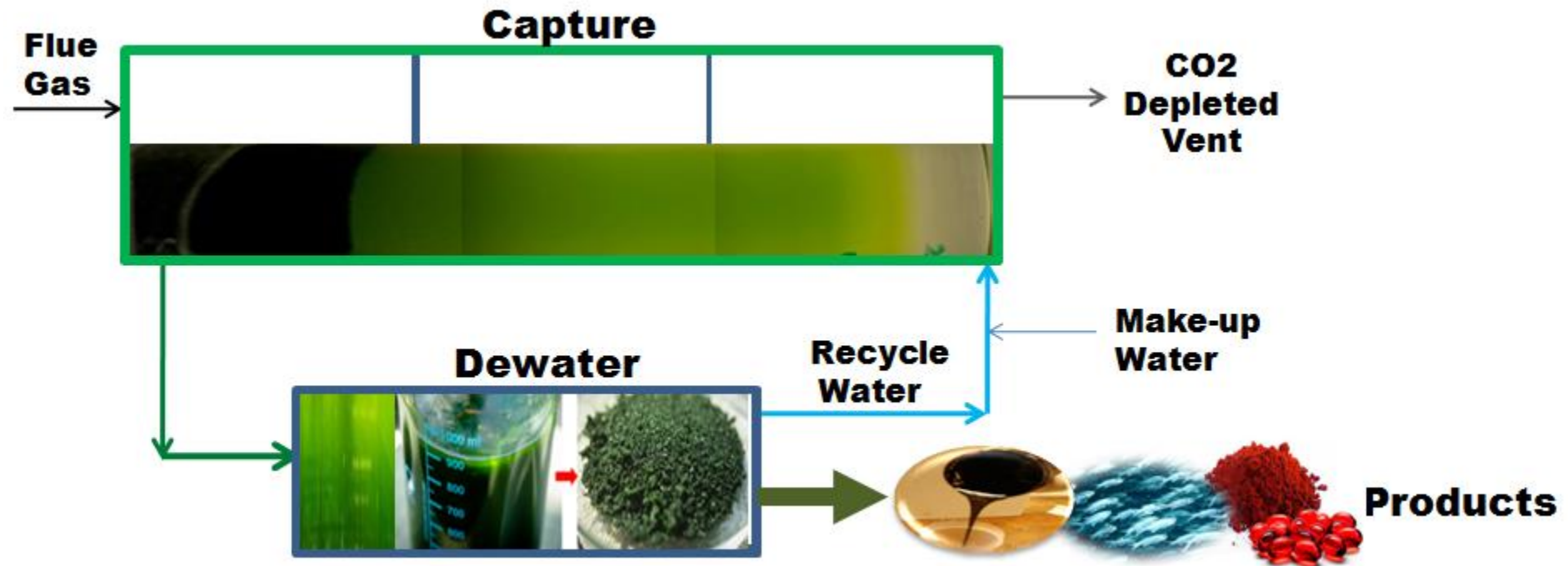


Novel Algae Technology to Utilize CO₂ for Value Added Products

CCUSOGT Review Meeting
Aug 29, 2019, Pittsburgh, PA



NETL/DOE Federal Project Manager: Sai Gollakota

General Project Information

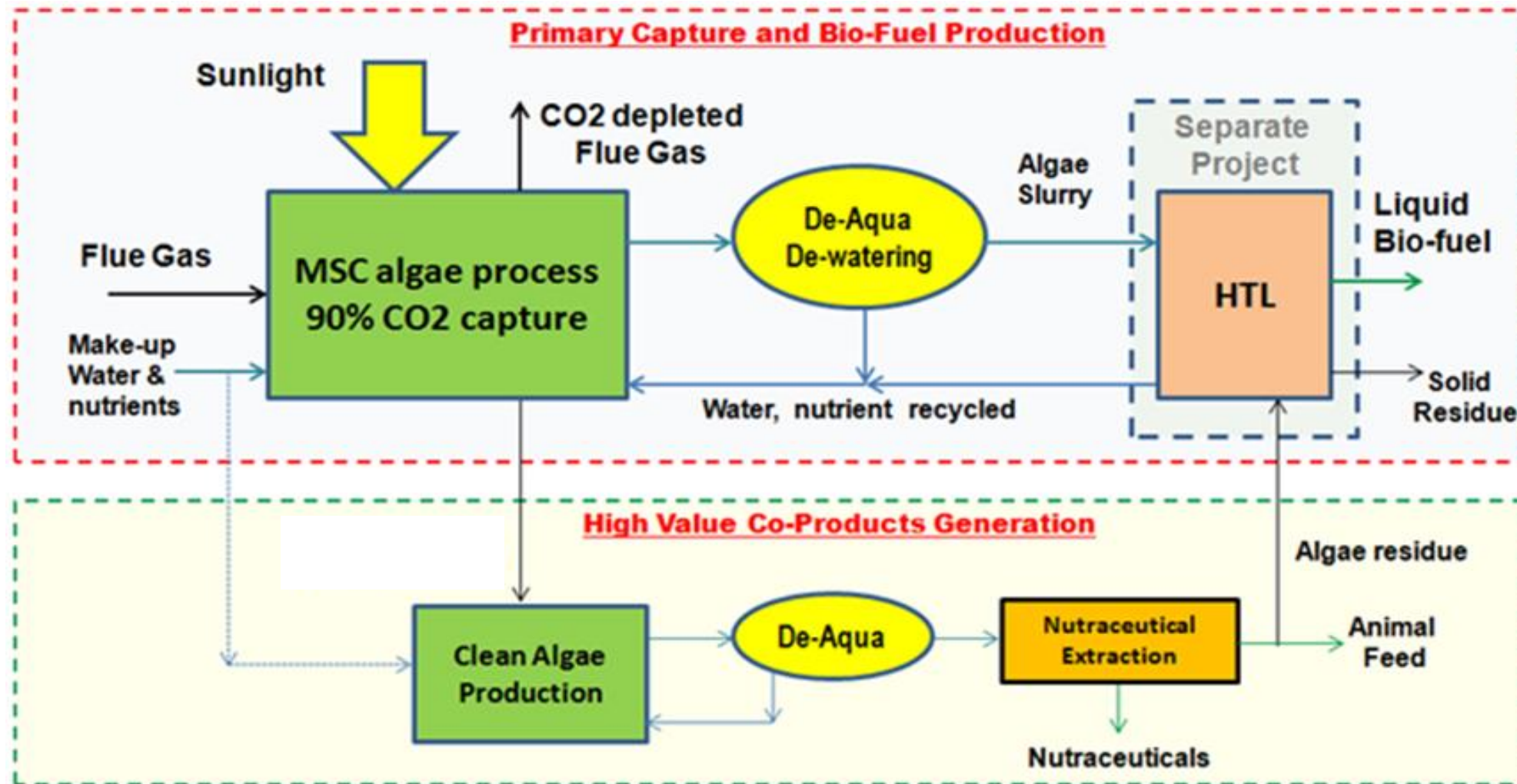


- **Title:** *Novel Algae Technology to Utilize CO₂ for Value Added Products*
 - Recipient: Helios-NRG, LLC
 - **PI:** Fred Harrington, PhD, Chief Scientist
 - **Project Partners:**
 - University at Buffalo
 - Linde
 - Northwestern University
 - Membrane Technology & Research
 - National Carbon Capture Center
- **Project Funding:**
 - Total: \$1,734,486 Government: \$1,387,588 Cost Share: \$346,898
- **Project Period:** 5/1/19 – 7/31/22

Overall Strategy

- *To be competitive, a revenue stream is required to offset the cost of CO₂ capture from coal power plants*
- **Develop algae technology with high CO₂ capture efficiency and productivity**
 - Efficient upstream & downstream process integration
 - Controllable and predictable system
- **Reduce capture cost via product revenue, operational efficiency, credits**
 - Bio-fuels; Animal feed; Nutraceuticals
 - Low cost dewatering
 - Credits from use of wastewater nutrients

Overall Process Schematic



Project Objectives

- Develop & demonstrate design of capture system
- Validate potential for 2 nutraceuticals with high value
- Develop dewatering technology with 50% reduction in energy use
- Conduct field test with real flue gas
- Perform LCA & TEA

Project Schedule

Task #	Task Title	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	
	Overall Project														
1	Project Management and Planning	[Blue bar spanning Q1 to Q13]													
2	Design, build, operate MSC system		[Blue bar spanning Q2 to Q13]												
3	Optimize Nutraceuticals production			[Blue bar spanning Q3 to Q13]											
4	Advance DeAqua Gravity Table Performance		[Blue bar spanning Q2 to Q10]												
5	Advance DeAqua Anti-fouling Membrane		[Blue bar spanning Q2 to Q9]												
6	DeAqua Module Performance Tests									[Blue bar spanning Q9 to Q13]					
7	Field Test of Carbon Capture											[Blue bar spanning Q11 to Q13]			
8	Life Cycle Assessment										[Blue bar spanning Q10 to Q13]				
9	Perform Techno-economics Analysis									[Blue bar spanning Q9 to Q13]					

Acknowledgement

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