

CLEAN CARBON TO POWER · 400 MW

# Clean carbon to power: a 400 MW project.

One proprietary low-temperature process runs in front of the boiler, returning clean power, exportable fuel oil, and recovered carbon from coal that would otherwise be burned raw.

THE OPPORTUNITY

# Power demand on one side. Dirty coal on the other.

Power demand is surging, from data centres and AI to smelting and developing-world growth. India, China, and Africa are scaling coal regardless of Western policy preferences.

Existing coal plants face stranded-asset risk. Bolt-on carbon capture is too expensive, retiring coal creates power gaps, and building new clean generation takes too long.

TiPs converts dirty coal into clean carbon power using existing infrastructure. It is a 30 to 40 year bridge for nations that cannot yet afford nuclear or a full renewables transition.

**400 MW**

Clean-carbon power built on a single processed-coal line.

**~2.94M**

Tons of coal processed each year across 20 TiPs reactors.

**20**

TiPs reactors processing coal in front of the power block.

**Zero**

Fly ash. Volatiles are removed before the carbon is combusted.

**TiPs shifts coal combustion to a cleaner, capture-ready form using infrastructure that already exists.**

ONE PROCESS, THREE PRODUCT FAMILIES

**Power**

400 MW of clean-carbon baseload, sold to utilities under a long-term power purchase agreement.

**Fuel oil & diluent**

Exportable high-aromatic oil, budgeted at \$4/gallon as an industrial fuel grade.

**Carbon & ash**

Bottom ash sold into cement; recovered carbon as a materials upside for offtake partners.

# One process. Every carbon feedstock.

The Thermal-static internal Pyrophinic system (TiPs) is a sealed, low-temperature, vacuum-driven process. It runs in front of the boiler, separating the volatiles as exportable fuel oil before the cleaned carbon is burned for power.

## Feedstock

Crushed run-of-mine coal



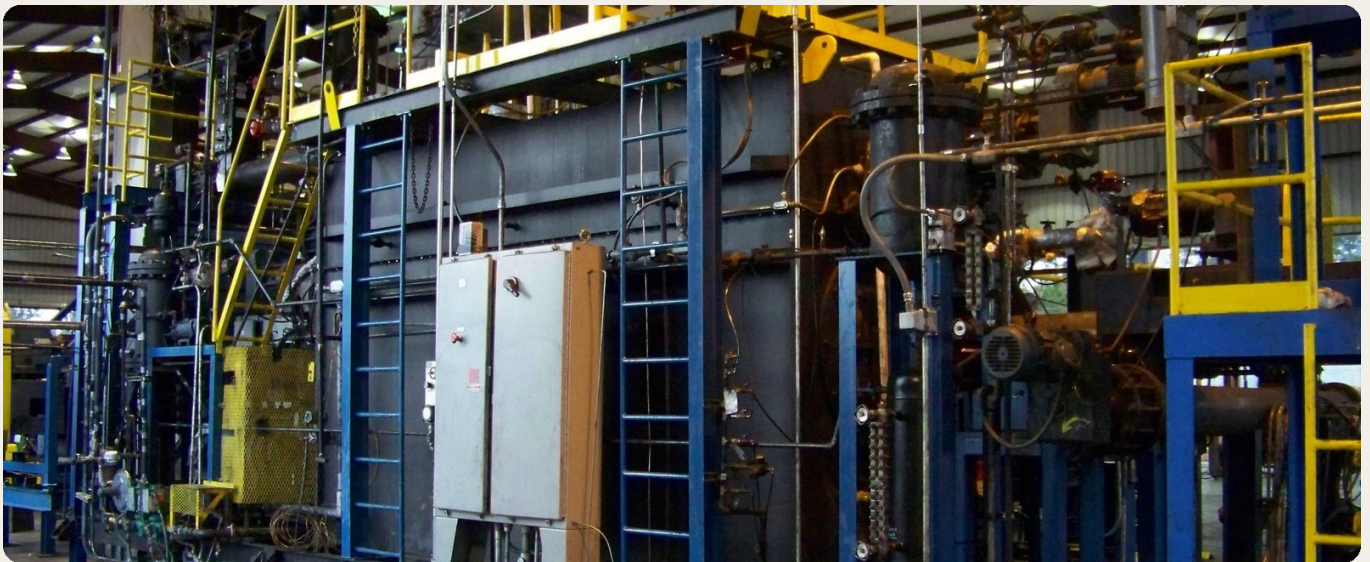
## TiPs processing

Sealed low-temperature depolymerization under vacuum.



## Outputs

Power, exportable fuel oil, recovered carbon, and bottom 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.

**33%**

Conservative plant efficiency on the processed-coal power block.

**Zero**

Parasitic load on the power block at steady state. Closed process loop.

# Clean carbon to power: a 400 MW project.



For power markets, TiPs runs in front of the boiler, not instead of it. Coal that would have been burned raw is processed first. The volatiles leave as exportable fuel oil; the cleaned carbon burns for power.

About 2.94 million tons of coal feed one 400 MW clean-carbon line each year, mine-mouth, with minimal feedstock transport. Carbon credits and carbon sales sit outside the base case as upside.

## IMPACT ON EMISSIONS

### Cleaner combustion

Volatile hydrocarbons leave as fuel oil instead of burning in the boiler. No fly ash; bottom ash is sold into cement rather than ponded.

### Capture-ready

Heavy metals are captured in processing, not emitted from the stack. Flue gas is left capture-ready, cutting the cost of CO<sub>2</sub> capture where projects add it.

**400 MW**

Clean-carbon power from one processed-coal line.

**20**

TiPs reactors processing 2.94M tons of coal a year.

**45%**

Project IRR at Year 15. First revenue Year 3, payback end of Year 4.

**3x**

Collateralization on the investment at commercial scale.

*Outputs: 400 MW of power, exportable fuel oil, recovered carbon, and bottom ash sold into cement. Carbon sales are upside only; the base case is power and fuel oil.*

THE PRODUCTS

# Power and products from one line.

The base case is power and exportable fuel oil. Coal is processed before combustion, so its carbon burns cleaner and its volatiles leave as a saleable oil. Carbon and ash sales are upside for materials offtake partners.

WHAT A TON OF COAL BECOMES



Product split per ton of coal. The carbon is burned for clean power; fuel oil is exported. Fractions vary with the seam and the actual feedstock assay.

<p><b>Power</b></p> <p>400 MW of clean-carbon baseload from processed coal, sold under a long-term PPA.</p> <p><b>Markets &amp; uses</b></p> <ul style="list-style-type: none"> <li>Utility baseload</li> <li>Grid stability</li> <li>Industrial offtake</li> <li>Mine-mouth supply</li> </ul>	<p><b>Fuel oil &amp; diluent</b></p> <p>Exportable high-aromatic oil, budgeted at \$4/gallon as an industrial fuel grade.</p> <p><b>Markets &amp; uses</b></p> <ul style="list-style-type: none"> <li>Industrial heating</li> <li>Marine and bunker fuel</li> <li>Refining feedstock</li> <li>Diluent blending</li> </ul>	<p><b>Carbon &amp; minerals</b></p> <p>Bottom ash sold into cement now; recovered carbon as a materials upside for offtake partners.</p> <p><b>Markets &amp; uses</b></p> <ul style="list-style-type: none"> <li>Bottom ash to cement</li> <li>Carbon to concrete (upside)</li> <li>Metallurgical carbon (upside)</li> <li>Carbon credits (upside)</li> </ul>
--	---	---

**The base case is built on power and fuel oil. Carbon, ash, and credits are upside, never the base case.**

# How TiPs compares.

A coal power plant has an incumbent route: burn the coal raw. TiPs replaces it with a cleaner, capture-ready combustion that recovers value first.

	TiPs	Pyrolysis	Raw coal combustion	Raw coal + bolt-on CCS
<b>Process</b>	Sealed, low-temperature processing in front of the boiler.	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.
<b>Products</b>	Power, fuel oil, recovered carbon, bottom ash.	Fuel oil, low-grade char, syngas.	Heat and power, with fly ash and bottom ash.	Power, plus captured CO2 at high cost.
<b>Material value</b>	Volatiles exported as oil; carbon burned cleaner.	Partially destroyed, lower-value byproducts.	Destroyed in combustion.	Destroyed in combustion.
<b>Environmental</b>	No fly ash, capture-ready flue gas, lower NOx and SOx.	Energy-intensive, higher emissions.	Fly ash, NOx, SOx, and particulate emissions.	Regulated pollutants remain, capture is costly.
<b>Deployment</b>	Modular, mine-mouth, on existing infrastructure.	Large centralized plants.	Large centralized plants.	Large capture plant per facility.

## 400 MW

Clean-carbon power from a single processed-coal line.

## TRL 8

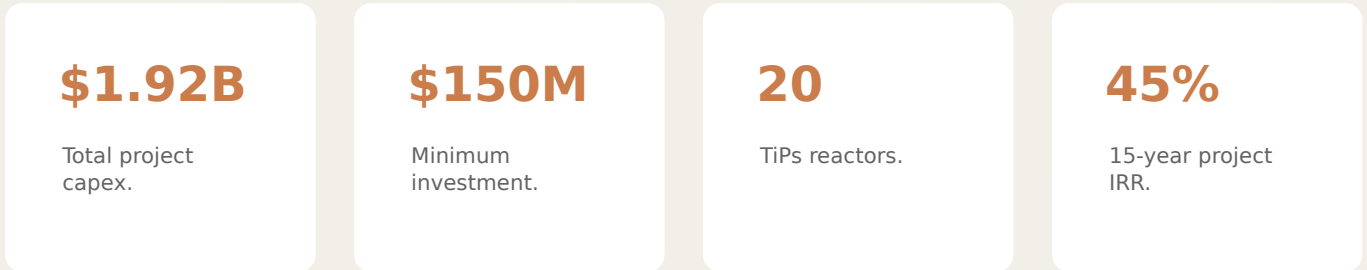
Technology readiness proven across 10,000+ hours of full-scale operation.

## Modular

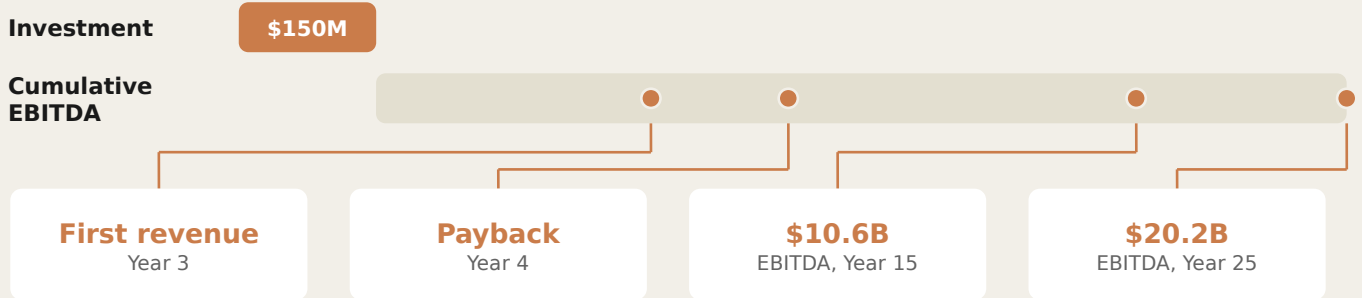
Reactors are added as the project scales. Existing infrastructure is preserved.

# The project economics.

The base case is power and fuel oil, not subsidies. 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 · 400 MW power
<b>Location</b>	Mine-mouth (Africa; candidate Tanzania, South Africa)
<b>Annual feedstock</b>	~2.94M tons coal
<b>Key outputs</b>	400 MW power, exportable fuel oil, recovered carbon, bottom ash
<b>Collateralization</b>	3x

*Indicative figures, subject to business case validation and country profile. Carbon credits and carbon sales are upside only; the base case is power and fuel oil at \$4/gallon.*

**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 power at scale. Whether you represent a utility, a mining operator, a host-country government, or a project finance 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](https://systemicenvs.com)



[ISCMfoundation.org](https://ISCMfoundation.org)

Systemic Environmental Solutions is an initiative of the ISCM Foundation.

© 2026 Systemic Environmental Solutions. All rights reserved.