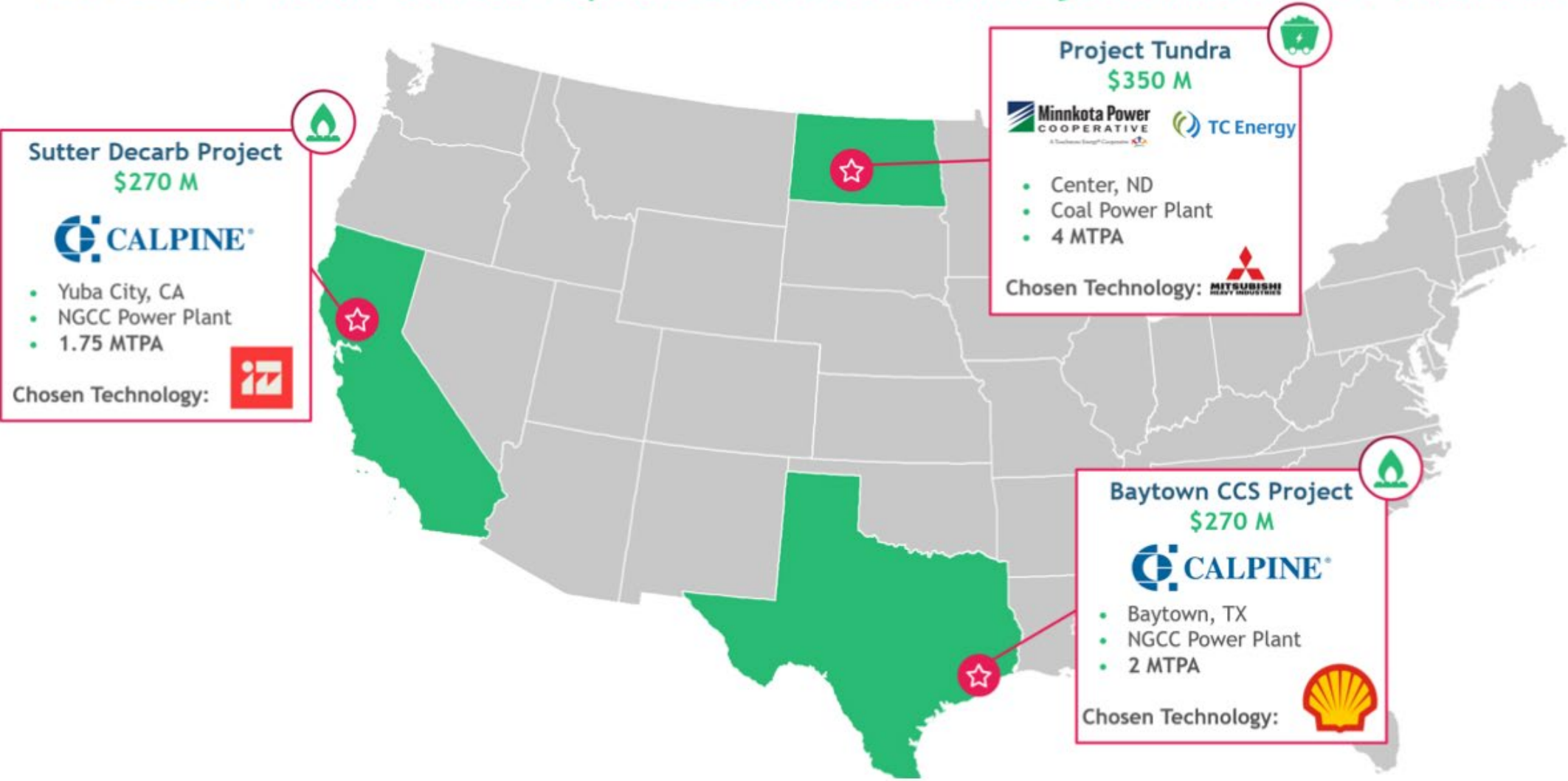


Status of CCS Projects and Policies for the Gulf Coast

Tip Meckel

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FOA-2962 | Three Carbon Capture Demonstration Projects Announced | \$890 M



Sutter Decarb Project
\$270 M

CALPINE

- Yuba City, CA
- NGCC Power Plant
- 1.75 MTPA

Chosen Technology: 

Project Tundra
\$350 M

- Center, ND
- Coal Power Plant
- 4 MTPA

Chosen Technology: 

Baytown CCS Project
\$270 M

CALPINE

- Baytown, TX
- NGCC Power Plant
- 2 MTPA

Chosen Technology: 

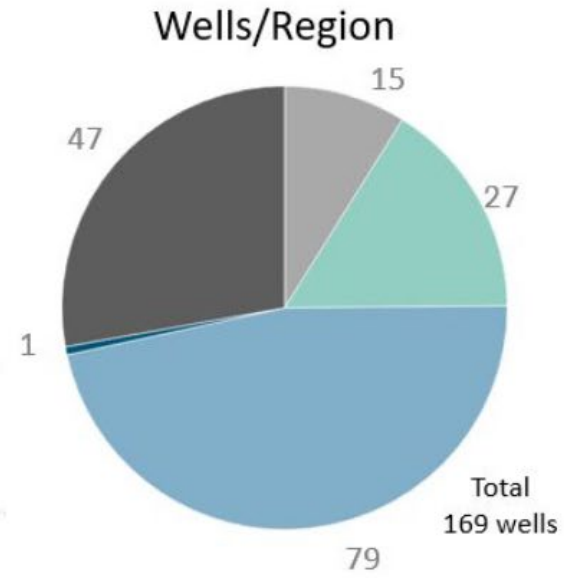
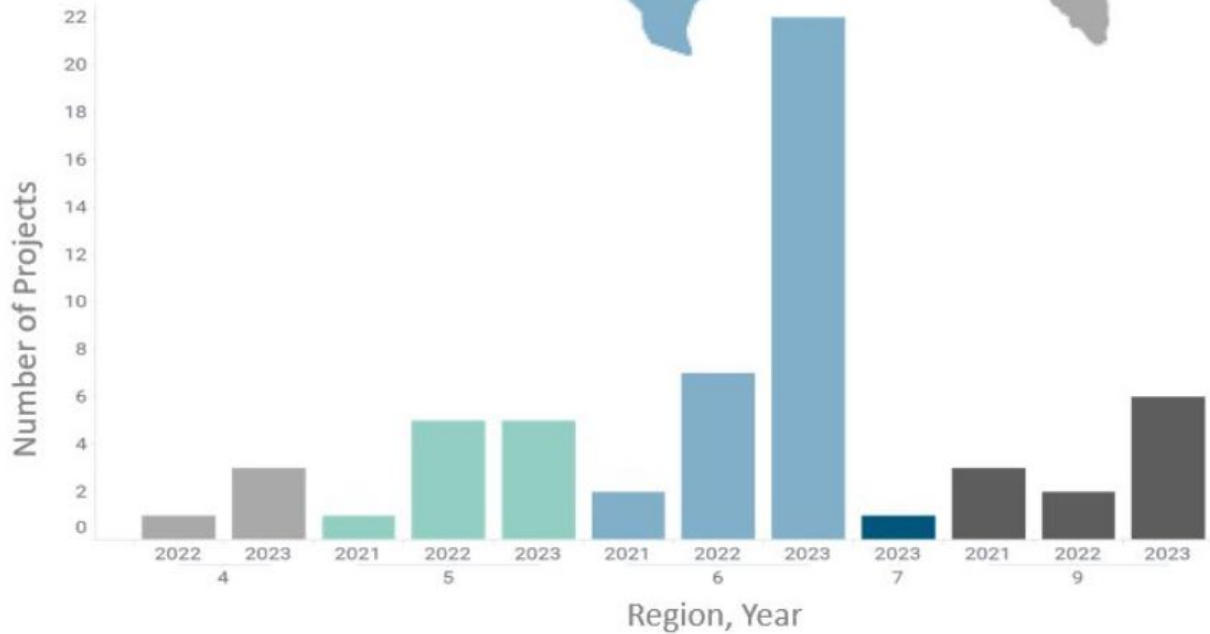
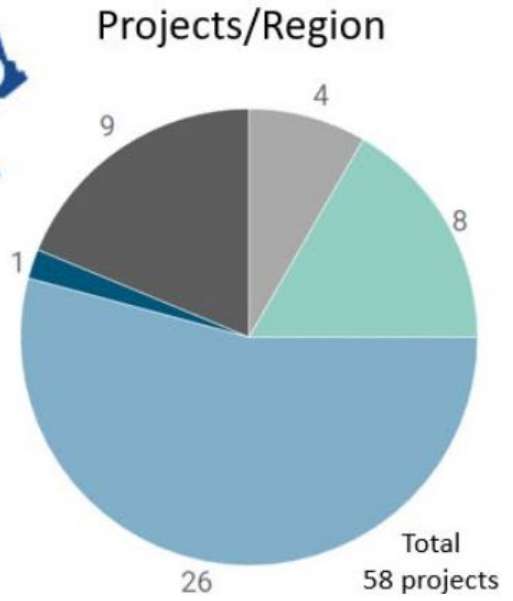
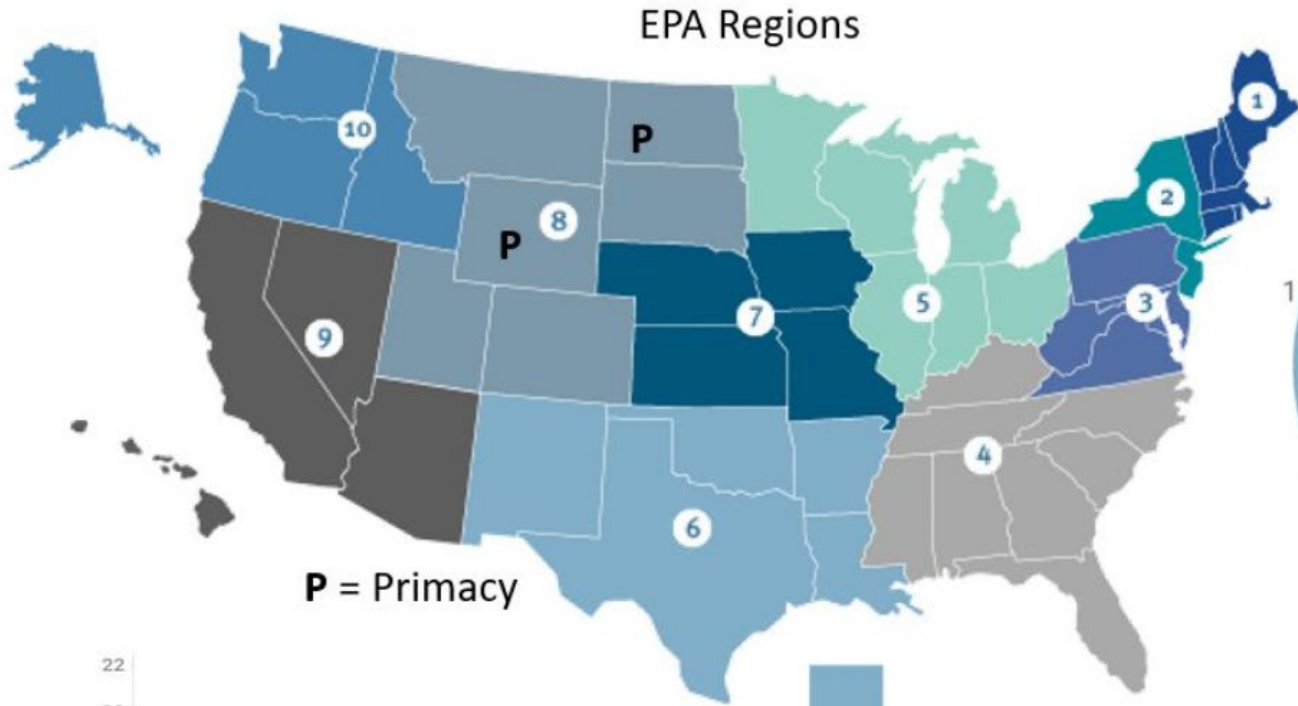
Gulf Coast Hydrogen Hub

HyVelocity H2Hub



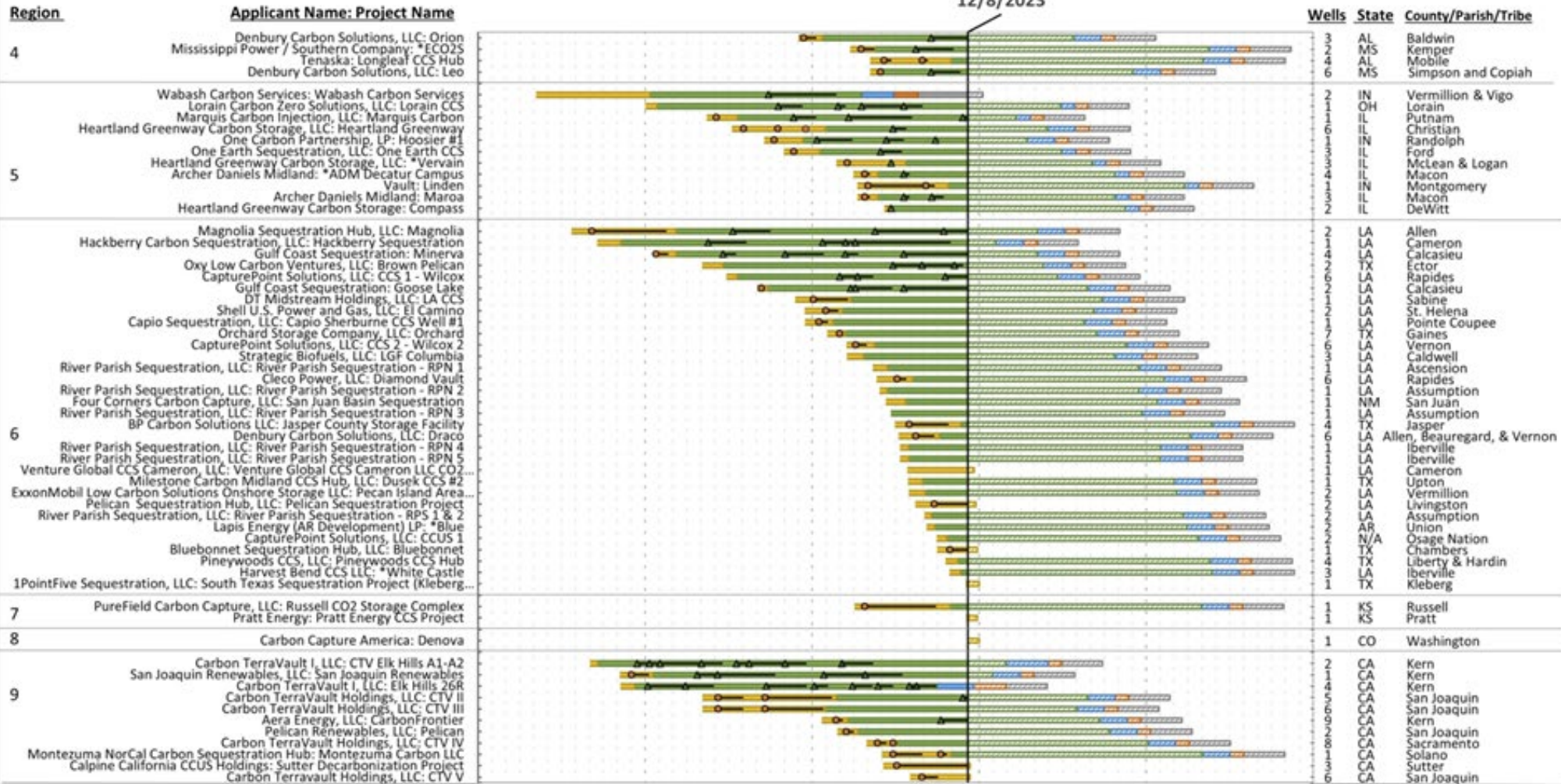
HyVelocity Hub

- Location: Houston, Texas
- Federal Cost Share: up to \$1.2 billion
- Prime Contractor: HyVelocity, Inc.
- **Summary:** Centered in the Houston region and will stretch across the Texas coast. Natural gas with carbon capture and renewables-powered electrolysis, plans to develop salt cavern hydrogen storage, a large open access hydrogen pipeline, and multiple hydrogen refueling stations. Use the hydrogen for fuel cell electric trucks, industrial processes, ammonia, refineries and petrochemicals, and marine fuel (e-Methanol).
- HyVelocity, is an industry-led hub that includes seven core industry participants: [AES Corporation](#), [Air Liquide](#), [Chevron](#), [ExxonMobil](#), [Mitsubishi Power Americas](#), [Orsted](#), and [Sempra Infrastructure](#). HyVelocity is administered by [GTI Energy](#), and includes a wide array of organizations, including organizing participants, [The University of Texas at Austin](#), the [Center for Houston's Future](#), and [Houston Advanced Research Center](#).
- For more information, email GulfCoastH2Hub@hq.doe.gov.



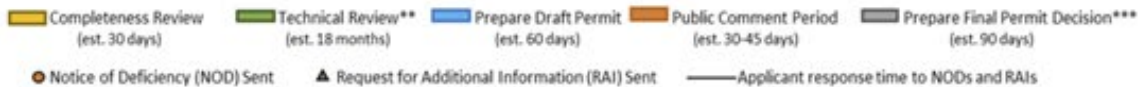
Class VI Permit Tracker

12/8/2023



Total Projects = 61

172



Note: Hashed bars represent estimates of future review periods.

*Completeness review restarted after substantial changes made to project.

**Estimated Technical Review period depends on the complexity and quantity of RAIs needed to evaluate the application and receiving timely responses from the applicant.

*** Time to Prepare Final Permit Decision depends on the number and complexity of Public Comments received.

12

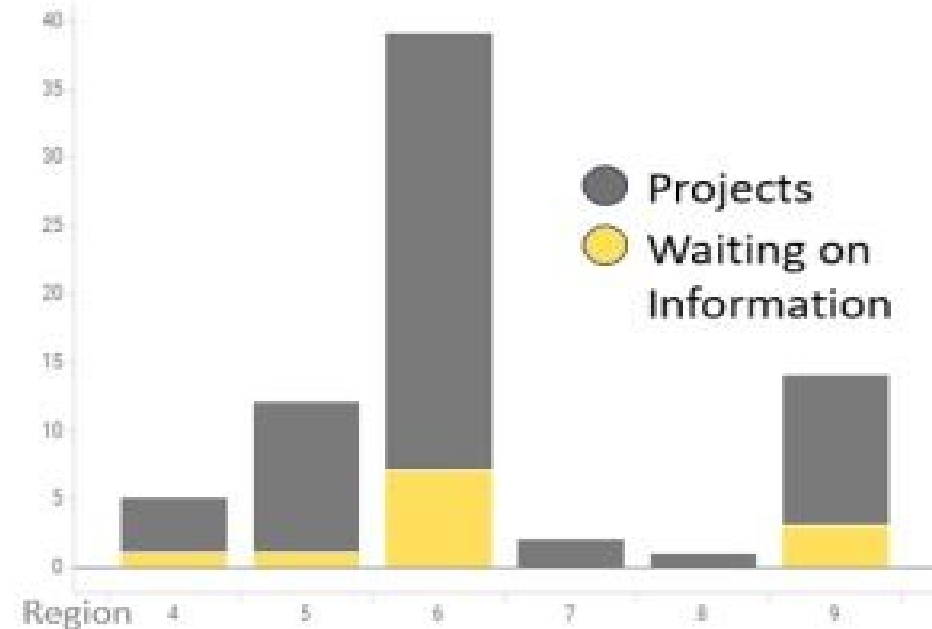
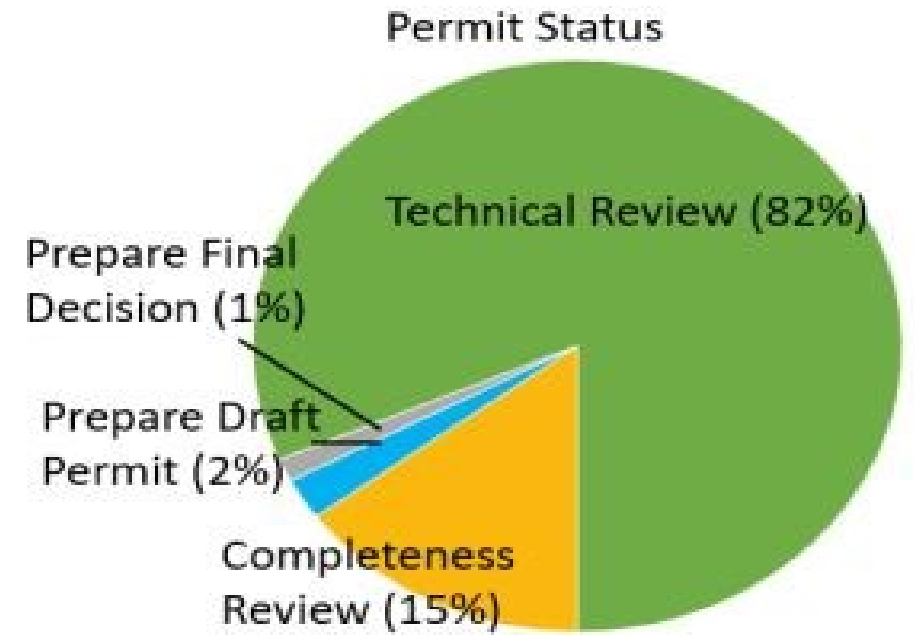
PERMITS WAITING ON INFORMATION

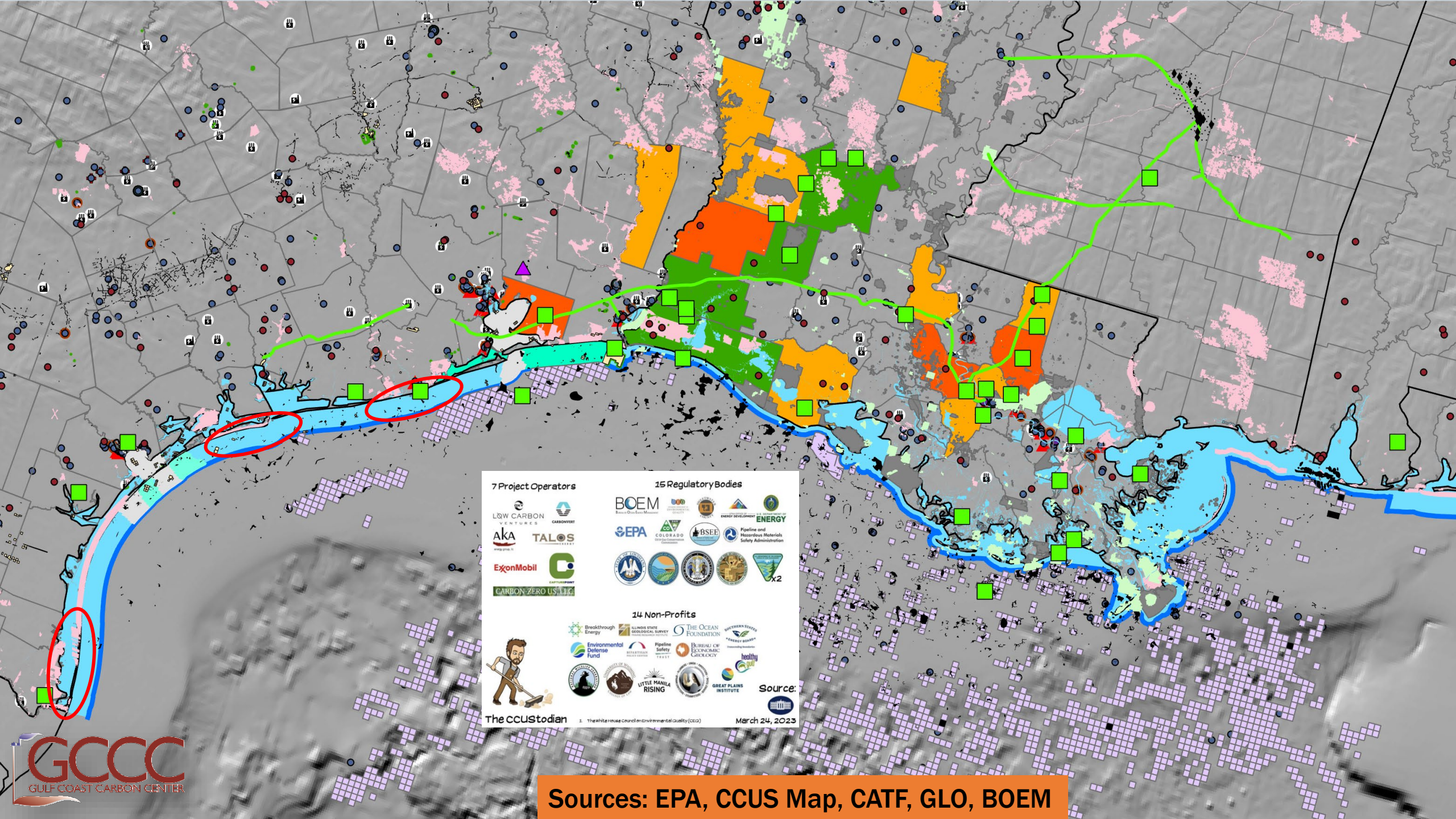
37

PERMITS HAD NOTICES OF DEFICIENCY IN COMPLETENESS REVIEW
45 TOTAL NOTICES

22

PERMITS HAD REQUESTS FOR MORE INFORMATION
52 TOTAL REQUESTS





7 Project Operators

15 Regulatory Bodies

14 Non-Profits

The ccustodian | 1 The White House Council on Environmental Quality (CEQ) | Source: | March 24, 2023

LNG & Ammonia Development on Gulf Coast

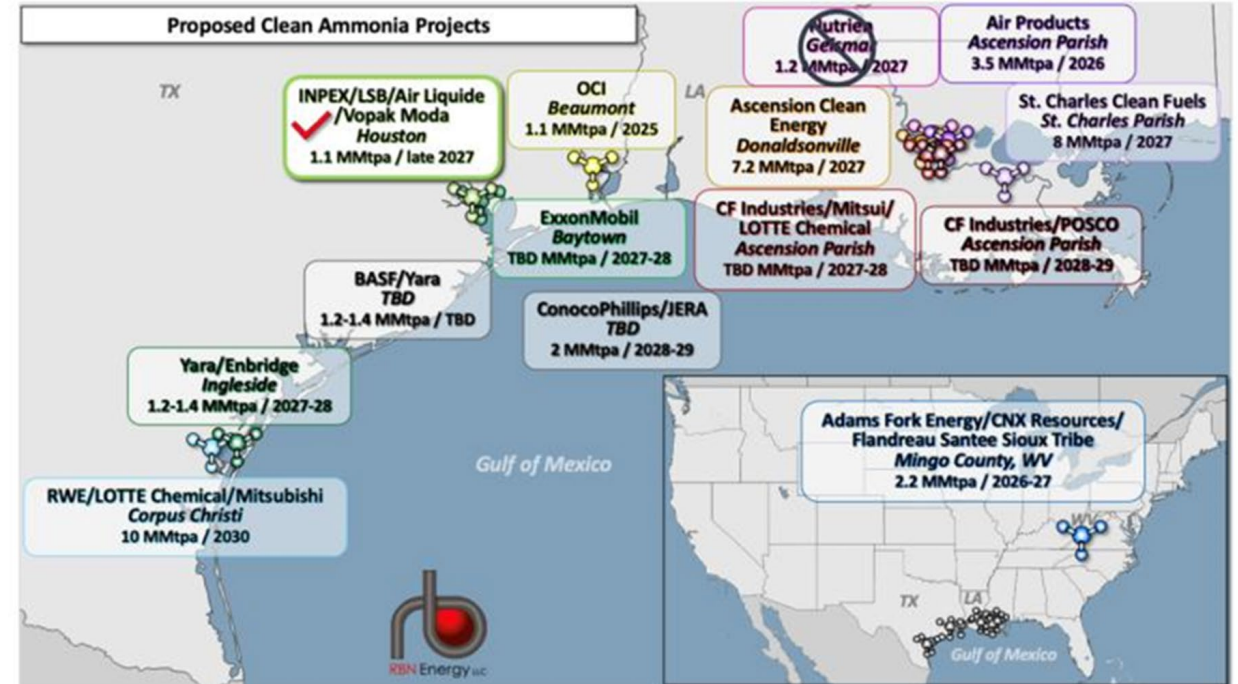
US Gulf Coast



By 2032, US LNG feedgas demand could reach nearly **28 Bcf/d**, up from about 13 Bcf/d in 2023

North American LNG project tracker

The next wave of North American LNG terminals is taking shape, mostly along the US Gulf Coast. Dozens of projects have been proposed, but not all of them will get built.



RRC is Preparing for Class VI Primacy

| Requisition Title | Location | Posting Date |
|--|--------------|--------------|
| <u>RRC - Engineer IV or Geoscientist IV - Technical Permitting - Special Injection Permits Unit</u> | Texas-Austin | Jan 17, 2024 |
| <u>RRC - Engineering Specialist V - Technical Permitting - Special Injection Permit Unit</u> | Texas-Austin | Jan 17, 2024 |
| <u>RRC - Program Specialist V - Technical Permitting - Special Injection Permits Unit</u> | Texas-Austin | Jan 17, 2024 |
| <u>RRC - Manager III - Technical Permitting - Special Injection Permits Unit</u> | Texas-Austin | Jan 16, 2024 |

Energy Policy Advisory Council

- Meckel serves as CCS Advisor.
- The Energy Policy Advisory Council (EPAC) brings together leading researchers and practitioners from energy institutes, universities and research institutions across Texas to educate Texas legislators and staffers on the latest, cutting-edge research findings related to energy, environment and climate with the goal to help foster evidence-based policymaking.
- Interim Charge Request #1:
 - Topic: **CCS Liability** - Creating a structure of carbon capture liability regulation and land integration regulation in Texas
 - Status: Sent to Civil Jurisprudence Committee Chair by Committee Member Rep. Drew Darby (R)
- Energy Innovation Forum on CCS planned for Q1 2024



<https://powerhousetexas.org/policy-advisory-council>



Texas Court Addresses Trespass by Produced Water Injection

- *Iskandia Operating Inc. v. SWEPI, LP d/b/a Shell Western E & P*
- Subsurface trespass claim involving the injection of large amounts of produced water.
 - High-pressure high-volume saltwater injected into the Delaware Mountain Group migrated onto Company B leases, adversely affecting the production potential.
 - Involved claims for *private nuisance, negligence, and trespass*, alleging that Company A injection of waste saltwater into Company B's producing zones, as opposed to its own producing zones, constituted a continuing trespass on its property and mineral rights.
- The court accepted expert testimony as qualified by education, experience and training and applied the Texas Supreme Court's six factors for determining the reliability of scientific expert testimony.
 - The court recognized that **reservoir simulations** have been used in the industry and litigation for decades and are generally accepted as valid in the relevant scientific community.
 - "**reservoir simulation models** relied on to form opinion were based on flawed data and methodology; the models themselves did not meet reliability standards, failed to rule out plausible alternative causes grounded in the methods and procedures of science"



Interesting research topic? "adequate and accurate" underlying data

What constitutes a 'legally defensible model & simulation'?

Thank you

Feel free to contact Tip Meckel for more information:
tip.meckel@beg.utexas.edu



BUREAU OF
ECONOMIC
GEOLOGY



The Supreme Court of Texas has set out six nonexclusive factors, in addition to the expert's experience, that a trial court may consider in determining whether expert testimony is reliable:

1. the extent to which the theory has been or can be tested;
2. the extent to which the technique relies upon the subjective interpretation of the expert;
3. whether the theory has been subjected to peer review and/or publication;
4. the technique's potential rate of error;
5. whether the theory or technique has been generally accepted as valid by the relevant scientific community; and
6. the non-judicial uses which have been made of the theory or technique.