

Svante

Technology Scale-up & Commercialization Pathway

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U.S. – Norway Bilateral Meeting on CCUS
Washington DC, USA, November 1, 2023

Benefits of Solid Sorbents

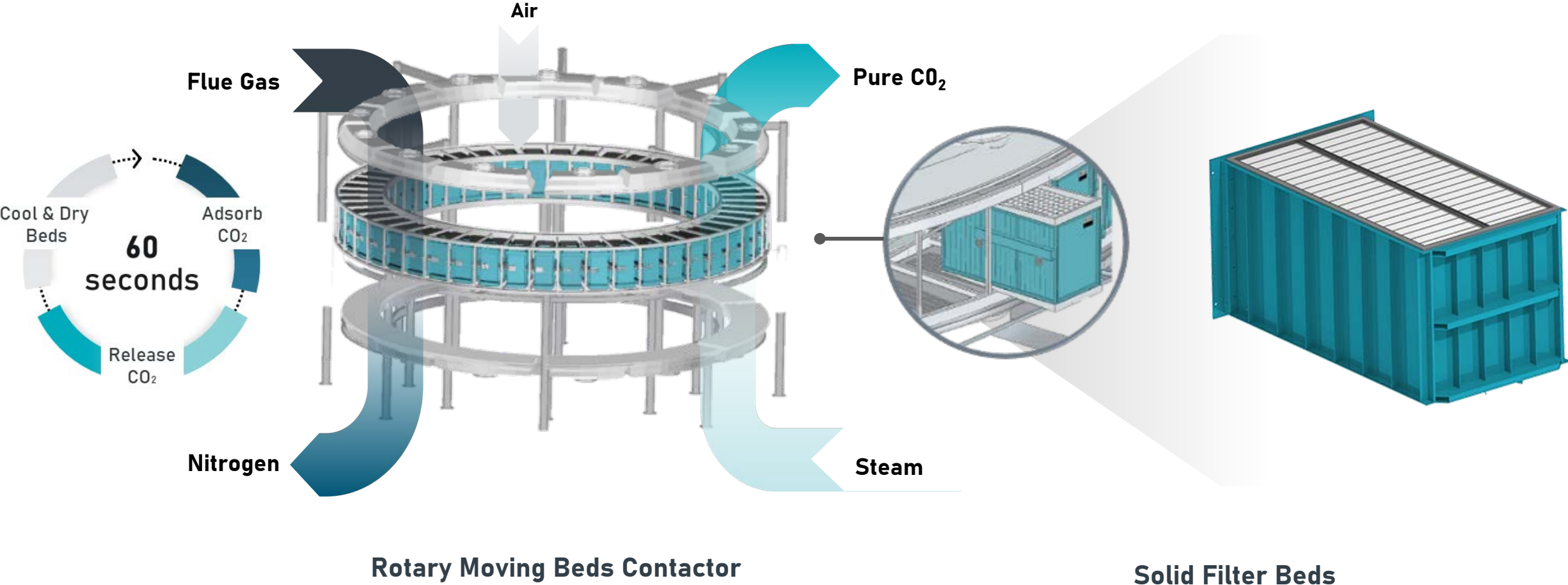
Metal Organic Frameworks (MOFs) are a step change for the carbon capture industry for several reasons

- ✓ Energy efficient
- ✓ Resistant to SO_x, NO_x, O₂ & H₂O in flue gas
- ✓ No toxic fugitive emissions
- ✓ Sustainable recyclable materials
- ✓ High selectivity over water
- ✓ Captures 90% of total CO₂ emitted
- ✓ Ability to deal with variable flue gas flow rate
- ✓ High CO₂ capacity means smaller inventory of adsorbent required



Solid Sorbent Carbon Capture Technology

Svante CO₂ Capture System (Exploded View)

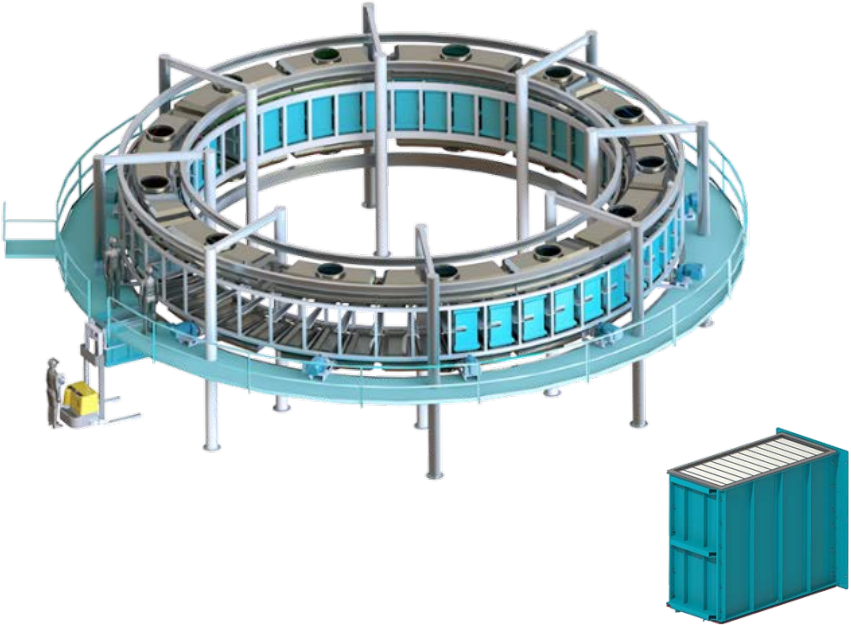


Rotary Moving Bed Contactors with Filters Inside

Ursa 1000

~500 TPD / ~182,500 TPA

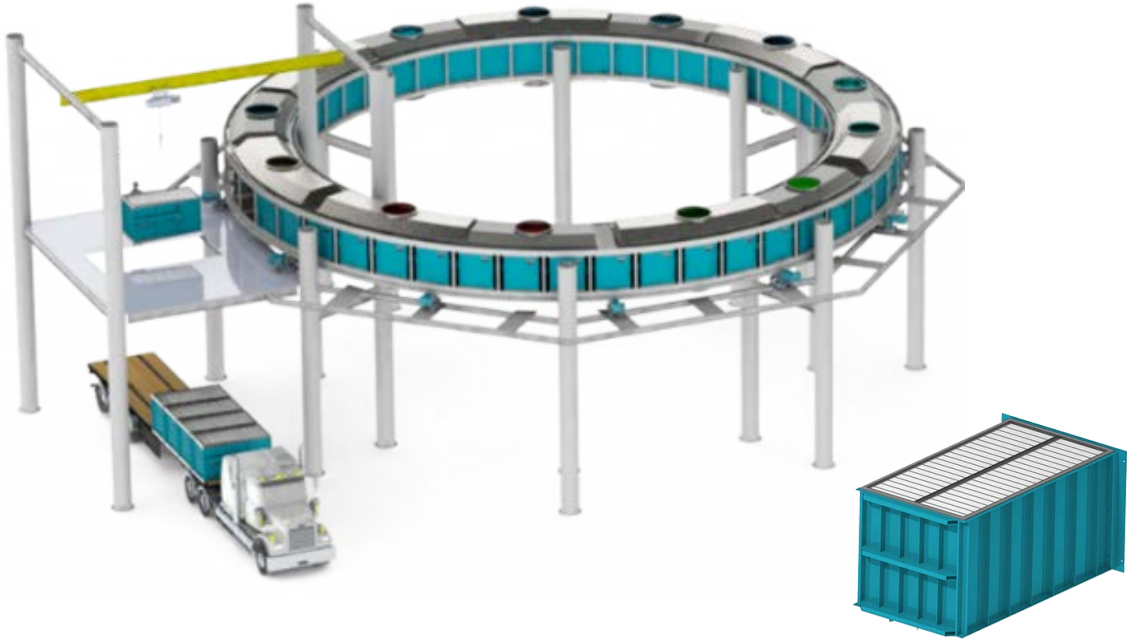
Volume of filter: 42 m³ / 14 m OD



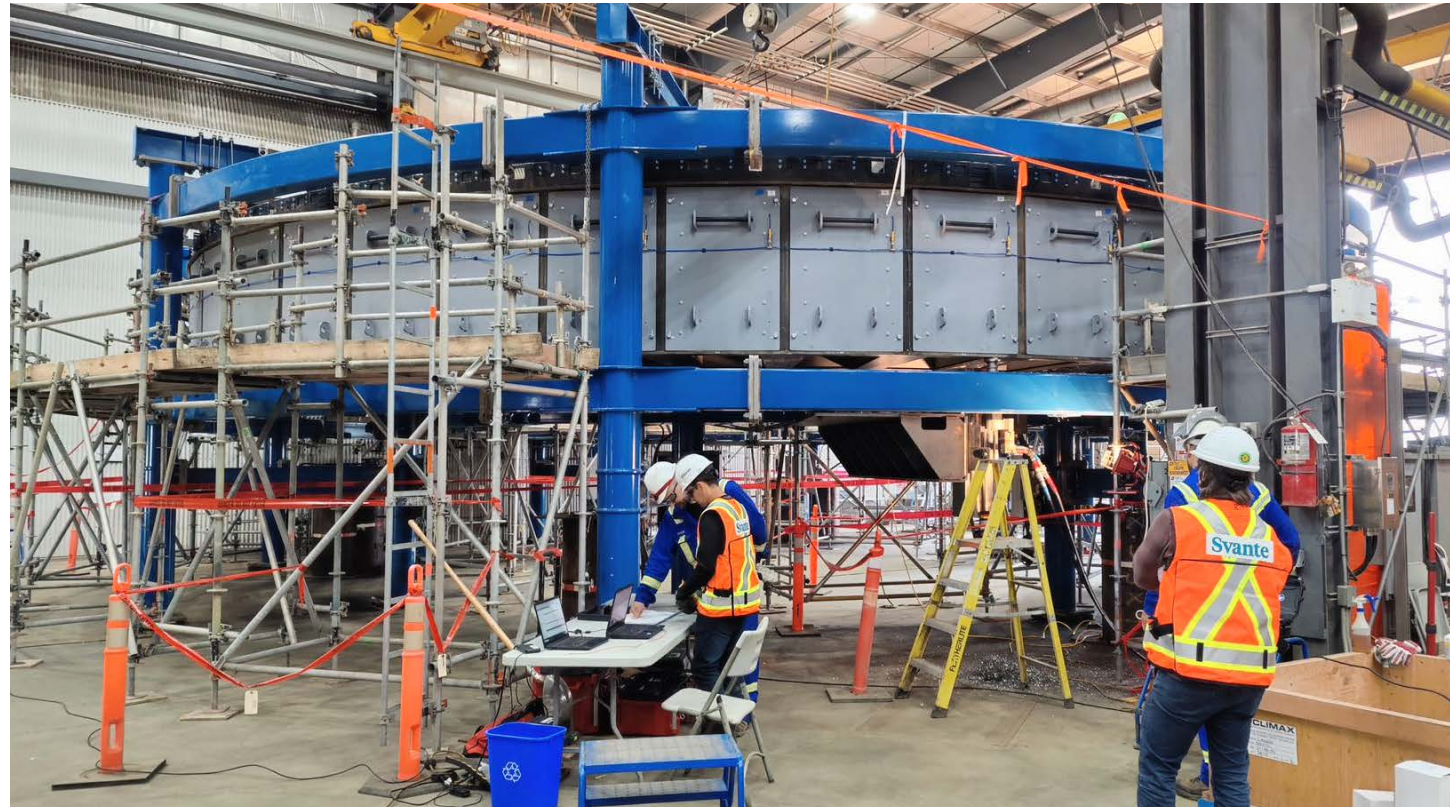
Ursa 2000

~2,000 TPD / ~730,000 TPA

Volume of filter: 145 m³ / 24 m OD

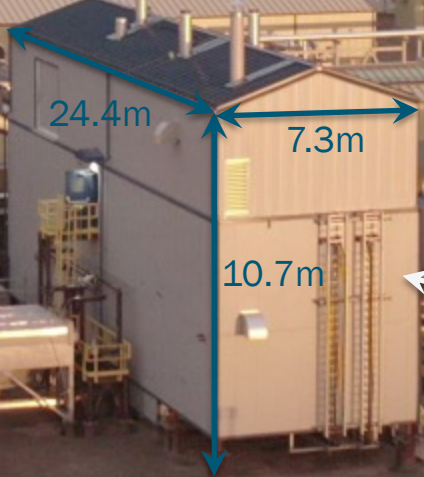


Building 14m Commercial Size “Buck” in Q1-2023



Cenovus Pilot Plant in Saskatchewan, Canada

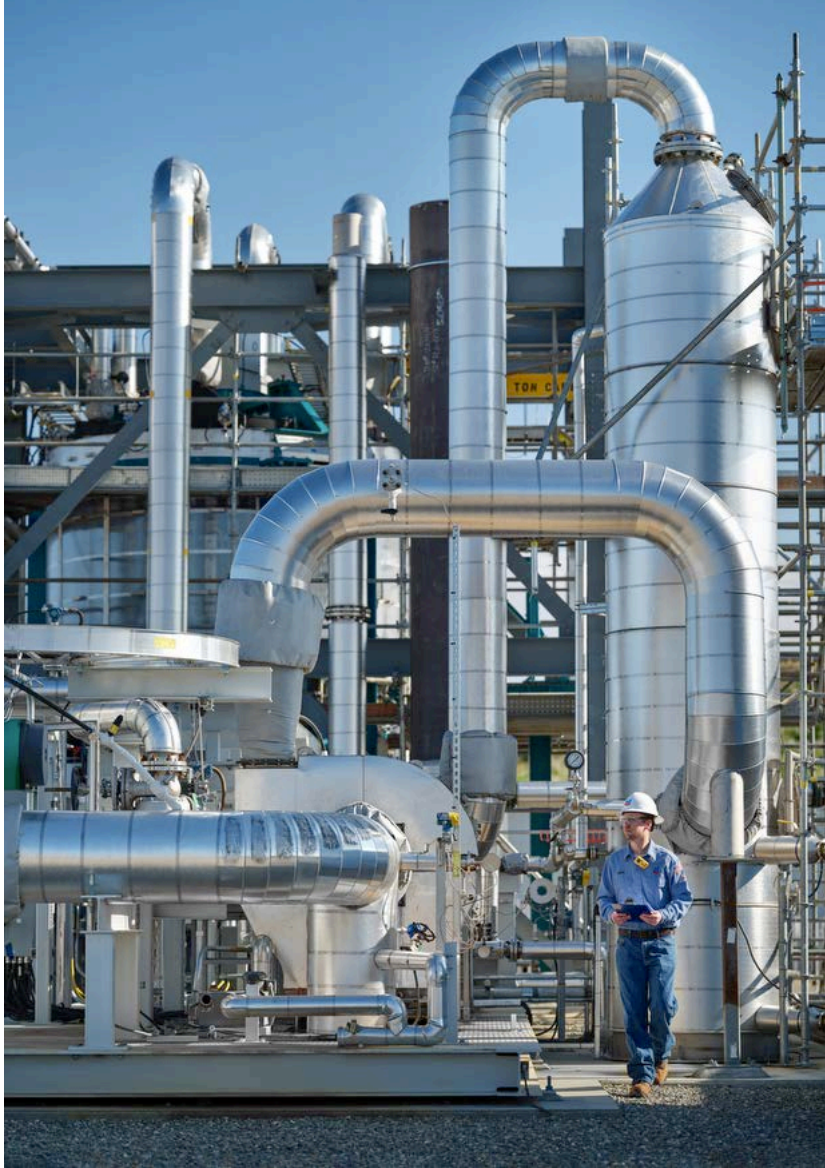
Conventional
Liquid amine
Carbon Capture
Plant








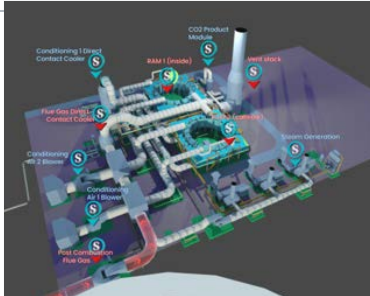
Svante's Carbon
Capture Plant



Chevron Pilot Plant in Bakersfield, CA



Product Development & Commercial Scale-Up





Phase	Process Demonstration Unit 100 Series	Pilot Plant Cement Kiln Flue Gas 200 Series	FOAK Plant 400 Series	SOAK Plant 400 Series	Full Scale Machine Design Validation 1000 Series	1 st Commercial Capture Plant 2000 Series
Plant Scale						
Location	Svante BC, Canada	Lafarge BC, Canada	Cenovus SK, Canada	Chevron CA, USA	Svante BC, Canada	Svante US Location
Years	2017	2018 - 2015	2019 - 2024	2023 - 2025	2023 - 2024	2026 - 2027
CO ₂ Capacity	0.1 TPD	1 TPD	30 TPD	25 TPD	~500 TPD	~4000 TPD (2 x 2000 TPD RAMs on site)

Minimum Viable Product Phase

Product-Market Fit

MOF Sorbent Development & Commercial Scale-Up

Metal Organic Frameworks - MOF

Phase	Laboratory	Bench Scale	Pilot Plant	Commercial Scale
Plant Scale				
Location	Svante BC, Canada	Svante BC, Canada	BASF Ludwigshafen, Germany	BASF NC, USA
Years	2016 - 2019	2019 - 2020	2021 - 2022	2023 +
Batch Size	10 g	5 kg	Up to 500 kg	2500 kg
Annual Capacity	5 kg	250 kg	10 tonnes	500 up to 3000 tonnes
Minimum Viable Product Phase				Product-Market Fit



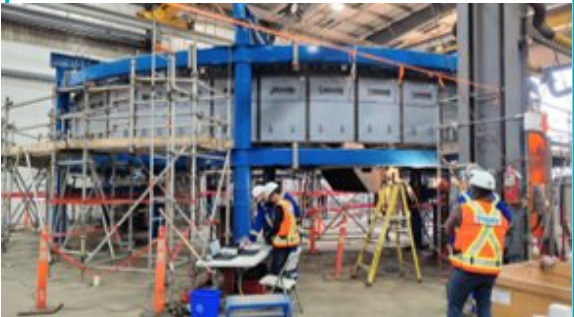


Filter Bed Development & Commercial Scale-Up

Phase	Laboratory Development	Pilot Manufacturing	Commercial Manufacturing	Gigatonne Factory
Structured Adsorbent Bed Size				
Location	Burnaby, BC, Canada	Burnaby, BC, Canada	Burnaby, BC, Canada	US Location TBA
Years	2009 - 2019	2019 - 2024	2025 - 2030	2028 +
CO ₂ Capacity	40 TPA	30,000 TPA	10 MM TPA	100 MM TPA

Minimum Viable Product Phase

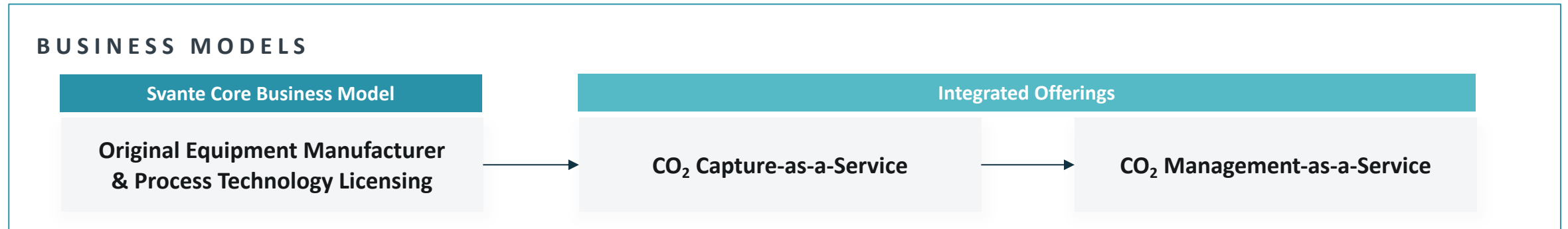
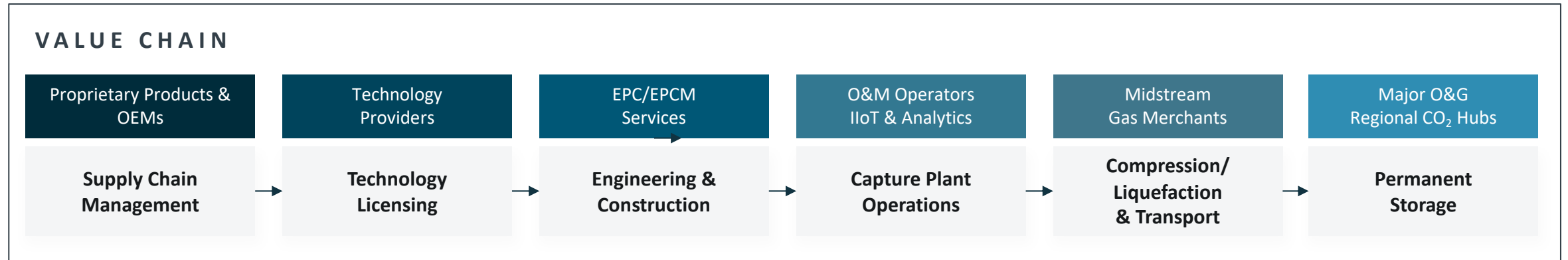
Product-Market Fit

Path to Rapid Commercialization in 2024/25

<h2>01 Manufacturing Capacity</h2> <ul style="list-style-type: none">✓ Adsorbent Manufacturing Scale Up: ⋯ SAB Manufacturing Facility: 10 - 1MMt/yr plants per year ~\$100MM Q2-2025 	<h2>02 Rotary Adsorption Machine</h2> <ul style="list-style-type: none">✓ "Buck" In-house build of 14m RAM by 1st Quarter 2023✓ Design Two RAM Sizes: ~ 500 TPD ~2200 TPD⋯ Seal Testing: Testing on Buck and test stations 	<h2>03 Capture Plant Engineering</h2> <ul style="list-style-type: none">✓ EPC Partnerships: Kiewit, Samsung Eng & Technip Energies⋯ FEED To FID: Projects to FID 2025 FCC, Ethanol, SMR, Pulp & Paper, Cement, Steel⋯ Gov't Funding: Jointly apply to US DOE and Canadian Gov't 	<h2>04 Demonstrate KPI's</h2> <ul style="list-style-type: none">⋯ In house Dev: 3 Single bed test stations 3 Process Demonstration Units✓ External Dev Pilots: Lafarge 1 TPD Total Energies 0.1 TPD✓ External Large Pilots: Cenovus 30 TPD Chevron 25 TPD 
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✓ = DONE ⋯ = IN PROGRESS

Partnerships Across the Carbon Capture & Removal Value Chain



PARTNERSHIPS

STRATEGIC SUPPLY CHAIN PLATFORM



CHANNEL TO MARKET PLATFORM



STRATEGIC ACCOUNT MANAGEMENT



Questions & Answers

Svante

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