TUV certification
- BEE-CKM registration active
- Government engagement underway
- First OMC conversations initiated

03 Strategic Entry

Months 18–36

Femto approaches OMCs and OEMs from a position of documented evidence across hundreds of vehicles, multiple certifications, and an active carbon credit trail.

For OMCs: convert E20 & diesel from a consumer liability into an efficiency advantage they can put their name behind.

For OEMs: address efficiency at the fuel level, reducing compliance cost.

Targets:

- At least one OMC co-distribution deal
- Formal OEM integration trial
- First SE Asia licensing agreement via GIFT City SPV