

PHASE III:

Large Pilot Testing of Linde-BASF Advanced Post-Combustion CO₂ Capture Technology at a Coal-Fired Power Plant (FE-0031581)



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DOE/NETL Large Scale Pilots: DE-FE0031581

BP3 Review Meeting

June 1, 2022



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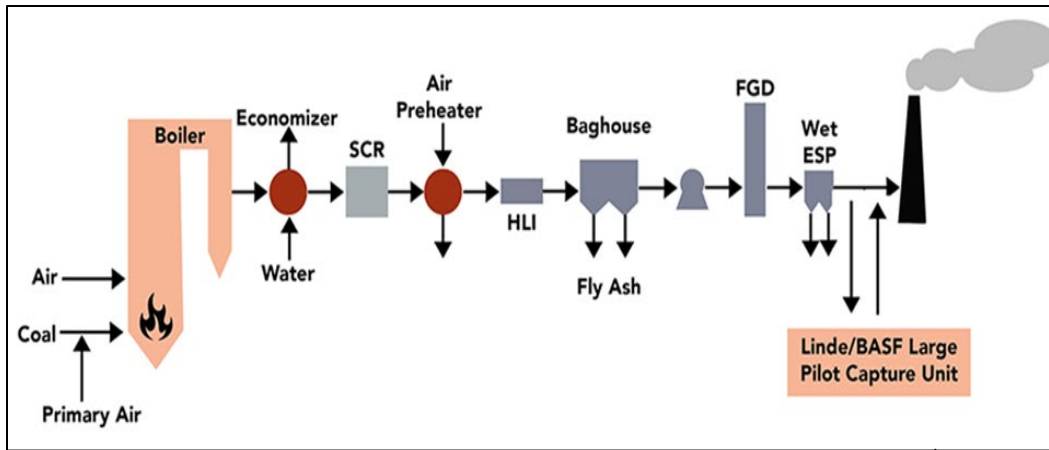


Visage Energy



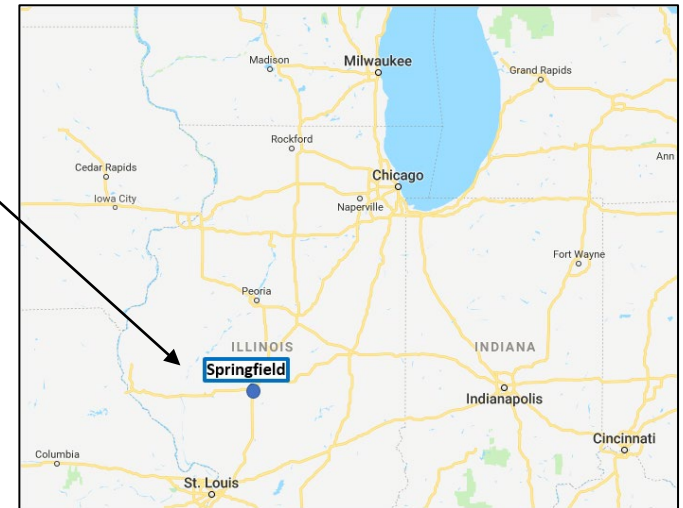
CWLP Location and Configuration

Traditional PC plant



Dallman Unit 4 configuration

Location of city of Springfield within the state of Illinois



DOE is scheduled to visit CWLP facility the last week June

PROJECT OBJECTIVES:

Overall: Design, construct, and operate a 10 MW capture system based on the Linde / BASF advanced amine-based, post-combustion carbon dioxide (CO₂) capture technology at CWLP Dallman Unit 4, Springfield, IL.



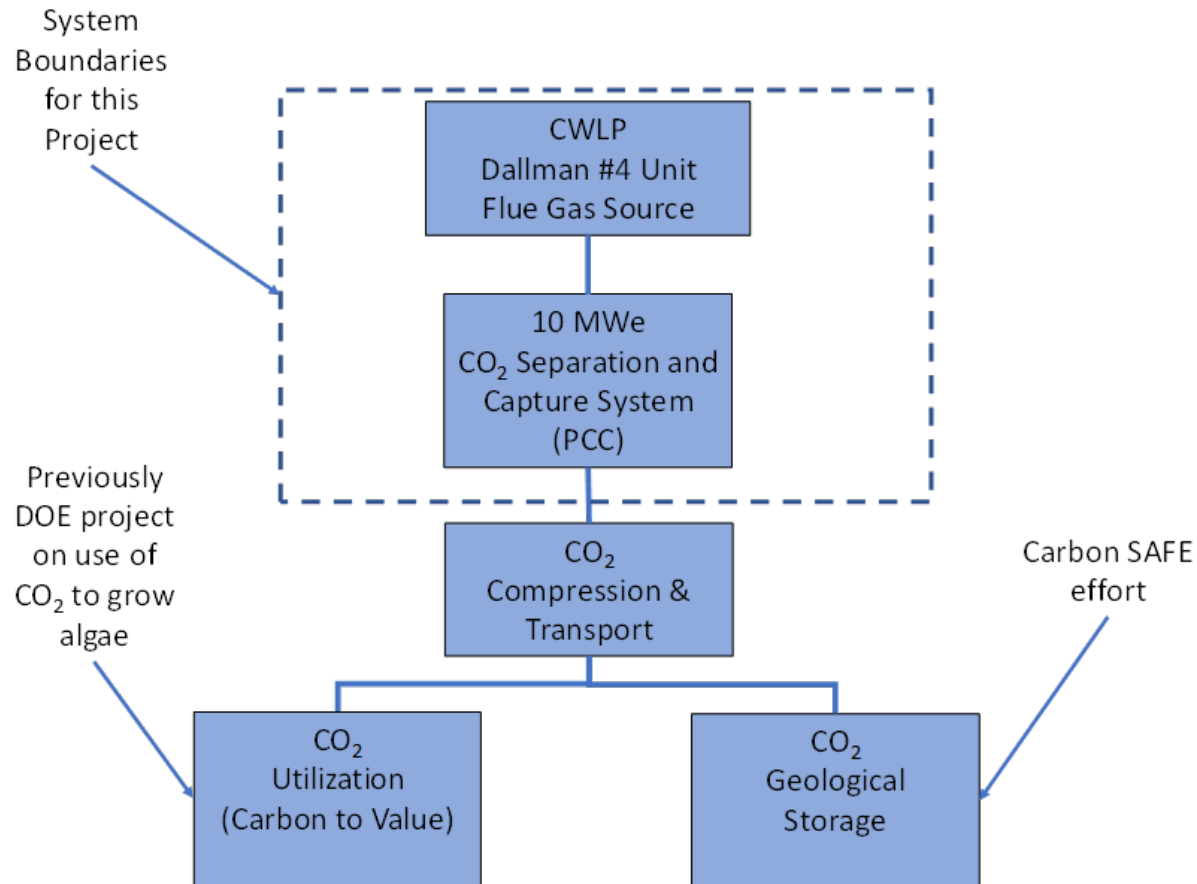
*City Water, Light and Power
(CWLP) Springfield, IL*

Phase III: Build / Operate 10 MW capture system and compare performance with results from 1.5 MW testing at the NCCC. If successful, keep system for evaluating future capture and utilization testing technologies.



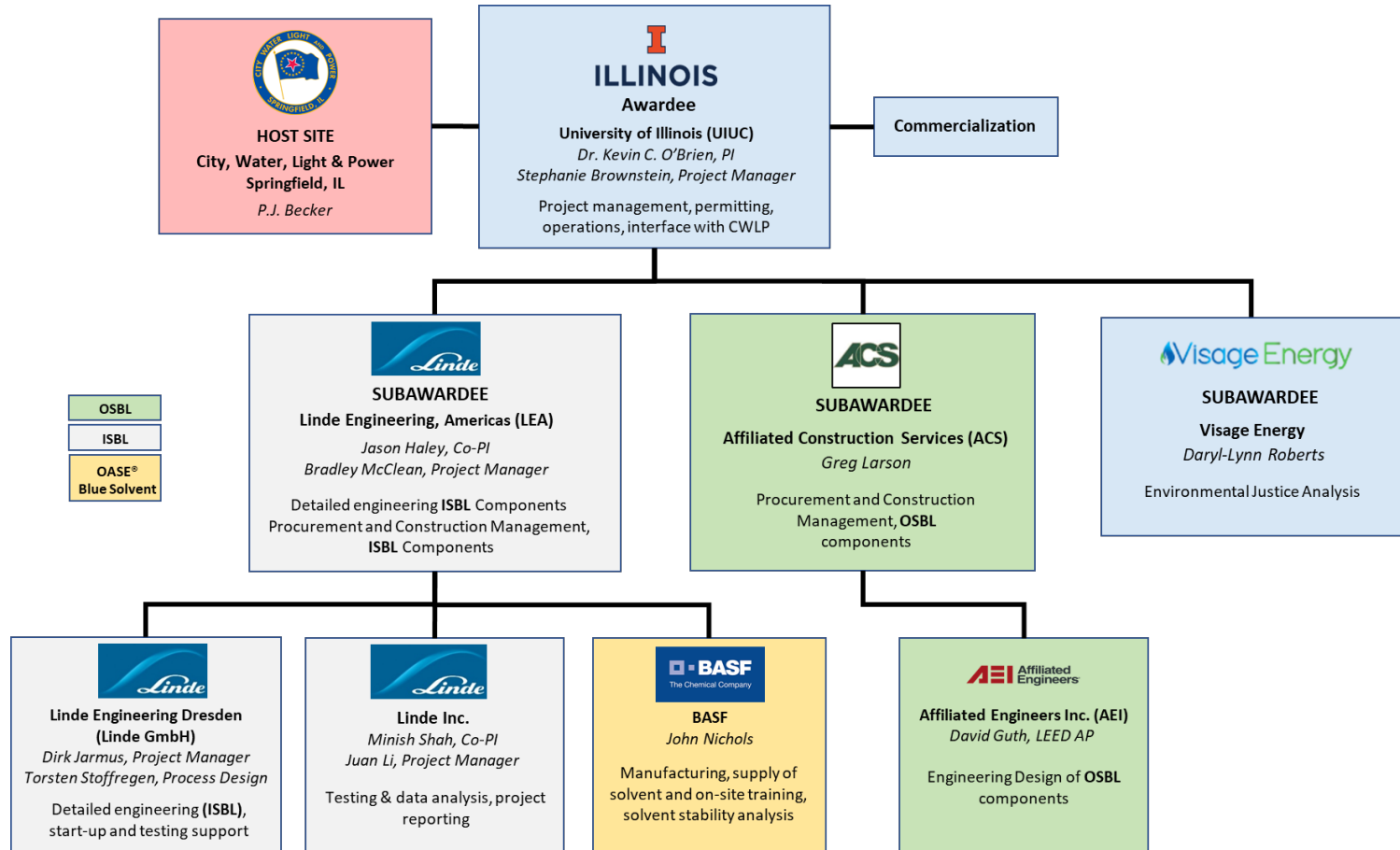
System Boundaries for Project

Follow-on projects can connect to existing DOE projects for storage and utilization



Phase III: Project Management Structure

Consistent team throughout all phases



Project Tasks

BP1 for Phase III = BP3 overall for project

All BP3 tasks completed

Task #	Task	BP
1.0	Project Management and Planning	All BP
2.0	Baseline Techno-Economic Analysis (TEA)	BP3
3.0	Detailed Engineering and Specifications	
4.0	Permit Application	
5.0	Construction and Execution Plan	
6.0	Long Lead Item Equipment Procurement	
7.0	Equipment Procurement and Fabrication	BP4
8.0	Site Preparation and Foundations Installation	
9.0	Plant Construction and Installation	
10.0	Commissioning and Test Plan	
11.0	Start-up and Operations	BP5
12.0	Operations and Testing	
13.0	Analysis of Test Campaign Results	
14.0	Updated Techno-Economic Analysis (TEA)	
15.0	Update of EH&S Assessment, TMP, and TCP	
16.0	Economic Revitalization and Job Creation Outcomes Analysis	
17.0	Dismantling and Removal	



Task vs. Responsible Organization

WBS #	WBS Title	UIUC	Linde	ACS	BASF	Visage
1	Project Management and Planning	X	X	X	X	
1.4	Workforce Readiness for Technology Development	X				
1.5	Environmental Justice Analysis					X
2	Baseline TEA		X			
3	Detailed Engineering and Specifications		X	X	X	
4	Permit Application	X				
5	Construction and Execution Plan		X	X		
6	Long Lead Item Equipment Procurement		X	X		
7	Equipment Procurement and Fabrication		X	X		
8	Site Preparation and Foundations Installation	X	X	X		
9	Plant Construction and Installation		X	X		
10	Commissioning and Test Plan	X	X			
11	Start-up and Operations	X	X		X	
12	Operations and Testing	X	X		X	
13	Analysis of Test Campaign Results	X	X			
14	Updated TEA		X			
15	Update of EH&S Assessment, TMP, and TCP	X	X			
16	Economic Revitalization and Job Creation Outcomes Analysis	X				
17	Dismantling and Removal	X	X			



Milestones for Phase III

BP1 for Phase III = BP3 overall for project

Budget Period	Task Number	Description	Planned Completion Date	Actual Completion Date
3	1	Updated Project Management Plan	9/15/21	9/15/21
3	1	Updated Host Site Agreement	10/15/21	9/15/21
3	1	Phase III Kickoff Meeting	11/15/21	10/13/21
3	4	Permitting Issuances Complete	5/15/22	5/18/22
3	1	Resource Loading Schedule in Place	5/31/22	5/27/22
3	1	EVMS & Risk Management System in Place	5/31/22	5/27/22
3	3	Detailed Engineering Complete	5/31/22	5/31/22
4	7	Equipment Fabrication Complete	1/31/23	
4	9	Construction & Installation Complete	9/30/23	
5	11	Commissioning and Pre-Start-up Checks Complete	12/31/23	
5	11	Steady-State Operations Established	2/29/24	
5	12	Parametric Testing Complete	11/30/24	
5	12	Steady-State Testing Complete	8/31/25	
5	14	Updated TEA	5/31/26	
5	15	Updated EH&S / TMP / TCP	5/31/26	
All	1	Quarterly RPPR report	Each quarter	Quarterly



Deliverables for Phase III

Task/ Subtask	Deliverable	Due Date
1	Project Management Plan	Update due 30 days after award. Revisions to the PMP shall be submitted as requested by the Project Manager.
1	Resource Loaded Schedule	Update due 30 days after award. Revisions to the PMP shall be submitted as requested by the Project Manager.
1	Earned Value & Risk Management Systems	Update due 30 days after award. Revisions to the PMP shall be submitted as requested by the Project Manager.
1	Workforce Readiness Plan	End of Budget Period 5
1	Environmental Justice Analysis	End of Budget Period 5
2	Baseline TEA	End of Budget Period 3
3.1	PFDs, P&IDs, and Utility Balances	End of Budget Period 3
3.1	Equipment Lists and Process Data Sheets	End of Budget Period 3
3.2	Plant Layout and General Arrangement Drawings	End of Budget Period 3
3	Final Detail Design Report	End of Budget Period 3
5	Construction Plan	End of Budget Period 3
10	Pre-Startup Safety Review (PSSR) Report	End of Budget Period 4
10	Pilot Commissioning and Test Plan	End of Budget Period 4
14	Updated TEA	End of Budget Period 5
15	Update of EH&S Assessment, TMP, and TCP	End of Budget Period 5
16	Updated Economic Revitalization and Job Creation Outcomes Analysis	End of Budget Period 5



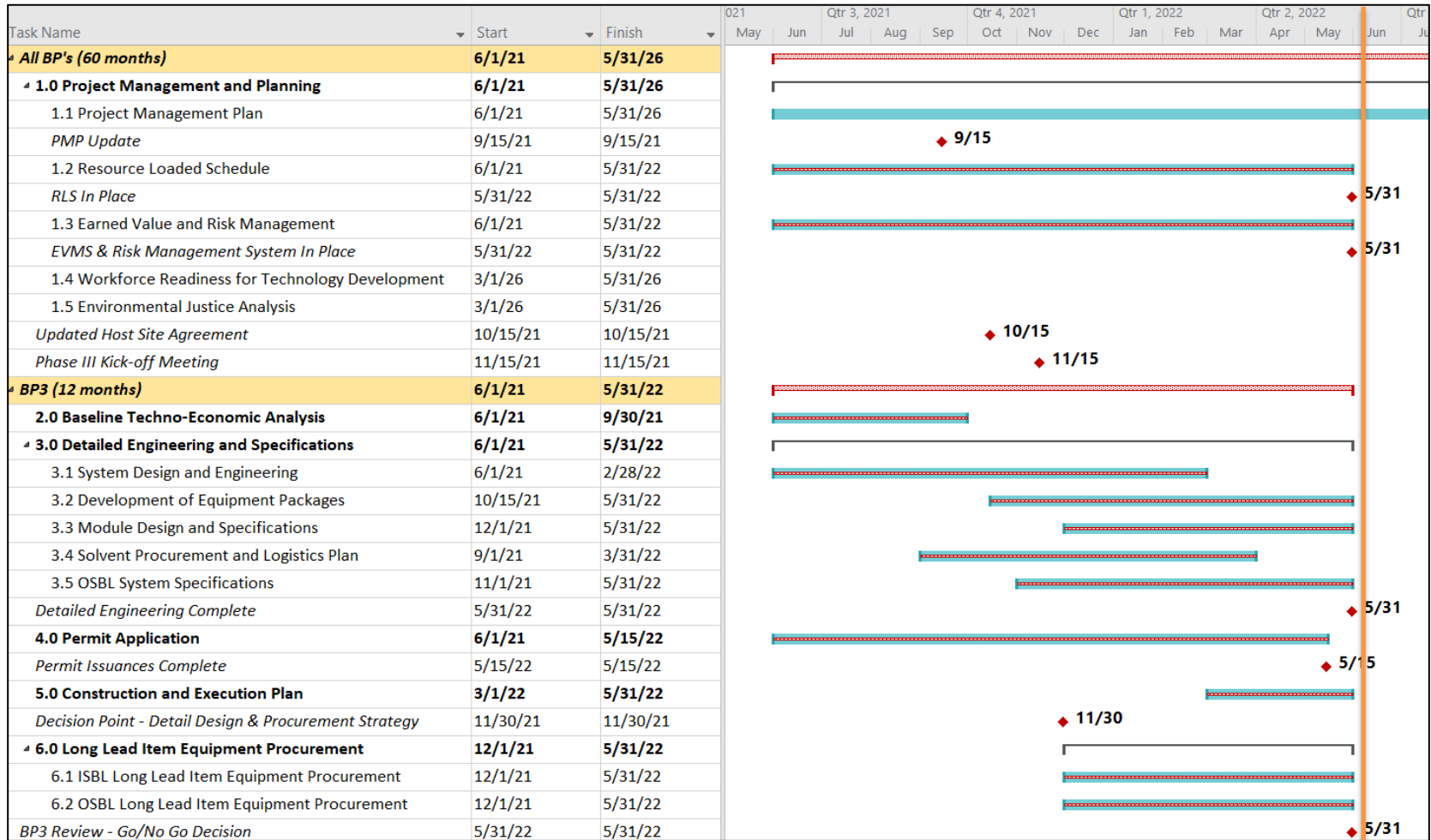
Phase III Success Criteria

Decision Point	Date	Success Criteria
Go / No-Go – Procurement Review	11/30/21	<ul style="list-style-type: none"> Review of equipment procurement costs and timeline
Go / No-Go (BP3) – Fabrication and Construction Phase	5/31/22	<ul style="list-style-type: none"> Review of cost assessment and proposal completed, receipt of approved permits and decision to build
Go / No-Go (BP4) – Operations and Testing Phase	11/30/23	<ul style="list-style-type: none"> Review of site construction and test plan completed
Project Complete	5/31/26	<ul style="list-style-type: none"> Completion of testing and analysis TEA (cost of capture): <\$45/MT CO₂ Turndown: 50-100% of design capacity at same rate and energy consumption targets; 25-50% with reduced capture rate or energy consumption compared to design case Regeneration energy: <=2.5 GJ/MT CO₂ Capture percentage: >=90% CO₂ purity: >95% with saturated water, >99% on a dry basis

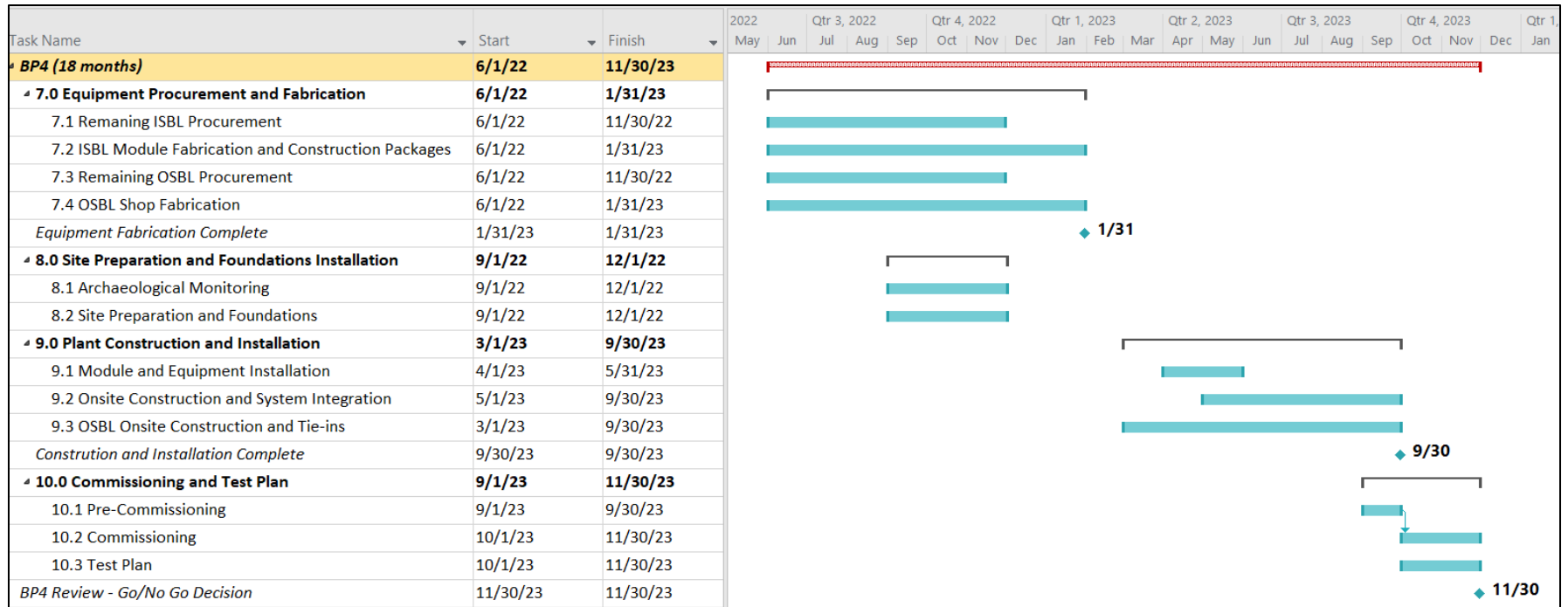


Gantt Chart – BP3

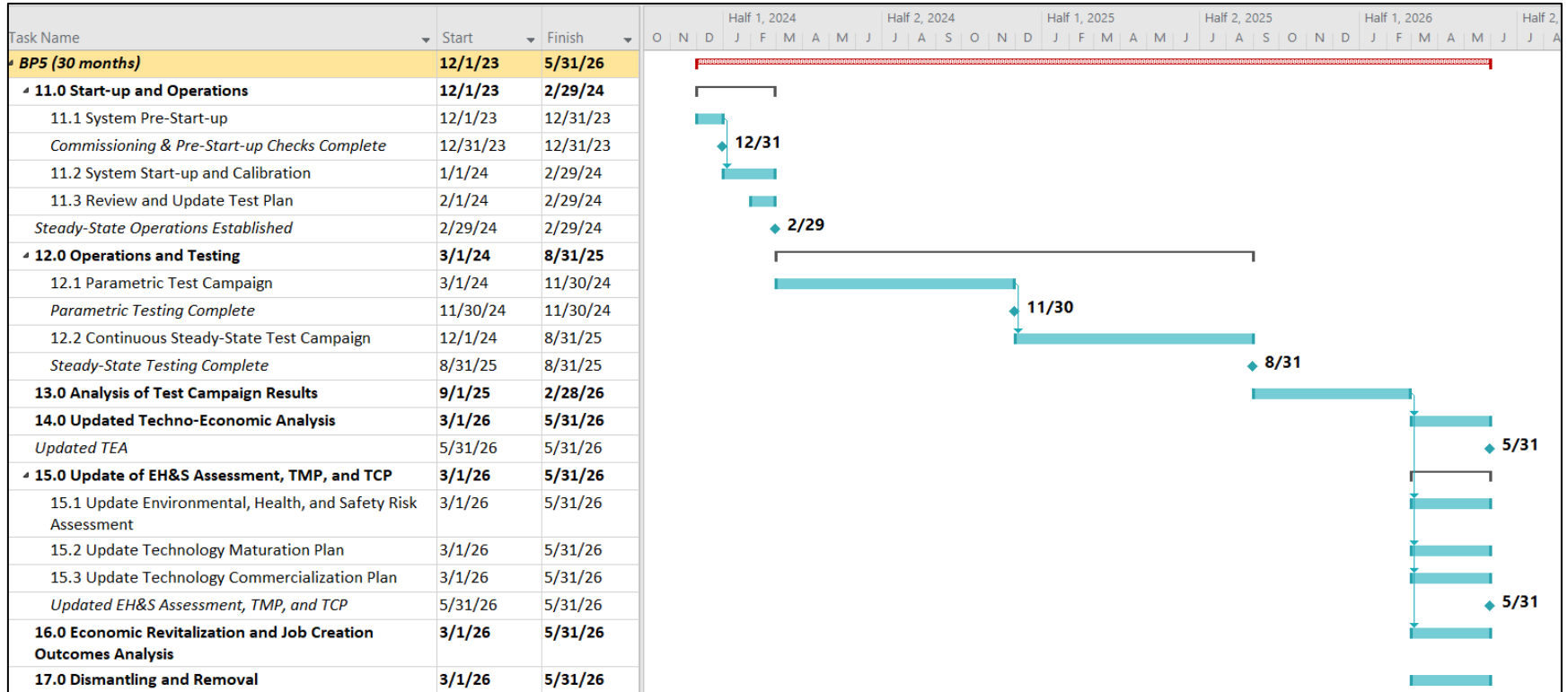
Current progress



Gantt Chart – BP4



Gantt Chart – BP5



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Greg Larson, Ted Allison	Affiliated Construction Services (ACS)
Daryl-Lynn Roberts, Will Johnson	Visage Energy

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