



## FINAL REPORT



**The Greater Gallup EDC 2023 Economic Development Roundtable:  
Positioning the Escalante Generating Station & Northwest  
New Mexico for the Western Inter-State Hydrogen Hub**

January 27, 2023

La Terraza Room, La Fonda on the Plaza  
Santa Fe, New Mexico

# Contents

	<u>PAGE</u>
1. Overview .....	4
2. Keynote Presentations .....	8
3. Breakout Discussions .....	18
4. Conclusion .....	25
5. Appendices .....	27



## Appendices

1. Agenda
2. White Paper
3. Speaker Bios
4. List of Attendees
5. Exit Survey Results
6. Keynote PowerPoints

# GGEDC EXTENDS A VERY SPECIAL THANK YOU TO

## The Lead Sponsor:



## The Keynote Speakers:

- |                              |   |
|------------------------------|---|
| <b>Tommy Haws</b>            | Board President, Greater Gallup Economic Development Corp.  |
| <b>Ryan Peay</b>             | Deputy Assistant Secretary, Resource Sustainability, Office of Fossil Energy and Carbon Management, U.S. Department of Energy |
| <b>Henry C. McKoy, Jr.</b>   | Director, Office of State and Community Energy Programs, U.S. Department of Energy  |
| <b>James Kenney</b>          | Cabinet Secretary, New Mexico Environment Department  |
| <b>Sarah Cottrell Propst</b> | Cabinet Secretary, New Mexico Energy, Minerals & Natural Resources Department   |
| <b>Alicia Keyes</b>          | Cabinet Secretary, New Mexico Economic Development Department   |
| <b>Dwayne Phillips</b>       | Vice President-Hydrogen, Tallgrass  |
| <b>Justin Campbell</b>       | Vice President-Power & Transmission, Tallgrass  |

## The Facilitation Team:

- |                          |  |
|--------------------------|--|
| <b>Tommy Haws</b>        | Board President, Greater Gallup Economic Development Corporation |
| <b>Michael Sage</b>      | Deputy Director, Greater Gallup EDC                              |
| <b>Bruce Armstrong</b>   | Economic Development Manager, Greater Gallup EDC                 |
| <b>Eileen Yarborough</b> | Executive Director, Cibola Communities Economic Development      |
| <b>Arvin Trujillo</b>    | CEO, 4 Corners Economic Development                              |
| <b>Charles Remkes</b>    | New Mexico Department of Transportation                          |
| <b>Brian Schath</b>      | New Mexico Environment Department                                |

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|-------------------------------|---|
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| <b>Jack McFarland</b>         | Gallup-McKinley County Schools              |
| <b>Martina Whitmore</b>       | Northwest New Mexico Council of Governments |

# Overview

On January 27, 2023, Greater Gallup Economic Development Corporation (GGEDC) convened its annual Economic Roundtable, *“Positioning the Escalante Generating Station & Northwest New Mexico for the Western Inter-State Hydrogen Hub”*, in the La Terraza Room of the La Fonda on the Plaza Hotel in Santa Fe, New Mexico.

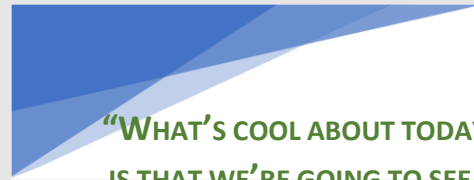
The Roundtable brought together a diverse group of 75 stakeholders, which included New Mexico elected officials, cabinet secretaries, representatives of multiple state agencies, officials with the United States Department of Energy, various businesses developing and operating within the emerging hydrogen sector, City of Gallup and McKinley County officials, members of Navajo Nation, Los Alamos National Laboratory, hydrogen and transportation experts, and economic development practitioners representing three Northwest New Mexico counties. Planned by GGEDC with support from consultant Jeffrey Kiely, the Roundtable was served up by a team of five facilitators, four content experts, and seven impactful volunteers, acknowledged on page 2.

The key objectives of the Roundtable were to:

- Identify potential “end users”, that is, companies and entities that might become consumers of hydrogen, be that in the form of energy, gas, or heat;
- Educate public officials and staff from key government agencies on the opportunities and ramifications of developing the New Mexico portion of the Western Inter-State Hydrogen Hub (WISHH) initiative; and
- Help to prepare New Mexico and the Four Corners region for forthcoming hydrogen development and challenges.

Based on feedback received from the participants in the post-roundtable exit survey, the event appeared to achieve its objectives, particularly by providing in-depth information on the many facets of the Hydrogen opportunity and by allowing for the exchange of ideas, questions and comments in an interactive setting. Several of the responses to the question, “Why did you attend this Roundtable?” are included below. A detailed summary of the exit survey results can be found in Appendix 5.

- *“To better understand the role of Hydrogen in our area's economic and energy future,”*
- *“To learn what is needed to prepare for hydrogen production, transportation and the timing for when this will be a reality,”*
- *“To better understand Hydrogen and its potential impact on Gallup,” and*
- *“To learn more about the Escalante project, show there are additional projects in NM, and better understand NM's role in the WISHH.”*



**“WHAT’S COOL ABOUT TODAY’S ROUNDTABLE IS THAT WE’RE GOING TO SEE A REAL EXAMPLE OF A P3 – PUBLIC PRIVATE PARTNERSHIP – CONCEPT WHERE WE’RE ACTUALLY BRINGING IN THE PRIVATE SECTOR TO DRIVE WHAT THIS HYDROGEN ECONOMY IS GOING TO LOOK LIKE. AND THAT’S WHAT I THINK WE’RE GOING TO WALK AWAY WITH TODAY.”**

- Patricia Lundstrom, CECD  
Executive Director, Greater Gallup EDC



The Roundtable featured four keynote addresses and presented a raft of GGEDC economic development projects and accomplishments that have set the stage for Escalante Generating Station to become a regional hydrogen hub. Perspectives were offered from:

- National hydrogen sector experts in the United States Department of Energy (DOE);
- Representatives of Tallgrass, the company with plans to transition the retired Escalante Generating Station in Prewitt, New Mexico from coal-fired to hydrogen-fired electric generation; and
- The principal authors of the Western Inter-State Hydrogen Hub (WISHH) proposal at the New Mexico Environment Department (NMED), the New Mexico Department of Energy, Minerals and Natural Resources (EMNRD), and the New Mexico Economic Development Department (NMEDD) – seeking a share of the nationwide \$8 billion Federal allocation for hydrogen hubs.



*Michael Sage, Deputy Director of GGEDC, leads one of the Breakout Group discussions on business development in the Hydrogen Hub*

The Roundtable was the capstone to two prior meetings GGEDC hosted in June and August 2022 that helped to position the State of New Mexico and the Escalante Generating Station as leading proponents and components of the four-state WISHH Hydrogen Hub initiative.

## Background

Over the past decade, the GGEDC has hosted Economic Roundtables at least annually – eleven in all since 2014 – as an effective means of addressing specific economic development challenges, launching new initiatives, and educating the public. They have served to increase the capacity of leaders and citizens in the City of Gallup, McKinley County and in State government to promote local, regional and statewide economic growth and to improve the overall quality of life.

Through facilitated discussions, the roundtables provide a forum that enables participants to learn about and address multiple economic development issues in novel, collaborative ways that produce innovative results and drive positive outcomes. These roundtables also provide opportunities for participants to meet and network with regional leaders, innovators, economic development practitioners and organizers.

On the evening of January 26th, many Roundtable participants also had an opportunity to join the “Gallup-McKinley County Day” reception in the La Posada Hotel in Santa Fe. That event provided networking opportunities for attendees and an opportunity to meet several of the Roundtable presenters and facilitators.

Convening public and private development and non-profit sectors, tribal members and business people involved in the hydrogen sector, and academic leaders with a common goal of developing an industrial hydrogen hub in McKinley County, this year's Economic Roundtable generated clear strategies that can be pursued in fulfillment of the WISHH application to benefit the economic growth of the Greater Gallup and Northwest New Mexico region, including the cities of Gallup, Grants and Farmington, and the Navajo Nation.

### A Hydrogen Hub at Prewitt? The Focus of 3 GGEDC Roundtables

For over eight years, the GGEDC has engaged with local industry and other partners in a forward-looking planning process to sustain the Escalante Generating Station (EGS) in Prewitt, New Mexico as a job creator by responsibly transitioning the plant facility into an environmentally sustainable, industrial asset. This work has provided a strong foundation for the present Hydrogen initiative, since the locational and industrial assets of the EGS uniquely position the northwest New Mexico region as a ready-to-go participant in the Western Inter-States Hydrogen Hub initiative.

The first Hydrogen Roundtable, *Super-Charging the Region: Building a Transformational Hydrogen Economy*, took place on June 3, 2022 in the McKinley County Conference Center in Gallup. The roundtable showcased Northwest New Mexico as a region of opportunity for New Mexico's emerging leadership role in the hydrogen economy. The objectives of that Roundtable were to:

- Understand the approach and strategy of the Western Inter-States Hydrogen Hub to developing a federal hydrogen hub proposal, and the role and contributions of the State of New Mexico in that effort
- Understand the State of New Mexico's progress in implementing Executive Order 2022-013 which established the Clean Hydrogen Development Initiative and implemented various measures to foster a hydrogen economy to benefit all New Mexicans
- Understand job creation opportunities associated with the Escalante Generating Station and the deployment of hydrogen energy technology in Northwest New Mexico, and
- Create a framework to integrate and synergize efforts to ensure Northwest New Mexico and the Escalante Generating Station become a cornerstone in the State of New Mexico's strategy to support state, multi-state and national efforts to develop a new hydrogen economy.



*Tommy Haws, GGEDC President, introduces New Mexico Cabinet Secretaries James Kenney, Sarah Cottrell Propst, and Alicia Keyes*


The second economic roundtable, the *Prewitt/Escalante Industrial Infrastructure Strategy Session*, took place on August 15, 2022 at the Escalante Generating Station in Prewitt. That meeting focused on the specific infrastructure and engineering needed in the Prewitt Industrial Park to accommodate the development of the Park.

The Escalante Generating Station and the accompanying 640-acre Prewitt Industrial Park, which is targeted for a hydrogen end-users cluster, seeks to support job creation through the production, processing, delivery, storage and end-use of clean hydrogen. Few assets in the United States provide a similar level of job creation opportunity and infrastructure readiness.

Those assets include:

- Industrial infrastructure connectivity
- Available shovel-ready sites
- Natural resource accessibility
- Economic development associated with decarbonization of national transportation corridors, including Interstate 40 and the BNSF Railway Southern Transcon Line, and
- Economic development associated with relief of national supply chain congestion associated with freight movement at the Ports of Los Angeles

Together, these two roundtables set the stage for the January 27<sup>th</sup> Economic Roundtable titled, *Positioning the Escalante Generating Station & Northwest New Mexico for the Western Inter-State Hydrogen Hub*. This roundtable further highlighted the opportunity for New Mexico – and the Escalante Generating Station in particular – to play a lead role in the development of the 2023 Western Inter-State Hydrogen Hub (WISHH) application to the U.S. Department of Energy’s (DOE) *Regional Clean Hydrogen Hubs (H2Hubs)* program. The program includes up to \$8 billion to establish 6 to 10 regional clean hydrogen hubs across the United States as part of the Bipartisan Infrastructure Law (BIL). The H2 Hubs will be a central driver in helping communities across the country benefit from clean energy investments, good-paying jobs and improved energy security.

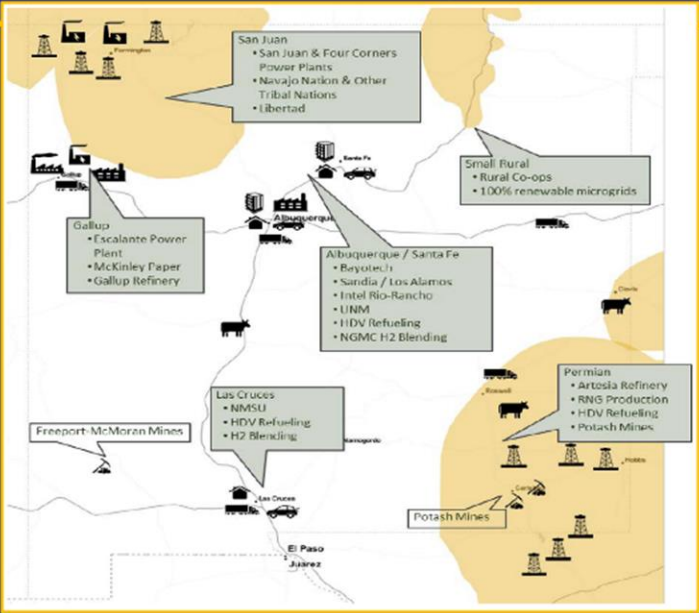


**EDD**  
ECONOMIC DEVELOPMENT DEPARTMENT

# Hydrogen in NM

- **New Mexico**
  - Can lead nation in Carbon Capture, Utilization and Sequestration (CCUS)
  - Intrinsic geographic and infrastructure advantages
  - Can leverage opportunities to pair hydrogen production and renewable energy development
- **Opportunities for EDD**
  - Dedicate staff through an Office of Clean Energy Development
    - Serve as conduit between agencies
    - Consolidated with other offices

JK & SCP



*A slide from the PowerPoint that accompanied Keynote Presentation #2*

# Keynote Presentations

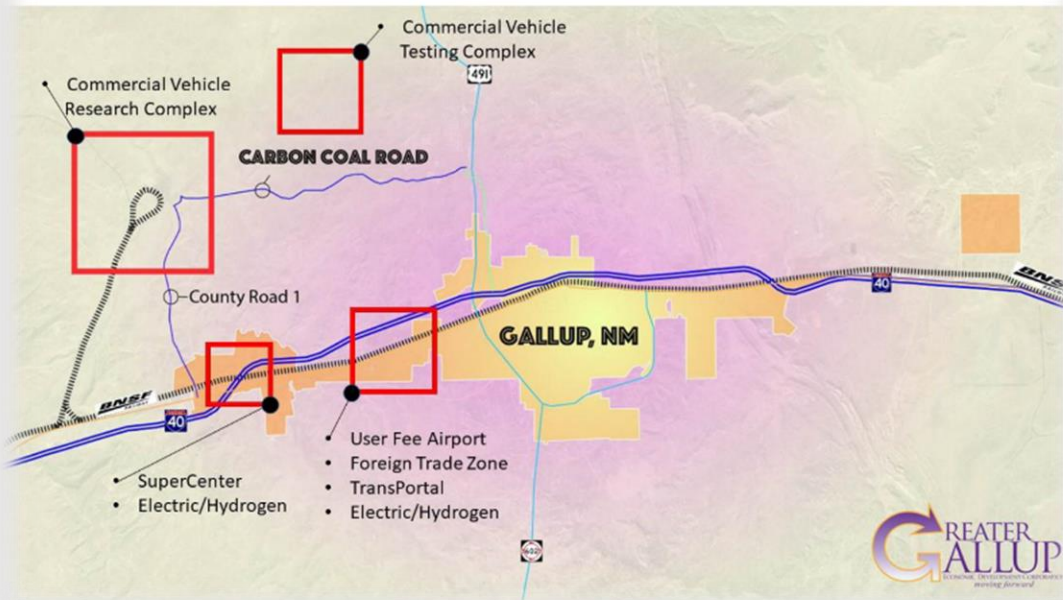
GGEDC Board President **Tommy Haws**, who is Senior Vice President of Pinnacle Bank in Gallup, served as MC for the Roundtable and provided the first keynote address.

**Keynote 1:** *“Prepping the Area for the WISHH Opportunity” – A review of projects undertaken to ready local communities for economic growth*

Mr. Haws presented a review of GGEDC’s economic development mission and its impactful history of involvement in developing industrial park and transportation projects throughout Gallup and McKinley County, including:

- Partnering with Gallup Land Partners (GLP), the major land owner in Gallup, to develop the Gallup Energy Logistics Park as a BNSF Certified Site and a 2,500-acre industrial park.
- Supporting and helping to fund making U.S. Highway 491 a four-lane highway all the way to the Colorado border. Highway 491 is the primary route to Farmington, New Mexico, Colorado, and Four Corners region.
- Partnering with GLP and New Mexico Department of Transportation to plan, design and construct Carbon Coal Road, a five-mile four lane highway that connects GELP with US Highway 491.
- Supporting research and development on establishing a “Mobility Investment District” in the City of Gallup to facilitate testing of Autonomous Vehicles.

## Gallup Mobility Investment District



*GGEDC is focused on developing regional assets around mobility (autonomous vehicle R&D and testing), transportation and hydrogen*



- Helping restore commercial air service to Gallup in 2022 and facilitating the redesign and remodeling of the Gallup Municipal Airport terminal.
- Working to establish the Greater Gallup area as a Foreign Trade Zone (FTZ), to facilitate importing and exporting materials and goods.
- Facilitating provision of infrastructure, engineering plans and development of three industrial parks in McKinley County, while helping to expand existing businesses and attract new businesses to take advantage of our unique transportation and logistical assets.

Mr. Haws presented these Gallup-centered developments as potential supports to the regional Hydrogen Hub in Prewitt, highlighting how hydrogen development could also spur development and other hydrogen-related businesses and applications in the Gallup. Mr. Haws described several major COVID-related impacts to the area, including the closing of the Escalante Generating Station in Prewitt and the idling of the Gallup Refinery. He then described the critical role GGEDC played in helping to save McKinley Paper Company, which had been dependent on Escalante for steam it needed to make paper. The GGEDC forged strong connections with hydrogen interests that sought to transition Escalante from coal-fired electric generation to hydrogen-fired, emphasizing that those efforts ultimately “resulted in all of us being here in this room talking about hydrogen.”

Mr. Haws also underscored how the vision of the Prewitt “Hydrogen Hub” has already expanded its substantial geographic reach, engaging collaborative efforts with San Juan County, the Navajo Nation, the larger Four Corners region, and the other three states involved in the WISHH initiative. Escalante is a pioneer site paving the way toward becoming one of “8 to 10” regional hydrogen hubs in the US and a vital part of the hydrogen economy.

**Keynote 2: “The Regional Clean Hydrogen Hubs Program” – What is it, why is it important, and what should communities be doing to ready themselves for this opportunity?**

**Ryan Peay**, Deputy Assistant Secretary for Resource Sustainability in the Office of Fossil Energy and Carbon Management at the US Department of Energy (DOE), and **Dr. Henry McKoy**, Director of DOE’s Office of State and Community Energy Programs (SCEP), presented jointly. Mr. Peay outlined the Department’s sustainability mission, which is centered on making investments in technologies that help to ensure clean and affordable energy while helping to ease the transition toward a carbon net zero economy. Dr. McKoy’s office is focused on “putting boots on the ground” to help effect the transition to the hydrogen economy by informing communities and shifting the thinking that will affect the critical transitions that lie ahead.



*Ryan Peay, Deputy Assistant Secretary for Resource Sustainability at DOE delivered his remarks from Washington, DC via video*

The Biden administration has set ambitious goals for DOE. They are: to ensure a continued emphasis on achieving energy security; building sustainable supply chains; and significantly reducing greenhouse gas emissions in a just and sustainable way.

The Department's key goals are to:

- Reduce greenhouse gas emissions by 50% from 2005 levels by 2030
- Produce 100% clean electricity by 2035
- Help the United States reach a net zero carbon economy by 2050.

The forces of climate change are forcing people to pay close attention to how we get our energy. This has led the Department to focus extensive DOE research priorities on minimizing the environmental impacts of fossil energy production and use with a clear focus on reducing emissions.

The Department is working to develop, secure, affordable, and environmentally sustainable fossil energy technologies, realize the full domestic value of energy resources, enhance U.S. and international energy security through prudent policy and advanced tech, promote exports of domestically produced and maximally abated hydrocarbons, and develop and maintain world class organizational excellence. DOE is leveraging its expertise in natural gas to expedite the development of a hydrogen economy.

Among the challenges DOE faces in this effort are:

- Problems with legacy pipeline infrastructure
- Reliability and safety of underground storage
- The need for more advanced technologies to reduce methane emissions from pipelines and other infrastructure, and
- The need to better understand and be able to quantify hydrogen leakage.

Mr. Peay noted several big picture items that put DOE's efforts in perspective:

- America is the largest producer of oil & gas and a primary exporter of natural gas (the Department has authorized exports of 47 BCF/day, more than four times the amount of our current national exports);
- America faces near-term energy security challenges together with the need to face the imperative of climate change and maintain affordable domestic supplies – there is an opportunity to ensure that the U.S. natural gas supply chain is the cleanest in the global marketplace.



**“IF WE’RE TO MEET THE GOAL OF NET ZERO EMISSIONS ECONOMY-WIDE BY 2050, WE MUST DEPLOY TECHNOLOGY AND INFRASTRUCTURE ON AN UNPRECEDENTED SCALE, NOT JUST WITH CARBON CAPTURE PROJECTS WITH CO2 STORAGE SITES, BUT ALSO WITH SOLAR PROJECTS, WIND FARMS, AND ELECTRIC TRANSMISSION LINES. THIS LEVEL OF FEDERAL COMMITMENT HOLDS ENORMOUS POTENTIAL TO DRIVE ECONOMIC DEVELOPMENT, INNOVATION, AND HIGH-WAGE EMPLOYMENT ACROSS THE COUNTRY.”**

- Ryan Peay, Deputy Assistant Secretary for Resource Sustainability in the Office of Fossil Energy and Carbon Management at DOE

Mr. Peay reported that we now have in place for the first time a robust and comprehensive federal policy framework to invest in and incentivize carbon management solutions on a previously unprecedented scale. Congress recently passed and President Biden signed the *Bipartisan Infrastructure Law*, which provides \$62 billion to DOE over five years for research & development, demonstration and deployment of clean energy and industrial technologies and infrastructure. The advancement of clean hydrogen production, Mr. Peay noted, is integral to the nation's goal of getting to net zero greenhouse gas emissions by 2050.

Of the \$62 billion allocation to DOE in the BIL, \$12 billion will be dedicated to projects across the carbon management value chain. This represents the largest carbon management funding commitment to date of any country in the world. In this way, DOE is demonstrating its commitment to developing commercial scale technologies critical to meeting national energy and climate goals, as well as to designing and deploying the associated infrastructure. Key provisions of DOE’s \$12 billion commitment include:

- \$2.5 billion to deploy at least six commercial-scale carbon capture demonstration projects, including two for industrial facilities, two for natural gas power generation, and two for coal-fired power plants;
- \$3.5 billion to develop four regional direct air capture hubs, each of which must be able to capture and store at least one million metric tons of CO<sub>2</sub> per year from ambient air. This will also fund the buildout of CO<sub>2</sub> capture and transfer infrastructure nationwide for carbon capture, carbon conversion, and direct air capture projects;
- \$2 billion for carbon dioxide transfer and transport infrastructure (CIFIA Program). We will need tens of gigatons of CCS capacity by 2050, so we need to develop the capacity to transfer and transport carbon dioxide by standard commercial carriers;
- \$100 million to broadly support engineering and design studies to support CO<sub>2</sub> storage and to help to commercially deploy carbon capture technologies critical to decarbonization efforts; and
- CIFIA will also serve as a tool for financing rail, ship, barge, truck and intermodal infrastructure to enable transport at a regional scale.

The BIL represents an unprecedented level of federal commitment. The Inflation Reduction Act – IRA – also dramatically expands and improves the 45Q tax credit to incentivize carbon capture, direct air capture, and carbon conversion projects.

The IRA directly benefits the Four Corners by:

- Committing an estimated \$33 billion investment in large scale clean power generation and storage in the Four Corners states, with \$15 billion of that coming to New Mexico;
- Expanding carbon management opportunities, including the enormous potential to repurpose geologic CO<sub>2</sub> at 45Q facilities; and
- Spurring innovation – Combining the IRA and BIL with expanded tax credits will support innovation, building economies of scale, reducing the cost of carbon management, creating high wage jobs, providing local environmental benefits, and supporting economies and communities across the energy-producing and industrial regions of the United States.

DOE’s Office of Fossil Energy and Carbon Management directly coordinates with the Department’s Energy Efficiency and Renewable Energy Office and the new Office of Clean Energy Demonstrations, as well as with National Labs, on conducting effective hydrogen research development, and hydrogen utilization and scaling within what DOE calls the “fossil energy–hydrogen nexus”.

- Production, conversion, utilization
- Infrastructure/Transportation - leveraging our natural gas expertise to aid with developing the hydrogen infrastructure
- Bulk and geological storage and techno-economic analysis of subsurface hydrogen storage
- Infrastructure & transportation for hydrogen distribution.

There is now a foundation in federal policy that can support bringing carbon management and hydrogen production to scale. BIL also includes \$8 billion to establish at least 4 **regional hydrogen hubs** that will demonstrate production, transportation, storage and utilization of commercial and clean of hydrogen coupled with carbon capture and storage.

Presently, 90% of hydrogen in the United States is produced from natural gas. It is used primarily in refining and fertilizer production. Most hydrogen is produced without carbon capture or storage. The “Hydrogen with Carbon Management” program builds on the experience of years of effective research and demonstration and is playing a critical role in DOE’s Earthshot initiatives. Pairing R&D with large commercial development projects, hydrogen represents an opportunity to utilize the natural gas resources in the region to produce low-carbon fuel.

### Pros of the Prewitt project:

- Prewitt represents an excellent opportunity to transition the Escalante power plant from coal to a clean hydrogen energy economy.
- “The natural energy assets in the region, including natural gas, wind and solar energy really make this an ideal area for large-scale hydrogen production.”
- The existence of existing infrastructure and a skilled workforce are important assets.

### Inherent challenges of the Prewitt project:

- Growing local opposition to energy and infrastructure projects – not limited to environmental activists, but including communities, farmers, ranchers, and others.
- More than getting policy and funding out the door, there is a critical need to listen to communities and stakeholders that know and understand the issues, so that DOE can understand their concerns and work to address those concerns in order to assure the success of these projects.

The critical need to listen to communities has led to a transformation in the way DOE conducts its work. Now, the department really puts communities and stakeholders at the center of its efforts, and a key determinant in where

DOE sites and supports projects is whether those projects will have a positive impact on the environments and communities where they are located. The Office of Fossil Fuel & Carbon Management produces comprehensive guidance on how it expects applicants for community funding to incorporate community engagement, workplace standards, workforce development, and environmental justice commitments into their project plans.

Mr. Peay passed the mic to Dr. McKoy to address environmental justice commitments and specific community initiatives under way in his office at DOE.

**Dr. McKoy** is Director of the Office of State & Community Energy Programs (SCEP), a newly formed office tasked with addressing infrastructure and climate. The focus on community is geared toward addressing and surmounting barriers facing the transition to the Hydrogen Economy. “When people walk into the room,” Dr. McKoy said, “there are more issues on the table than just energy. It might be housing or transportation, water, workforce or education presenting special challenges.” SCEP is tasked to help address those challenges.



*Dr. Henry McKoy, Director, Office of State & Community Energy Programs at DOE*



Dr. McKoy’s SCEP Office has a budget of about \$16 billion to accomplish its objectives as rapidly as possible, to be allocated as follows:

- \$3.5 billion for weatherization; primarily to provide energy efficiency for low-income households. The amount includes funding for “weatherization readiness” that will make basic home repairs that are needed before the homes can be weatherized. The program aims to weatherize half a million homes across the United States. The funding will be allocated to states on a formula basis.
- \$25 million committed to developing more innovative means to build energy efficient multifamily housing. The funding is competitive.
- \$810 million is available through the State Energy Program, also per formula. The funding is to “help states think creatively how they want to address energy efficiency”, whether that means making investments in their workforce or developing local innovative ideas in their communities.
- Of the above amount, \$250 million is for Revolving Loan Funds (RLFs). Some states use the funds to create “green banks”, pools of capital that can help for example to promote installation of rooftop solar systems.
- \$1.2 billion is for community energy programs. \$500 million is dedicated to making schools energy efficient. Low-income school districts can apply for funding to: 1) hire a staff member who is dedicated to advancing the cause of energy conservation and renewable energy; and 2) to draw on another \$500 million allocated to providing for energy upgrades and retrofits in the schools. The intent is for schools to reinvest their savings from their energy bills back into their educational mission. Another objective is to expose students to energy-related career opportunities and increase their general awareness of energy efficiency. Another \$50 million is available to nonprofits dedicated to promoting energy efficiency, upgrading homes and reducing community members’ energy costs.

**Keynote 3: “New Mexico & the Western Inter-State Hydrogen Hub” (WISHH) – A review of the concept paper, post-submission developments, & commentary on formal DOE application process**

New Mexico Cabinet Secretaries **James Kenney** with the Environment Department, **Sarah Cottrell Propst** with the Energy, Minerals and Natural Resources Department, and **Alicia Keyes** with the Economic Development Department presented the third keynote. The purpose was to articulate the ongoing development of the WISHH Concept Paper, which was one of the 33 selected out of a total of 79 submitted to US Department of Energy to continue into the next round of the application process.



Secretary Kenney pointed out that New Mexico is recognized as a national leader in the area of hydrogen development. He noted that at the Hydrogen Americas Summit, a significant international stage for hydrogen development, the White House’s National Climate Advisor Ali Zaidi mentioned the Escalante Generating Station in Prewitt in his remarks. What we all have been working toward in Prewitt, in collaboration with Tallgrass, Kenney stated, has made a ripple across the nation.

Secretary Kenney affirmed that among the cabinet secretaries, private companies, institutions of higher education, the labs, the state government and others involved in developing the WISHH application that, “We share a common vision that we in New Mexico can reach our net zero goals and we can do that in a way that promotes jobs in our economy at the same time.”

Secretary Cottrell Propst detailed New Mexico’s clean hydrogen approach, observing that we are at a very interesting moment in our nation where we are attempting to answer a huge question: “There is an industry that we all collectively want to foster and it’s new. How do you do that?” It’s risky but important and the stakes are high, “but it’s worth it, we think, and we’re going for it.” She noted that New Mexico’s National Labs have worked for decades on hydrogen. There is incredible expertise in the labs and now there is a great opportunity to put all that research into practice and move it into an economic development reality.

The Governor’s Executive Order, drafted at the end of the New Mexico 2022 Legislative Session, provided “marching orders” to the Cabinet Secretaries and their departments to lay the groundwork for the hydrogen economy in New Mexico. Fortuitously, the Executive Order helped give New Mexico an edge on its application as the various departments had already enacted various regulatory requirements that are advantageous to the Hydrogen Hub application.

Secretary Kenney commented that, aside from having great leadership in the state – and not just from the Executive side but from everyone at this Roundtable, New Mexico is the right location for a hydrogen investment because it offers the right geography and geology for capturing and storing carbon dioxide (CO<sub>2</sub>).

Secretary Keyes added that New Mexico is well-placed geographically to enter into a national hydrogen marketplace and that Gallup-McKinley County is especially well situated, with its strategic location halfway between the Ports of Los Angeles and Houston. She also noted that New Mexico has a workforce with skillsets that are going to be needed in renewable energy areas. Keyes emphasized: “We are in the right place at the right time. And with the amount of money projected to flow into the hydrogen hubs, this could be a real game changer for the economic development and energy sectors.”

Secretary Keyes highlighted the presence of some substantial hydrogen sector businesses already operating in New Mexico, for example:

- BayoTech in Albuquerque is a national leader in fuel cell technology development and deployment. Universal Hydrogen, which NMEDD and the City of Albuquerque recruited to New Mexico, is manufacturing capsules used to store and move hydrogen to supply regional aircrafts.
- Pajarito Powder, also in Albuquerque, is a hydrogen and fuel cell catalyst maker with backers including Hyundai Motor Company and Bekaert, a global \$6.3 billion wire and coating technologies company that manufactures critical subcomponents for electrolyzers which make green hydrogen from water.

Secretary Kenney concluded by expressing the hope that implementing the vision elaborated in the WISHH Concept Paper would deliver New Mexico to a “full, sustainable economy” that won’t require additional federal funding after the first major infusion from DOE.



- James Kenney,  
Cabinet Secretary  
New Mexico Environment Department

## Keynote 4: “The Escalante Generating Station: A Critical Component of the Western Inter-State Hydrogen Hub Strategy (WISHH) and Opportunity for Public-Private Partnership”

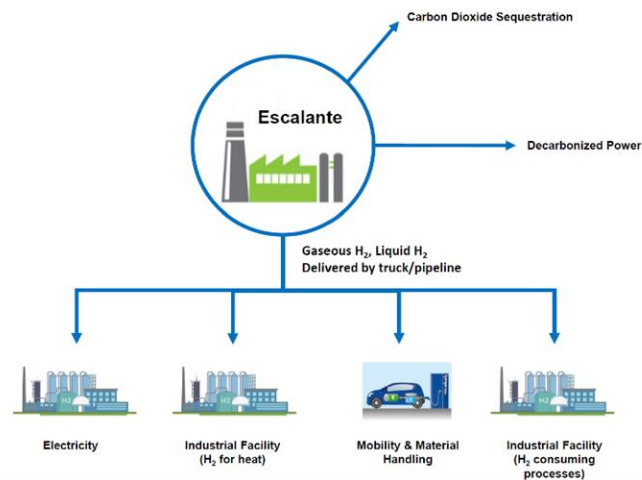
Representing Tallgrass were Dwayne Phillips, Vice President- Hydrogen and Justin Campbell, Vice President-Power & Transmission. An expert in hydrogen and its uses, Mr. Phillips noted his complementary relationship with Mr. Campbell, whose level of expertise is comparable as regards all things power-related. The Escalante project is essentially a “power and hydrogen” project.

Mr. Phillips explained that Tallgrass is a Blackstone infrastructure portfolio company which means the company has significant financial backing and stability. While Tallgrass is not a household name, its natural gas and crude oil systems move about 5% of the nation’s energy every day, including about 4 BCF of natural gas per day across the northern mid-west portion of the country, as well as moving gas to Oregon. At the core, Tallgrass is an energy infrastructure company that is “all about moving energy from point A where it’s made to point B where it’s consumed.”

### Escalante: A Foundation for the H<sub>2</sub> Economy

TALLGRASS | eH<sub>2</sub> POWER

Base Products



Considering the **Escalante Generating Station**, Mr. Phillips said the converted power plant will provide:

- **Reliable & Affordable Clean Power:** Once converted, the plant will provide ~265 MW of clean, dispatchable generation with a **97%+ reduction in carbon emissions**.
- **Bring back jobs:** Among other benefits, Tallgrass expects the project to directly create 60+ permanent jobs in the Prewitt, NM community and 500+ construction jobs
- **Serve as a Foundational Platform:** The project will establish a foundation for further development of hydrogen, especially for hard-to-decarbonize industries

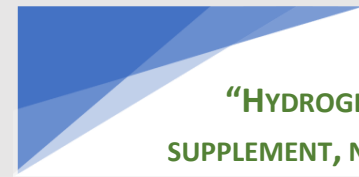
In the converted Escalante plant, the system will function by producing hydrogen to heat water to create steam to power the turbine. Tallgrass also plans to sequester the CO<sub>2</sub> produced in geological formations in northwest New Mexico, although there are several beneficial uses for CO<sub>2</sub> and other associated products of hydrogen production from oxygen-based autothermal reforming, that can also enhance the local economy.

### How Tallgrass supports Business Development around Hydrogen

The GGEDC Whitepaper for this Hydrogen Roundtable (included in the appendix) highlights seven advantages that support development at Escalante and how increased energy can benefit Northwest New Mexico.

These include:

- Strong east-west transportation assets anchored by Interstate 40 and the BNSF Railroad;
- Escalante power plant's infrastructure;
- Abundant natural resources needed for hydrogen production;
- Key hydrogen energy investors ready to invest in the Four Corners counties of New Mexico;
- Strong support from & collaboration with public & private partners at regional, state and national levels;
- Clear need for economic recovery, including replacing good jobs lost during the contraction of local mining and power generation activity; and
- Strong local leadership.



**“HYDROGEN SERVES TO  
SUPPLEMENT, NOT REPLACE,  
[SOLAR AND WIND]  
RENEWABLES.”**

- Justin Campbell,  
VP-Power & Transmission  
Tallgrass

Mr. Phillips highlighted the asset that the BNSF Railroad provides to the Escalante site. Due to the prior need to move coal to the plant, Escalante has an extensive existing rail spur that connects to the major Southern Transcon rail corridor that moves goods from Los Angeles to Chicago.

Mr. Campbell reiterated Secretary Kenney's earlier comment that Tallgrass's activities and Escalante's assets have not gone unnoticed. Mr. Phillips noted that President Biden's Climate Advisor, Ali Zaidi, had made reference to Escalante in the keynote address he presented to the 2022 "Hydrogen Americas Summit." Mr. Zaidi had noted that, as a result of the Energy Transition Act, there was a coal plant in New Mexico that was set to retire but would now be powered by hydrogen. Mr. Zaidi had also written in an article: *"Hydrogen-powered power plants is not a concept in an EPA document, it's a reality in New Mexico and other places."*

As a part of the CO<sub>2</sub> net zero goals of the Biden administration, Mr. Phillips noted that programs are being rolled out that will benefit not only such transitions to hydrogen power, but that would also make substantial investments in communities and the workforce surrounding those plants.

Justin Campbell addressed the power side of Tallgrass's Escalante venture, presenting a broader perspective on where things are headed and why the Escalante project matters in terms of reliability, decarbonization, affordability, and every aspect of the power system. Campbell stated that, in terms of decarbonation of the power system, we are at a deflection point. 20 years ago, development of solar and wind renewables started to accelerate. Today, wind produces about 10% of the total energy consumed in the nation. Going forward, that number is expected to rise to 80%. In the decarbonized framework, hydrogen has a critical role as the resource that can fill the dispatchable energy gap that exists with renewables, for example at night when the sun doesn't shine or when the wind is not blowing. He emphasized: "Hydrogen serves to supplement, not replace, those renewables. It complements them."

Campbell explained that solar and wind energy in themselves cannot provide all the power we need. In fact, the more that solar and wind power are dispatched to meet growing demand, the less able they are to meet the demand at peak load. That is not the case when a hydrogen plant is part of the system. Again, it can fill in when solar and wind resources may not be available or when there is a spike in demand.



Beyond power generation, and improved electric power reliability and affordability, hydrogen production creates opportunities for hard-to-decarbonize industries, such as transportation, concrete production, etc. Mr. Campbell stated that, at times, Escalante would not need all the hydrogen it produces for electric generation. That hydrogen could be liquified for transportation uses, which could be a valuable asset, for example, in the Trucking Super Center GGEDC has proposed.

### Hydrogen Applications for Business and Economic Development

At Escalante, the primary products are CO<sub>2</sub> for sequestration, decarbonized power, and decarbonized hydrogen. There is an opportunity to use hydrogen where heat needs to be generated. Hydrogen is now fueling fuel cells for forklifts in warehouses. The fuel cells are replacing battery-powered forklifts as batteries present challenges around charging and loss of efficiency as they lose their charge. In contrast, filling the tank on a fuel cell-powered forklift takes as much time as filling a tank of gas at the gas station. Other applications related to hydrogen are available, for example, decarbonized hydrogen used in many chemical, refining, and industrial processes.

### Food for Thought

Mr. Phillips highlighted that the hydrogen production process at Escalante will also produce other products such as oxygen, nitrogen, and demineralized water, which will have valuable applications that can promote economic development in the area. Nitrogen is used in food packaging including in bags of potato chips and “Fritos” to keep foods fresher longer. In its liquid state, nitrogen is used in rapid freezing processes, for packaging chicken breasts, chicken nuggets, etc. Industries that utilize nitrogen would source it not only from Escalante, but from other industrial gas producers in the state.

It is important to be creative and innovative in identifying marketable applications for the hydrogen byproducts. Mr. Phillips stated, “If we try to find the killer application for hydrogen, I don’t know that we are going to be successful; but if we find the things that hydrogen can complement, including finding manufacturers that want to use the heat and decarbonized steam produced at Escalante, then I think we succeed.” All CO<sub>2</sub> is not bad; it has valuable applications in food production and transport, in carbonated drinks, and also in greenhouses.

### Questions and comments that followed the keynote:

Representatives from Advanced Air, the small air service that recently began commercial operations at the Gallup Municipal airport, noted that the Universal Hydrogen company is a tenant of Advanced Air at Hawthorn, CA. Universal Hydrogen is a leader in the development of hydrogen fuel cells to power airplanes. Advance Air is piloting two planes that use fuel cells. Advanced Air CEO Levi Stockton stated that “Hydrogen cells look to be the future for aviation,” as batteries are too heavy, especially for longer flights. He said that planes that convert to hydrogen would need to be fueled by a source near the airport.

Johnny Johnson of the New Mexico Trucking Industry observed that hydrogen is very corrosive to engines, presenting major challenges but also potential opportunities. He stated UPS is experimenting with ceramic engines that can use hydrogen. Responding to Mr. Johnson’s concern, Mr. Phillips noted there is a demand by some companies for a very high purity hydrogen, i.e., a hydrogen product that contains no water and a CO/CO<sub>2</sub> content in the 5-ppb range (extremely low carbon intensity). He stated that Tallgrass plans to dedicate a portion of the hydrogen stream it produces to be liquified into high purity liquid hydrogen, “fuel cell grade quality – J2708.” Mr. Johnson stated that with all the applications, special considerations, and challenges of developing and utilizing hydrogen, “What you’ve got here is one giant onion!”

# Breakout Discussions

In line with the Roundtable’s key objectives, which included identifying potential “end user” companies and entities that could become consumers of hydrogen, and helping to prepare New Mexico and the Four Corners region for forthcoming hydrogen development, the breakout discussions provided an opportunity for the Roundtable presenters and participants to engage in rapid-fire 15-minute conversations. The breakouts addressed four topics in the WISHH H2 proposal: Business Development, Regional Hub, Transportation, and Legislation.

## **Group 1: Business Development** *Facilitator: Michael Sage, Deputy Director, Greater Gallup EDC*

**FOCUS:** Long-term success of an industrial base depends on strong connections to commercial markets and supply chains, including the formation of a “cluster” of businesses contributing to, benefiting from and/or spinning off from the core industry.

Discussion was organized around the central question **“What existing or planned initiatives are targeted to attract hydrogen end users?”** The question sought to elaborate business activities that could become part of the regional cluster in terms of current operations, plans and potential activities.

### **HYDROGEN END USERS:**

- Trucking Engines / Fueling
- Railroad Engines / Fueling
- McKinley Paper Company
- NAPI– Potato Chip Manufacturing / Packaging
- Hydrogen Fueling Stations



*Bruce Armstrong, Economic Development Manager with GGEDC, and Brian Schath, Analyst with the New Mexico Environment Dept. lead a Breakout Group discussion on the regional hydrogen hub*

### **KEY GROUP DISCUSSION THEMES:**

- **Water & Wastewater** – A big topic concerned the development of local capacity for water and wastewater. One suggestion was to form a regional water authority and build regional wastewater facility.
  - H<sub>2</sub>O out of Escalante facility needs to be high quality & potable.
  - The McKinley County Economic Development Authority could serve as a regional water authority.
- **Community Engagement** can be both helpful and harmful. It is important to genuinely invest in community education as opposed to “doing the minimum” to get sign-off on a project.
- **Community Benefits** – There are broad environmental benefits from improved air quality, but what about economic benefits like livelihood, long term investments, etc.?
- **Communication** - Find the right way to communicate with local communities based on the types of communication that are best for them.
- **Other Escalante Development Considerations:** A childcare facility? A food court?

## QUESTIONS:

- Can water needs be addressed on a regional basis?
- Can Marathon Refinery water rights, if any, be bought and applied to a regional water effort?
  - Could onsite infrastructure at the Refinery be used in support of the Prewitt project?
- Can the existing EGS wastewater facility be used to provide water to the region?
- How can we build economies of scale in this project?
- Who will champion the efforts? A regional collective? A central entity?
- Is there a way to have the shared prosperity that these projects could provide? Is it possible for everyone to win? Can the community's benefit grow with the success of the project?
- What potential tie-ins exist between the McKinley County Solid Waste Authority and the Escalante hydrogen project?

## RECOMMENDATIONS:

- Form a regional team to develop a plan.
- Local governments should provide more certainty around timing of permitting or approval amongst the multiple levels of local and tribal governments
- H2 Hub Advocates need to bring in detractors of H2 and H2 policy to determine common ground and to confront the opposition to H2 with what H2 advocates know to be true. Find ways to workshop solutions with people who do not consider H2 to be a viable strategy for deep decarbonization.
- In the local Navajo Chapters, emphasize the need to “educate, educate, educate” in the communities.

**Group 2: Regional Hub** *Facilitator: Bruce Armstrong, Economic Development Manager, GGEDC*  
*Expert: Brian Schath, Environmental Analyst, Climate Change Bureau, NMED*

**FOCUS:** Recognizing that success in this ambitious Hydrogen initiative will require “an all hands on deck” approach with substantial support and partnership from the public and the private sectors, the Regional Hub discussion addressed the question, **What types of private sector support are needed to accelerate hydrogen end user growth?**

Within the general framework of that question, the discussions addressed the kinds of support and development both planned and needed to be site-ready for end-user commitments in terms of infrastructure, regulation, and funding.

Providing an introduction to each of the breakout groups, Brian Schath, who is closely engaged in developing the WISHH proposal at NMED, addressed what we mean when we discuss the Hydrogen Hub in terms of the application. Schath stated that New Mexico has a part in the WISHH application, as do the other four states, with four projects from New Mexico being included in the WISHH application. He explained the key details being addressed in the application, most importantly: production, storage and end uses for Hydrogen.

The application also presents an ongoing challenge to find end users (beyond trucking). Schath referred to it as a “chicken and egg problem”, but that oftakers can be determined later after the application is awarded, during the planning phase once funding is available. However, the more solid the information in the application is, the better.

Beyond the WISHH application, Schath emphasized that developing the H2 Hub in New Mexico will require considerable coordination. There is a need to hire critical personnel, such as NMED permitting specialists with the ability to issue Class 6 permits, as well as to hire staff across departments with the ability to administer the H2 effort over the long term.

### HYDROGEN END USERS:

- McKinley Paper Company – Can be the first MOU
- City & County governments - can make a commitment to convert their fleets to hydrogen fuel
- Gallup Energy Logistics Park - could use hydrogen as a heat source
- Local natural gas producers are available to sell gas to the hydrogen plant and to manufacture fuel cells.
- End user for transportation is in fuel cell technology development.
- Warehouses

### H2 HUB GROUP DISCUSSION THEMES:

- **Developing Fuel Cell Technology**
  - Fuel cells support long haul transportation.
  - Fuel cell technology offers opportunities for localized energy production with no need for wires or power lines to transport hydrogen-generated energy.
  - Large fuel cells could fuel rural communities.
  - From a business perspective, fuel cell technology is not viable outside of a 150-mile limit. There is a “radius of production”. But there’s a lot of need for electricity too, especially throughout very rural areas.
  - Grid capacity will need to be vastly expanded to charge EVs and meet growing demand. Note that the new electric Porsche requires 375 Kw in a 10-minute charge!
- **Regulatory Challenges**
  - “If you’re not on the inside, it’s an obfuscated process for businesses to get permits & guidance,” for example, regarding the application parameters. “The directions are not clear for getting people in.”
  - The Governor wants Hydrogen; the Legislature should be recognizing the value the economy.
  - Missing from NM Hub development is the capacity needed to promote energy development; for example, offices and personnel in EDD and EMNRD dedicated to attracting businesses to the state for energy production.
- **Business Needs** – We are years away from having a viable hydrogen hub. We need to:
  - Start with small agreements – for example explore liquid hydrogen for transportation
  - Get an agreement
  - Users – need to get a clue (be educated) on how they might use hydrogen
  - Communicate with businesses to explain how they might transition to hydrogen
- **Workforce needs** – Workforce is also a critical consideration. Hydrogen hubs can be broadened to look at the energy environment holistically.



## QUESTIONS:

- What does it take to manufacture fuel cells?
- Can you convert an EV station to provide Hydrogen-fueled cell fuel?

## RECOMMENDATIONS:

- Identify a State Person, or someone to serve as point person who will be dedicated to drawing businesses to the Hub.
- Identify a State Person, or someone to serve as point person for all alternative energy-related development, information and questions
- Establish a transportation hub – in part to transport hydrogen (there are multiple ways to do that)
- Bill McCabe, Navajo Nation Oil & Gas: Navajo has abundant natural gas available to make hydrogen. “Incentivize us to produce more natural gas.”
- Need to address CCUS (Carbon Capture, Usage & Storage) in fuel cells. There is a need to broaden the WISHH application so it can deliver cleaner energy.
- Communicate with businesses how to participate in the WISHH application while balancing their privileged information.
- Communicate with stakeholders about strategizing the location of projects.
- The Office of Pipeline Marketing in NM EMNRD should push for developing all energy sources.
- Need to set standards & best practices for hydrogen safety
- We need to know more about the existing industries interested in hydrogen
  - What are their needs & uses?
  - How will we retool & demonstrate the opportunity?
  - What innovations are coming down in the industry? (That’s the hard part - compare that to having a fleet of EVs 3 years ago when there weren’t any charging stations).
- Look at CA and study their problems. We can learn from their innovations and mistakes.

## Group 3: Transportation

*Facilitator: Arvin Trujillo, Executive Director, 4 Corners Economic Development Expert: Charles Remkes, ITS Bureau Chief, New Mexico DOT*

**FOCUS:** Recognizing the Gallup-McKinley County-Grants area is a strong transportation corridor for northwest New Mexico, with strategic interstate highway and rail facilities “running through us,” leveraging our transportation assets to be competitive in the Hydrogen Economy will require additional investments.

The key question the Transportation Group addressed was, “**What gaps need to be addressed to leverage our transportation assets to support hydrogen use and development?**” Discussion addressed the gaps that could be identified in the overall transportation asset, and plans and potential initiatives to address those gaps.

## END USERS:

- California is biggest H2 market followed by warehouses, Amazon, etc.
- Stackable, transportable fuel cells – presently, most viable deployment

## CONCERNS, ISSUES & NEEDS:

- **Public education** – even among participants there were misconceptions about the safety of transporting hydrogen. Visions of the Hindenburg are prevailing. Public education campaign is needed to provide a weighted context on the actual, legitimate concerns versus the fears based on preconceived notions.
- **Product use and transport** – the customer(s) and their location(s) need to be identified to determine the viability of access to the product by them.
- **Issue of mode(s) of transport**
  - **Pipelines and associated infrastructure** (pumping/compression stations) – Historically, it was (and still is) the mechanism by which Northwest New Mexico has been a provider of energy products to Southwest US. Is this model ultimately desired? If so, when would it be reasonable to have a viable system in place? Current configuration and limitations of pipeline servicing oil and gas for this type of transport cannot support hydrogen movement without massive upgrades to address leakage and corrosion. Options of product modifications (putting it into mixtures with other compounds to make it less prone to volatility) for transport exist. How does this effect the refinement infrastructure needed at the end-use point?
  - **Truck** – Currently trucking is the only means of transport for hydrogen fuel. As the industry grows and the demand increases, how does this impact product delivery? Will there be any efficiencies to be gained with an economy of scale – i.e., tandem units? How does this impact surface transportation infrastructure? Will new roadway design standards be needed? Specific to the proposal at hand – repurposing the Escalante Generation facility – what issues exist with access to the facility? Grade-separated interchanges to avoid conflicts with movements across rail alignments will likely be needed.
  - **Rail** – Currently not being used. Any discussions with BNSF and Union Pacific underway? What options can be leveraged by the current footprint at the proposed site to leverage the rail spur feeding into it? Potential for both product and waste (CO<sub>2</sub>) distribution as well as bringing in any processing material needed for product refinement during development.
  - **Farming equipment**

## QUESTIONS:

- **Connectivity** – What will be needed at point(s) of generation for the regional initiative (UT, AZ, CO, NM), as well as that between the local hubs of generation in northwest NM? Is it needed at all?
- Is hydrogen going to be taxed?
- Would refueling stations be outside of Gallup?
- What is the pipeline capacity?
- Will DOT have bonding authority?

## RECOMMENDATIONS:

- Create a multi-state coalition for refueling with alternative energy
- Conduct Public Education campaign around need for transportation of H2 and for H2 in transportation. Volatility will be a public issue.
- PR – Addressing arguments for both pro & against – to win over the public
- Grant funding and bonding authority to the New Mexico DOT to build pipelines [DOT has that statutory authority]
- Nail down end users and who ultimately the H2 is for – Is it for Trucking? Is it for Export?

## Group 4: Legislation

*Facilitator: Eileen Yarborough, Executive Director  
Cibola Communities Economic Development Foundation*

## LOCAL AND COUNTY:

- What policies and resolutions need to be put in place?
- Councils and County Commissions – provide ordinances of support?
- Sovereign Nations declaring support
- Fire Departments/Fire Marshalls – education on how to assess H2 – issues & safety
- Consistent education and engagement with local communities and tribal chapters is important to creating progress. Follow-through needed. Detailed engagement at a very granular level, not just the overall Nation, but at the Chapter level of the nations.
- City-level approvals are not streamlined
- Resolution of support from City & County
- Industrial Revenue Bonds (IRB)
- Utility rates for industrial use
- Local input versus “death by public comment” – streamlining public input to still allow expedient development.
- Need to work to build support for Hydrogen from “the inside out” and not just from the outside in.
- Energy co-op: replacement generation = green hydrogen. Senate Bill – “Kill” or rewrite
- Permitting for facilities
- Land use code development
- Required approvals
- Update LEDA



*Eileen Yarborough, Executive Director, Cibola Communities Economic Development Foundation, leads a Breakout discussion on Legislative Needs*

## STATE:

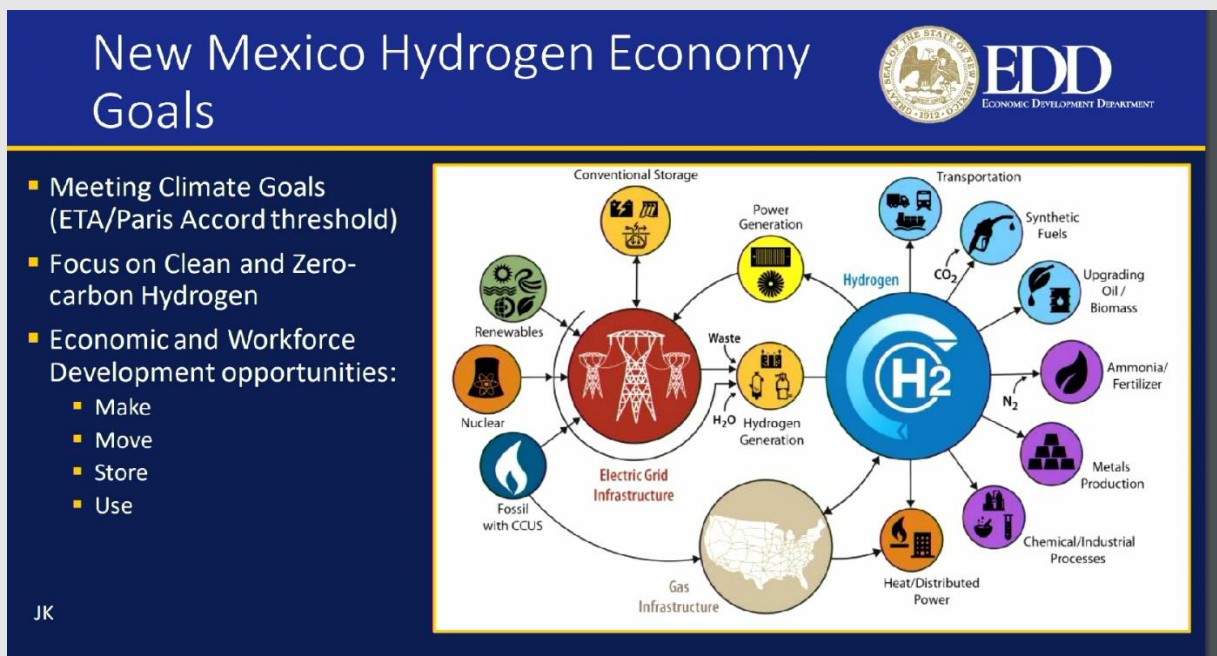
- State take the lead on how the Counties and Cities should react to H2 – State-level education pushed down to local jurisdictions
- Safety legislation
- Update LEDA
- Disconnect between the Governor and the Legislation that will implement the H2 vision for NM
- The Cabinet Secretaries are telling us that they lack the resources and personnel to implement these programs and goals – from education to program implementation.
- Oil & gas industry develops fuel cells and gets tax credits to capture CO<sub>2</sub>
- Clarity on who is responsible for promoting energy and attracting efforts – Clearinghouse? Czar? - Especially when focused on Hard-to-Decarbonize Sectors and High-Opportunity Sectors

## QUESTIONS:

- Where does the water come from?
- Local paper's take on this?
- What are the underlying issues that present challenges

## RECOMMENDATIONS:

- Justin Campbell: The New Mexico PRC should develop an “Integrated Resource Plan” – a plan for how all energy sectors will produce & provide reliable power 10-15 years out. Businesses want to have as clear an idea as possible what is coming. “If we [companies] don't know what we need, it creates risk and liability.” PRC is tasked with preserving reliability and affordable energy and providing guidance on how we get there.
- EVs and Hydrogen cells can & should complement each other.



# Conclusion

## Key Takeaways

The GGEDC 2023 Roundtable succeeded in terms of meeting its key objectives, providing invaluable information, and engaging the participants in identifying potential end users for hydrogen produced in New Mexico. The key takeaways, were:

- The U.S. Department of Energy has very substantial funding resources available to assist companies and communities transition to the emerging hydrogen economy.
- The promise of New Mexico's hydrogen efforts and plans to transition the Escalante Generating Station in Prewitt, NM are reaching a national audience, especially within the White House with President Biden's Climate Advisor.
- The Western Interstate Hydrogen Hub (WISHH) application process to the U.S. Department of Energy is very complex and involved, but New Mexico is leading the path forward for the four-state collaborative. The drafters of the proposal are confident that New Mexico and the WISHH collaborative have the key assets, legislation in place, and the expertise to submit a winning proposal.

## Recommendations

Specific recommendations that emerged from the Roundtable's four breakout group discussions are grouped here in three broad categories: Government/Public Sector, Private Sector Hydrogen Needs, and Education / Public Relations.

### Government/Public Sector recommendations:

- Form a regional team to develop a plan;
- Identify a point person who will be dedicated to drawing businesses to the Hub as well as be the point person for all alternative energy-related development, information and questions;
- Improve permitting processes and turnaround times for hydrogen-related development and manufacturing;
- Establish a transportation hub that can facilitate transporting hydrogen;
- Incentivize Navajo Nation to produce and make available more natural gas for hydrogen development;
- Communicate with businesses how to participate in the WISHH application while balancing their privileged information;
- The New Mexico PRC should develop an "Integrated Resource Plan" – a plan for how all energy sectors will produce & provide reliable power 10-15 years out. Businesses want to have as clear an idea as possible what is coming. "If we [companies] don't know what we need, it creates risk and liability." PRC is tasked with preserving reliability and affordable energy and providing guidance on how we get there.
- Address CCUS (Carbon Capture, Usage & Storage) in fuel cells. There is a need to broaden the WISHH application so it can deliver cleaner energy.
- Communicate with stakeholders about strategizing the location of projects.
- The Office of Pipeline Marketing in NM EMNRD should push for developing all energy sources.



- Set standards & best practices for hydrogen safety
- Create a multi-state coalition for refueling with alternative energy
- Grant funding and bonding authority to the New Mexico DOT to build pipelines [DOT has that statutory authority]

### Private Sector Hydrogen needs & recommendations:

- We need to know more about the existing industries interested in hydrogen
  - What are their needs & uses?
  - How will we retool & demonstrate the opportunity?
  - What innovations are coming down in the industry? (That's the hard part - compare that to having a fleet of EVs 3 years ago when there weren't any charging stations).
- Nail down end users and who ultimately the H2 is for – Is it for Trucking? Is it for export?
- EVs and Hydrogen cells can & should complement each other.

### Education & PR recommendations:

- Conduct a public education campaign around the need for transportation of H2 and for H2 in transportation. Volatility will be a public issue
- In the local Navajo Chapters and communities, emphasize the need to “educate, educate, educate”.
- Address arguments both pro & anti-hydrogen to win over the public
- Look at CA and study their problems. We can learn from their innovations and mistakes

## Next Steps

The next steps are all about helping the New Mexico WISHH proposal writing team complete the application to DOE while continuing to build momentum for development of the Prewitt Industrial Park as a New Mexico hydrogen hub. The most important contribution for the WISHH proposal is to generate end use agreements with companies interested in using hydrogen directly or its byproducts in their operations.

The following are **critical needs for the WISHH application:**

- **Generate end use agreements from companies interested in using hydrogen.**
- NMED will develop and distribute a template for letters of support for WISHH application.
- Get Resolutions of support from City & County governments
- GGEDC will seek letters from targeted industries – companies operating in the hydrogen sector.
- **April 7<sup>th</sup>, 2023 is the deadline for Letters/MOUs** from organizations considering using hydrogen in their operations.

**New Mexico Legislation – HB 12** Finally, support House Bill 12 (HB 12), the Advanced Energy Technology Act, introduced by representatives Meredith Dixon, Angelica Rubio, Kristina Ortez, Nathan Small, and Patricia Lundstrom. The Bill allows public partners to enter into public-private partnership agreements to facilitate the development of advanced energy technology projects and creates an Economic Transition Division within NMEDD and economic transition fund.

# Appendices

1. Agenda
2. White Paper
3. Speaker Bios
4. List of Attendees
5. Exit Survey Results
6. Keynote PowerPoints



## **Appendix 1**

# **Roundtable Agenda**







**“Positioning the Escalante Generating Station & Northwest New Mexico for the Western Inter-State Hydrogen Hub”**

**2023 ECONOMIC ROUNDTABLE: AGENDA**

**January 27, 2023**

La Terraza Room, La Fonda on the Plaza  
Santa Fe, New Mexico



TIME	ITEM	PRESENTER
7:30 am	<b>REGISTRATION &amp; BREAKFAST</b>	
8:00 am	<p style="text-align: center;"><b>INTRODUCTIONS, WELCOME &amp; KEYNOTE 1</b></p> <p style="text-align: center;">“Prepping the Area for the WISHH Opportunity” <i>A review of projects undertaken to ready local communities for economic growth</i></p>	<p style="text-align: center;"><b>Tommy Haws, Board President</b> <i>Greater Gallup Economic Development Corporation</i></p>
8:30 am	<p style="text-align: center;"><b>KEYNOTE 2</b></p> <p style="text-align: center;">“The Regional Clean Hydrogen Hubs Program” <i>What is it, why is it important, and what should communities be doing to ready themselves for this opportunity?</i></p>	<p><b>Ryan Peay, Deputy Assistant Secretary, Resource Sustainability</b> <i>Office of Fossil Energy and Carbon Management</i> <i>U.S. Department of Energy</i></p> <p><b>Henry C. McKoy, Jr., Director,</b> <i>Office of State and Community Energy Programs</i> <i>U.S. Department of Energy</i></p>
9:15 am	<p style="text-align: center;"><b>KEYNOTE 3</b></p> <p style="text-align: center;">“New Mexico &amp; the Western Inter-State Hydrogen Hub” <i>A review of the concept paper, developments post-submission, and commentary on formal DOE application process</i></p>	<p><b>James Kenney, Cabinet Secretary</b> <i>NM Environment Department</i></p> <p><b>Sarah Cottrell Propst, Cabinet Secretary</b> <i>NM Energy, Minerals &amp; Natural Resources Department</i></p> <p><b>Alicia Keyes, Cabinet Secretary</b> <i>NM Economic Development Department</i></p>
10:30 am	<p style="text-align: center;"><b>KEYNOTE 4</b></p> <p style="text-align: center;">“Escalante Generating Station: A Critical Component of the Western Inter-State Hydrogen Hub Strategy and Opportunity for Public-Private Partnerships”</p>	<p><b>Dwayne Phillips, Vice-President</b> <i>Hydrogen, Tallgrass Energy</i></p> <p><b>Justin Campbell, Vice-President</b> <i>Power &amp; Transmission, Tallgrass Energy</i></p>
11:15 am	<b>BREAK</b>	
11:30 am	<p style="text-align: center;"><b>ROUNDTABLE DISCUSSIONS</b></p> <p>(A) <i>BUSINESS DEVELOPMENT: What existing or planned initiatives are targeted to attract hydrogen end users?</i></p> <p>(B) <i>REGIONAL HUB: What private sector support is needed to accelerate hydrogen end user growth?</i></p> <p>(C) <i>TRANSPORTATION: What gaps need to be addressed to leverage our transportation assets to support hydrogen use and development?</i></p> <p>(D) <i>LEGISLATION: What local and state legislative action is needed to strengthen the WISHH initiative?</i></p>	<p style="text-align: center;">Facilitated by <b>Michael Sage, Deputy Director</b> <i>Greater Gallup Economic Development Corporation</i></p>
12:30 pm	<b>BREAK &amp; SNACKS</b>	
12:40 pm	<p style="text-align: center;"><b>FINAL COMMENTS</b></p> <p>(1) Key Points from Roundtable Discussions</p> <p>(2) Discussion, Q&amp;A</p> <p>(3) Closing Remarks</p>	<p><b>Patty Lundstrom, Executive Director</b> <i>Greater Gallup EDC</i></p> <p><b>Tommy Haws, Board President</b> <i>Greater Gallup EDC</i></p>
1:30 pm	<b>ADJOURN</b>	



## Appendix 2

# Roundtable White Paper





## **WHITE PAPER**

**for the 2023 GGEDC Annual Roundtable  
January 27, 2023**

***“The Prewitt Industrial Park  
and the Western Inter-State Hydrogen Hub”***

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### **OVERVIEW**

In its role as the Gallup area’s facilitator of economic planning and development, the Greater Gallup Economic Development Corporation (GGEDC) is continuing its Call to Action to position the Gallup-McKinley County region as a key location for investment and production in the rapidly emerging “Hydrogen Economy.” To accelerate this Action agenda, this year’s Economic Roundtable will focus on up-to-date local and state efforts to secure federal designation and funding for the *Western Inter-State Hydrogen Hub (WISHH)* – with the intention of promoting the Prewitt Industrial Park as a premier Hydrogen Energy development site. The Roundtable is set to be held in Santa Fé on the 27<sup>th</sup> of January, 2023.

The Greater Gallup Hydrogen initiative is an outgrowth of several years of research, planning and development related to the anticipated – and now actual – market-driven de-commissioning of the Escalante Generating Station, with a proactive eye to retaining and re-purposing this major industrial asset to transition from coal-fired power generation to renewable/sustainable alternatives. By staying abreast with regional, national and global trends in the energy industry, and in consultation with private and public economic leaders at the cutting edge of these trends, the GGEDC became aware of the emergence of Hydrogen technology as a viable alternative for power generation. The planning and development work has benefited heavily from the participation, input and support of a number of critical public and private sector partners.

While it is clear that the State of New Mexico is formally “all in” on the hydrogen hub initiative, the commitment to “blue hydrogen” is not without controversy. The initiative has faced resistance from some quarters, especially around the technology’s use of a fossil fuel (natural gas), despite (a) the abundance of this natural resource and related infrastructure in northwestern New Mexico, (b) the global demand for energy production



that exceeds current capacity from non-carbon sources, (c) the fact that most nations of the world have adopted hydrogen technology as a key step toward a zero-carbon future; (d) the plan by both public and private sectors players to sequester carbon dioxide by-products, (e) the intent to develop and deploy non-carbon methods as feasible in the future, and (f) the commitment to achieve zero carbon emissions by Year 15 of the initiative. The position of the WISHH partners, in which GGEDC is a key player, is that both “blue” and “green” hydrogen technologies are in the long-term mix, but that there are rational and compelling reasons to support blue technology at this stage on the journey to a carbon-free economy.

Inspired by the “EH2” investment by Tallgrass Energy in the Escalante Generating Station asset for converting the facility into Hydrogen generation, the GGEDC and its partners could readily see the competitive advantages:

- our strong east-west transportation asset anchored by Interstate-40 and the BNSF railroad;
- the well-managed Escalante power plant infrastructure bequeathed by EGS owners Tri-State Generation & Transmission Association;
- the presence of abundant natural resources (natural gas) needed for hydrogen production;
- key hydrogen energy investors ready to invest and develop in both McKinley and San Juan Counties;
- strong support from and collaboration with public and private partners at the regional, state and national levels;
- a clear need for economic recovery, including replacing good jobs lost during the contraction of local mining and power generation activity; and
- strong local leadership.

It was a natural progression, then, for GGEDC to begin vetting the Hydrogen opportunity. The 2022 Economic Roundtable held in Gallup in June 2022 brought public and private stakeholders together to learn and collaborate around the Hydrogen opportunity. The White Paper made the case for hydrogen development as a “transformational” economic opportunity for Gallup, as well as for McKinley, Cibola and San Juan Counties. It also introduced the four-state collaboration by New Mexico, Arizona, Utah and Colorado in a “Western Inter-State Hydrogen Hub (WISHH),” being developed to attract federal designation of and investment in a “regional clean hydrogen hub” by the US Department of Energy. Finally, the White Paper put forward the former Escalante Generating Station in Prewitt as “the most competitive physical asset available in the State from which to build a new hydrogen economy” as well as the site with the “highest potential for hydrogen hub job creation.”

On the other hand, the Strategic Target Industry Report on the Prewitt Industrial Park, provided by Navigator Consulting in October 2022, identified substantial work needed to “finish the due diligence” regarding preparing the Prewitt site for investment. The consultants were very encouraging regarding the “groundswell of regional and statewide support for (the) initiative to develop the Prewitt property as an important asset within the framework of the State of New Mexico’s Hydrogen Hub initiative.” At the same time, the report lifted out serious on-the-ground research work (detailed further below) needed to address critical site factors not yet addressed in the Master Plan and Preliminary Design provided in July 2020 by Wilson & Company.

The Navigator report acknowledged that the local community had made progress in identifying the needed information, and it characterized the August 2022 “strategic meeting” held at EGS as a “turning point in clarifying the many issues which Greater Gallup faces in the development of the Prewitt property into an industrial park.” Given the intense competition arising nationwide in hydrogen energy development, the Navigator consultants nevertheless urged GGEDC and its partners to redouble their efforts to complete this essential preparedness mission.

In service to this mission, the GGEDC is convening the 2023 Economic Roundtable, **“The Prewitt Industrial Park and the Western Inter-State Hydrogen Hub.”**

## **RECENT DEVELOPMENTS & CURRENT STATUS**

### **(1) Strategic Meeting, August 15, 2022**

Building on the momentum generated by the June 3, 2022 Roundtable, “*Super-Charging the Region: Building a Transformational Hydrogen Economy*,” on August 15<sup>th</sup> the GGEDC convened a “strategic meeting” at the Escalante Generating Station involving key stakeholders in the state and regional hydrogen initiative. The meeting served to reinforce the collaborative energy of the initiative and sharpened the focus on the challenging tasks ahead concerning mitigating shortfalls and developing critical infrastructure at the Prewitt Industrial Park as dictated by the development criteria and requirements of investors.

The centerpiece of the strategic meeting was a preliminary report by senior representatives of Navigator Consulting regarding their Strategic Target Industry study of the Prewitt Industrial Park properties (later submitted to GGEDC as a final report on October 10, 2022). It was here that the stakeholders got a clear understanding of the information gaps and on-the-ground research work yet to be done to determine readiness of the site for investment and development. Foremost among the shortfalls was the need for specific knowledge of the long-term availability of water for industrial development, as well as the water and

wastewater infrastructure needed for the site. It was here, also, that stakeholders made specific commitments to ensure that planning and readiness tasks were undertaken as efficiently as possible.

**(2) Strategic Target Industry Report, October 10, 2022**

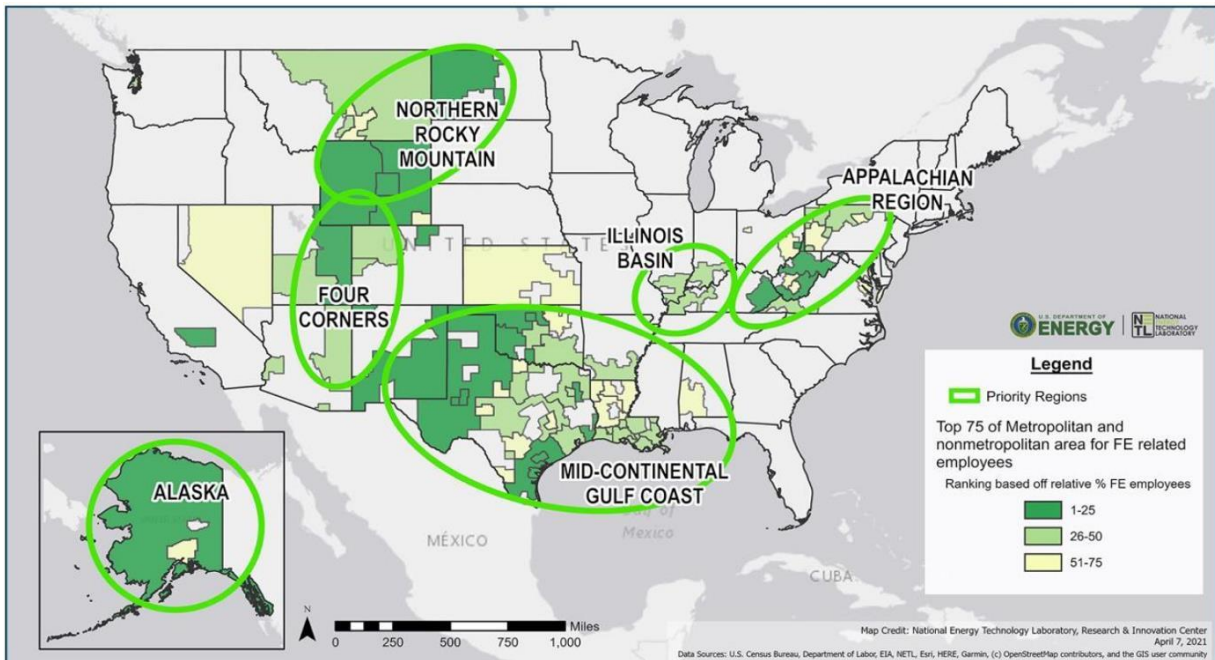
Following the August 15<sup>th</sup> meeting, Navigator Consulting submitted its full report on October 10, 2022. To expand on the above summary of their findings, the report included a robust set of recommended actions, including:

- **Infrastructure assessment**
  - Clarification of water rights, availability and accessibility;
  - Clarification of wastewater solutions on the site;
  - Conducting a geotechnical study of the site
  - Development of utility maps – preferably layered and compilable onto a master map;
  - Clarification of road infrastructure as related to the site, along with a timeline including engineering and construction, plus cost and funding.
  - Clarification with BNSF on plans for a rail spur to the industrial site.
- **Due Diligence**
  - Updating and clear titling of all documentation in the project dossier to avoid confusion and duplication;
  - Development of a quality Site Map for the Prewitt industrial site
  - Development of a quality Utility Map, combining all utilities on a single map;
  - Provision of explanatory memos for any remaining infrastructure issues.
- **Project Promotion**
  - Updating of GGEDC marketing materials, making sure to highlight the connection and inclusion the region’s indigenous populations;
  - Development of drone footage of the site, with a link on the GGEDC website;
  - Development of a digital industrial park portfolio (and/or hard copy prospectus), to include a comprehensive range of information, including the “due diligence” topics, e.g.:
    - Overview
    - Geotechnical
    - Utilities
    - Labor Market
    - Transportation
    - Business Taxes
    - Incentives & Support
    - Quality of Life

(3) **WISHH Concept Paper, November 4, 2022**

Having formed an interstate alliance in February 2022, on November 4, 2022 Western Interstate Hydrogen Hub, LLC (WIH2), a subsidiary of Atkins, Inc., submitted a concept paper on behalf of the States of New Mexico, Arizona, Utah and Colorado to the US Department of Energy outlining their joint proposal for a new ***“Western Inter-State Hydrogen Hub,”*** or WISHH. In conjunction with this proposal, the Governors enlisted support from the Rocky Mountain Alliance for Next Generation Energy (RANGE), a regional organization composed of 12 research universities, 3 national laboratories and numerous community colleges and training institutions.

Under their “regional clean hydrogen hubs” initiative, the DOE plans to award up to \$1.25 billion to each of six to ten regional projects around the nation. The “Four Corners” is already identified as a priority region in a 2021 DOE report to the President on “Empowering Workers through Revitalizing Energy Communities” (see map below). The importance of the Four Corners states, and of the Escalante/Prewitt industrial site in particular, in the national hydrogen mix was further underscored in remarks made by senior White House staff at the recently convened national Hydrogen Economy roundtable.



SOURCE: DEPARTMENT OF ENERGY (2021): INITIAL REPORT TO THE PRESIDENT ON EMPOWERING WORKERS THROUGH REVITALIZING ENERGY COMMUNITIES, P. 6  
([https://netl.doe.gov/sites/default/files/202104/Initial%20Report%20on%20Energy%20Communities\\_Apr2021.pdf](https://netl.doe.gov/sites/default/files/202104/Initial%20Report%20on%20Energy%20Communities_Apr2021.pdf))

The WISHH concept “coordinates, integrates, supplements and accelerates hydrogen production, transport, storage and use in a sustainable and socially just manner and promotes workforce development to create high-quality jobs for our diverse populations.” The proposal:

- includes massive hydrogen production (1,000 MT/day by Year 7 and 1,900 MT/day by Year 12) to strategically reduce carbon emissions and other pollutants in the 4 Corners region;
- triggers coordinated growth of markets and end use;
- identifies 8 major hydrogen projects that link the states’ efforts, produce hydrogen for multiple end-users and leverage current pipeline and storage infrastructure;
- includes on the project list the EH2 project planned by Tallgrass Energy for the Escalante/Prewitt Industrial Park, the hydrogen fueling station project planned by Libertad in San Juan County, and the sustainable farming initiative planned by Navajo Agricultural Products Industry (NAPI);
- provides for private sector investment more than equal to the \$1 billion in requested federal investment;
- plans for the gradual conversion of existing power plants from coal-fired generation to a hydrogen-methane mix, the introduction of both electrolyzing and gas reforming technologies, and the eventual achievement of zero carbon emissions by Year 15.

## **THE STRATEGY**

Based on the research, consultations and emerging development plans and investments around the Hydrogen Hub initiative, the GGEDC has promoted a strategic path forward that:

- aligns with the regional hub concept – the Western Inter-State Hydrogen Hub (WISHH) – adopted and proposed by the Four Corners states Governors;
- coordinates closely with the New Mexico Governor’s lead team on the New Mexico component of the WISHH;
- promotes legislative actions that support investment in New Mexico’s commitment to the WISHH;
- establishes the Prewitt Industrial Park as a catalytic project site for the WISSH; and
- ensures the completion of all steps needed to meet due diligence standards and requirements for the Prewitt industrial site.



## TACTICAL PRIORITIES

The general hydrogen strategy having been laid out and consulted on over the past year, the time is at hand for focused action on the critical steps needing to be taken to:

- support and promote WISHH and its New Mexico component;
- strengthen the “Prewitt case” as a key WISHH and New Mexico site for hydrogen energy development by upgrading site readiness;
- expand communication and coordination with the hydrogen development projects proposed for San Juan County;
- analyze, prioritize and formalize legislative strategies in coordination with partners in the initiative; and
- secure the public and private resources needed for successful development.

Coordinated efforts are already underway to support each of these tactical paths, including:

- addressing the specific information needs laid out in the Navigator Consulting *Strategic Target Industry Report*;
- completion of the next phase of the Prewitt Industrial Park master plan;
- continued coordination with New Mexico’s four designated cabinet secretaries with respect to the WISHH;
- increased communication and collaboration among the northwest New Mexico region’s economic development organizations;
- initial analysis of legislative initiatives needing to be undertaken in the 2023 New Mexico Legislative Session
  - As of mid-December 2022, a number of legislative strategies were under consideration, including investments and developments that support long-term commercial transportation capacities that accommodate emerging automotive technologies such as autonomous and hydrogen-powered vehicles.
- coordination with private and public partners at the national level, including an invitation for senior White House presence at the 2023 Roundtable; and
- planning and preparations for the 2023 Economic Roundtable to take place in Santa Fé on January 27<sup>th</sup>, 2023.

## CONCLUSION

The 2023 Economic Roundtable is designed to bring key stakeholders up to date on the Hydrogen Hub initiative, to inform them on action priorities and timelines, and to engage their continued support and assistance toward achieving “mission success” for the Greater Gallup region, the State of New Mexico and the Four Corners States.



## Appendix 3

# Keynote Speaker Bios



## Tommy Haws

*President and Chairman of the Board of Directors of the Greater Gallup Economic Development Corporation, and Senior Vice President of Pinnacle Bank in Gallup, NM*



Tommy Haws is a founding member and current Board President of the Greater Economic Development Corporation. He is Senior Vice President of Pinnacle Bank, in Gallup, NM with a commercial portfolio and customer relationships that span his two decades with the bank.

Tommy is involved in a range of civic responsibilities in the community and is an active member of his Church. New Mexico IDEA, the state economic development professional organization, recently recognized Tommy as "Volunteer of the Year" in New Mexico.

A native of New Mexico, Tommy was born in Farmington, NM and raised in Gallup. After graduating from Brigham Young University with a B.A. in Political Science and Communications Tommy brought his family back to the Land of Enchantment to raise his four children with his wife Eileen.

## Ryan Peay

*Deputy Assistant Secretary for Resource Sustainability, Office of Fossil Energy and Carbon Management, United States Department of Energy*

Ryan Peay is U.S. DOE's Deputy Assistant Secretary for Resource Sustainability in the Office of Fossil Energy and Carbon Management. He sets the strategic direction for the Office of Resource Sustainability and administers the programs, including fossil energy research and development, engagement, analysis, budget, and natural gas regulation.

Previously, Ryan was the Director of Planning and Administration for the Office of Oil and Natural Gas and was responsible for strategic planning as well as coordinating and integrating daily activities across the Office. Prior to joining DOE, Ryan was a manager at a major consulting firm, focused on strategic planning, financial programming, and budgeting activities. From 2002 to 2007, Ryan served on active duty in the U.S. Army as a Field Artillery Officer in the 101st Airborne Division.



Peay holds an MBA from the Darden School of Business at the University of Virginia and is a graduate of the Virginia Military Institute with a B.A. in International Studies and Political Science.

## Henry C. McKoy, Jr.

*Director, Office of State and Community Energy Programs (SCEP), United States Department of Energy*



Dr. Henry C. McKoy, Jr. is the inaugural Director of the Office of State and Community Energy Programs (SCEP) at the United States Department of Energy. The newly created SCEP, within the Office of the Under Secretary for Infrastructure, manages \$16 billion in federal funding and supports the transition to an equitable clean energy economy.

Dr. McKoy is a seasoned professional in business, community and economic development, policy, government, finance, energy, philanthropy and the academic worlds. Prior to the Department of Energy, he served on the faculty at North Carolina Central University School of Business where he led the entrepreneurship program, with additional academic appointments at Duke University, the University of North Carolina at Chapel Hill, and Harvard University. He is a former senior

banking executive, successful entrepreneur, and former Assistant Secretary of the North Carolina Department of Commerce.

Dr. McKoy has been a Fellow of the Kenan Institute of Private Enterprise at UNC-Chapel Hill, an affiliated faculty of the Samuel DuBois Cook Center on Social Equity, as well as an Aspen Institute Scholar. He holds degrees from UNC-Chapel Hill's Kenan-Flagler Business School (B.S.), Duke's Nicholas School of the Environment (M.S.), and UNC-Chapel Hill's Department of City and Regional Planning (PhD).

## James C. Kenney

*Cabinet Secretary for New Mexico Environment Department*

As New Mexico's senior environmental official, James Kenney leads and oversees a strong and proactive department tasked with implementing environmental policies and directives, while planning for a sustainable New Mexico future. Prior to serving as Cabinet Secretary for the New Mexico Economic Development Department, James C. Kenney spent more than 21 years across two stints at the U.S. Environmental Protection Agency, most recently as senior policy advisor for oil and gas. In that role, he worked with senior agency leadership and designed strategies to support environmentally responsible development of oil and natural gas resources while working with states, tribes, federal agencies NGOs and industries on regulatory and policy matters.



Kenney has served as a senior environmental engineer at the EPA, leading both civil and criminal investigations related to the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, and other EPA statutes and regulations, as well as developing strategic compliance and enforcement approaches on oil and natural gas exploration. He has also served as an EPA ozone program manager in Denver, a senior environmental engineer at Denver-based environmental engineering firm McCoy and Associates, and as a consultant at the U.S. Department of Justice.

Kenney holds both bachelor's and master's degrees in environmental engineering from Temple University.

## Alicia Keyes

*Cabinet Secretary for the New Mexico Economic Development Department*



As Cabinet Secretary for the New Mexico Economic Development Department, Alicia Keyes oversees a departmental mission to *Improve the lives of New Mexico families by increasing economic opportunities and providing a place for businesses to thrive.*

Alicia previously served as the film liaison for the city of Albuquerque, a role in which she initiated and oversaw the \$1 billion agreement with Netflix to establish a landmark studio. She established a workforce training program with both the University of New Mexico and Central New Mexico Community College and was responsible for all film permitting and recruiting. Since 2005, she has been the chief executive officer and a producer at AJK Films, where she has developed, written and optioned original content for film and television while maintaining relationships with distributors, studios and agents. Beginning in 1998, Alicia was the executive director of worldwide acquisitions for the Walt Disney Company, where she was responsible for the acquisition of theatrical motion pictures for distribution, including select and international rights for films under the Buena Vista International banner.

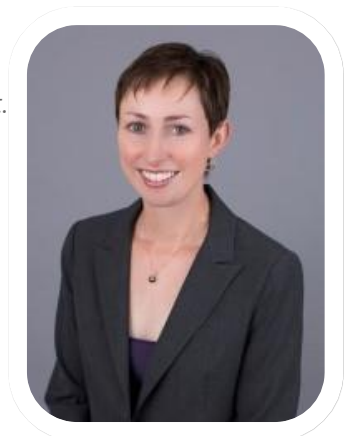
Keyes has a bachelor of economics, politics and philosophy degree from Claremont McKenna College in Claremont, California.

## Sarah Cottrell Propst

*Cabinet Secretary for the New Mexico Energy, Minerals and Natural Resources Dept.*

Sarah Cottrell Propst was appointed by the Governor in 2019 to serve as Cabinet Secretary of the Energy, Minerals and Natural Resources Department (EMNRD) where she leads and oversees the department's Energy Conservation & Management, Forestry, Mining & Minerals, Oil Conservation and State Parks Divisions. Previously, she served as the Deputy Cabinet Secretary of the New Mexico Environment Department and as Energy and Environmental Policy Advisor to New Mexico Governor Bill Richardson.

From 2012 to 2018, Cottrell Propst served as the Executive Director of the Interwest Energy Alliance, a non-profit trade association that represents the nation's leading





companies in the renewable energy industry, bringing them together with non-governmental organizations in the West (Arizona, Colorado, Nevada, New Mexico, Wyoming and Utah). She is the founder of Propst Consulting LLC, specializing in energy and environmental policy.

Cottrell Propst earned a Master of Public Affairs from Princeton University's Princeton School of Public & International Affairs, with a concentration in Science, Technology, and Environmental Policy. She worked as a Research Fellow for the Pew Center on Global Climate Change in Arlington, VA, and was a *magna cum laude* graduate of Davidson College with Honors in Political Science.

## Dwayne Phillips

*Vice President, Tallgrass Energy Partners, LLC*



Dwayne Phillips is Vice President-Hydrogen for Tallgrass Energy Partners, a growth-oriented midstream energy company, transporting crude oil and natural gas from some of the nation's most prolific basins. As Tallgrass VP for Hydrogen, Dwayne is responsible for Tallgrass's growth into the decarbonized energy markets focused on hydrogen energy. He also represents Tallgrass in the role of Manager of Escalante H2 Power (eH2).

Prior to joining Tallgrass, he was the Director, Hydrogen/Syngas Business Unit for Air Liquide, Managing Director of Air Liquide Trinidad and Tobago Ltd. and held commercial management roles in Air Liquide's Tonnage Business in the Texas Gulf Coast.

In his over 30 years' experience in the industrial gas industry, Dwayne held senior level business management positions that included business development, commercial management, and plant operations responsibilities.

Dwayne's background includes operational management, with world-class safety and reliability performance, of air separation, steam methane reforming, partial oxidation, gas-to-liquids, hydrogen membrane and pressure swing adsorption technologies. Commercially, he led the development of several hydrogen projects and a "mega" synthesis gas project that included the integration of several technologies, including ammonia.

Phillips holds a B.S. degree from LeTourneau University in Welding Engineering Technology and completed graduate coursework at the University of Houston-Clear Lake City. He also attended executive management programs at Stanford University, INSEAD, and the Darden School of Business at the University of Virginia.

## Justin Campbell

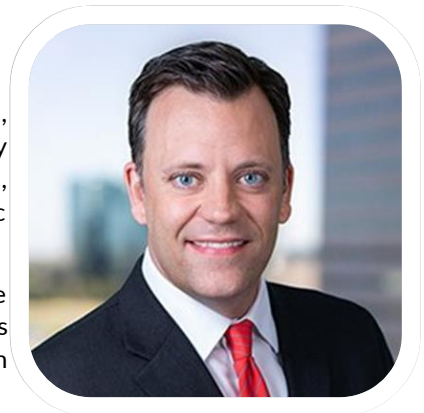
*Vice President, Power & Transmission, Tallgrass Energy Partners, LLC*

As VP for Power & Transmission, Justin Campbell is responsible for identifying, developing and executing power-related growth projects with sustainability benefits for Tallgrass Energy, a growth-oriented midstream energy company, transporting crude oil and natural gas from some of the nation's most prolific basins.

Campbell brings significant utility industry, strategic planning, corporate development, and financial experience to Tallgrass. In his current role, he is responsible for identifying, developing, and executing power-related growth projects with sustainability benefits.

Before joining Tallgrass, Justin served as executive vice president, chief development officer for GridLiance, an independent electric transmission company. As chief development officer, he was responsible for the growth of the company's portfolio of transmission assets through acquisitions and development of new long-term partnerships with electric cooperatives and public power utilities. He also served as vice president of Edison Transmission, LLC, an affiliate of Southern California Edison formed to pursue new growth opportunities nationwide. There, Campbell helped develop the company's competitive strategy and led growth initiatives in the California ISO, Midcontinent Independent System Operator, PJM Interconnection, and Southwest Power Pool regions. He also held roles in Edison International's strategic planning group and Southern California Edison's Transmission & Distribution business unit.

Campbell earned a Master of Business Administration from the University of Southern California and a Bachelor of Science in economics and engineering science from Vanderbilt University.





## Appendix 4

# List of Roundtable Attendees



## GGEDC 2023 Roundtable Attendees

	Last Name	First Name	Company
1	Abbey	Clayton	NM State University
2	Baca	Robert	McKinley County
3	Baizel	Bruce	NMED Env.
4	Bee	Francis	Gallup Business Improvement District (BID)
5	Bellitto	Justyn	NM Partnership
6	Bonaguidi	Louie	City of Gallup / GGEDC
7	Borcherding	Brady	FuelCell Energy
8	Borchert	Claudia	NMED Env.
9	Campbell	Justin	Tallgrass
10	Castillo	Robert E.	Continental Divide Electric Coop.
11	Chavez	Rikki-Lee	Capital Counsel and Consulting
12	Cifuentes	Luis	NMSU - VP Reseach
13	Clark	Jon	Economic Dev. Department
14	Cottrell - Propst	Sarah	Department of energy, minerals and natural resources
15	DeLaRosa	Joseph	NMDOT
16	Dimas	Anthony	McKinley County
17	Dixon	Meredith	District 20, Bernalillo County
18	Dodge	George	NMDOT
19	Foltz	Dennis	Foltz Plan
20	Garcia	Linda	Mckinley County
21	Gonzales	Marco	Mckinley County
22	Greenberg	Alex	NM Economic Development Depart.
23	Grey	Angelina	NWNMCOG
24	Haws	Tommy	GGEDC
25	Hunt	Barbara	Advanced Air LLC
26	John	Kevin	Los Alamos National Laboratory
27	Johnson	Johnny	NM Trucking Association
28	Kenney	James	NM Environment Dept.
29	Keyes	Alicia	NM Economic Development Depart.
30	Lee	Bill	Gallup-McKinley Chamber of Commerce
31	Long	Matt	Murphy Builders, Inc
32	Marquez	Charlie	City of Gallup
33	Martinez	Vincent	Tri-State Generation & Transmission Association
34	Martinez	JoAnne	Homestyle / CCEDI
35	McCabe	William	Navajo Nation Oil & Gas
36	McKoy, Jr.	Henry	U.S Department of Energy
37	Miano	Michelle	NMED Env.

38	Moore	Billy	McKinley
39	Murphy	Rick	Murphy Builders, Inc
40	Notah	Danielle	Commissioner
41	O'Malley	Martin	Gallup Land Partners
42	Palochak	Fran	Gallup
43	Parker	Tammy	City of Gallup
44	Peters	Dory	Big Navajo Energy
45	Phillips	Dwayne	Tallgrass
46	Piano	Sarah	Gallup
47	Remkes, PE	Charles	NMDOT
48	Roper	Mark	NM Economic Development Depart.
49	Sandel	Jason	Aztec Well
50	Sandusky	Donny	Advanced Air LLC
51	Schaaf	Michael	Gallup
52	Schath	Brian	Climate Change Bureau
53	Strand	Chuck	FuelCell Energy
54	Tanner	Tony	T & R Market
55	Ustick	Maryann	City of Gallup
56	Venable	Donna	Continental Divide Electric Coop.
57	Vierck	Steve	NM State Land Office
58	Watchman	Derrick	Sagebrush &
59	White	James	NM State Land Office
60	Williams	Evan	NMNWCOG
61	Wilson	Kent	GGEDC Board
62	Yazzie	Sherman	Rock Springs Chapter
63	<b>Virtual Participants - (Keynotes Only)</b>		
64	Archaga	Mario	Director State Govt. Affairs
65	Dumont	Jim	Field & Constituent Svc. Rep -Senator Heinrich
66	Hanks	Jvanna	Deputy Superintendent
67	Mayuga	Mark	North American Project Development Manager, ProCone/SUMITOMO
68	Peay	Ryan	Deputy Assistant Secretary for Resource Sustainability, Office of Fossil Energy and Carbon Management, U.S. DOE
69	Sullivan	Patricia Dr.	Director of the Office of Strategic Initiatives
70	Taira	Kevin	Board Director
71	Valdez	Jerry	Capital Prgm. & Investment Acting Division Director
72	<b>GGEDC Staff</b>		
73	Armstrong	Bruce	GGEDC
74	Lundstrom	Patty	GGEDC
75	Sage	Michael	GGEDC

## VOLUNTEERS

VOLUNTEERS			
76	Ezzell	Sabrina	UNM-Gallup
77	Mackenzie-Chavez	Keegan	NMEDD
78	McFarland	Jack	GMCS
79	Ruggles	Lorraine	NMEDD
80	Trujillo	Arvin	4CED
81	Whitmore	Martina	NWNMCOG
82	Yarborough	Eileen	Cibola Communities Economic Development





## Appendix 5

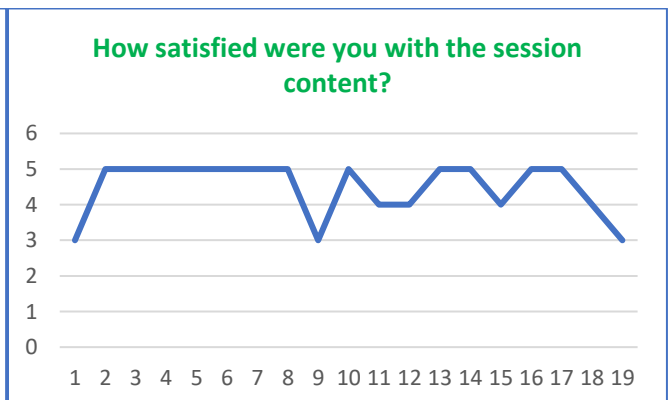
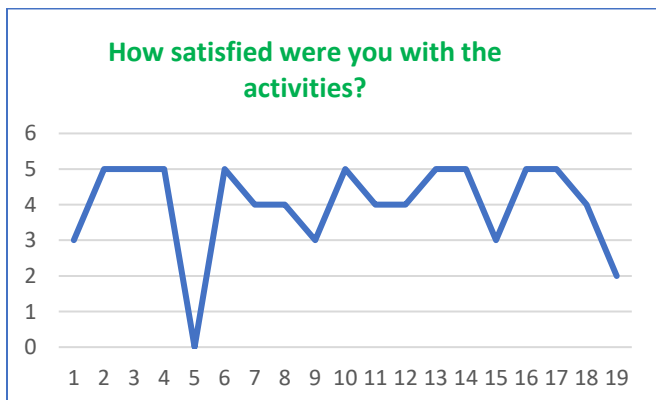
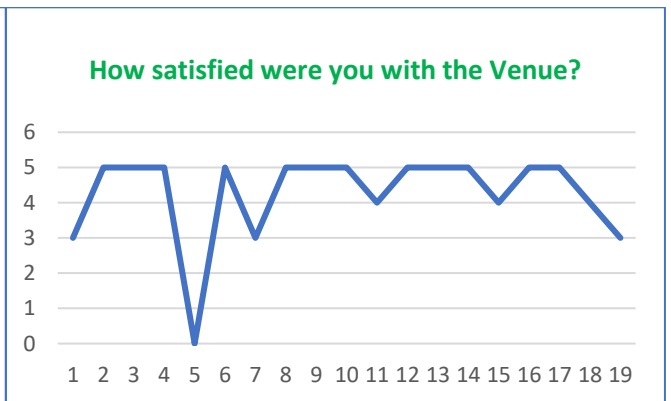
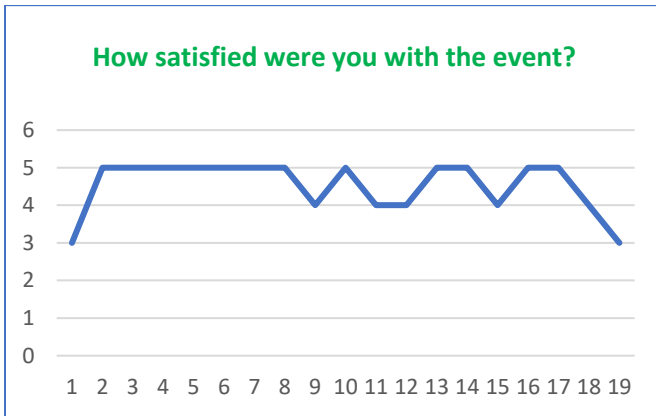
# Roundtable Participant Exit Survey Results



# Roundtable Evaluation

## Survey Results - Participant Feedback

At the end of the Roundtable, the participants were asked to access and complete a digital survey on their phones via a QR code. The following week, GGEDC emailed the participants a follow up request to complete the survey. Of the 58 participants who were not GGEDC staff, event volunteers or presenters, 19 (33%) completed the survey. The first six questions asked the survey respondents to rate on a scale of 1-5, with 5 being the most favorable response and 1 the least favorable. Most of the respondents gave very favorable ratings. The ratings for the first six questions (charted below) were between 3 and 5. The zeros indicated in several of the charts below resulted from one respondent who did not answer those specific questions.



# Open-ended Survey Questions

## 1. What were your key take-aways from this event?

- The urgency for hydrogen development and the high level of interest
- Hydrogen is the necessary element to reaching C neutrality
- Hydrogen is HERE and NM is a leader. There is no path to zero emissions without hydrogen.
- complexities of hydrogen
- I wanted to obtain better understanding of the overall plan, hydrogen applications/technology, etc. and was able to do that due to a very good program and speakers.
- I learned that the infrastructure needed to support hydrogen production and transportation is significant and needs to be planned and funded quickly.
- Didn't know Hydrogen was being talked about near Prewett, NM
- we need to educate everyone, not just the public. one of the participants of my roundtable group had a misconception about how hydrogen can be transported.
- Hydrogen is an essential part of reaching Carbon neutrality.
- More work is still needed for the general public. Not to forget there are still protesters working against hydrogen
- Update of the Hydrogen Hub and Escalante
- The hydrogen industry is many years away from maturation, but it will become a reality
- NM is a leader in hydrogen. There is no path to zero emissions without hydrogen
- How much I don't know about hydrogen production and its safety. This was a very technical presentation. It needs to be presented in a manner that normal citizens (like myself) can understand so we can share this information with others.
- There is a significant amount of support for the Hydrogen Hub activities and much needs to be done to detail the development and implementation process going forward.
- Have a better understanding of the Escalante project and a better perspective of DOE funding
- We need to broaden the coalition.
- Like without Federal/State subsidies the platform fails.

## 2. Why did you attend the round table?

- To stay abreast of McKinley and Cibola County issues of importance. To better understand the role of Hydrogen in our area's economic and energy future
- Past and present interest in hydrogen as an energy source.
- To learn what is needed to prepare for hydrogen production, transportation and the timing for when this will be a reality.
- Get up to date information
- Utility provider assisting with economic development in our service area.
- Education on emerging industry
- I was asked to do so, but also to better understand Hydrogen and its potential impact on Gallup
- I feel hydrogen is in our future, and I support it.

- Interest in the Hydrogen Hub
- New Mexico focus on opportunities in Northwest New Mexico for hydrogen production and export and ancillary businesses
- To learn and contribute knowledge.
- I don't know much about Hydrogen. Citizens are asking me questions I don't know how to answer.
- Developing a specific Hydrogen production project in NM.
- To learn more about the Escalante project, show there are additional projects in NM, and better understand NM's role in the WISHH.
- I am an energy and economic development advocate.
- Additional comments regarding the sessions or overall agenda:
- High level of participation by prominent state officials
- Impressed with the amount of knowledge in that session! Learned a lot
- Very well put together. Used time very well. Excellent presenters & content.
- The breakout sessions were well facilitated and led to excellent discussions on funding, regulation, infrastructure etc.
- If they could come out to local Navajo Nation chapters and educate community members on the pros and cons on Hydrogen
- Took relevant information away from every session but my favorite was the three cabinet secretaries panel as much good information. We are getting some questions/input regarding hydrogen power environmental impacts so helpful to better understand what is proposed. Also, of value to hear from DOE and likely of significant value to have them attend and speak.
- Great group of educated people who knew their stuff
- Good speakers made session successful.
- Very well presented in understandable terms.
- I would have liked to have people who oppose hydrogen production to hear their concerns. The presenters could have responded to their concerns and that would have provided me with the tools to respond to the naysayers.
- The organizers did a great job in putting this event together.
- We need to have more time to review unexplored possibilities.

### 3. What would have made this event better?

- It was definitely a first-class event
- Nothing that I am aware of
- No. Not at this stage.
- No--it was excellent.
- No, it was informational to me.
- Parking!
- Wish I could have stayed for the roundtable discussions as that interaction would have been a change of pace.
- A presentation from an active hydrogen program/project.
- Can't think of anything. Maybe a later start?
- Yes. A presentation of the NM, CO, UT, MT business case presented to the Federal Government.
- No. Great start!
- Including opposing views.

- Hold the breakout sessions in separate rooms. The background noise in the main room made it difficult to communicate within the breakout groups.
- I know this is a Gallup event, but letting attendees know about the other 3 projects in NM would have been informative.
- Time

#### **4. Additional comments, thoughts, and/or suggestions for future events:**

- Would be nice for the Governor to make an appearance
- Need to involve Municipal League, especially regarding land use/codes etc. necessary for implementation & locational criteria for facilities. Some discussion of metallic hydrides & other production sources of Hydrogen. Develop educational messages & delivery. Involve environmental representation - need their support. Eventually, will be a good topic for a NM First type session...
- If they could come out to local Navajo Nation chapters and educate community members on the pros and cons on Hydrogen. I work for the Navajo Nation Chapters; we need more information.
- I had to reschedule another meeting to attend and I'm glad that I did as I truly learned a lot that should be of value as our Agency further engages on this important project.
- Keep engaging people to the positives of hydrogen
- Develop public education program. More discussion on Hydrogen generation, storage, applications and application methodologies. Methods
- Add CCUS to agenda for discussion



**Appendix 6**

**Keynote Presentation  
PowerPoints**



# Prepping the Area

“A review of projects undertaken to ready Gallup-McKinley County for economic growth”

Tommy Haws, President  
GGEDC Board of Directors

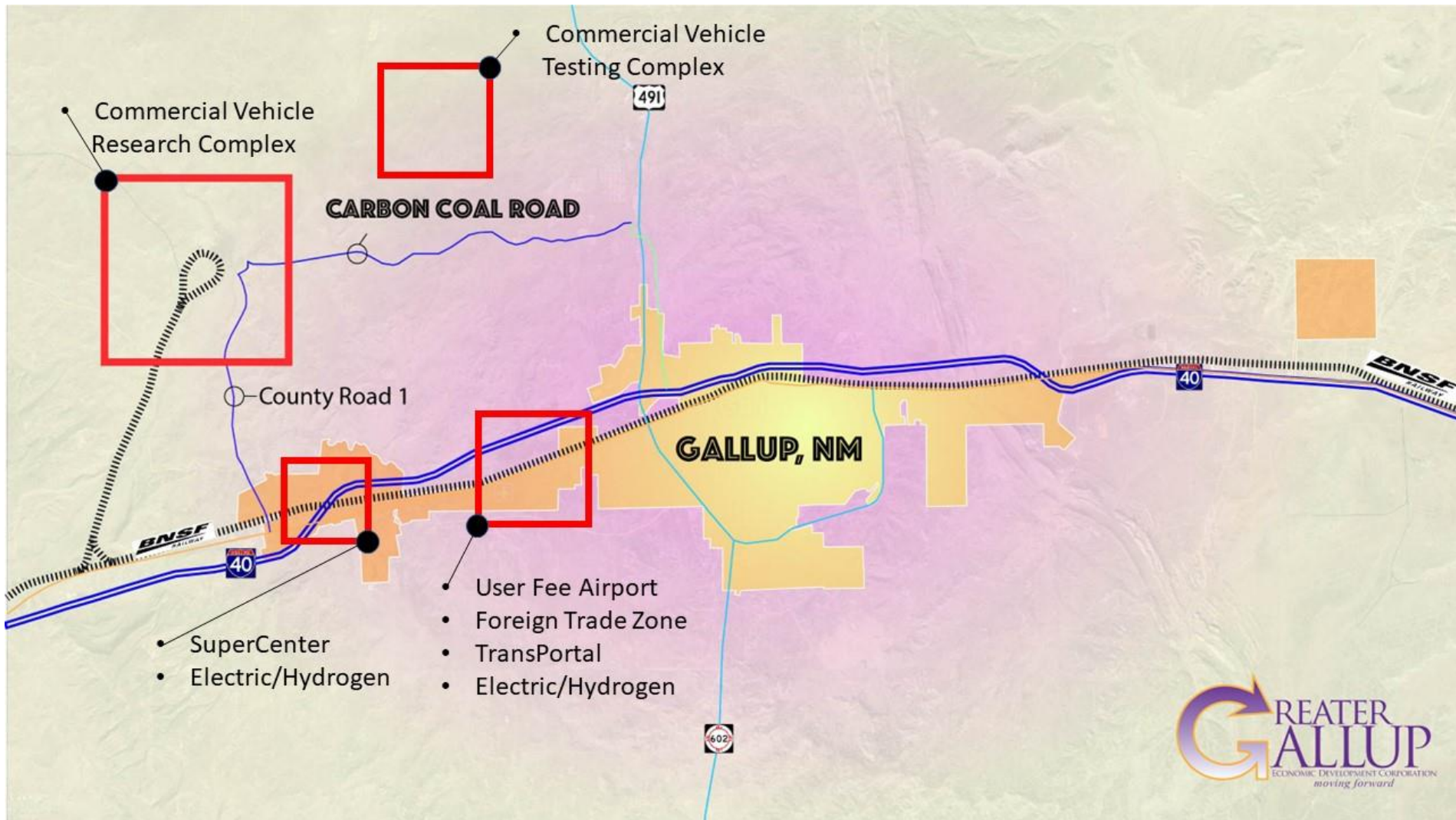
# Greater Gallup Economic Development Corporation

- **501(c)3 non-profit organization**
  - City of Gallup
  - McKinley County
- **8-member Board of Directors**
  - All Private Sector
  - 250+ yrs. cumulative business experience
- **Professional staffing**
  - Only EDO in NM w/ 2 Certified Economic Developers (CEcD)

# Mission Statement

Drive economic growth through building on local assets and strategic partnering to target attraction and recruitment of business and industrial employers that provide economic base jobs in the Gallup-McKinley County area.

# Gallup Mobility Investment District





# Gallup Energy Logistics Park





# Carbon Coal Road



# User Fee Airport / Foreign Trade Zone



U.S. Customs and  
Border Protection



MCKINLEY COUNTY



**GALLUP**  
LAND PARTNERS, LLC

# Gallup Municipal Airport

## PHASE 1

Figure 1.17 | Northeast View





# Gallup Super Center







G★G★E★D★C

## Regional Transportation Corridors Northwest New Mexico

G★G★E★D★C



[www.GallupEDC.com](http://www.GallupEDC.com)







# EDD

ECONOMIC DEVELOPMENT DEPARTMENT

# Hydrogen Market Outlook

*Greater Gallup Economic Development Corporation*

January 27, 2023

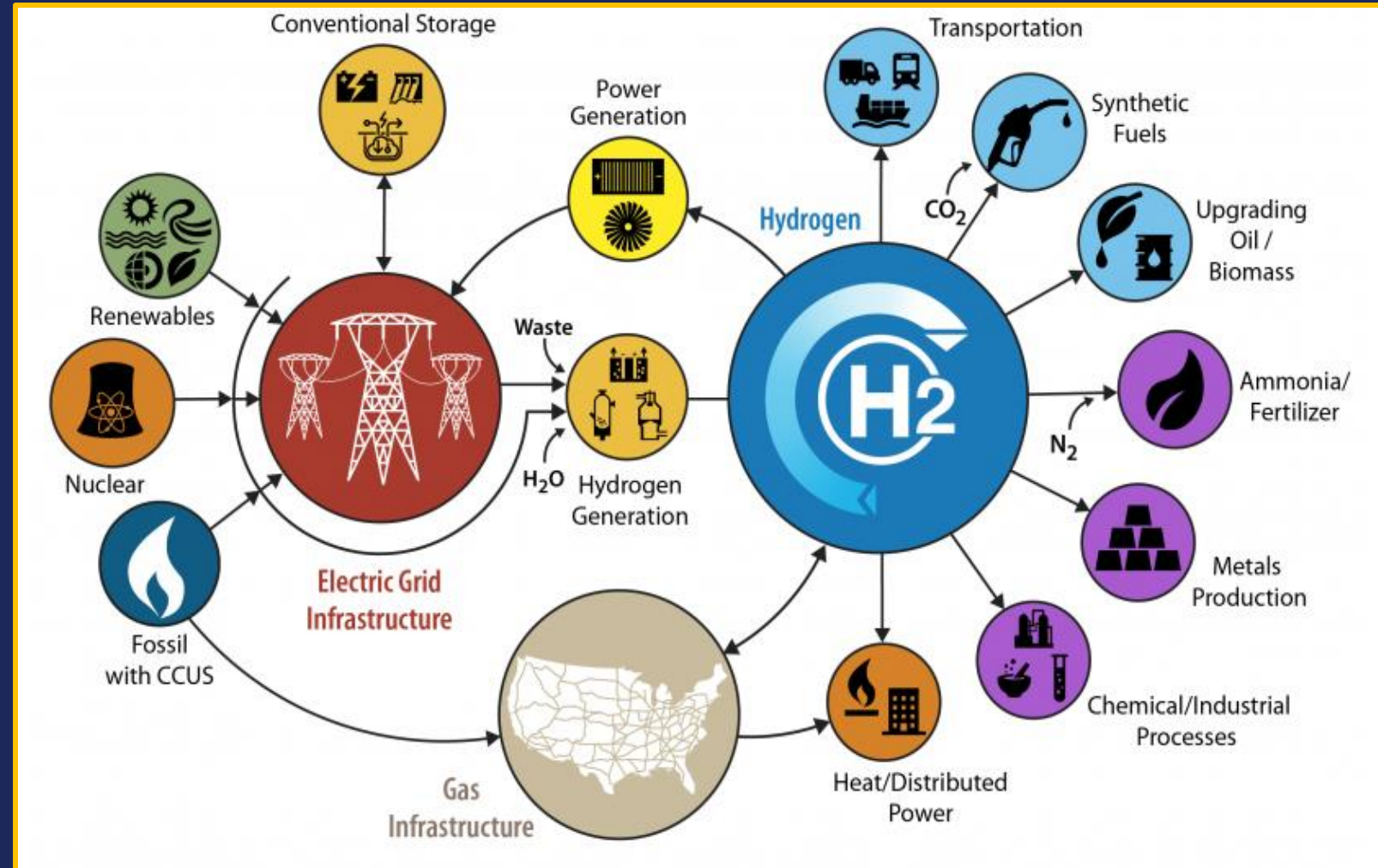
**Alicia J. Keyes**, Cabinet Secretary, Economic Development Department

**Sarah Cottrell Propst**, Cabinet Secretary, Energy, Minerals & Natural Resources Department

**James C. Kenney**, Cabinet Secretary, Environment Department

# New Mexico Hydrogen Economy Goals

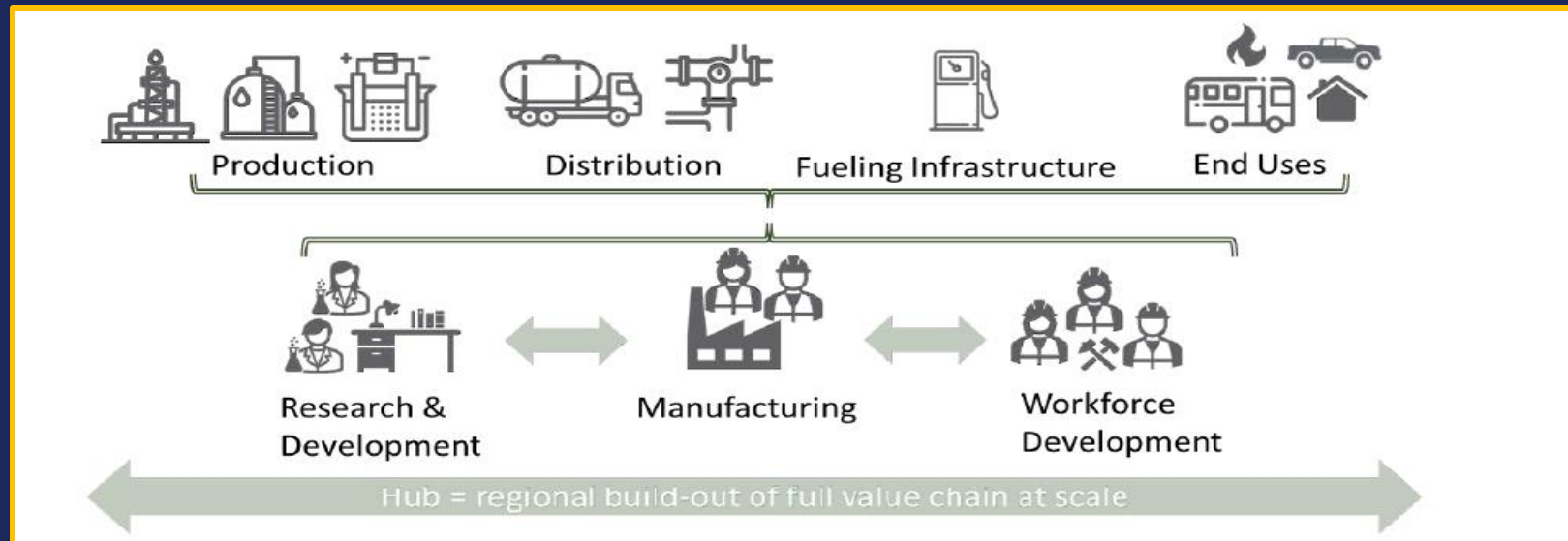
- Meeting Climate Goals (ETA/Paris Accord threshold)
- Focus on Clean and Zero-carbon Hydrogen
- Economic and Workforce Development opportunities:
  - Make
  - Move
  - Store
  - Use



# Federal Hydrogen Hub Opportunity



- The hydrogen hub concept has been used in hydrogen strategies globally as a way to achieve scale across the hydrogen supply chain in a region.
- Jobs Act: “the term ‘regional clean hydrogen hub’ means a network of clean hydrogen producers, potential clean hydrogen consumers, and connective infrastructure located in close proximity”
  - Funding Opportunity: \$7B from DOE for 6-10 Hubs.
  - Maximum award: \$1.25B/Hub (between the four states)
  - NM Economic Impact: \$700M with cost share from partners

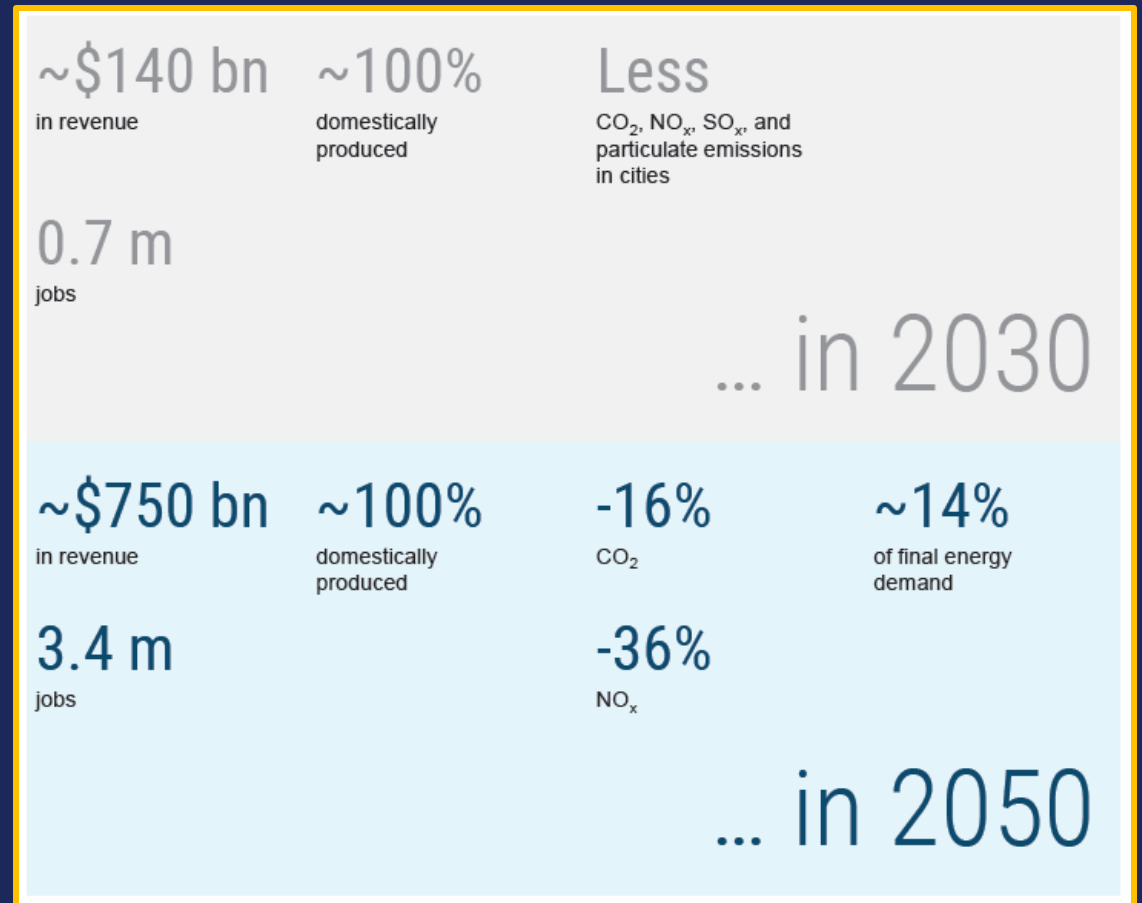


# Hydrogen Hub Application



- Western InterState Hydrogen Hub (WISHH) MOU
  - NM, CO, UT, WY
- Sandia and Los Alamos National Laboratory MOU
  - With EDD, ED, EMNRD
- Prime Contractor
  - Atkins
- Encouraged by DOE
  - Only 33 out of 79 concept papers
- Full Application
  - Due April 7<sup>th</sup>

## Hydrogen Economy in U.S



# New Mexico Clean Hydrogen Approach



Four State  
MOU

NM DOE  
MOU

NM  
EO

Atkins

Executive  
Agencies/Labs

NRGCC

Executive  
Agencies

Capacity building:  
Broad theoretical policy-based  
problem solving across the Region

Capacity building:  
Broad theoretical policy-based problem solving  
across the State

Advancing technology to market:  
Applied problem solving for broader hydrogen  
implications

Inventory of assets

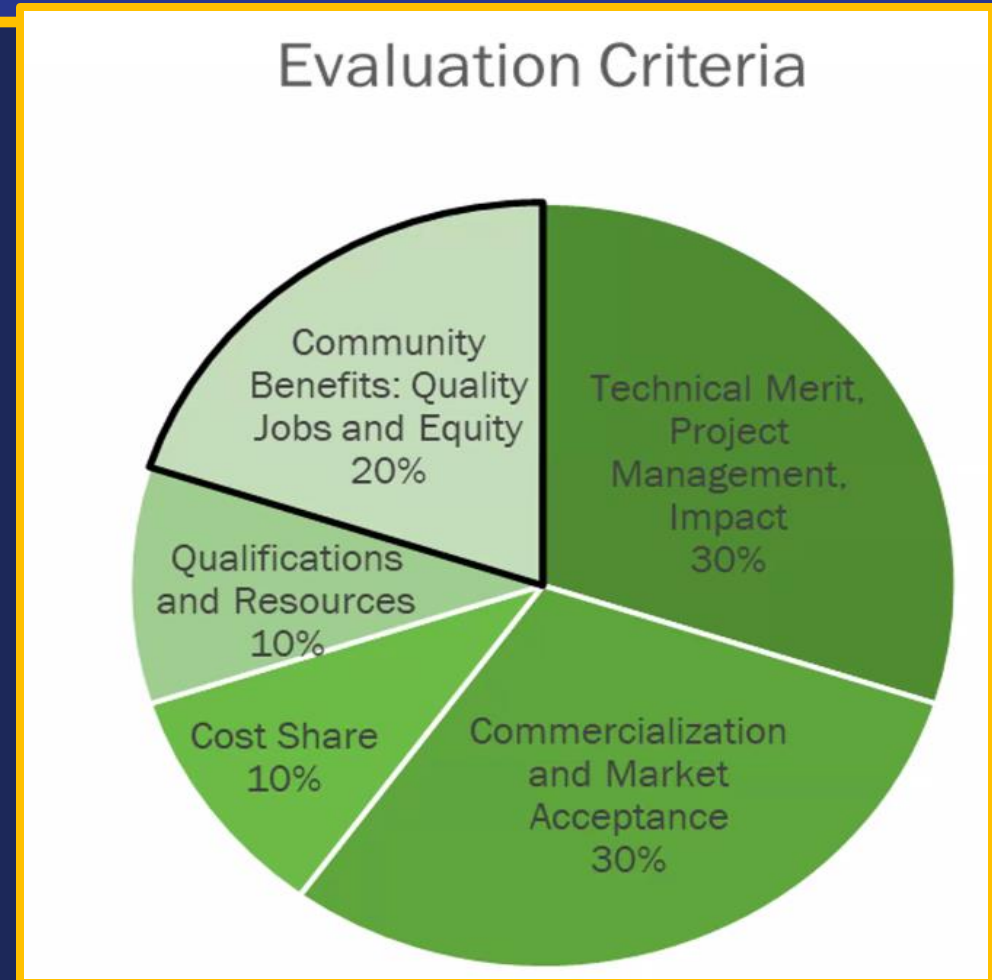
Workforce development

Equity and Environmental Justice

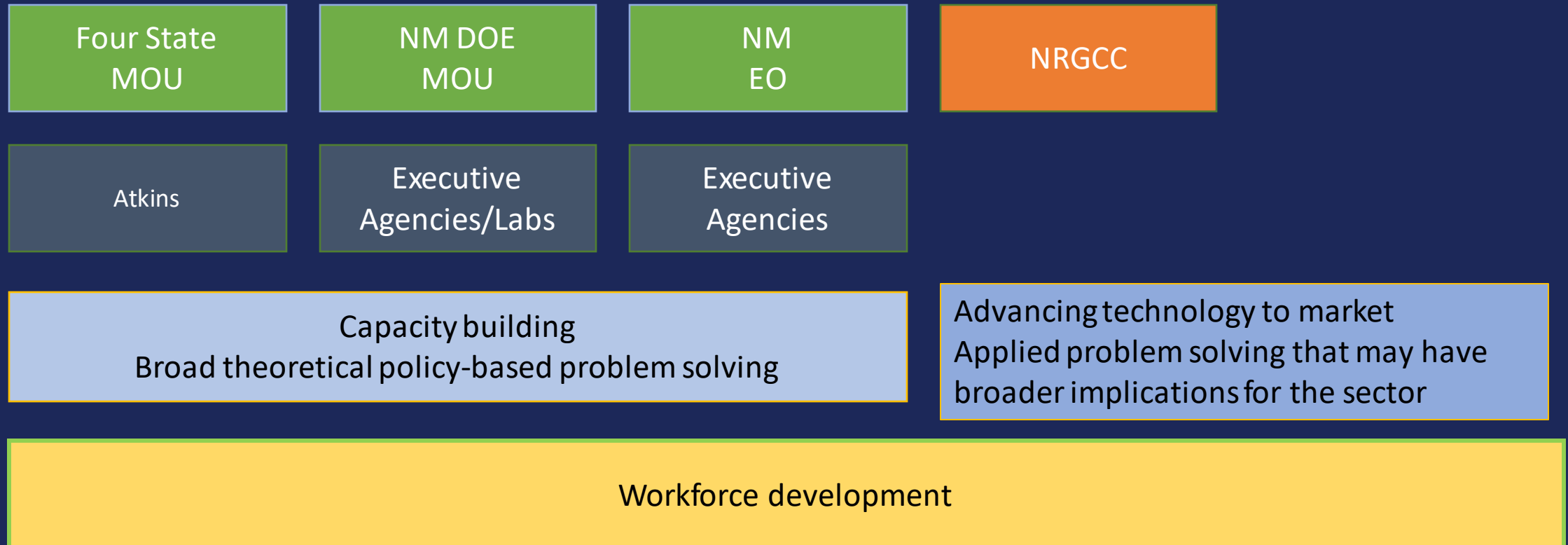
- Education and Outreach
- Socio/Techno/Economic/Enviro Analysis
- Inventory of assets
- Industry cost sharing for the RFP

# DOE Evaluation Criteria

- DOE HUB Diversity guidelines
  - Feedstock
    - One Fossil Fuel
    - One Nuclear
    - One Renewable
  - End-use
    - Electrical Power generation
    - Industrial
    - Residential/Commercial heating
    - Transportation
- At least two hubs in Natural Gas Producing Regions
- Justice40: At least 40% of overall benefits to SEDI

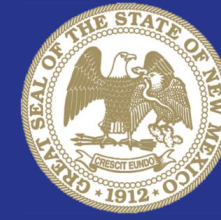






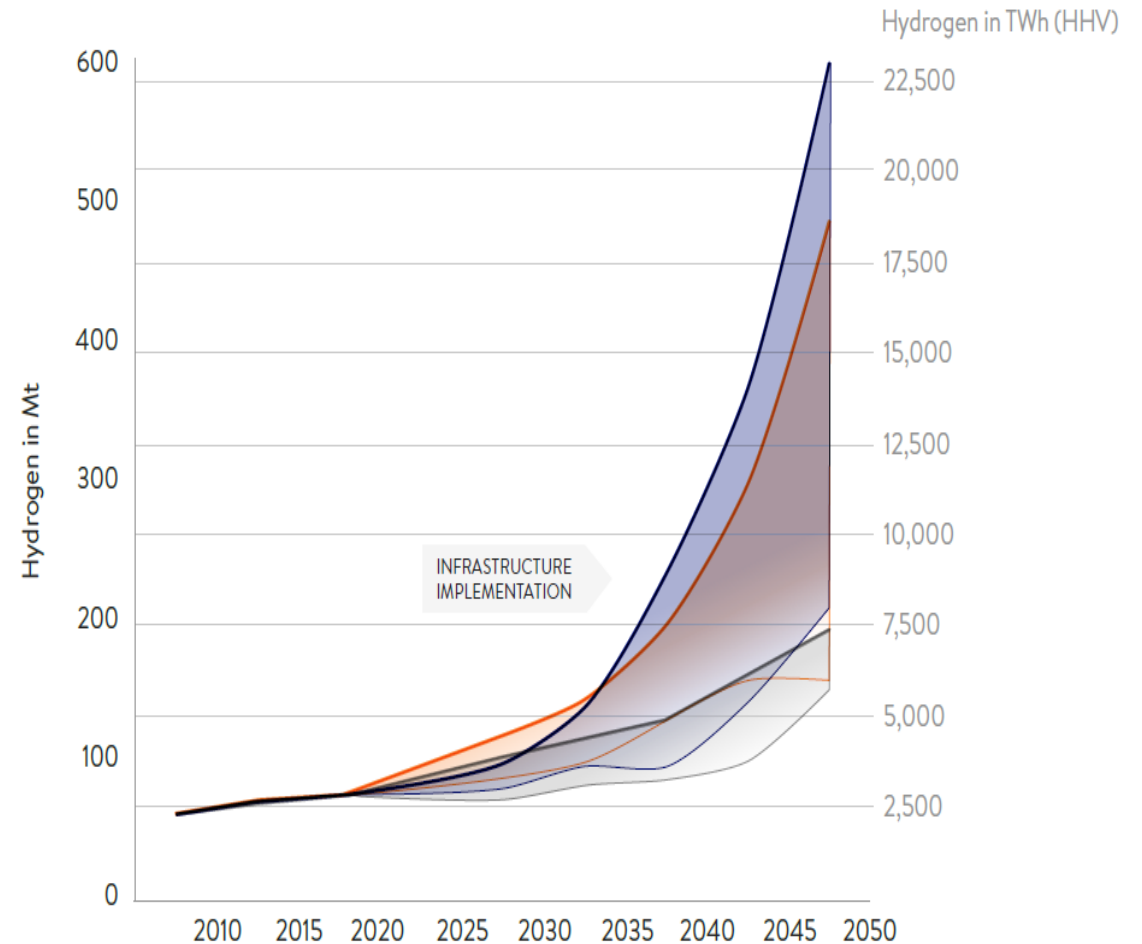


# NM Hydrogen Advantages



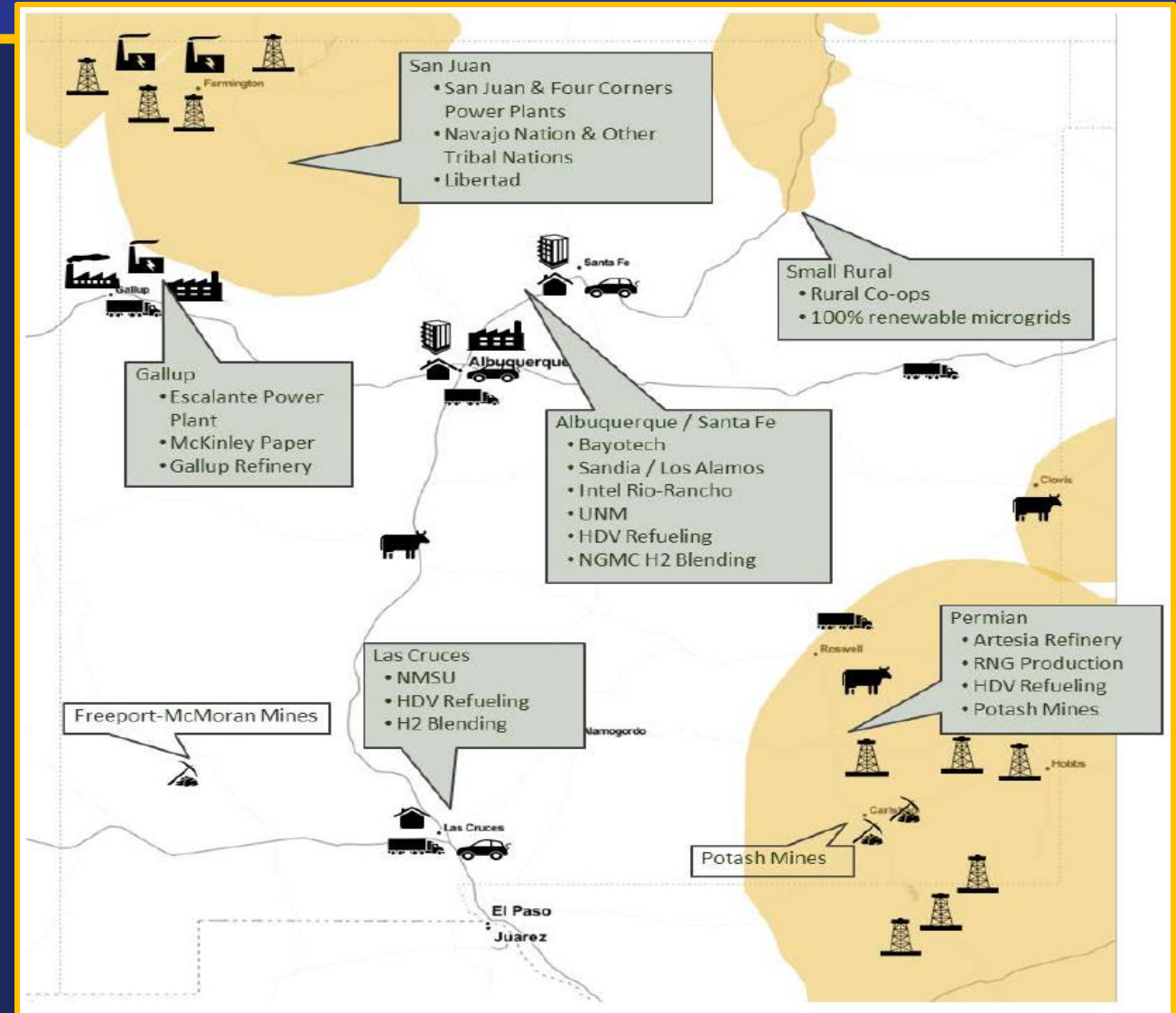
- NM well positioned to benefit from surge in Hydrogen demand
  - Natural gas advantage
  - Significant renewable energy capacity/potential
  - Carbon-capture technology Nat'l labs
  - Knowledge capital core competencies
  - Existing infrastructure
  - Significant opportunity for economic revitalization
- Developing hydrogen economy will lead to business recruitment & retention

Figure 1. Range Of Hydrogen Demand Assessment By 2050



# Hydrogen in NM

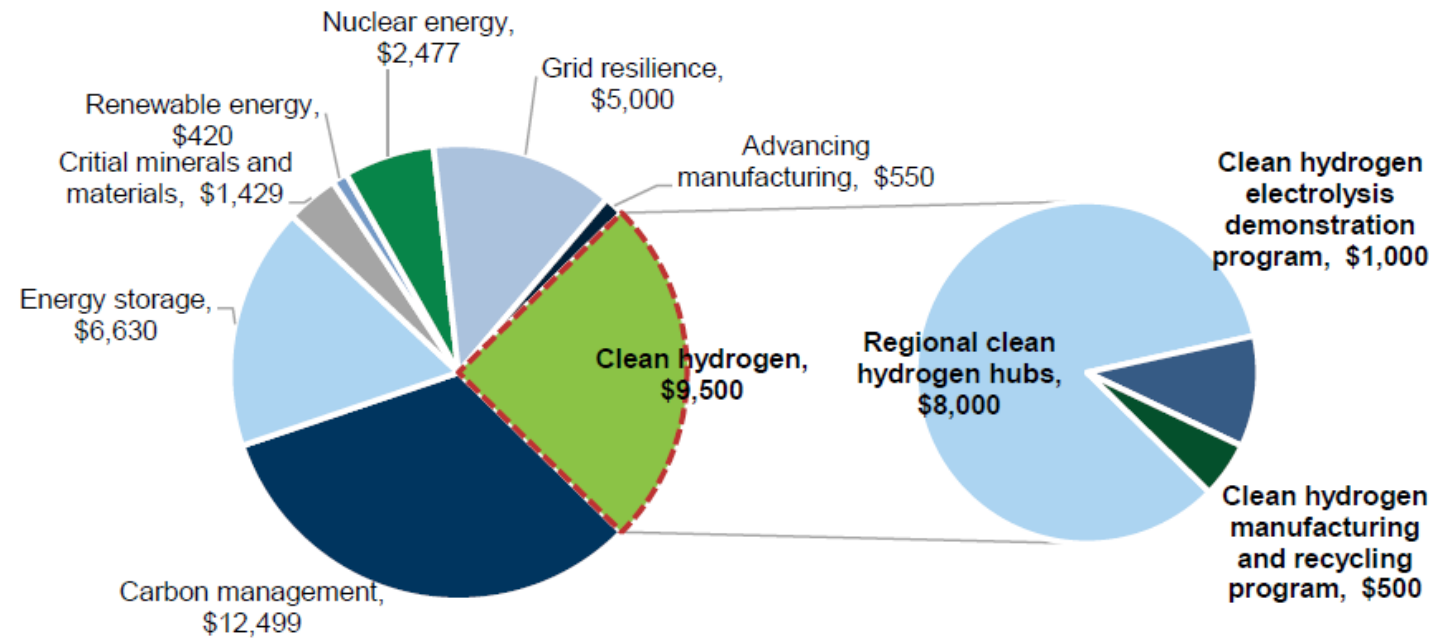
- New Mexico
  - Can lead nation in Carbon Capture, Utilization and Sequestration (CCUS)
  - Intrinsic geographic and infrastructure advantages
  - Can leverage opportunities to pair hydrogen production and renewable energy development
- Opportunities for EDD
  - Dedicate staff through an Office of Clean Energy Development
    - Serve as conduit between agencies
    - Consolidated with other offices



# Hydrogen Market

- Global hydrogen demand:
  - 2030: **\$250B**
  - 2050: **\$1T**
- Department of Energy investment: **\$9.5B**
  - Investment in Hydrogen Hubs: **~\$7B**
- DOE hydrogen cost goals within 10 years: **\$1/1 kg**

United States Infrastructure Investment and Jobs Act selected energy R&D programs (US\$m) with a focus on clean hydrogen



Source: United States Infrastructure Investment and Jobs Act, data compiled by Goldman Sachs Global Investment Research

# Defining the Vision

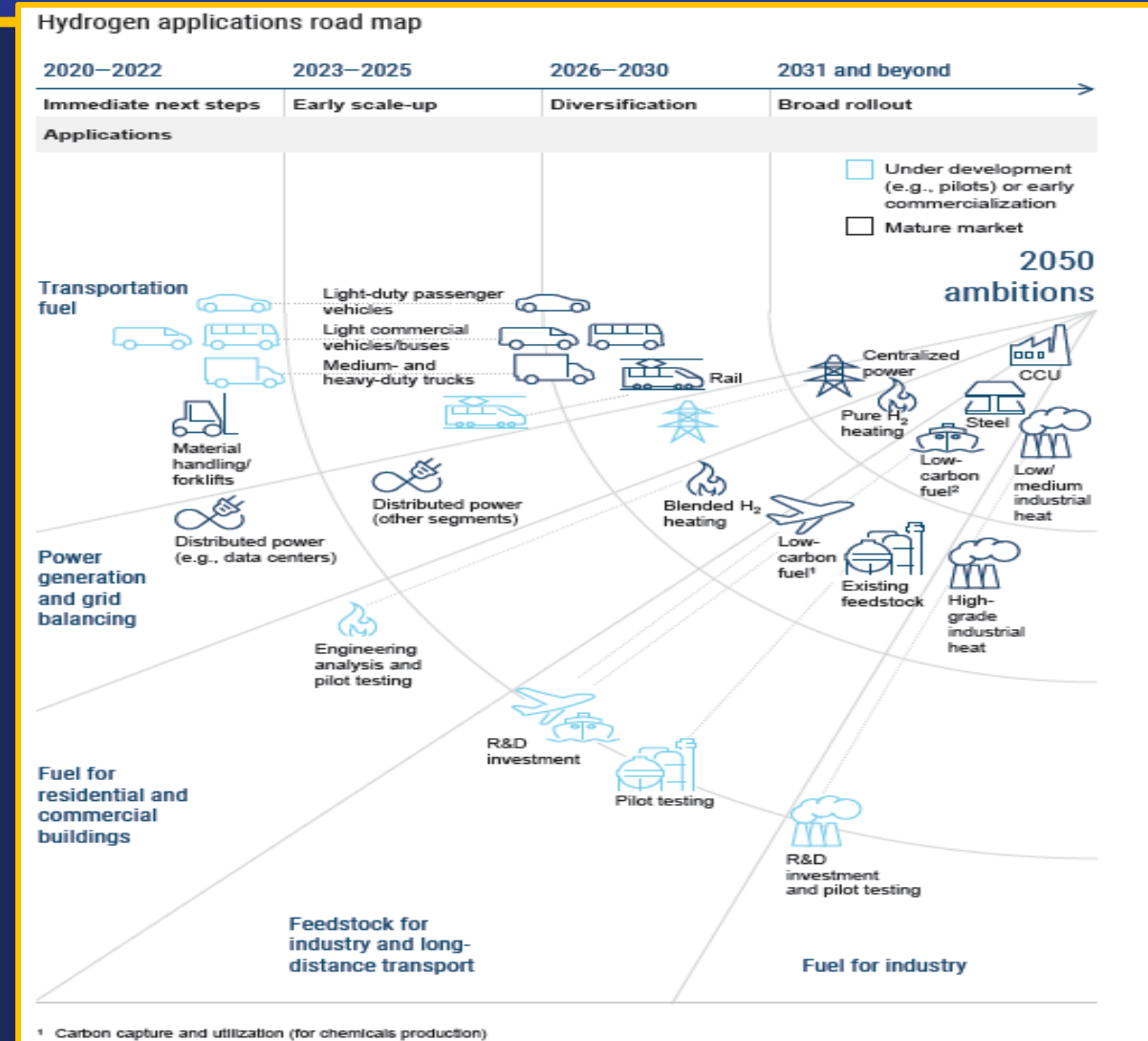
## Economic Development Opportunities

- Production
- Storage
- Distribution
- End-Uses (Top 3)
  - Power-to-Gas
  - Freight
  - Industry



# Industry Applications Include

- Aerospace
- Value-Added Agriculture
- Fuel-cell development
- Transportation
- Decarbonizing hard to abate industries



# EDD Opportunities



## Support mechanisms

Local Economic Development Act  
Job Training and Incentive Program  
Sustainable Economy Task Force  
Office of Science and Technology



## Workforce Development Goals

Identify opportunities and barriers  
Develop recommendations  
Identify and prioritize SEDI communities



# Universal Hydrogen

- Major manufacturing hub on 50 acres
- Anticipated economic impact:
  - Capital expenditure: **\$254M**
  - New jobs: **500+**
  - Average salary: **\$51,500**
  - Annual payroll: **\$25.7M**
  - LEDA: **\$10M**
  - Additional investment from CABQ: **\$2M**
  - Construction project alone: **1,200+ jobs**
  - Economic impact over 10 years: **\$700M**





# NM Hydrogen Projects

- BayoTech
  - Technology from Sandia National Lab
  - Partnership with San Juan College
  - Programs focused on post-graduates
  - Received investment from Catalyst Fund
- Parajito Powder
  - Recipient of FY21 OST Grant
  - Multiple Job Training Incentive Program awards
- Questa Superfund Site (mine owned by Chevron)



# NM Hydrogen Projects (cont.)



- Included in Concept Paper

- Escalante/Tall Grass
- Avangrid
- Libertad
- Navajo Agricultural Products inc. (NAPI)

- Other companies (under NDA)

- Producers of clean hydrogen
- International companies interested in pilot projects in NM
- Filling station with major corporate partnerships
- Recent conversations with major market players

# Executive Order progress

- Hydrogen E.O. (2022-013) Items 5a and 5b relate to EDD:

*“5a. Include Hydrogen in the State’s key economic sectors and support the development of clean and zero-carbon hydrogen production; and*

*5b. Review, with support from other of state executive agencies, its existing programs and authorities to identify those that can be used to support the economic development of an environmentally responsible hydrogen sector”*

- Progress

- EDD website supporting Hydrogen development
- Language indicating EDD programs (LEDA, JTIP, OST grants) can and have been used for Hydrogen-related projects







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Sarah Cottrell Propst  
Cabinet Secretary, EMNRD  
[Sarah.Propst@emnrd.nm.gov](mailto:Sarah.Propst@emnrd.nm.gov)  
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**Escalante Generating Station:  
A critical Component of the Western Inter-State Hydrogen Hub  
Strategy (WISHH) and Opportunity for Public-Private  
Partnership**

**Dwayne Phillips, VP - Hydrogen**

**Justin Campbell, VP - Power & Transmission**

*January 27, 2023*

## UNPARALLELED FINANCIAL BACKING FROM DIVERSE INTERNATIONAL OWNERSHIP



### NATURAL GAS PIPELINES GATHERING AND STORAGE

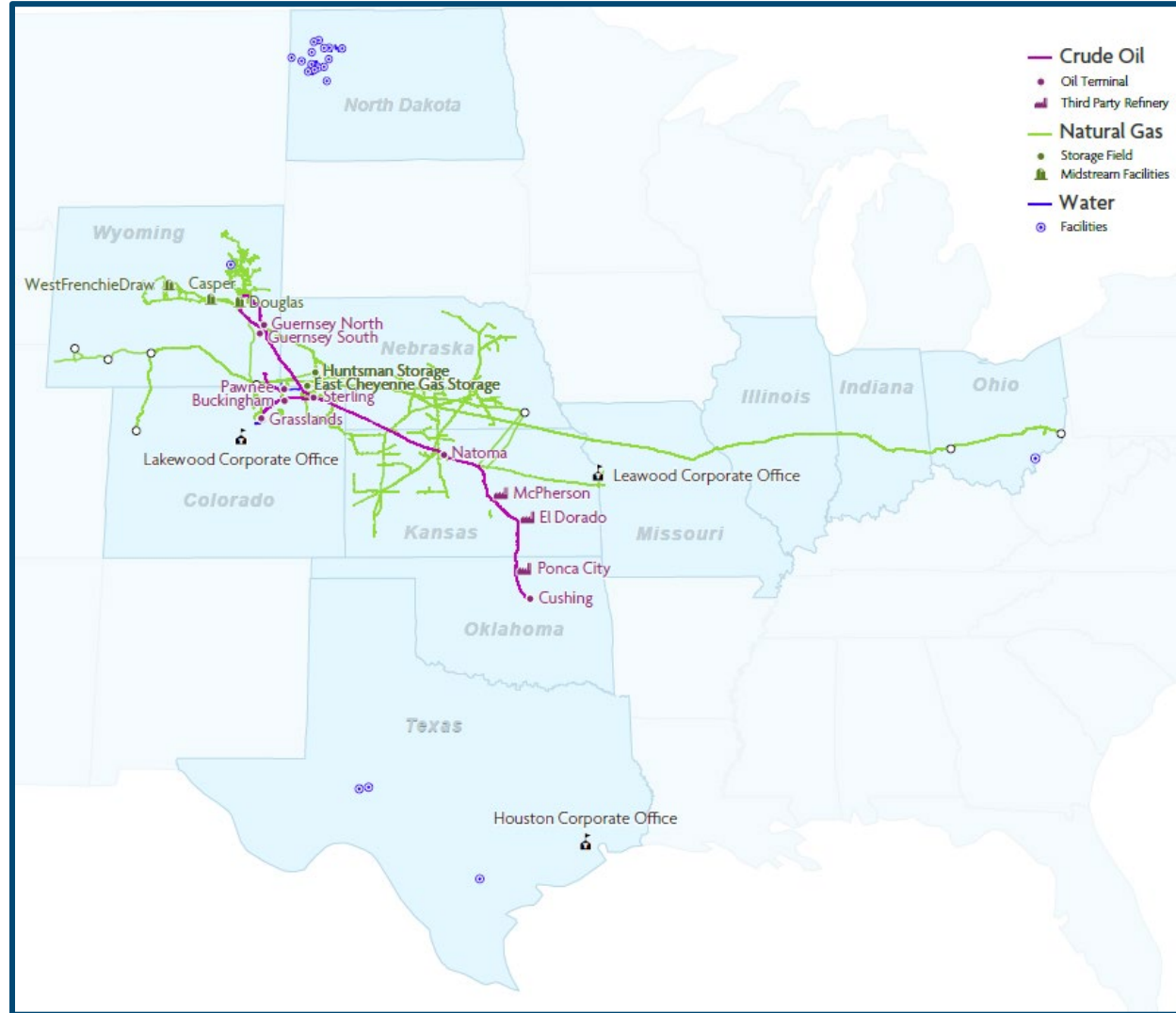
8,000 miles / ~5 bcfd  
~32 bcf storage

### CRUDE OIL PIPELINES AND TERMINALS

1,400 miles / ~650 kbbl/d  
9 terminals / ~8,500 kbbl storage

### OTHERS

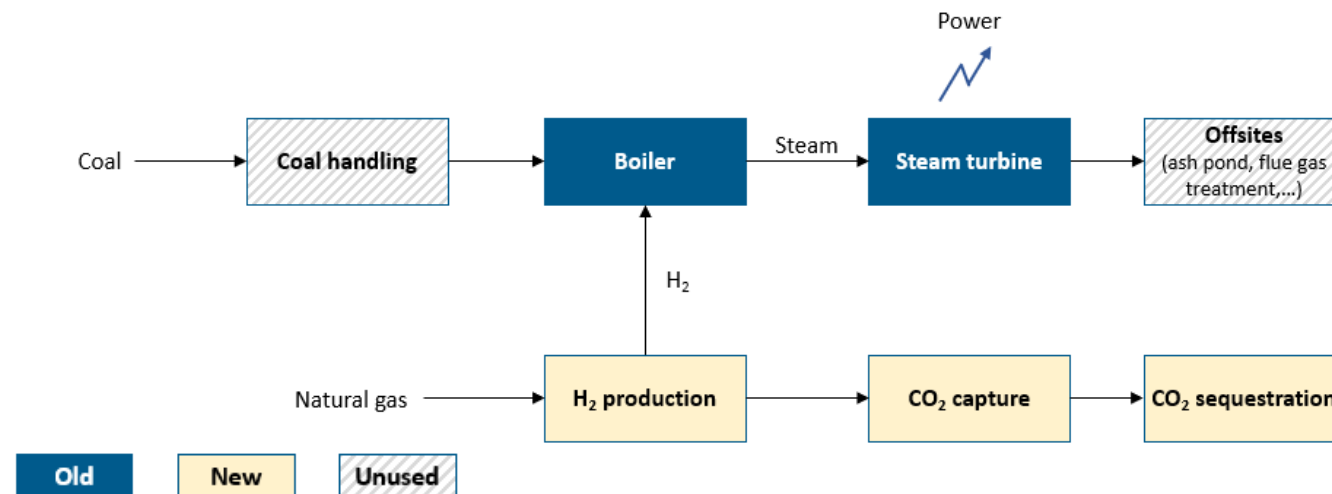
Water treatment and services, crude oil trading, NGL midstream, gas plants





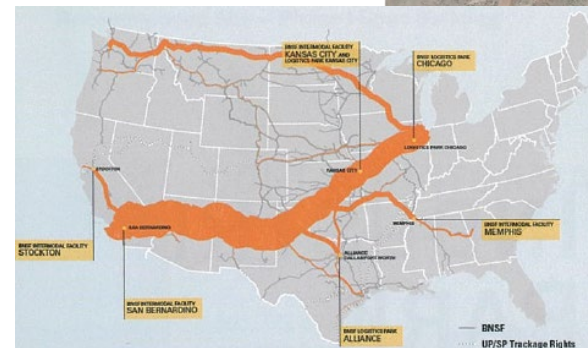
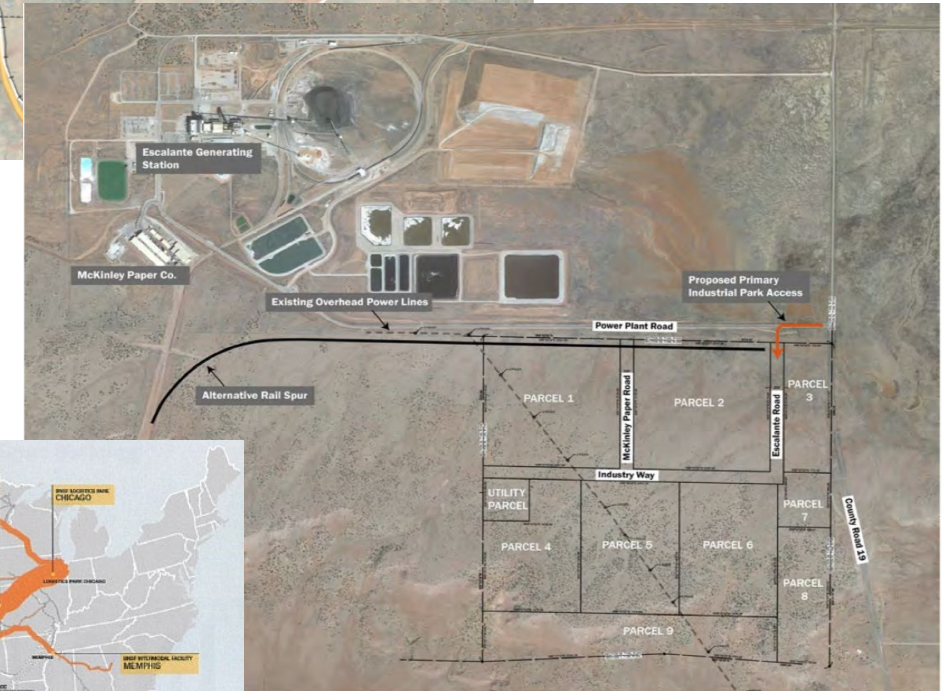
## A first-of-its-kind Project

- › **Reliable & Affordable Clean Power:** Once converted, the plant will provide ~265 MW of clean, dispatchable generation with a **97%+ reduction in carbon emissions**
- › **Bringing. Back. Jobs:** Among other benefits, we expect the project to **directly create 60+ permanent jobs** in the Prewitt, New Mexico community and **500+ construction jobs**
- › **Foundational Platform:** The project will establish a foundation for further development of hydrogen, especially for hard-to-decarbonize industries





# Competitive Advantages of Escalante Site to GGEDC





Ali Zaidi, *Climate Adviser to President Biden*, referencing Escalante in his Keynote Address to the 2022 Hydrogen Americas Summit

[Day 1 Opening Keynote Address on Vimeo](#)

Start at 27:00

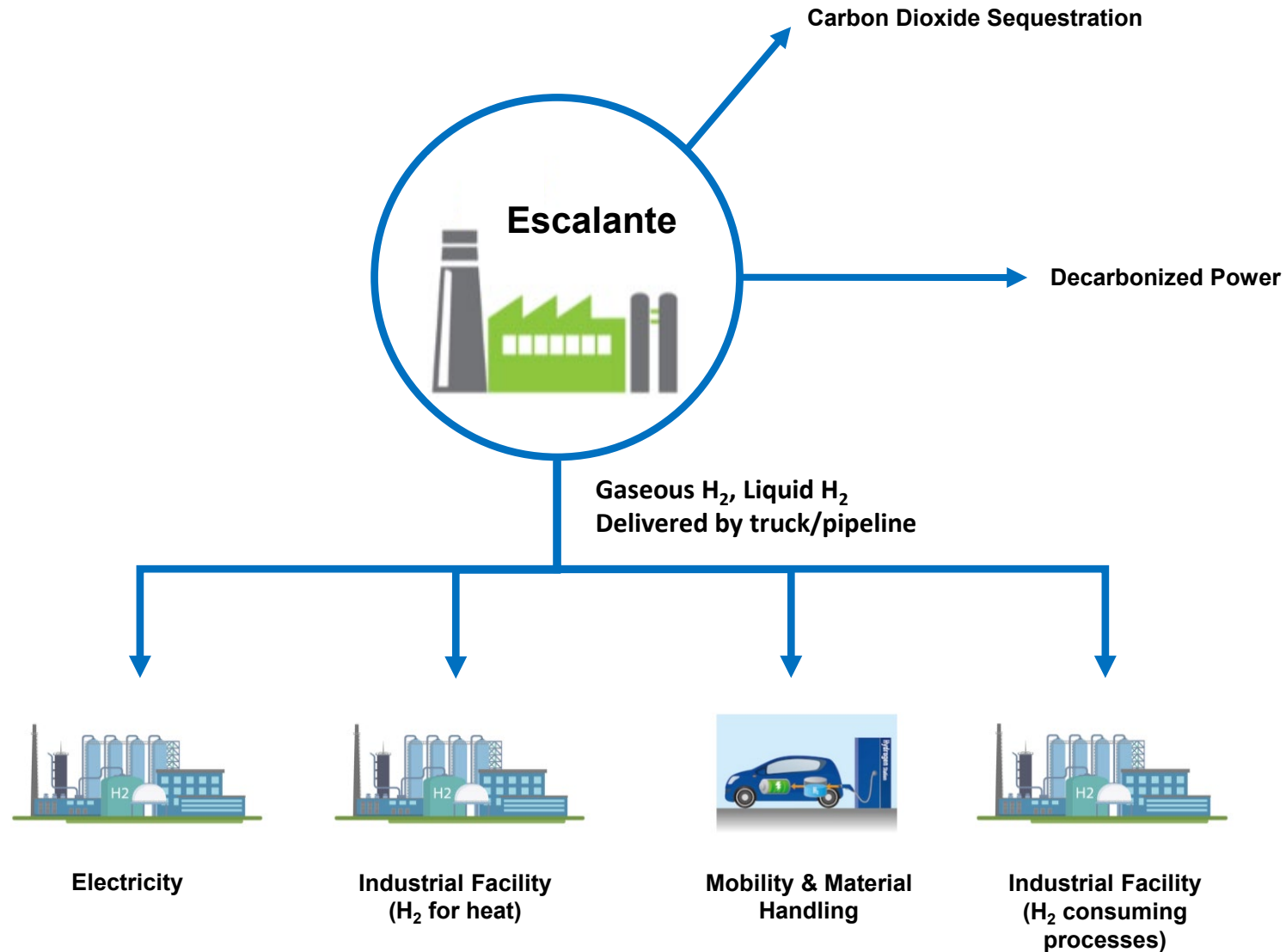
## Why 2023 is a cliff for climate rules

By Jean Chemnick | 01/04/2023 06:26 AM EST

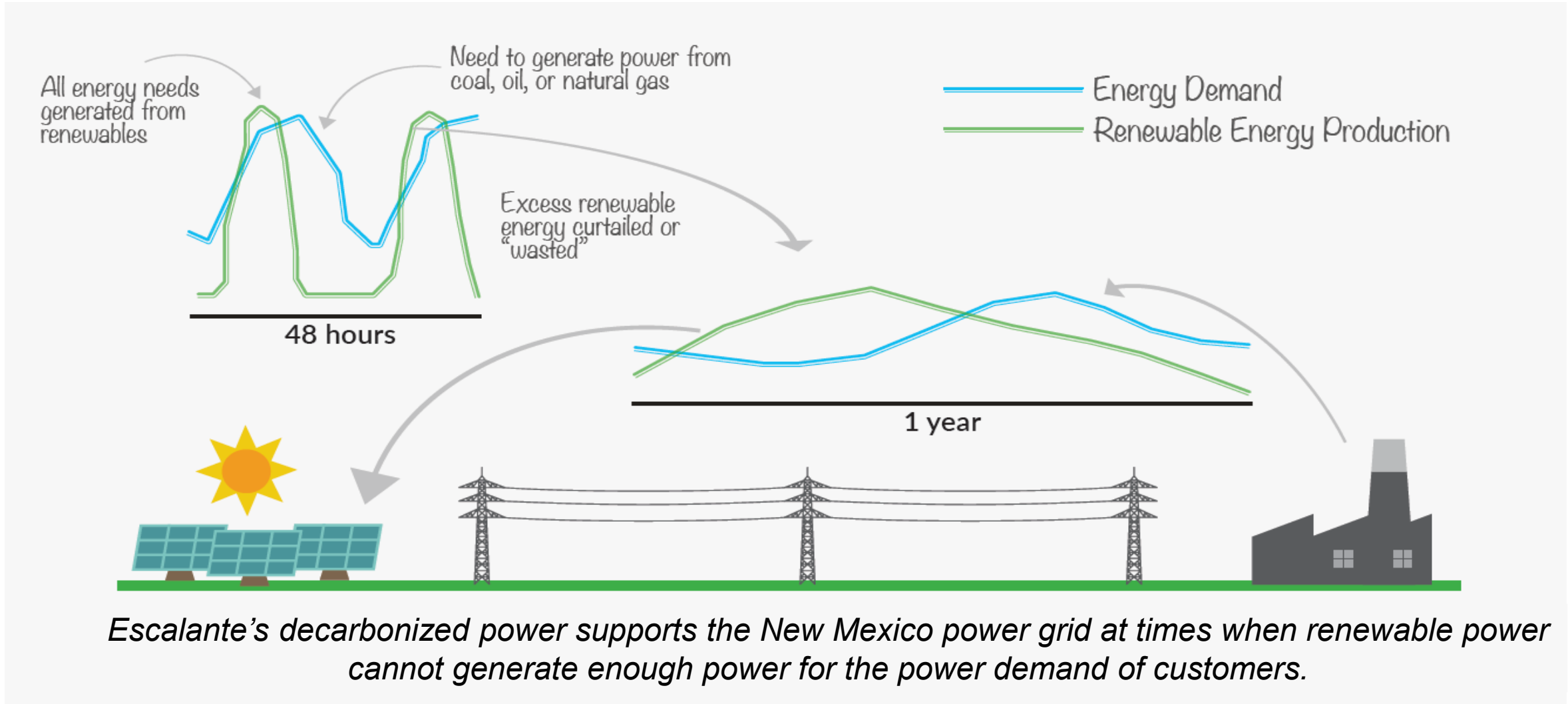
*“What we’re seeing around the country now is folks taking old power plant assets and repowering them,” he said. “Hydrogen-powered power plants is not a concept in an EPA document, it’s a reality in New Mexico and other places.” Ali Zaidi*

# Escalante: A Foundation for the H2 Economy

## Base Products

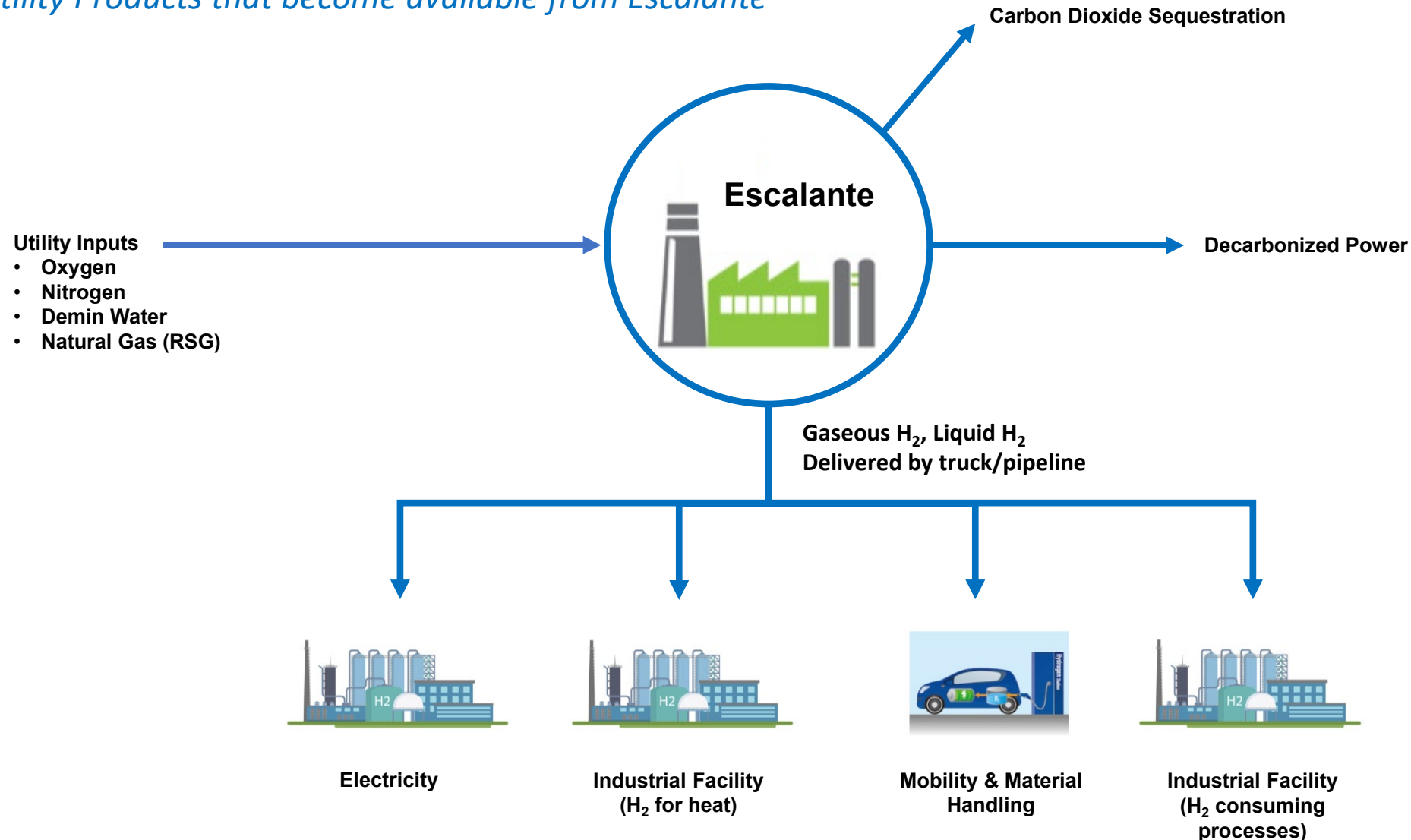


## How Escalante Accelerates Renewables



# Escalante: A Foundation for the H2 Economy

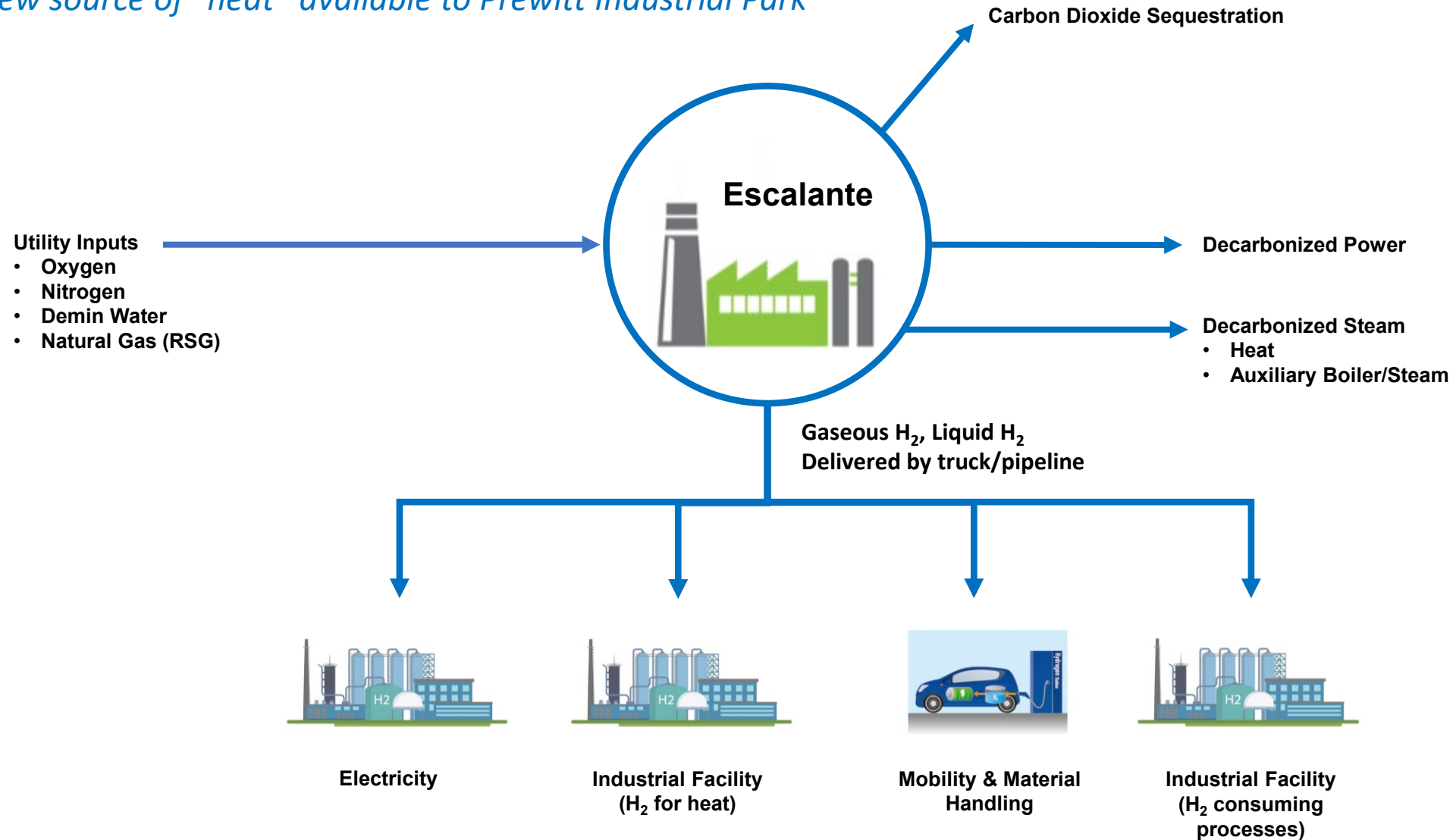
## Utility Products that become available from Escalante





# Escalante: A Foundation for the H2 Economy

*A new source of "heat" available to Prewitt Industrial Park*





# Escalante: A Foundation for the H2 Economy

## CO<sub>2</sub> for industrial uses

