

FREQUENTLY ASKED QUESTIONS

Tesla-Evercraft Cold Catalytic Conversion Technology



About This Document

This FAQ provides comprehensive answers to common questions about Tesla-Evercraft's Cold Catalytic Conversion (CCC) technology, covering technical specifications, operations, economics, environmental impact, and market applications.

TECHNOLOGY & PROCESS

What is Tesla-Evercraft's CCC technology?

Tesla-Evercraft uses Cold Catalytic Conversion (CCC), a process that converts mixed municipal and industrial waste into usable products: synthetic crude oil (SynCrude), electricity, hydrogen, activated carbon, and inert residues. Unlike incineration or pyrolysis, CCC works at low temperatures (260-360°C), without pressure, and avoids harmful emissions such as dioxins and furans.

How is CCC different from traditional waste-to-energy plants?

Comparison with traditional technologies:

- **Landfills:** Produce methane and leachate
- **Incinerators:** Burn at over 850°C, generating CO₂ and toxic ash
- **Pyrolysis/Gasification:** 400-1200°C, produce syngas but sensitive to feedstock
- **CCC:** 260-360°C, modular, low emissions, multi-product output (fuels, hydrogen, electricity)

What are the main outputs of the CCC system?

- **SynCrude:** Liquid hydrocarbon, refinable to diesel/gasoline/kerosene
- **Electricity & Heat:** Via combined heat and power (CHP)
- **Hydrogen:** Via gas fractions or hybrid electrolyzers
- **SAF:** Sustainable Aviation Fuel
- **Inert Residues:** For construction uses

How much waste can one module process?

Each module handles 350-1,000 kg/hour (approximately 3,000-8,000 tonnes/year). Plants can be scaled with multiple modules to meet specific capacity requirements.

What is the energy output per tonne of waste?

TECHNOLOGY & PROCESS

Continued

How safe is CCC compared to incineration or pyrolysis?

CCC operates at low temperatures and without pressure, significantly reducing fire and explosion risks. No open combustion means reduced dioxin formation. Safety systems include continuous monitoring, automatic shutdown protocols, and sealed modular design for enhanced operational safety.

What type of waste can the system handle?

Accepted waste types:

- **Primary:** Municipal solid waste (MSW), plastics, biomass, packaging residues, medical wastes
- **Partial acceptance:** Textiles, rubber, composites (after preprocessing)
- **Excluded:** Hazardous wastes, batteries, radioactive materials

What is SynCrude, and how is it used?

SynCrude is a low-sulfur synthetic oil with approximately 32-36 MJ/kg calorific value. It can be:

- Used directly as industrial fuel
- Refined into diesel, gasoline, or kerosene
- Sold as chemical or plastics feedstock

Can CCC produce hydrogen at scale?

Yes. Hydrogen is recovered from SynCrude or gas fractions. Larger hydrogen projects utilize CCC electricity and gases combined with electrolyzers for increased production capacity.

How scalable is the system?

Modules are containerized and skid-mounted for flexible deployment:

- **Small towns:** 1-2 modules (10-20 tonnes/day)
- **Cities:** 10-20 modules (100-300 tonnes/day)
- **Industrial hubs:** Larger multi-module plants for high-volume processing

OPERATIONS & MAINTENANCE

What is the lead time for production and delivery?

- **Single module:** 6-9 months (manufacture, assembly, testing)
- **Multi-module plant:** 12-18 months including site preparation

Besides the CCC reactor, what additional equipment is required?

- **Pre-treatment line:** Shredders, dryers, separators
- **Energy conversion:** CHP engines or turbines
- **Fuel storage:** SynCrude tanks, pumps
- **Gas cleaning:** Scrubbers, filters
- **Utilities:** Power grid connection, cooling loop, compressed air, control systems

Is efficiency different for old landfill waste vs. fresh waste?

- **Fresh waste:** Higher calorific value, better yields
- **Landfill waste:** Degraded, wetter, more inert matter resulting in lower yields

OPERATIONS & ECONOMICS

Maintenance and Financial Information

Does site elevation affect performance?

The CCC reactor is not sensitive to altitude. However, CHP engines and turbines lose efficiency above 1,500-2,000 meters elevation. Cooling systems may also require adjustment for high-altitude installations.

What are the maintenance requirements?

- **Daily/Weekly:** Conveyor, pump, and emission monitoring checks
- **Quarterly:** Clean heat exchangers, inspect catalyst
- **Annual:** Replace or reactivate catalyst (12-18 months), calibrate controls
- **Lifecycle:** Modules last 15-20 years with proper servicing

How automated is the system?

- SCADA-based semi-automatic operation
- Remote monitoring capabilities
- Operators focus on feedstock handling and routine checks

ECONOMICS & FINANCE

What is the typical CAPEX?

Capital expenditure varies by configuration, location, and specific project requirements. Tesla-Evercraft provides customized quotations based on detailed feasibility studies and site assessments.

How fast is the return on investment (ROI)?

- **Projected ROI:** Under 3 years
- **IRR estimates:** 18-25% in favorable markets

What are the operating costs (OPEX)?

- **Labor:** 3-5 operators per shift
- **Energy:** 50-80 kWh/tonne
- **Catalyst:** Replacement every 12-18 months
- **Maintenance:** Conveyors, pumps, scrubbers
- **Other:** Waste preprocessing and compliance costs

How is SynCrude stored and transported?

- Stored in standard tanks; mild heating optional for flow optimization
- Transported by tanker trucks to refineries or industrial users
- Can be blended or pipelined into existing refinery systems

What financing models are available?

- **PPP:** Public-Private Partnership with municipalities
- **BOO:** Build-Own-Operate model for investors
- **Licensing:** Technology licensing for local operators
- **Green Finance:** EU, UN programs, and carbon credit financing

ENVIRONMENTAL & REGULATORY

Compliance and ESG Impact

How does CCC contribute to ESG goals?

- **Environmental:** Diverts waste from landfills, avoids methane emissions, replaces fossil fuels
- **Social:** Creates local jobs, improves public health by reducing open dumping
- **Governance:** Aligns with EU Green Deal, UN Sustainable Development Goals, ESG mandates

What happens to metals, glass, and inerts?

- **Metals:** Recovered and sold as scrap
- **Glass/Stone/Ceramics:** Reused as construction aggregates
- **Residual Ash:** Inert material, usable in road base or concrete production

What is the environmental monitoring setup?

Plants include continuous monitoring systems for CO₂, CO, NO_x, SO₂, particulates, and VOCs. Comprehensive reports are provided to regulators for compliance verification and ongoing environmental management.

What certifications and regulations apply?

- **Permits:** Construction, environmental impact, air emissions, waste treatment license
- **Safety:** CE/UL compliance, ATEX certification
- **ISO Standards:** 14001 (environmental management), 50001 (energy management)
- **Carbon Credits:** Eligible under VCS (Verified Carbon Standard) or EU ETS (Emissions Trading System)

MARKET & APPLICATIONS

Who are typical clients or off-takers?

- Municipalities seeking alternatives to landfills
- Industrial parks requiring self-sufficient energy solutions
- Refineries and traders purchasing SynCrude
- Hydrogen buyers in transportation and industrial sectors

Can existing landfills be mined for CCC?

Yes, landfill mining is possible but requires extensive sorting and drying processes. It can reclaim valuable land and generate fuel, though yields are lower than fresh waste due to material degradation.

Can CCC integrate with renewables?

Yes. CCC provides baseload power to complement intermittent solar and wind generation, can supply hydrogen or SynCrude as energy storage, and helps stabilize microgrids for improved energy resilience.

CARBON CREDITS & CLIMATE IMPACT

Revenue Opportunities and Environmental Benefits

How does CCC generate carbon credits?

CCC prevents methane emissions from landfills (25-30 times stronger than CO₂ in climate impact) and displaces fossil fuel use by producing SynCrude and electricity. These avoided emissions can be certified under carbon markets such as Verified Carbon Standard (VCS) or EU Emissions Trading System (ETS).

How many carbon credits can a CCC module produce annually?

Carbon Credit Generation Estimates:

- **Landfill Diversion:** Avoiding approximately 1 tonne of waste landfilled can save 0.6-1.0 tCO₂e
- **Energy Displacement:** 1 MWh equals approximately 0.4-0.6 tCO₂e avoided
- **Mid-Size Plant:** Processing 5,000-8,000 tonnes/year could generate 10,000-20,000 carbon credits per year

Are carbon credit revenues significant for ROI?

Yes. At €20-50 per tonne CO₂e, a plant generating 20,000 credits could add **€400,000 to €1 million per year** in additional revenue.

What certification and verification processes are required?

- Third-party baseline studies to establish avoided emissions
- Accredited monitoring of waste input, energy output, and emissions
- Registration with approved carbon registry (VERRA, Gold Standard, or EU ETS)
- Annual verification by accredited auditors

Can carbon credits be combined with renewable energy incentives?

- **Carbon Credits:** For avoided landfill and fossil emissions
- **Renewable Energy Certificates (RECs):** For green electricity generation
- **Government Subsidies:** Tax breaks under green transition programs

Financial Impact Summary

Revenue Stream	Annual Potential
Urea Sales	€1.5M-2.8M
SynCrude Sales	€1.6M-3.7M
Electricity Sales	€1.2M- 5.8M
Carbon Credits	€400K-1.2 M
Total Revenue	€ 4.7M-13.5M

**Based on mid-size facility (5,000-8,000 tonnes/year).*

CONTACT & NEXT STEPS

Get Started with Tesla-Evercraft CCC

Transform Waste Into Value

Tesla-Evercraft's Cold Catalytic Conversion technology offers a proven solution for sustainable waste management with exceptional economic returns.



HOW TO PROCEED

1

Initial Inquiry
Contact our team

2

Feasibility Study
Site assessment

3

Proposal
Technical & financial

4

Implementation
Build & commission

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