

Energy Pipeline Industry Perspectives CO2 Pipeline Infrastructure Research

DOE CO2 Transportation R&D Workshop

February 21-22

Columbus, OH

Mark Piazza, Senior Policy Advisor

API

The “Energy” Behind Carbon Capture and Storage

Energy Transition

ExxonMobil plans to increase carbon capture at LaBarge

ExxonMobil initiated the process for engineering, procurement, and construction contracts as part of its plans to expand carbon capture and storage (CCS) at its LaBarge, Wyo. ...

OGJ editors

Oct. 21, 2021

Energy Transition

Air Products to build Louisiana blue hydrogen plant, CCS system

Air Products & Chemicals Inc. is developing a 750-MMscfd blue hydrogen complex near Burnside, Ascension Parish, La.

OGJ editors

Oct. 15, 2021

Energy Transition

Consortium lets drilling contract for North Sea Greensand carbon storage

The Nini Joint Venture, operated by INEOS Oil & Gas Denmark and Wintershall Dea AS, has entered a framework agreement with Maersk Drilling for Phase 2 of the Greensand offshore...

OGJ editors

Oct. 14, 2021

Energy Transition

Harbour Energy wins UK North Sea C

UK Oil and Gas Authority has awarded a CO2 app Energy. Harbour's V Net Zero proposal would reu

OGJ editors

Energy Transition

Talos, Freeport LNG to develop Gulf Coast CCS project

Talos Energy Inc. and Freeport LNG Development LP intend to develop a carbon capture and sequestration project, the Freeport LNG CCS project, immediately adjacent to Freeport ...

OGJ editors

Nov. 16, 2021

Energy Transition

Woodside to invest \$5 billion in new low carbon energy projects

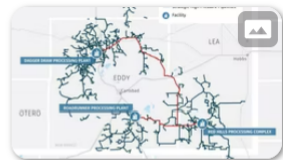
Woodside Petroleum Ltd. plans to invest US\$5 billion in new low-carbon energy projects over the next 2 decades while still supporting its petroleum business, including the benefits...

Rick Wilkinson

Dec. 8, 2021

Energy Transition

Lucid Energy advances plan to develop Permian's largest CCS project



Robert Brelsford

Jan. 11, 2022

Energy Transition

PETRONAS, Technip Energies establish framework for carbon capture collaboration

PETRONAS and Technip Energies signed a heads of agreement (HoA) establishing a collaboration framework for the further development and commercialization of carbon capture technologies...

OGJ editors

Nov. 15, 2021

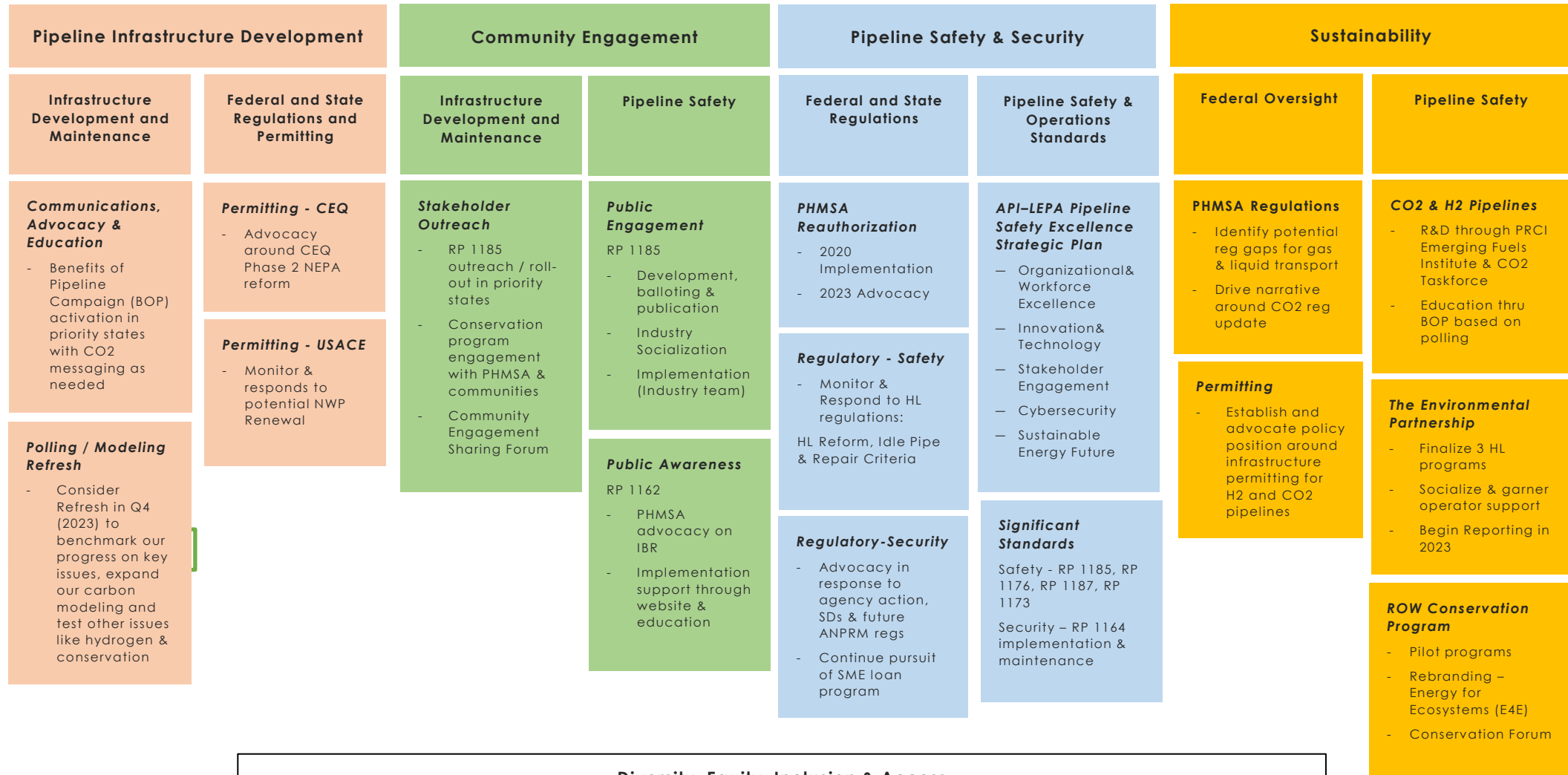
Technology & Innovation Lead to Improvements in CO2 Pipeline Safety



Industry Roadmaps	PRCI GTI OTD	API ASME AMPP	49 CFR §192*
Company ERM	NYSEARCH PHMSA	CSA ISO	49 CFR §194*
Public Policy	DOE Academia	NFPA	49 CFR §195
Strategic Research Priorities			

* - CO2 pipelines are not currently regulated under these Parts

2023 Proposed API Pipeline Strategic Priorities



Diversity, Equity, Inclusion & Access

- **Diverse Supplier Resources:** There are a variety of non-profit organizations focused on developing and promoting diverse suppliers. These organizations typically provide their own certifications and databases for corporate engagement.
- **Engage Directly with Diverse Stakeholders:** Our stakeholder allies are interested in hearing from you directly and are always looking to advance individual company engagement.
- **USHCC Energy Summit:** Work with US Hispanic Chamber of Commerce on midstream/pipeline participation in Spring 2023 Energy Summit.
- **API Pipeline Conference:** Advance inclusion of DEI&A with focus on access in 2023 API Pipeline, Control Room and Cybernetics Conference

Low Carbon Energy Infrastructure & Storage (LCEIS)

H₂ and CO₂ Pipelines

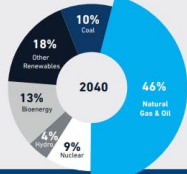
- **API LCEIS – Managing Key Issues with Pipeline Infrastructure**
- **Pipeline Safety**
 - Focus on repurposing of existing infrastructure for low carbon energy sources – leveraging membership with PRCI
 - CO₂ Task Force participation, SOTA Report
 - Emerging Fuels Institute (EFI) – API committed to Champion level membership in 2023
- Monitoring PHMSA & DOE R&D programs
 - API SC 21 – proposal to DOE with SwRI, PRCI, others
 - PHMSA R&D projects – Technical Advisory Panel role and other technical support for projects
- Assessing the need for revisions to existing standards or the need for new standards – repurposing and new construction
 - Pipeline safety, materials, measurement, pipeline operations, and underground storage
 - Integrating API GIS Team into PRCI R&D Programs
- DOE Funding Opportunity Announcements – what’s next?
- CO₂ Pipelines as a Strategic Research Priority and API-LEPA 2023-2025 Strategic Plan – *Safe and Sustainable Energy Future*

CLIMATE ACTION FRAMEWORK

Executive Summary


American Petroleum Institute

World Energy in 2040:
Natural Gas and Oil Will Continue to Lead



Source	Percentage
Natural Gas & Oil	44%
Coal	10%
Other Renewables	18%
Biomethane	13%
Nuclear	9%
Other	4%

API's ACTION PLAN

- 1

ACCELERATE TECHNOLOGY AND INNOVATION to reduce emissions while meeting growing energy needs

 - » Advocate for Federal Funding for Low-Carbon RD&D
 - » Fast-track the Commercial Deployment of Carbon Capture, Utilization and Storage (CCUS)
 - » Advance Hydrogen Technology, Innovation and Infrastructure
- 2

FURTHER MITIGATE EMISSIONS FROM OPERATIONS to advance additional environmental progress

 - » Advance Direct Regulation of Methane from New and Existing Sources
 - » Develop Methane Detection Technologies
 - » Promote Reductions in Refinery GHG Emissions and Mitigate Upstream Flaring Emissions
- 3

ENDORSE A CARBON PRICE POLICY by government to drive economywide, market-based solutions

 - » Potential Approach Would Price Carbon Dioxide Emissions Across the Economy
 - » Support Policies that Provide Transparency for Consumers
 - » Minimize Duplicative Regulations and Help Maintain U.S. Competitiveness
 - » Avoid Carbon Leakage and Integrate with Global Carbon Markets, while Focusing on Net Emissions
- 4

ADVANCE CLEANER FUELS to provide lower-carbon choices for consumers

 - » Develop Markets for Differentiated U.S. Natural Gas
 - » Support Policies to Advance Lower-Carbon Electricity
 - » Reduce Lifecycle Emissions in the Transportation Sector
- 5

DRIVE CLIMATE REPORTING to provide consistency and transparency

 - » Expand Use of ESG Reporting Guidance for the Natural Gas and Oil Industry
 - » Report Comparable Climate-Related Indicators in New Template
 - » Build on the API Compendium of Greenhouse Gas Emissions Methodologies for the Natural Gas and Oil Industry

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Low Carbon Energy Infrastructure & Storage

H₂ and CO₂ Pipelines

- **Permitting**

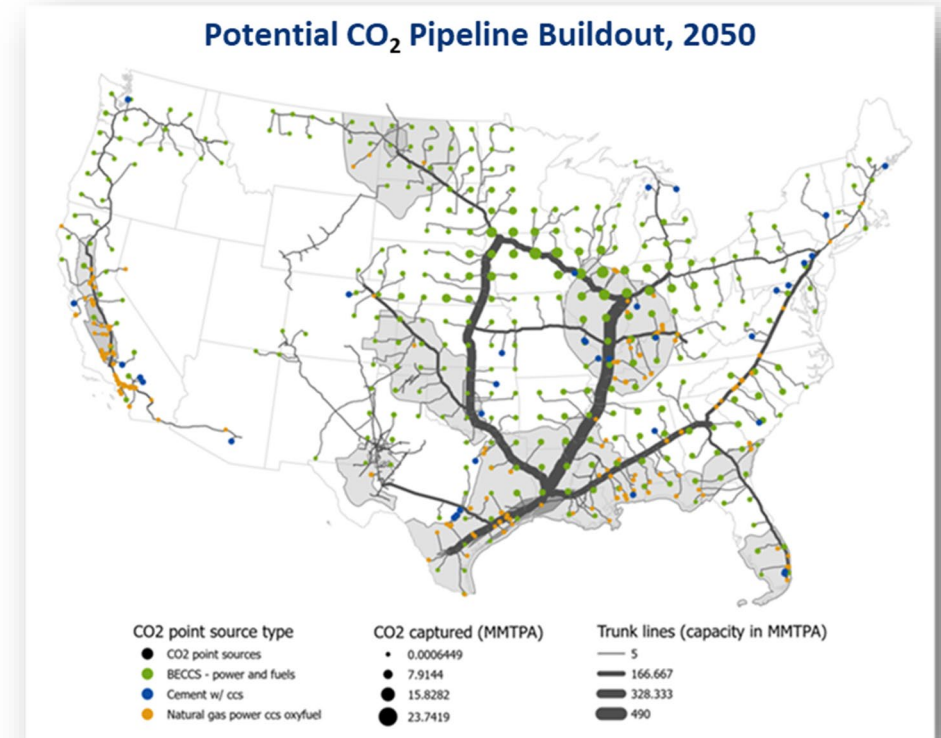
- Challenge of streamlined permitting process as demand for infrastructure increases
- Class VI well/UIC permitting and jurisdiction issues
- Working with API Policy Groups to address permitting reform

- **Emergency Response**

- Developing recommended guidance to support updates to the DOT Emergency Response Guidebook (ERG) which serves as the primary reference for municipal first responders
- Develop Industry Guidelines for CO₂ Emergency Preparedness and a new RP for CO₂ Emergency Response
- Monitoring R&D on odorants for low carbon fuels

- **Public Engagement and Communications**

- RP 1185 - Working with DOE and other organizations on public engagement and education
- Developed Benefits of Pipeline Campaign and Pipeline Education Series materials to effectively communicate to stakeholders



Looking Ahead and Near-term Priorities

- CO2 Pipeline R&D Panel – PRCI Research Exchange (March 8, 2023)
- Completing PRCI CO2 Pipeline SOTA project
- 2023 Pipeline Reauthorization – R&D should be considered in development of CO2 pipeline and storage regulation
- Complete ER Guidance related to CO2 pipelines
- Continued Coordination with all stakeholder
- Emerging Fuels Symposium – CO2 Workshop Being Planned
 - June 5-8, 2023, Orlando, FL
 - <https://www.prci.org/238975.aspx>