

# *SkyMine<sup>®</sup> Commercialization Update*

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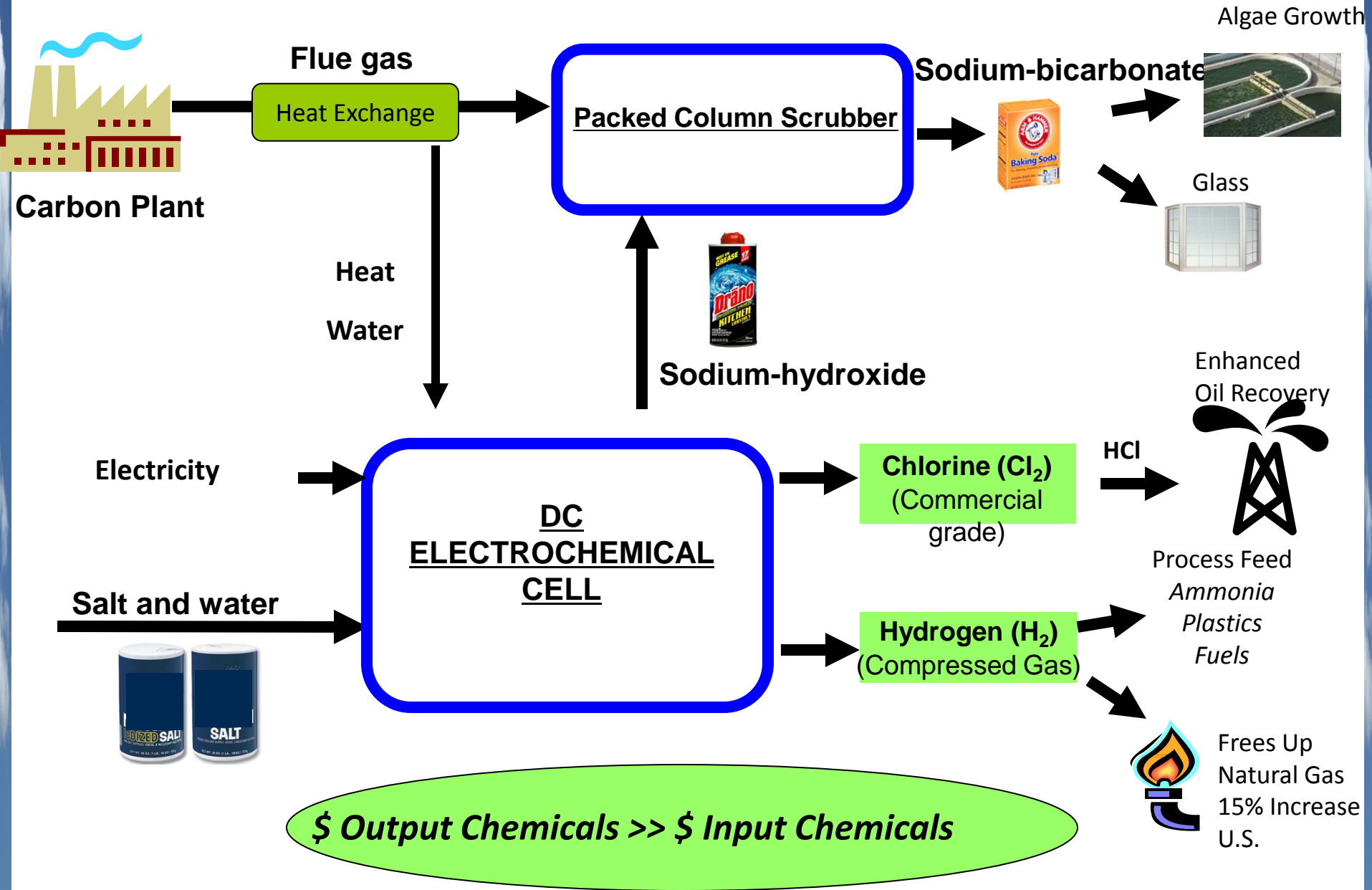
***Austin, Texas***

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- Captures carbon dioxide (CO<sub>2</sub>) in solid form (higher density storage than gas)
- Captures acid gasses (SO<sub>x</sub>, NO<sub>x</sub>)
- Captures heavy metals such as mercury
- Produces electrolytic grade hydrogen
  - Sale
  - Clean energy
- Produces electrolytic grade chlorine
  - Plastics
  - Drinking water
  - HCl
- Produces Saleable Bicarbonate
  - Glass Production
  - Algae feed
- Eliminates hundreds of millions of dollars in CapEx and ongoing expense for additional scrubber technologies. *“Three-fer” that is retrofittable.*
- Recovers the process electricity it uses.
- Capable of off-peak/on-peak demand management.
- Mineralization avoids the liability associated with gaseous injection
- Replacement strategy for aging chlor-alkali facilities

# Skyonic The Skyonic SkyMine<sup>®</sup> Process Solution





# Two Years at Luminant Big Brown SES

70% Lignite 30% PRB



Skyonic Confidential

***The SkyMine® Project will be located at a cement manufacturing plant in San Antonio, Texas***

- The Project is ideally situated in the deepest chemicals market in the US
- The Project's key attributes:
  - Direct capture >75,000 MT of CO<sub>2</sub>
  - Expected avoidance credits equal to >200,000 MT of CO<sub>2</sub>
  - 62,000 MT of HCl (dry) produced per year
  - 143,000 MT of Sodium Bicarbonate produced per year
- The Project may be expanded to 2-3x its current planned size

# *Skyonic* *Texas Cement Plant — Initial SkyMine® Deployment*

**Detailed Design of 275,000 MT/YR CO<sub>2</sub> Capture Plant in Progress**



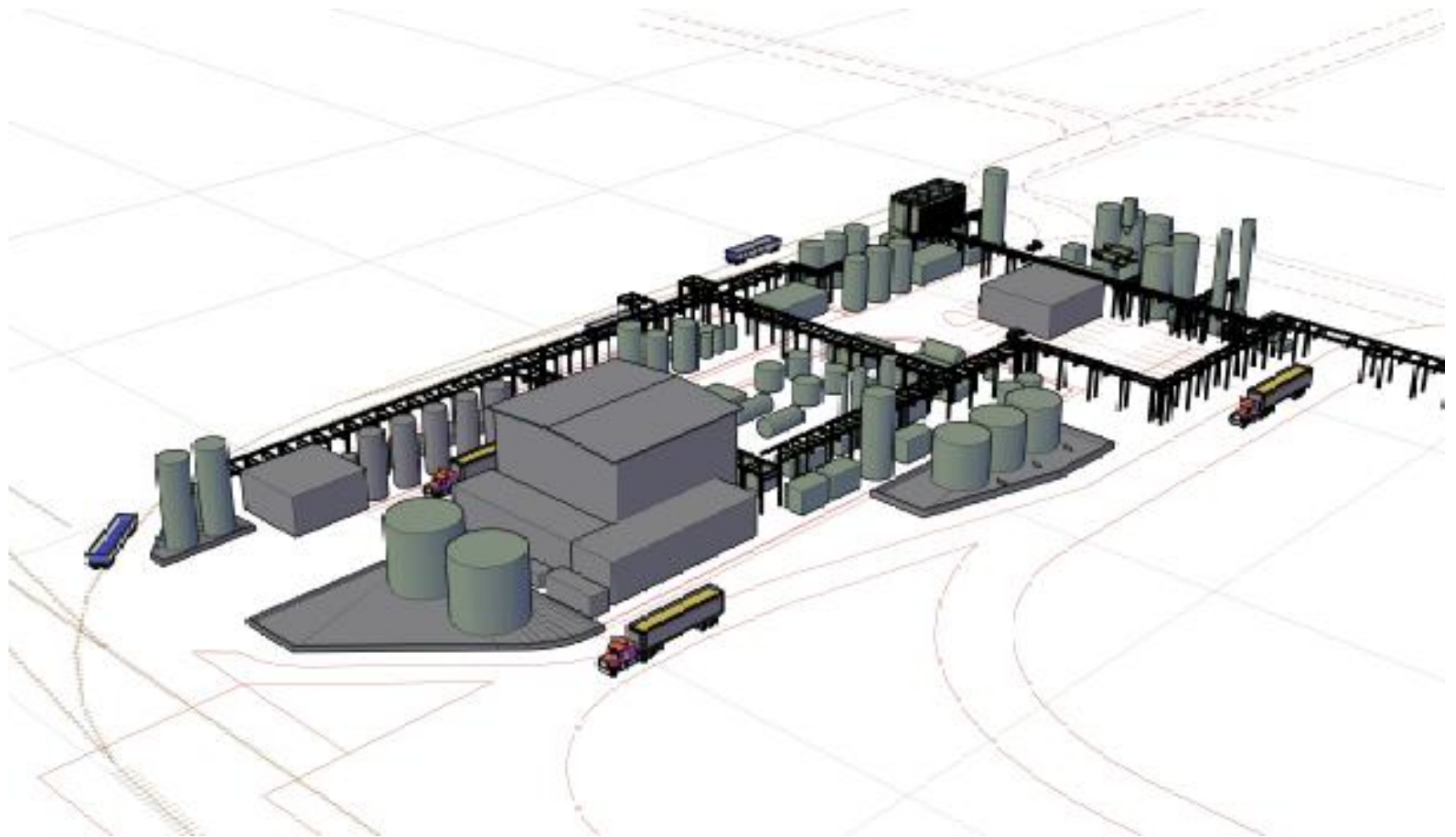




# SkyMine<sup>®</sup> at Cement Plant







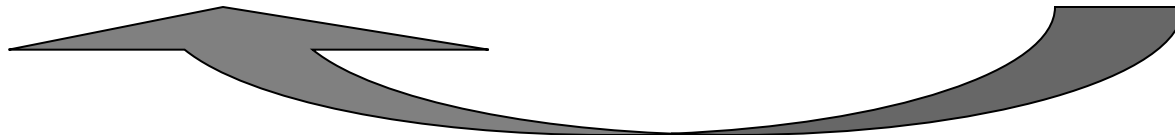
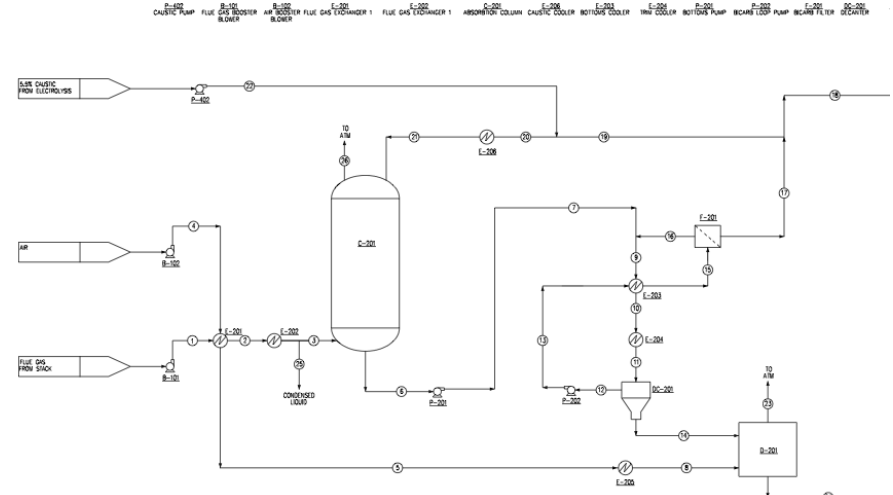
- Skyonic
- EPC – Ford Bacon Davis
- Electrochemical Plant Design – Conve AVS
- Research and Analysis – SwRI

- *SkyMine<sup>®</sup> = Integration of Proven Technologies!*



**Field Plant – Major Unit Operations**

## Aspen Simulation (Mass and Energy Balances)



- ✓ Field Plant Operational at Capitol Aggregates
- ✓ Process Flow Diagrams Simulated and Confirmed
  - Detailed Mass and Energy Balance
- ✓ US Patent 7,727,374 Granted
- ✓ DOE Phase II Award
- ✓ FEL 3
  - Process and Instrumentation Diagrams
  - Major Equipment List
  - Engaged with Key Vendors
  - Equipment Testing
  - Supply Chain Logistics (salt)
  - Risk Assessment
  - Capital Cost Estimate

## Detailed Engineering and Construction

- Haz Op Review in Progress
- Finalizing Site Layout
- Environmental and Construction Permits in Progress
- Product Qualification (bicarbonate samples ready)