

A Deterministic CO₂-to-CO Conversion Platform for Reliable and Auditable Carbon Utilization



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Technology Transfer Brief

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- 2 Technology Overview
- 3 Key Features & Advantages
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01 CO₂ Reduction Is a Reliability & Verification Problem



① EU CBAM Enforcement

- **Mandatory Reporting:** Requirement of emission data for market entry.
- **Trade Barrier:** Risk of export blockages due to data verification failure.



② ISSB/SEC Disclosures

- **Valuation Impact:** Carbon footprint as a critical corporate value metric.
- **Investment Risk:** Potential divestment driven by opaque reduction data.

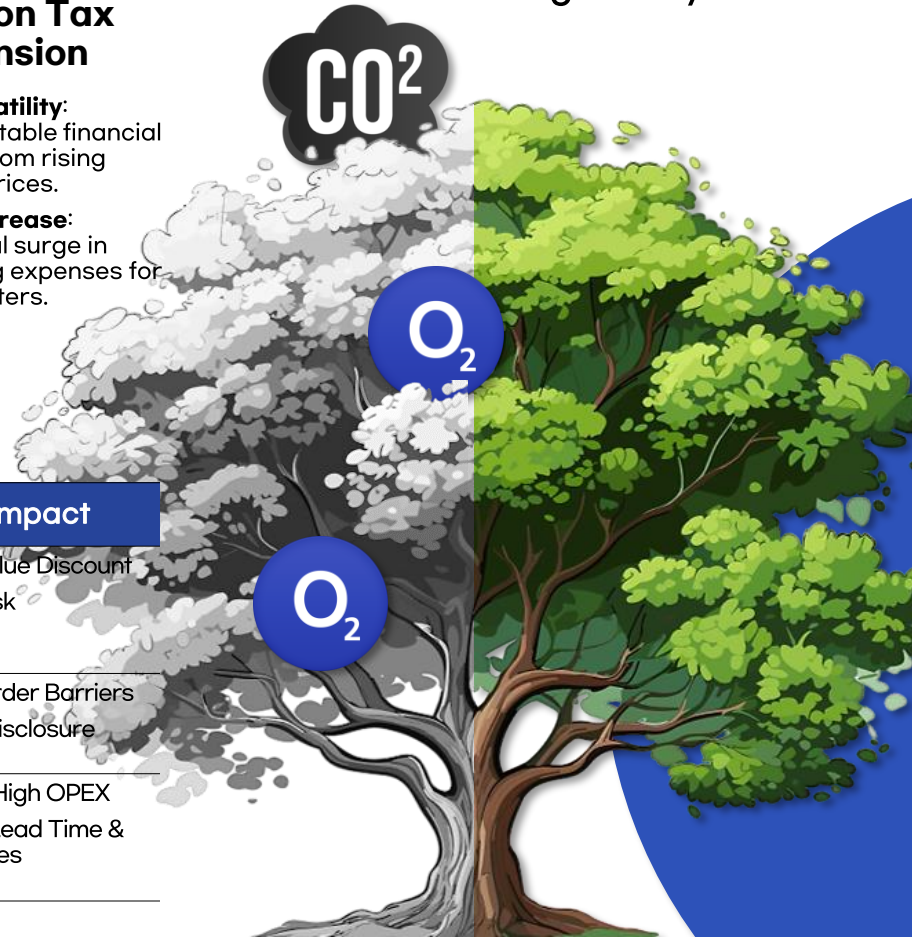


③ Carbon Tax Expansion

- **Cost Volatility:** Unpredictable financial burden from rising carbon prices.
- **OpEx Increase:** Structural surge in operating expenses for high emitters.

- ✓ Carbon management has evolved from voluntary CSR into a critical **financial risk** driven by global regulations.
- ✓ **Problems** : Nature-based and indirect methods face regulatory limits due to **MRV data uncertainty**.

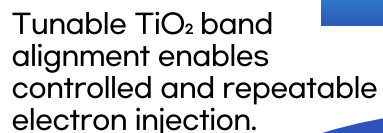
Category	Core Limitation	Business Impact
Measurement	<ul style="list-style-type: none"> • Estimation-based Indirect Data • Dependency on Activity Indices & External Variables 	<ul style="list-style-type: none"> • Carbon Credit Value Discount • Greenwashing Risk
Reporting	<ul style="list-style-type: none"> • Delayed & Discrete Reporting • Process Changes & Accidents 	<ul style="list-style-type: none"> • Compliance & Border Barriers • Carbon Liability Disclosure Violation
Verification	<ul style="list-style-type: none"> • High-Cost Third-Party Subjectivity • Inconsistency in Audits & Document Criteria 	<ul style="list-style-type: none"> • Asset Illiquidity & High OPEX • Extended Credit Lead Time & Recurring Expenses



Reliable Carbon-to-Asset Platform

- 
Deterministic MRV Verification
 - Direct Stoichiometric Measurement
 - Real-time Regulatory Compliance
- 
Revenue-Generating Carbon Asset
 - High-Value Chemical Production
 - Premium Carbon Credit Generation

TiO₂ CB



TiO₂ flat-band potential is tunable by solvent/additives, enabling optimized energetic alignment for PS → TiO₂ → catalyst electron transfer.

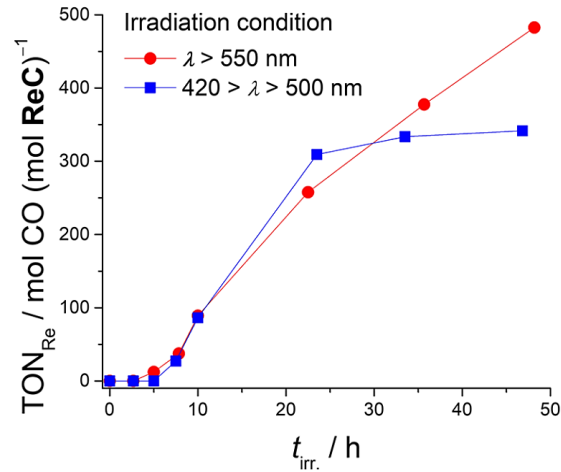
TiO₂ fixes the catalyst in an isolated state, enforcing a single, stable CO₂ reduction pathway.

- ✓ **A Chemically Deterministic Platform for Direct CO₂-to-CO Conversion.**
- ✓ **Electron Flow and Reaction Pathways Are Explicitly Engineered.**



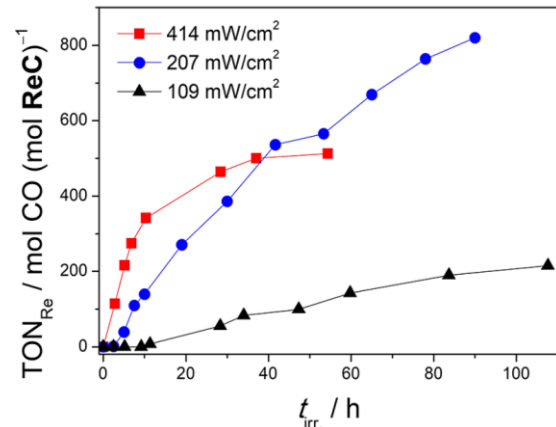
03 Key Features & Advantages

① Stable CO Production



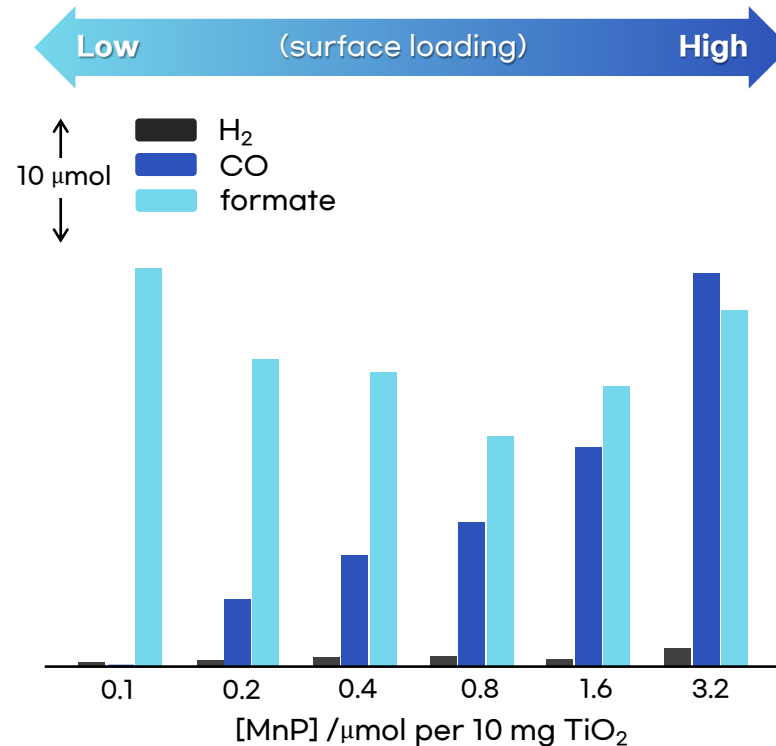
- CO production remains **stable over time** under optimized irradiation wavelengths.
- Enables **long-term operation** through light-spectrum control.

② Tunable CO Productivity



- CO productivity **scales** with light intensity within an optimal operating window.
- Maximizes output while minimizing energy-driven degradation.

- ✓ **Stable and tunable CO₂ conversion enables reliable long-term carbon utilization.**
- ✓ **Programmable carbon outputs unlock scalable carbon-to-asset applications.**



- **Product selectivity shifts** from formate to CO with increasing surface loading.
- Carbon outputs are programmable within a single platform.

① Feature



- Stable CO Production
- Tunable Carbon Outputs

Deterministic CO₂ conversion with stable operation and programmable product selectivity.

② Advantage

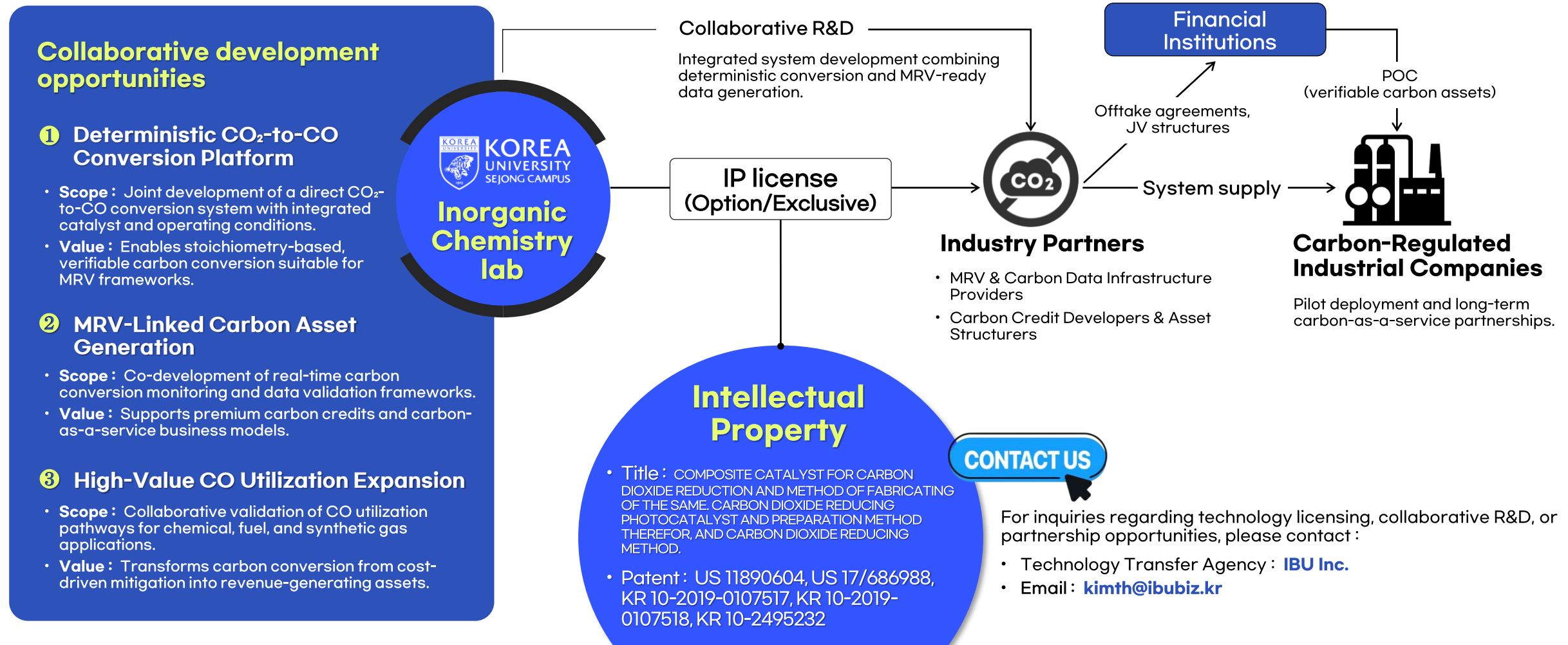


- Improved reliability
- Improved scalability

Audit-ready carbon conversion enabling long-term operation and flexible carbon-to-asset strategies.

04 Strategic Business Opportunities

- ✓ **Business Vision** : A deterministic **carbon conversion platform** enabling reliable, auditable, and asset-grade CO₂ utilization.
- ✓ **Engagement Model** : Open to technology licensing, pilot-scale co-development, and joint MRV-linked carbon asset projects.



Partnering to **unlock new business opportunities** through innovation.

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