

CLEAN CARBON · COAL TO MATERIALS

From raw coal to clean carbon.

One proprietary low-temperature process converts run-of-mine coal into solid industrial carbon, fuel oil, and process gas, before combustion, with the carbon sold as a material instead of burned.

THE OPPORTUNITY

Security of supply on one side. Carbon demand on the other.

Burning raw coal destroys everything of value in it. The carbon that gives coal its energy is also a strategic industrial material, and once it is combusted, that value is gone for good.

Demand for industrial carbon keeps climbing across concrete, steel, agriculture, and energy storage. Conventional carbon-black pricing keeps many of these uses as research only.

TiPs converts coal into a solid carbon material at a modeled \$0.10/lb, far below market. Cheap carbon makes whole new markets economically viable.

\$0.10/lb

Modeled carbon selling price, far below the \$0.50 to \$1.90/lb carbon-black market.

~4B

Tons of cement produced each year, a vast market for affordable bulk carbon.

190M

Tons of fertilizer applied each year. Carbon helps soil hold water and nutrients.

440K

Tons of industrial carbon produced each year from a single six-unit line.

The gap between the carbon coal contains and what the market pays for it is the opportunity.

ONE PROCESS, THREE PRODUCT FAMILIES

Carbon

Solid industrial carbon for advanced concrete, metallurgical carbon for steel, and soil enrichment.

Fuel oil & diluent

High-aromatic industrial oil with established offtake, from heating to marine fuel to refining.

Process gas

Captured during processing and used to power the plant. Closed loop, zero external fuel.

One process. Every carbon feedstock.

The Thermal-static internal Pyrophinic system (TiPs) is a sealed, low-temperature, vacuum-driven thermal mechanical depolymerization process. Instead of burning the coal, it converts it into carbon, fuel oil, and process gas before combustion.

Feedstock

Crushed run-of-mine coal



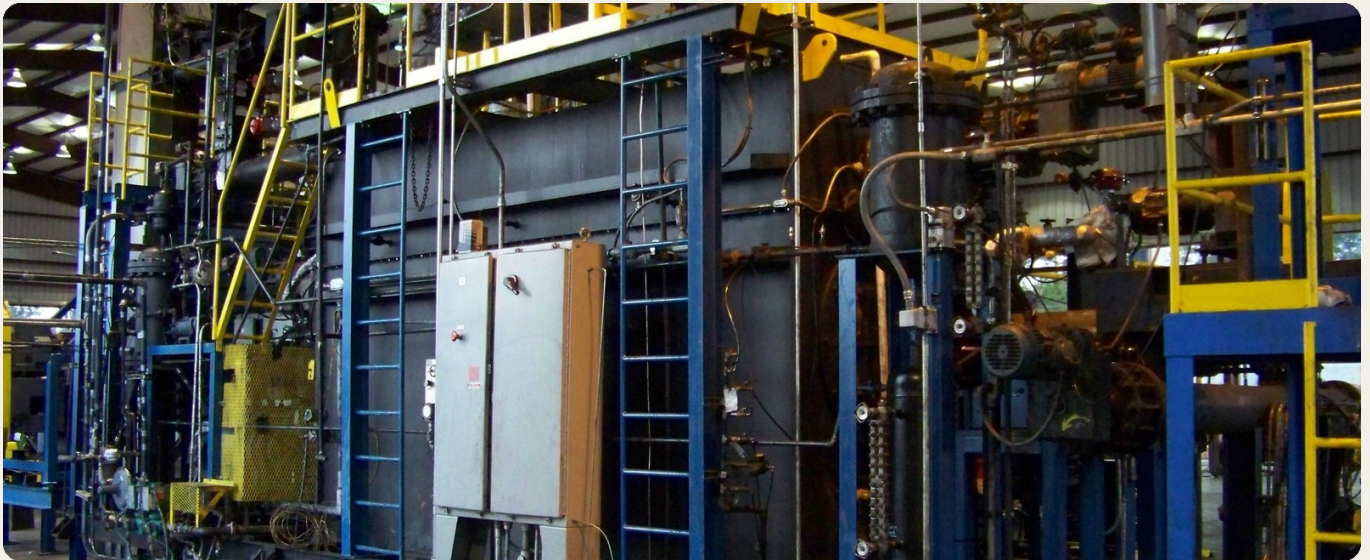
TiPs processing

Sealed low-temperature depolymerization under vacuum.



Outputs

Industrial carbon, coal-fuel-oil, process gas, and mineral ash



TiPs processing unit

10,000+

Hours operated at full scale across feedstocks: tires, coal, oil sands. TRL 8.

24/7

Continuous feed operation, self-powered after a one-time grid startup.

100%

Of every ton of feedstock becomes product, recovered water, or sold residue.

Zero

Waste streams. Every fraction is sold or used in the process.

From raw coal to clean carbon.



Burning raw coal burns everything in it. TiPs separates the value before combustion. Carbon comes out as a solid industrial material at a modeled \$0.10/lb, well below carbon-black pricing.

Mineral ash stays entrained in the carbon for concrete and agriculture, with cyclone separation available for higher-grade buyers such as steel. The model is built on the carbon composition, not a single location.

OFFTAKE USE CASES

Industrial carbon

Advanced concrete and insulation, metallurgical carbon for steel, soil enrichment, activated carbon.

Coal-fuel-oil

Industrial heating, marine and bunker fuel, refining feedstock and blending.

6

TiPs processors on one mine-mouth line, minimal feedstock transport.

880K

Tons of raw coal processed each year into carbon, fuel oil, and gas.

\$0.10/lb

Modeled carbon selling price, well below market pricing.

57.6%

Project IRR. First revenue Year 2, payback end of Year 3.

Outputs: industrial carbon, 1.63M barrels of coal-fuel-oil per year, mineral ash to cement, and closed-loop process gas that powers the plant.

THE PRODUCTS

Three commodity-grade revenue streams.

Every TiPs output is a commercial-grade product, not a downgraded byproduct. Carbon is sold as a material into concrete, steel, and agriculture, with fuel oil and process gas alongside it. The model is built on product value.

WHAT A TON OF COAL BECOMES



Product split per ton of coal. The exact assay varies by seam; each project is built on the actual feedstock.

Carbon

Solid industrial carbon at a modeled \$0.10/lb, well below carbon-black pricing.

Markets & uses

- Advanced concrete
- Metallurgical carbon for steel
- Soil enrichment and agriculture
- Activated carbon

Fuel oil & diluent

High-aromatic industrial oil with established offtake markets across multiple sectors.

Markets & uses

- Industrial heating
- Marine and bunker fuel
- Refining feedstock
- Diluent blending

Process gas

Non-condensable gas captured during processing. It powers the plant and upstream drying.

Markets & uses

- Powers the plant
- Runs feedstock drying
- Closed loop after startup
- Zero external fuel

Cheap carbon makes uses like advanced concrete economically viable that conventional pricing kept as research only.

How TiPs compares.

Coal has an incumbent route: combustion. TiPs replaces it with material recovery before any carbon is burned.

	TiPs	Pyrolysis	Raw coal combustion	Raw coal + bolt-on CCS
Process	Sealed, low-temperature thermal mechanical depolymerization under vacuum.	High-temperature thermochemical cracking, 400 to 800C.	Raw coal burned directly in a boiler, 850C and above.	Raw coal combustion with CO2 capture bolted on.
Products	Carbon, fuel oil, process gas, mineral ash.	Fuel oil, low-grade char, syngas.	Heat and power, with fly ash and bottom ash.	Power, plus captured CO2 at high cost.
Material value	Preserved and sold into product markets.	Partially destroyed, lower-value byproducts.	Destroyed in combustion.	Destroyed in combustion.
Environmental	Zero waste streams, no combustion in the process.	Energy-intensive, higher emissions.	Fly ash, NOx, SOx, and particulate emissions.	Regulated pollutants remain, capture is costly.
Deployment	Modular, distributed, on-site at the mine.	Large centralized plants.	Large centralized plants.	Large capture plant per facility.

880K t/yr

Coal processed on one mine-mouth line across six TiPs units.

TRL 8

Technology readiness proven across 10,000+ hours of full-scale operation.

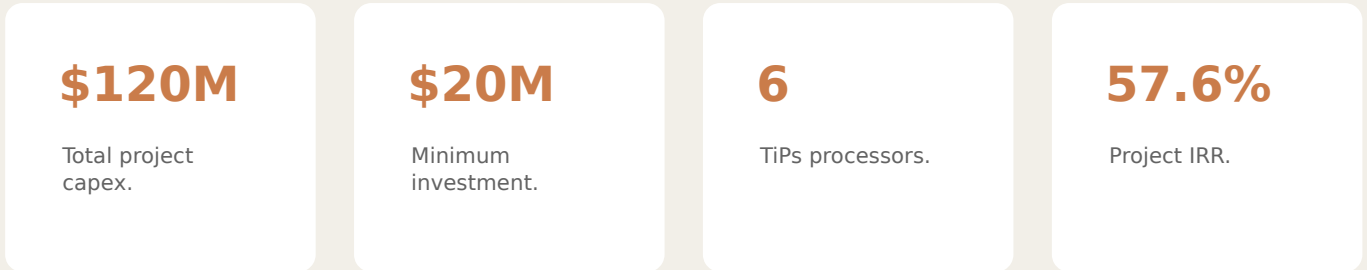
Modular

Units are added as feedstock and demand grow. No giant central plant required.

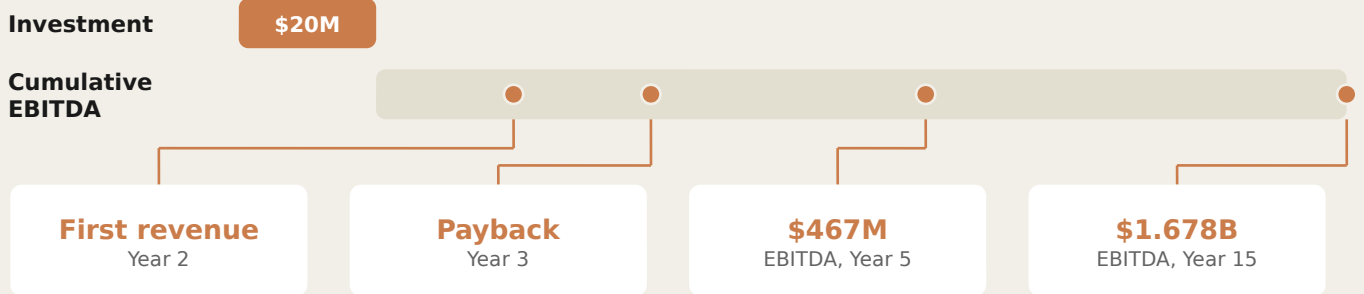
THE ECONOMICS

The project economics.

A simpler financial vehicle: no power plant. Carbon is sold as a material. The project is financed against a 3x collateralized investment with the balance mobilized through the SENS and ISCM structure.



PROJECT TIMELINE



Project at a glance	Coal · Clean carbon
Location	Mine-mouth · T.B.D.
Annual feedstock	880,000 tons coal
Key outputs	Industrial carbon, 1.63M bbl coal-fuel-oil, mineral ash
Collateralization	3x

Indicative figures, subject to business case validation, country profile, and feedstock profile. Carbon credits are not included in the base case.

Every project is built on product value from day one. Subsidies, credits, and premiums are upside, never the base case.

PARTNER WITH US

Build this in your region.

SENS delivers clean carbon solutions at scale. Whether you represent a mining operator, a government, a materials buyer, or an investment fund, we invite you to explore what TiPs can do with coal in your region.

SENS

Technology, project development, and delivery of TiPs facilities worldwide.

ISCM Foundation

20+ years of governance oversight and research integrity from Brussels.

ISCM Investments

The Foundation's dedicated fundraising and investment governance arm, mobilizing private and institutional capital.

THE TEAM



David Meunier

Co-CEO



Lyle Ewanchuk

Co-CEO



Thomas Andres

COO



systemicenvs.com



ISCMfoundation.org

Systemic Environmental Solutions is an initiative of the ISCM Foundation.

© 2026 Systemic Environmental Solutions. All rights reserved.