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REACHING NET ZERO TOGETHER

Hydrogen, the Inflation Reduction Act, and Funding Opportunities

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Presenters



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Agenda

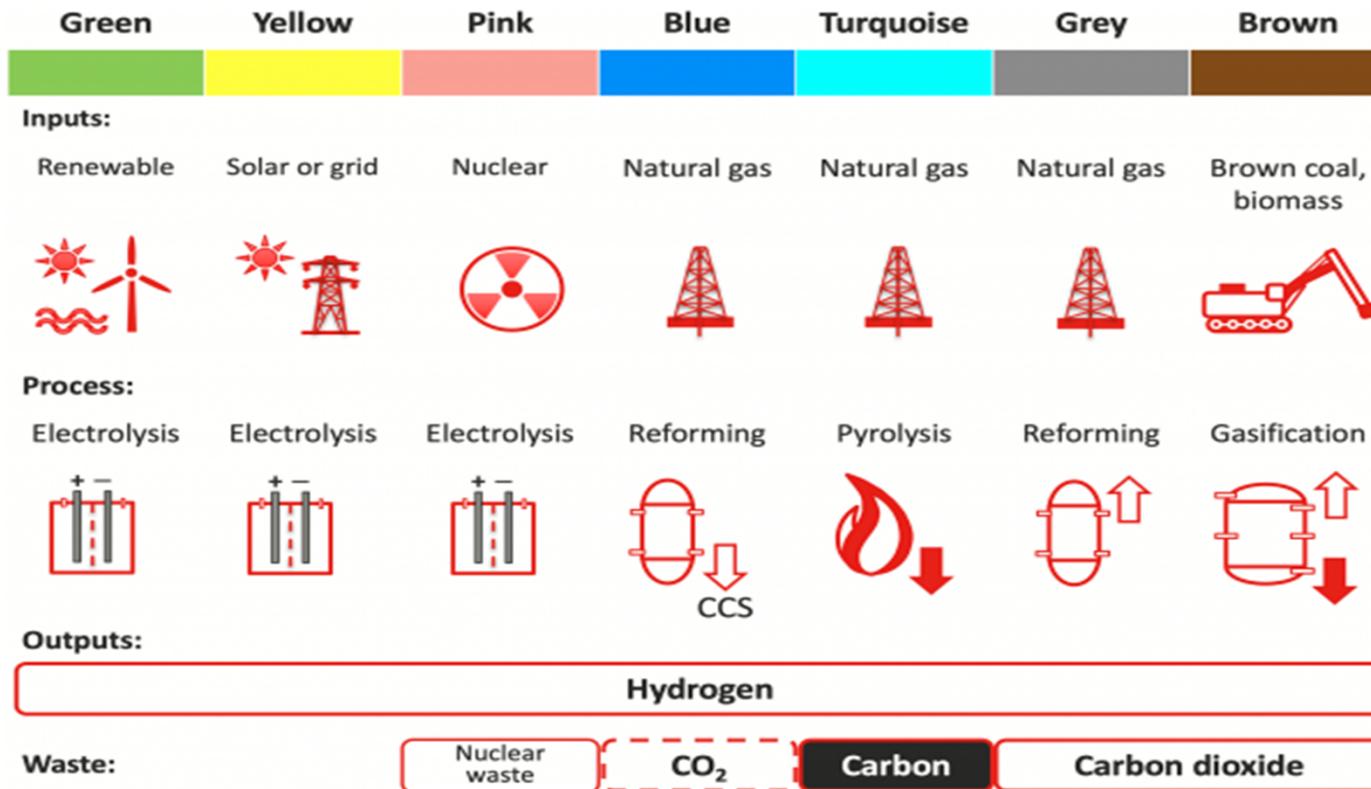
- Expected role of hydrogen in energy transition
- Fueling hydrogen project development with tax incentives
- Fueling hydrogen project development with government funding
- Commercial considerations and best practices when developing hydrogen projects



Expected Role of Hydrogen in Energy Transition

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What Color Is Your Hydrogen?



Hydrogen Investment in the US

- Potential
 - Hydrogen can be used in several ways:
 1. Fuel hard to decarbonize sectors of our economy:
 - long-haul trucking
 - steel and metal manufacturing
 2. Store energy for long periods of time
- Challenges
 1. Production costs
 2. Transportation and storage at scale
- Hydrogen Energy Earthshot Goal – “111”

Stimulating the Hydrogen Economy

- Infrastructure Investment and Jobs Act (IIJA) – November 2021
 - DOE has made \$8 billion available for the formation of regional clean hydrogen hubs, with final funding decisions anticipated by the fall of 2023
- Inflation Reduction Act (IRA) – August 2022
 - New Section 45V for clean hydrogen tax credits
 - Additional loan authorization to DOE's Loan Programs Office (LPO)
 - New loan program, the Energy Infrastructure Reinvestment (EIR) Program.



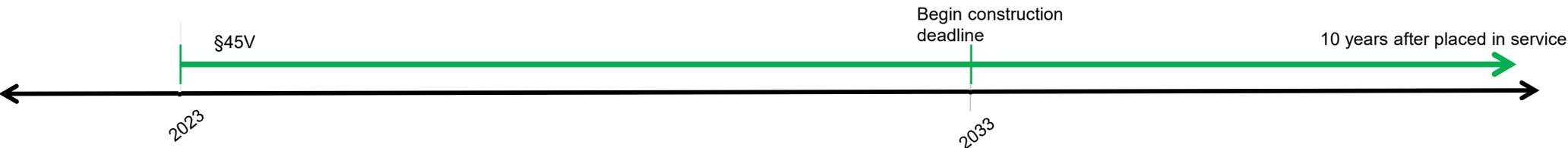
Fueling Hydrogen Project Development with Tax Incentives

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Clean Hydrogen Production Tax Credit – Section 45V

- **Section 45V clean hydrogen credit**

- New 10-year PTC for facilities that begin construction before Jan. 1, 2033, with respect to clean hydrogen produced in the United States after Dec. 31, 2022.
- Credit amount is based on kilograms of “qualified clean hydrogen” produced and sold or used during a year multiplied by the applicable emissions-based rate on the next slide.
- *Taxpayers can elect to claim a Section 48 ITC in lieu of this PTC (with the ITC rate also dependent on the applicable emissions factor).*



Clean Hydrogen Production Tax Credit – Section 45V

- **Eligibility for and Amount of Section 45V PTC?**

- Based on measured “Lifecycle Greenhouse Gas Emissions Rate”
 - “Well-to-gate”
 - REC matching standard? (temporal matching, additionality, regionality/deliverability)

	Lifecycle Greenhouse Emissions Rate			
	Less Than 0.45 KG of CO2e Per KG of Hydrogen Produced	Less Than 1.5 KG to 0.45 KG of CO2e Per KG of Hydrogen Produced	Less Than 2.5 KG to 1.5 KG of CO2e Per KG of Hydrogen Produced	4 KG to 2.5 KG of CO2e Per KG of Hydrogen Produced
Satisfy Prevailing Wage & Apprenticeship Standard	\$3.00	\$1.00	\$0.75	\$0.60
Do Not Satisfy Prevailing Wage & Apprenticeship Standard	\$0.60	\$0.20	\$0.15	\$0.12

* Rates subject to adjustment based on 2022 base year inflation factor.

Energy Storage Tax Credits

- **Energy Storage (Section 48/48E)**

- ITC for stand-alone energy storage facilities
- Applies to broad set of storage technologies, including hydrogen
- Subject to wage and apprenticeship 5x adder/80% haircut
- Election out of the Section 50(d)(2) “public utility property” limitation for larger energy storage facilities (capacity in excess of 500 kilowatt hours).
- Potential bonus ITC “adders” for energy community/domestic/low-income community content standards.



Alternative Fuel Charging Station Investment Tax Credit – Section 30C

- **Section 30C Alternative Fuel Vehicle Refueling Property Credit**

- Applies to variety of types of EV charging and alternative fuel refueling property
 - Fuel that at least 85% volume consists of ethanol, natural gas, compressed natural gas, liquified natural gas, liquefied petroleum gas, or hydrogen
- Expansion and extension of credit – increases per charging station maximum credit from \$30K to \$100K and extends to property placed in service before 2033
- Subject to wage and apprenticeship 5x adder/80% haircut
- Restricts credit eligibility – facility must be located in “low-income community” or non-urban areas



Manufacturing Tax Credits – Section 48C ITC and Section 45X PTC

- **Section 48C Advanced Energy Projects**

- \$10 billion additional ITC allocations for investments in new or upgraded factories to build or recycle specified renewable energy components
- Now includes equipment designed to refine, electrolyze, or blend any fuel, chemical, or product that is renewable or low-carbon and low-emission
- Credits must be specifically awarded by DOE/IRS

- **Section 45X advanced manufacturing credit**

- Applicable to components produced and sold after Dec. 31, 2022
- Credit applies to listed eligible components (individually or integrated into other eligible components) produced in the United States
- Includes certain critical minerals included in hydrogen production equipment (e.g., titanium and platinum)
- The applicable credit rate is based on the type of component produced and sold

Prevailing Wage and Apprenticeship

Wage and Apprenticeship Standard (5x adder/80% haircut)

- Prevailing Wage Requirement

- Based on DOL (Davis-Bacon Act) published prevailing rates for such work in the applicable locality. Requires all taxpayers, contractors and subcontractor laborers and mechanics to satisfy for construction and alteration/repair during ITC recapture and PTC period.
- Ability to cure violation through back pay of applicable worker(s) (plus interest) and a \$5,000-per-underpaid-worker penalty to the IRS
- Enhanced back pay/penalty amount for “intentional disregard”

- Apprenticeship Requirement

- Requires (among other requirements) increasing percentage (generally based on beginning of construction year and maxing out at 15% if BOC after 2023) of total labor hours of the construction, alteration, or repair work (taxpayer, contractor, and sub) with respect to a facility be by “qualified apprentices” (i.e., persons participating in a registered apprenticeship program under Davis-Bacon Act rules)
- Excludes foremen, superintendents, owners, or persons employed in a bona fide executive, administrative, or professional capacity
- Deemed satisfaction of requirement if (1) satisfies good-faith effort standard, or (2) pays an applicable penalty to the IRS based on underutilization of qualified apprentices (\$50 per hour, subject to 10x penalty for “intentional disregard”)

Monetization of Tax Credits

- **Refundable credits**

- The IRA provides an election for direct payment (i.e., refundable credit) in lieu of a tax credit for the tax credits mentioned in this presentation.
- Generally, only available for tax-exempt entities, governmental and tribal entities, the Tennessee Valley Authority, and electrical power cooperatives delivering power to rural areas.
- Taxpayers other than those listed above may elect for refundable credits for *Section 45V (clean hydrogen)*, *Section 45Q (carbon capture)*, and *Section 45X (advanced manufacturing)*, in each case, with certain limitations – including that the refundable credit may only be taken in the year the facility is placed in service and the subsequent 4 years (e.g., 5 years out of 10-year Section 45V PTC period).

Monetization of Tax Credits Under the IRA

- **Sale of Credits/Transferability**

- The IRA permits those persons not eligible to elect refundable credits (generally, taxable persons) to elect annually to sell all or a portion of an eligible credit (generally those eligible for refundable credits) for cash to an unrelated person.
- The consideration is not includible in the seller's gross income and may not be deducted by the buyer.
- Credits that are carried back or carried forward from another taxable year cannot be sold.
- The purchased tax credits are taken into account by the buyer in its first taxable year ending with, or after, the taxable year of the selling taxpayer with respect to which the credit was determined.
- The buyer is not permitted to retransfer or resell such purchased credits.
- For an eligible facility held by a partnership or "S" corporation, the election would need to be made at the entity level, and the entity's receipt of cash would be treated as tax-exempt income for tax accounting purposes.
- ITC recapture rules apply.



Fueling Hydrogen Project Development with Government Funding

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Regional Hydrogen Hub Funding Opportunity

- Up to \$7 billion in funding to establish regional clean hydrogen hubs
- Hydrogen hubs to address:
 - Feedstock diversity
 - End-use diversity
 - Geographic diversity
 - Employment
- Selection notifications expected by Fall 2023
- Possible second FOA to solicit additional hydrogen hubs

Clean Hydrogen Technology Funding Opportunity

- Up to \$47 million to support the RD&D of hydrogen and fuel cell technologies
- Topics:
 - Hydrogen carrier development
 - Onboard storage systems for liquid hydrogen
 - Liquid hydrogen transfer/fueling components and systems
 - High-performing, durable membrane electrode assemblies for medium and heavy-duty application
- Full applications due April 28, 2023 and selection notifications expected in September 2023

Clean Hydrogen Electrolyzer and Fuel Cell Development Funding Opportunity

- Up to \$750 million to support the development of electrolyzer technology, domestic supply chains, and high-throughput manufacturing of electrolyzers and fuel cells
- Focuses on:
 - Lowering the cost of hydrogen
 - Manufacturing processes, techniques, and equipment
 - Strengthening the domestic supply chain
- Concept papers due April 19, 2023; full applications due July 19, 2023; selection notifications expected in Fall 2023
- Future funding opportunities expected

Hydrogen Refueling Infrastructure Grants

- Efforts to expand hydrogen refueling network
- Funding to develop hydrogen corridor infrastructure plans
 - Hydrogen fueling plan for the Midwest I-80 corridor
 - Blueprint plan for investment-ready hydrogen fueling and heavy-duty freight truck network from Houston to LA along I-10



Commercial Considerations with Hydrogen Projects

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New Technologies and Methods

- Challenges with unproven or new technology
 - Will the technology be ready within project milestones?
 - How to address equipment breakage or outages?
- Will the technology perform at expected levels?
 - To qualify for the PTC for hydrogen, certain emission reductions must be proven

Addressing Regulatory and Permitting Challenges

- Stakeholder opposition – even to green!
- Complexities due to regulatory gap
 - Question about FERC authority to regulate interstate hydrogen pipelines
 - Lack of regulation for interstate carbon dioxide pipelines
 - Navigation patchwork of state siting regulations
- Contracting for potential changes to regulations
 - Permitting reform effort in Congress
 - Appellate court decisions
 - Changes to incentive tax credits

Counterparty Risk

- On the supply side, new market entrants without a proven track record
 - Credit support provisions essential
 - Changing credit profile/liquidity – an event of default and right of termination
- On demand side, same concerns, and
 - Will the downstream market remain stable?
 - Long-term need to justify investment

Hydrogen Challenges

- Scarcity of hydrogen production
- Cost and energy usage for production and supply of hydrogen
- What types of feedstock be able to generate RINS and LCFS credits?
 - Hydrogen produced by biogas has been approved under expanded RFS pathway rules
 - Uncertainties remain in the treatment of hydrogen in the EPA framework
- Impact of changing CI Score on price and tax incentives
 - What is the definition of “green” hydrogen?

Contracting for Potential for Supply Chain Disruption

- War
 - Russia/Ukraine conflict
- Trade and Tariff Issues
 - Auxin Solar example
- Global Pandemic
 - Work shortage
- Contract should address and assign risks with all potential types of force majeure events (including “regulatory” FM)

Best Practice When Receiving Government Funding

- Strong internal compliance policies help mitigate the risk of missteps and can be required by the terms of certain grants or funding awards
- Carefully documenting activities and expenditures can help avoid agency inquiries about proper use of funds
 - In the event of any agency inquiry or audit, robust internal documentation can help quickly resolve any questions or concerns
- It is essential to ensure that all employees understand the requirements set by any grant or other funding award
 - Ensuring employee awareness protects your project, your organization, and your employees – penalties are possible



Questions?

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Biography



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Casey S. August's practice focuses on US federal tax planning and implementation matters. Representing clients across industries, he advises on structuring and documentation issues for mergers and acquisitions, energy project financings, joint venture collaborations, and intellectual property transfers. Casey also counsels clients on issues involving choice of entity and cross-border structuring and planning, as well as on IRS private letter ruling submissions and securities filings.

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Biography



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Kirstin Gibbs, co-leader of the firm's energy industry team, leader of the climate change and sustainability working group, and member of the firm's hydrogen working group, represents pipelines, producers, traders, marketers, utilities, and end users, on a host of issues. She handles transactional matters related to the development of new oil and gas infrastructure and regularly provides assistance with negotiation of midstream transportation and storage agreements, complex asset management agreements, and commodity transactions. Kirstin also counsels global clients interested in addressing climate change and sustainability initiatives by investing in clean energy technologies, including renewable natural gas and hydrogen, and decarbonizing their operations.

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Biography



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Michael A. Müller represents developers, lenders, government entities, and equity investors in connection with the development, financing, acquisition, and disposition of energy and infrastructure projects. He regularly counsels clients on all aspects of the development, construction, and financing of power production assets. Mike also advises clients on corporate matters including mergers and acquisitions involving natural gas, renewable natural gas, hydrogen, ethanol, hydroelectric, solar, wind, biomass, battery storage, carbon capture and sequestration, and other alternative energy projects, and in connection with transportation, transmission, telecommunications, and other infrastructure projects.

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Biography



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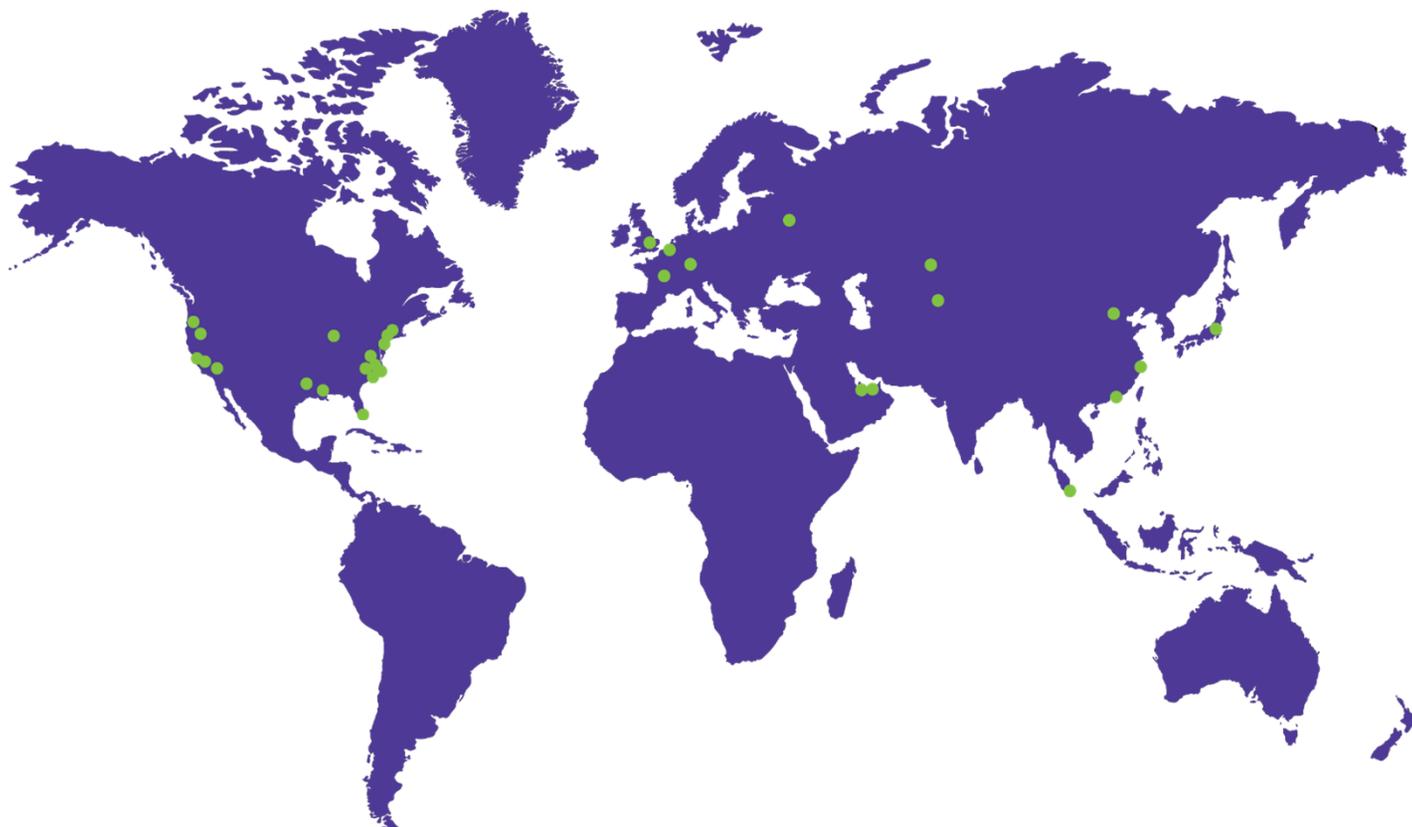
Pamela T. Wu represents companies in the energy industry in a broad range of matters involving rates, market rules and regulation, and energy commodity trading before the Federal Energy Regulatory Commission (FERC) and Commodity Futures Trading Commission (CFTC). She advises clients seeking to reduce their carbon footprint through new infrastructure assets, clean energy technologies, and transacting carbon credits and carbon offsets. Pam is an active member of the firm's Energy Commodity Trading and Compliance Working Group, Hydrogen Working Group, Electric Vehicles Working Group, and Renewables Working Group.

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