PerspECCtive

Theme: ECC SOS Session

2022 Sponsors Only Session

Committee Leads Willie King, Albemarle Tony Caletka, PwC

Sub-Committee Members: Will Kiser, Jonathan Rennie Caleb Hawkins (FL liaison)

> Year: 2022

Date: September 7

San Antonio, Hill Country

ECC

Location:



Sponsors Only Session – Speaker Overview



Ken Simonson Chief Economist Associated General Contractors (AGC)



Lance Amy Global EPC Director Dow



David Greeson Proven Project Development Group



Jeff Sipes Chief Commercial Officer S&B Family of Companies

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Stephen Buras Project Director Albemarle



John Gilmartin Process Director Carbon Capture, Fluor

2022 Sponsors Only Session : Agenda ECC Conference – Day 1 (September 7, 2022)

Start	End	Duration	Subject	Facilitator / Speaker	
1:00 PM	1:10 PM	10 min	Welcome Welcome and SOS Kickoff Speaker Introductions and Topic Overview	Jason Kraynek, Willie King, Tony Caletka	
1:10 PM	1:40 PM	30 min	Industry Trends and Headwinds Part 1 – The Data	Ken Simonson, AGC, Chief Economist, past-Policy	
1:40 PM	1:50 PM	10 Min	Q&A	Advisor	
1:50 PM	2.30 PM	40 Min	Industry Trends and Solutions Part 2 – Response and Mitigation	Panel Discussion - S&B (Jeff Sipes), Dow (Lance Amy), Albemarle (Stephen Buras),	
2:30 PM	2:40 PM	10 Min	Q&A	Moderator, Tony Caletka	
2:40 PM	2:50 PM	10 min	Kick-off - Roundtable Format	Round table-top discussion	
2:50 PM	3:50 PM	60 min	Industry Trends and Solutions Part 3 – Facilitated Roundtable Discussion) (40)	Participant readout Facilitators: Past-Future Leaders,	
			Select Table Readouts (20)	Moderator: Quentin Smith	
3:50 PM	4:40 PM	50 min	Case Study and Learnings Securing DOE support and funding Carbon Capture projects	Presentation - Proven Project Development Group (David Greeson), Fluor, Process Director Carbon Capture (John Gilmartin)	
			Q&A		
4:40 PM	5:00 PM	10-20 min	Wrap-up	ECC Board	



2022 Sponsors Only Session : U.S. Construction Outlook: Workforce Worries, Cost Challenges, Project Prospects

Ken Simonson Chief Economist, AGC of America ken.simonson@agc.org



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Total Nonfarm & Construction Employment, Feb. 2020-July 2022

cumulative change (seasonally adjusted)





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Construction job openings & new hires

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Job openings and hires, June 2001-June 2022, not seasonally adjusted





Source: Source: Bureau of Labor Statistics, www.bls.gov/jlt, JOL

Rate of construction unemployment



July 2000-July 2022, not seasonally adjusted



Sources: Unemployment from BLS <u>www.bls.gov/cps</u>

State construction employment change, Feb. 2020-June 2022

31 states up, 1 flat, 18 states and DC down (U.S.: 0.7%)



Top 5Utah14.1%Idaho12.9%Tennessee12.0%South Dakota10.8%New Hampshire9.8%

Bottom 5

-8.9%
-6.4%
-5.8%
-5.5%
-5.4%





Note: Shading based on raw data Source: BLS state and area employment, <u>www.bls.gov/sae</u>

TRUCTION ASSOCIATION 12 months to: <u>Jul</u> Sep <u>2022</u> <u>2020</u> 25% 1.8% 23.9% **Bid price PPI:** 20% Inputs 15% 1.8% 14.6% **PPI:** 10% 5% 0%_{Sep}___ Nov Jan Mar Nov Jan Mar May Jul May Jul Sep 2020 2022 2022 2020 2021 2021 2021 2021 2021 2021 2022 2022

Costs vs. bid prices for new nonresidential construction

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Year-over-year change in PPIs, Sep 2020-Jul 2022, not seasonally adjusted

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PPIs for construction bid prices and selected inputs

cumulative change in PPIs, April 2020-July 2022 (not seasonally adjusted)







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purce: Bureau of Labor Statistics, producer price indexes, <u>www.bls.gov/ppi</u>

Cost squeeze on contractors can last two years or more

Difference between year-over-year change in materials costs vs. bid prices, Jan 2007-July 2022





Source: Bureau of Labor Statistics, <u>www.bls.gov/ppi</u>, producer price indexes PPI nonresidential (material costs) and new school building (bid prices)

Change in construction spending: June 2022 vs. June 2021

current (not inflation-adjusted) dollars, seasonally adjusted



Total 8%; private residential 16% (single-family 8%; multi -0.1%); private nonres 2%; public -0.4% Largest segments (in descending order of June 2022 spending)

- Power -12% (electric -15%; oil/gas fields & pipelines -4%)
- Commercial 10% (warehouse 14%; retail 6%; farm 11%)
- Highway and street -1%
- Education -1% (primary/secondary -9%; higher ed 8%)
- Mfg. 34% (chemical -9%; computer/electronic 149%; food/beverage/tobacco 5%; transp. equip. -25%)
- Office -1%
- Transportation -4% (air -14%; freight rail/trucking 5%; mass transit 2%)
- Health care 4% (hospital 6%; medical building 7%; special care -13%)
- Lodging -7%

Forward-looking indicators



Indicator	Latest date	Current value	Year-ago value
Architecture Billings Index (ABI)	June	53.2	57.7
Dodge Momentum Index (DMI)	July	179	159
Multifamily permits not yet started	July	147,000	100,000



Medium-term impacts as recovery begins



- Economic recovery should continue but invasion of Ukraine and Western sanctions add to cost and supply-chain pressures
- Slower rebound than for other sectors as owners, investors/lenders, institutions, and public agencies face uncertainty about future demand, costs, and completion times
- Continuing cost and supply challenges may lead to more project deferrals
- Infrastructure funds will take time to distribute and award to individual projects, muting the medium-term impact on labor and materials "shortages"
- Best current prospects: manufacturing, data centers, renewable energy
- At risk of slowdown: warehouse, multifamily

Long-run construction outlook (post-pandemic)



- Finding workers will be a challenge for much longer than materials costs or supply
- Slower population growth means slower demand growth for most construction
- Slowing demand for K-12, decline for higher ed construction
- Permanent shift from retail to e-commerce/distribution structures
- More specialized and online healthcare facilities; fewer hospitals, nursing homes
- More wind, solar, battery storage and charging facilities, and related manufacturing
- Not clear if offices will decentralize or remain in less demand
- Not clear if recent urban/rural or state-to-state migration will remain or reverse

Source: Author

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0-0.49% 0.5-0.99% 1.0-1.49% 1.5%+ Decrease 0.3% <u>Top 6</u> NH 1.7% 0.7% 0.8% -0.5% ID 2.9% 0.0% 0.1% VT UT 1.7% 2.9% 0.5% 0.1% -1.6% 0.9% -0.2% 0.3% MT 1.7% MA -0.2% 0.1% -0.5% ΑZ 1.4% 0.3% -0.1% 1.7% 1.0% -0.9% 0.3% RI СТ SC, DE 1.2% -0.7% 0.5% -0.4% 0.1% -0.1% 0.1% -0.04% 0.2% 0.1% **Bottom 5** DE NJ 0.9% 0.8% -0.1% 1.2% DC -2.9% 0.6% 1.4% -0.1% 0.5% 1.2% MD DC NY -1.6% 0.7% -2.9% -0.1% 0.3% -0.2% IL -0.9% 1.1% AK -0.6% HI -0.7% 0.03% 10 CA -0.7% 1.0% ₹•7 HI -0.7%

Population change by state, July 2020–July 2021 (U.S.: 0.12%)



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AGC economic resources

(email ken.simonson@agc.org)

- The Data DIGest: weekly 1-page email (subscribe at <u>http://store.agc.org</u>)
- Construction Inflation <u>Alert</u>:

https://www.agc.org/learn/construction-data/agc-construction-inflation-alert

- ConsensusDocs Price Escalation Resource <u>Center</u>: <u>https://www.consensusdocs.org/price-escalation-clause/</u>
- Surveys, state and metro data, fact sheets: <u>www.agc.org/learn/construction-data</u>
- Monthly press releases: construction spending; producer price indexes; national, state, metro employment with rankings: https://www.agc.org/newsroom





CONSTRUCTION INFLATION ALERT

or more than two years the U.S. construction industry has been befleted by an precedented increases in meterials only, supply chain bottleneds, and a sight bloor naries. To help exploit owners, generment officials, and the suble adarstand how these conditions are affecting contractors and then workers, the Associated General Contractors of metac (AGC) has posted frequent updates of the Construction Mitlion Arent.

Several next developments have related the spectre of a sharp doubles or even a meetinger in the U.S. sourcovy, inflation is at a 60-year high, apping consumers' purchaing power despite a leverad wage increases. Major stock minimum have also sharp war a frequent but not bedueed having and me assion. A growing member of songer its have an encoursed buy offs, a through the job market armains where its a indicated by large meeting employment increases, market or top company, and a game thank to be present at market armains where its a indicated by large meeting employment increases, market out job company, and a game thank to power that

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Source: Author

PerspECCtive

Theme: ECC SOS Agenda

2022 Sponsors Only Session : Industry Trends and Solutions Part 2 – Response and Mitigation

Date:

Sep 7

Panelist:

Stephen Buras, Albemarle Lance Amy, DOW Jeff Sipes, S&B

Moderator

Tony Caletka, PwC

Year:	
2022	2

Location: San Antonio ECC



Sponsors Only Session – Speaker Overview



Jeff Sipes Chief Commercial Officer S&B Family of Companies



Stephen Buras Project Director Albemarle



Lance Amy Global EPC Director Dow



Responding to Inflation and Uncertainty





Supply Chain and Workforce Solutions



Lance Amy Global EPC Director Dow



Managing What We Can Control



Jeff Sipes Chief Commercial Officer S&B Family of Companies



Sponsors Only Session – Q & A



S&B Family of Companies

Stephen Buras Project Director Albemarle



Lance Amy Global EPC Director Dow



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Theme: ECC SOS Agenda

2022 Sponsors Only Session : Industry Trends and Solutions Part 3 – Facilitated Roundtable Discussion

Table Facilitators: Past-Future Leaders

Moderator Quentin Smith

> Year: 2022

Date:

Sep 7

San Antonio

Location:

ECC

Questions – How are these factors impacting your portfolio, and how are you mitigating them?

1. Supply chain, equipment & materials shortages, lead time and logistic challenges

2. Labor availability and skills shortages, while attempting to retain and recruit employees

3. Ability to manage pipeline and margin uncertainty, given inflation and transition of funding priorities towards cleaner and renewable energy



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Theme: ECC SOS Agenda

2022 Sponsors Only Session Advancing Carbon Capture Projects with DOE Funding Support

Presenters:

John Gilmartin, Process Director, Carbon Capture, Fluor David Greeson, Proven Project Development Group

Date:

Sep 7

Moderator

Willie King, Albemarle



Location: San Antonio ECC



2022 Sponsors Only Session Advancing Carbon Capture Projects with DOE Funding Support





David Greeson Proven Project Development Group



Introduction – Path to Net Zero by 2050

7

6

5

3

2

0

emissions (Gigatons CO2e per year)

Net

U.S. goal of Netzero by 2050 is a monumental task

- The path will require several components including:
 - Increased energy efficiency
 - Switch to Hydrogen & Low carbon fuels
 - Decarbonization of electricity

U.S. carbon emissions reduction targets are part of the solution:

- 50% reduction from 2005 levels by 2030
- Carbon-pollution-free power sector by 2035

Carbon capture technologies will play an integral role to be able to meet targets



REPRESENTATIVE PATHWAY TO 2050 NET-ZERO

Source: whitehouse.gov

Introduction – How the Government is helping

The Federal Government is supporting carbon capture through tax credits

- In 2018, passed 45Q to incentivize carbon capture implementation
- Recently passed Inflation Reduction Act (IRA) increases incentives from the original 45Q

The DOE is investing billions of dollars to help meet carbon capture targets

- How the DOE offers support through its offices
- How to secure DOE funding for your carbon capture project?
- What are the opportunities / challenges associated with receiving DOE funding support?



Original 45Q Federal Tax Credit Highlights

- Furthering Carbon Capture, Utilization, Technology, Underground storage, and Reduced Emissions Act (FUTURE Act) or 45Q is a part of the Bipartisan Budget Act of 2018
- 45Q provides a performance-based tax credit to power plants and industrial facilities that capture, use, or store CO_2 that would otherwise be emitted into the atmosphere
- The captured CO_2 could be utilized (i.e. for EOR or as a feedstock) or sequestered deep in saline geologic formations
- Tax credits go to the entity capturing, using or storing CO₂
- Tax credits can be transferred from the entity capturing CO_2 to the entity using it
- Eligible projects should begin **construction** before January 1, 2026 (since updated in the IRA)
- Projects can claim credit for up to 12 years after the carbon capture plant is placed in service.

45Q Original Credit Specifics

Level of credit available for different combinations of CO₂ sources and uses

	Minimum size of eligible carbon capture plant by type (ktCO ₂ /yr)			Relevant level of tax credit in a given operational year (USD/tCO ₂)					ar						
		Power plant	Other industrial facility	Direct air capture		2018	2019	2020	2021	2022	2023	2024	2025	2026	Later
Type of CO ₂ storage/use	Dedicated geological storage	500	100	100		28	31	34	36	39	42	45	47	50	eq
	Storage via EOR	500	100	100		17	19	22	24	26	28	31	33	35	ex link
	Other utilisation processes ¹	25	25	25		172	19	22	24	26	28	31	33	35	pul

 1 each CO $_2$ source cannot be greater than 500 ktCO $_2/yr$

 2 Any credit will only apply to the portion of the converted $\rm CO_2$ that can be shown to reduce overall emissions



Inflation Reduction Act Highlighted Impacts on 45Q

Bill extends deadline for starting construction until 2032 for eligibility of credits

Relaxes minimum annual carbon capture requirement:

- Electric generating facilities: 500,000 metric tons reduced to 18,750 metric tons with 75% total carbon emissions captured
- Direct air capture: 100,000 metric tons reduced to 1,000 metric tons
- All other facilities reduced to 12,500 metric tons

Includes changes that could make monetizing the 45Q credits easier (could expand investor marketplace) Includes domestic content requirements for iron, steel, or other manufactured products

Tax credit increases

	Original 2018 BBA 45Q Credit	2022 IRA 45Q Credit
Industrial Facility with CO ₂ Utiliization	Up to \$35 per metric ton	Up to \$60 per metric ton
Industrial Facility without CO ₂ Utiliization	Up to \$50 per metric ton	Up to \$85 per metric ton
Direct Air Capture with CO ₂ Utilization	Up to \$35 per metric ton	Up to \$130 per metric ton
Direct Air Capture without CO ₂ Utilization	Up to \$50 per metric ton	Up to \$180 per metric ton



Bipartisan Infrastructure Law (BIL)

BIL (Infrastructure Investment and Jobs Act) passed in November 2021

- Nearly \$550 billion in total new infrastructure spending
- \$65 billion investment includes funds to new programs to "support the development, demonstration, and deployment of cutting-edge clean energy technologies to accelerate our transition to a zero-emission economy" *Source: whitehouse.gov*
- Associated funding opportunities expected to be announced in very near future

DOE's Goal and Organizational Structure

Spearheading the US's role to deliver a clean energy future In February 2022, a shift in the organizational structure of the DOE was made to better support and fund private industry



<u>DOE org chart</u> (simplified by for illustrative purposes)

Source: Climate Tech VC ctvc.co

DOE Support across the Value Chain

National Labs – 17 national labs responsible for breakthrough climate technologies

Office of Science – supporter of basic research for theoretical physicists and nuclear scientists

Office of Energy Efficiency and Renewable Energy – tasked with equitably transitioning the US to net zero by 2050. Five key decarbonization priority areas: 1) electricity 2) transportation 3) energy-intensive industries 4) buildings 5) agriculture

Fossil Energy and Carbon Management – offers support to climate technologies reducing emissions from fossil fuel production, removing atmospheric CO_2 , and durably converting/storing CO_2

ARPA-E – innovation focused climate program seeking to accelerate and de-risk early TRL gamechanging energy technologies

Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) – provide grants sponsored by a federal agency to expand R&D and innovation

Office of Technology Transitions – assists DOE-developed technologies through the value chain collaborating with private sector to ensure technology de-risking

Office of Clean Energy Demonstrations – supports demonstration projects across clean hydrogen, carbon capture, nuclear reactors, energy storage, and grid updates

Loan Programs Office – offers loans to scale fully to commercial-level deployment

How the DOE releases information about funding

Request for Information (RFI) – an RFI will be issued as an open call for key industry stakeholders and the general public to engage with them on key priority areas

– An RFI is often a strong signal that a funding opportunity will soon follow

Notice of Intent (NOI) – the DOE may release a NOI to "pre-announce" and establish a date for when the funding opportunity will be issued

 Examples: Regional DAC hubs (Q4 2022), CCS Demonstration Projects (Q4 2022)

Funding Opportunity Announcement (FOA) – the formal opening of a funding opportunity

Starting the Process

- DOE's Office of Fossil Energy and Carbon Management (FECM) issues competitive
 - FOA solicitations
- List of FOAs or NOIs can be found at:

https://www.netl.doe.gov/business/solicitations





NETL uses FedConnect, EERE Program Information Center (open in Google Chrome), Grants.gov, and Contract Opportunities to post solicitations and funding opportunity announcements and amendments, receive proposals and applications, and disseminate award information. Entities wishing to participate in these solicitations will need to register at these websites. Proposals will be accepted only through the websites indicated in the solicitation document.

NETL solicitations and funding opportunities are listed below by program area, in descending order of posting date.

- View All Solicitations
- View all Bipartisan Infrastructure Law Solicitations & Funding Opportunities
- Accessing Solicitations/Funding Opportunity Announcements in FedConnect
- Solicitations and Funding Opportunities Archive

Fossil Energy and Carbon Management

Posted Date	Announcement Type	Solicitation/Funding Opportunity Announcement Number	<u>Title</u>	<u>Closing Date</u>	DOE Contact
2022-08-05	Funding Opportunity Announcement (FOA)	DE-FOA-0002616	Innovative Methane Measurement, Monitoring, and Mitigation Technologies (iM4 Technologies)	2022-10-04	Maureen Davison
2022-08-03	Funding Opportunity Announcement (FOA)	DE-FOA-0002610, Amendment 0002	DE-FOA-0002610, Amendment 0002	2022-09-15	Carla Winaught
2022-07-29	Funding Opportunity Announcement (FOA)	DE-FOA-0002620	Carbon Ore Processing	2022-10-06	Bethan Young
2022-07-28	Notice of Intent (NOI)	DE-FOA-0002882	DE-FOA-0002882 Notice of Intent (NOI) to Amend DE-FOA- 0002400 Amendment 000008	2022-08-31	Jodi Collins



FedConnect <u>https://www.fedconnect.net/FedConnect/Default.htm</u>	Grants.gov https://www.grants.gov/
EERE Program Information Center	Contract Opportunities
https://epicweb.ee.doe.gov/EPICWeb/#/home	https://sam.gov/content/home

Solicitations, FOAs and amendments, receiving proposals and applications, and disseminating award information

Must register at these websites to participate

Proposals accepted only through website indicated in the solicitation document



Completing an FOA Application

Numerous steps in the application process

- Can take several months from start to finish
- Deadlines listed on the cover page of the FOA

Applicants must submit detailed information on:

- Technology being considered
- Relevant experience of Project sponsor
- How project will be delivered in a commercially successful manner
- How will project support other Administration priorities
 - e.g. social justice initiatives



Keys to Filling Out DOE FOA Applications

Must follow stringent guidelines and formatting rules

- Typically limited to around 35 pages

Identify all prime and sub-recipients of funding

Be convincing on competency to execute the project outlining key details while providing a sales punch

- What differentiates your project from others?
- DOE sees numerous applications and tends to favor new and novel concepts
 - Leads to funding of many technologies with low TRLs

Keys to Filling Out DOE FOA Applications

Be clear on what information will be provided with reports to DOE at the end

- Limited rights data information can be shared with DOE, but will not be provided
- Protected rights data information will be provided to DOE under confidentiality and will not be disclosed to public over confidentiality term
- Unlimited rights data information that DOE can share in public report



Funding Agreements

Successful applicants will be invited to negotiate a cooperative agreement

- Agreement on timing for receipt of funding and conditions of funding
- Funding recipients are typically required to contribute a percentage of cost share
- Requires awardees to meet milestones throughout the project to continue receiving funding
- DOE requires specific accounting practices for use of the funds

Writing Reports for DOE

Public Final Report

- Contains only non-confidential information for public consumption
 - Where it is practical, modify some key confidential deliverables to make non-confidential
 - No redactions
- Executive summary should highlight key unique findings on the project
- Needs to be very descriptive around each drawing / deliverable

Confidential Final Report

- Contains unlimited and protected rights data, but not limited rights data
- Deliverables with limited rights data can be redacted where practical to suit final report

Keys to being selected

Excellence

- Follow the rules to a "T" DOE has been doing this for a long time and wrote the rules for a reason not to just see if you can follow instructions
- Clear and concise language they don't care if you think your project is wonderful, they want the facts so they
 can come to that conclusion
- English and grammar matter suggest lead editor be a native English speaker
- Make sure the math adds up Nothing unsettles a reviewer more than a math error

Preparation

- For the past 10 years DOE has used a very standard format for FOAs because they have done this so much, they know what works
- Use prior solicitations to prepare draft application then you only need to adapt rather than create when FOA is issued
- Make your first submittal at least 3 days before the deadline the site can go down and DOE does not consider that an excuse. If you need to amend, DOE typically will only accept the LAST version of your application submitted

Successful Project Execution with DOE

Treat DOE as an Investor – which they are

Invite them to all technical and commercial meetings – share everything provided to non-government investors and lenders

Submit complete reports on time – hitting DOE's deadlines with quality reporting is key to maintaining relationship

Work with DOE on issues/problems – DOE has probably dealt with a version of your problem before

Flexibility – do not underestimate DOE's flexibility and their tool chest available to handle problems

- They want you to succeed more than you do
- Demonstration projects by their nature lay bare issues with commercial deployment of a technology –
 DOE is prepared to help with project modifications or changes to the execution plan in order to achieve Congressional objectives



Petra Nova Case-Study

\$600 million CCS demonstration
\$190 million DOE Demonstration Grant
6 years of planning and study prior to NTP
On-time and on-budget
Cooperative Agreement amended many times
Almost all related to schedule leading up to NTI

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Theme: ECC SOS Session

2022 Sponsors Only Session Thank you

Committee Leads Willie King, Albemarle Tony Caletka, PwC

Sub-Committee Members: Will Kiser, Jonathan Rennie Caleb Hawkins (FL liaison) Speakers: Ken Simonson, AGC Lance Amy, Dow Stephen Buras, Albemarle Jeff Sipes, S&B John Gilmartin, Fluor David Greeson, PPDG



Year: Date: 2022 Septer

September 7 San Antonio, Hill Country

Location:



SOS Session – Speaker 4

Securing DOE support and funding Carbon Capture projects





John Gilmartin Process Director Carbon Capture, Fluor

David Greeson Proven Project Development Group

Background:

John P. Gilmartin is a Process Engineering Director at Fluor with more than 21 years of gas treating experience, specifically as it related to carbon capture. A significant portion of John's time at Fluor has focused on advancing the Econamine FG PlusSM (EFG+) technology for post-combustion carbon capture. He holds one patent for an EFG+ split flow configuration and is recognized as a Fluor CO_2 capture SME.

Background:

David Greeson is a consultant to the carbon capture and power generation industries. Until his retirement in 2018, David was the Vice President of Development for NRG Energy where he led NRG's Gulf Coast business development group and the company's carbon capture program. David was the developer of the \$1 billion Petra Nova project near Houston, TX from inception through commissioning and is now consulting with companies planning development of CO_2 capture projects. He began his career in the power industry 42 years ago at Houston Lighting & Power. Over the years, he has developed five major power projects here in the US which represent over \$3 billion of investment.

Key takeaways: Carbon Capture Projects

Funding Opportunities: U.S. Federal government is investing billions of dollars to achieve NetZero by 2050 through development and deployment of clean energy technologies and massive tax credits for projects successful in capturing CO₂.

Securing Support: Attainable by diligently filling out FOA applications that are clear, concise, and sell the novel parts of your project.

Carbon Capture Trends: Since passage of original 45Q Future Act in 2018 along with 2022 IRA enhancements and BIL funding, the number of carbon capture prospects are rapidly expanding.

Taking it Further:

john.gilmartin@fluor.com, (949)349-3331 david@davidgreeson.com, (281)220-7623

Industry Trends and Headwinds

Practical solutions to respond to Industry Trends and Headwinds – Ken Simonson Takeaways

Speakers / Panel







Ken Simonson Chief Economist Associated General Contractors (AGC)

Jeff Sipes Chief Commercial Officer S&B Family of Companies

Stephen Buras Project Director Albemarle

Lance Amy

Dow

Tony Caletka Global EPC Director Moderator Partner, PWC

<u>Summary</u>

Owners and contractors are mitigating recent industry 'headwinds', including inflation, supply chain, finance and labor challenges, by managing what they can control and staying focused on project economics and strong project delivery. Simonson identified four developments affecting the near-to-medium E&C outlook;:

- Inflation & rising interest rates are slowing the economy, especially including housing and "commercial" construction
- Manufacturing, power/energy & infrastructure construction are much less vulnerable
- Supply-chain shocks & sudden cost swings add to uncertainty about project timing, contractor finances
- But worker shortages and inexperience are the #1 concern for many contractors

Mitigating supply chain / material shortages, lead-time and logistic challenges Reducing impact of labor availability and skills while enhancing ability to recruit and retain employees Managing pipeline uncertainty given inflation and transition of funding priorities on clean and renewable energy? Materials costs and lead times are no longer universally rising but requires earlier specing, payment, issues with storage, theft, mis-ordering Earlier ordering cuts price & lead-time uncertainty but requires earlier specing, payment, issues with storage, theft, mis-ordering Pandemic worker shortfall as other sectors raise pay, benefits, offer flexible hours and working locations Notable themes: Octations Notable themes:	Key Takeaways – Fr	om Ken Simonson					
Materials costs and lead times are no longer universally remain unpredictableNotable themes:Notable themes:Notable themes:Notable themes:Notable themes:• Earlier ordering cuts price & lead-time uncertainty but requires earlier spec-ing, payment, issues with storage, insurance, risk of damage, theft, mis-ordering• Pandemic worsened worker shortfall as other sectors raise pay, benefits, offer flexible hours and working locationsNotable themes:• Contractors will need to raise pay, offer higher per diems, and more overtime to be competitive and offset shortfall as other sectors raise pay, benefits, offer flexible hours and working locationsNotable themes:• Notable themes: • Contractors will need to raise pay, offer higher per diems, and more overtime to be competitive and offset shortfall as other sectors raise pay, benefits, offer flexible hours and working locationsNotable themes: • Contractors will need to raise pay, offer higher per diems, and more overtime to be competitive and offset shortfall as other sectors raise pay, benefits, offer flexible hours and working locationsNotable themes: • Contractors will need to raise pay, offer higher per diems, and more overtime to be complicated • Expect more offsite fabrication, onsite use of advanced tools, software • Employer-sponsored immigration would help but relief appears unlikelyNotable themes: • Will require greater engagement with schools & worker • Need to make jobsites more workers • Need to offer feedback, encouragement & recognition without micromanaging	Mitigating supply chain logistic challenges	/ material shortages, lead-time and	Reducing impact of labo enhancing ability to rec	or availability and skills while ruit and retain employees	Managing pipeline uncertainty given inflation and transition of funding priorities on clean and renewable energy?		
	Materials costs and lead times are no longer universally rising but remain unpredictable	 Notable themes: Earlier ordering cuts price & lead-time uncertainty but requires earlier spec-ing, payment, issues with storage, insurance, risk of damage, theft, mis-ordering Price adjustment clauses worth exploring but can be complicated Frequent communication & decision-making are vital 	Pandemic worsened worker shortfall as other sectors raise pay, benefits, offer flexible hours and working locations	 Notable themes: Contractors will need to raise pay, offer higher per diems, and more overtime to be competitive and offset shortfall of experienced workers Expect more offsite fabrication, onsite use of advanced tools, software Employer-sponsored immigration would help but relief appears unlikely 	Contractors can expect worker shortages, skills gap to outlast materials-cost & supply-chain woes	 Notable themes: Will require greater engagement with schools & workforce agencies Need to make jobsites more welcoming to diverse sources of workers Need to offer feedback, encouragement & recognition without micromanaging 	

Industry Trends and Headwinds

Practical solutions to respond to Industry Trends and Headwinds – Industry Panel Takeaways

Speakers / Panel









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tor Tony Caletka Noderator Partner, PWC

Summary

Owners and contractors are mitigating recent industry 'headwinds', including inflation, supply chain, finance and labor challenges, by managing what they can control and staying focused on project economics and strong project delivery. Simonson identified four developments affecting the near-to-medium E&C outlook;:

- Inflation & rising interest rates are slowing the economy, especially including housing and "commercial" construction
- Manufacturing, power/energy & infrastructure construction are much less vulnerable
- Supply-chain shocks & sudden cost swings add to uncertainty about project timing, contractor finances
- But worker shortages and inexperience are the #1 concern for many contractors

Key Takeaways – From the Panel

Mitigating supply chain logistic challenges	/ material shortages, lead-time and	Reducing impact of la enhancing ability to re	bor availability and skills while ecruit and retain employees	Managing pipeline uncertainty given inflation and transition of funding priorities on clean and renewable energy?					
Materials costs and lead times are no longer universally rising but remain unpredictable	 Notable mitigations: Order equipment very early and commit to, and expedite, long lead equipment before FID. Plan for extended lead times even on items that historically were off the shelf. In some cases, it may be better to buy 'local', at higher cost, to avoid shipping and logistic risks. Select EPC and manufacturers for strategic scope and major equipment 'early' with a long-term plan for future buying. 	Pandemic worsened worker shortfall as other sectors raise pay, benefits, offer flexible hours and working locations	 Notable mitigations: Align recruiting with expected portfolio growth and forecast demand Minimize availability risks by partnering with EPC's that can hire into the workload and work share on Sustaining and Growth Cap-Ex Apply CII best practices around owner and contractor alignment as critical factor to project performance. Execute the project expeditiously without recycling execution strategy decisions already made 	Contractors can expect worker shortages, skills gap to outlast materials-cost & supply-chain woes	 Notable mitigations: Basic blocking and tackling drives project predictability. Improve estimates and schedules developed in FEL2 so that key cost and schedule decisions can be made well before FID. Prioritize projects based on ROI/IRR, and surety of outcome. Improve demand planning across multiple projects to avoid 'just in time' delivery (stockpile high demand bulk materials and long lead equipment) 				