

# Western Interstate Hydrogen Hub (WISHH)

NM LEGISLATIVE FINANCE COMMITTEE BRIEFING

June 15, 2022

Dan Arvizu, Ph.D.

Chancellor



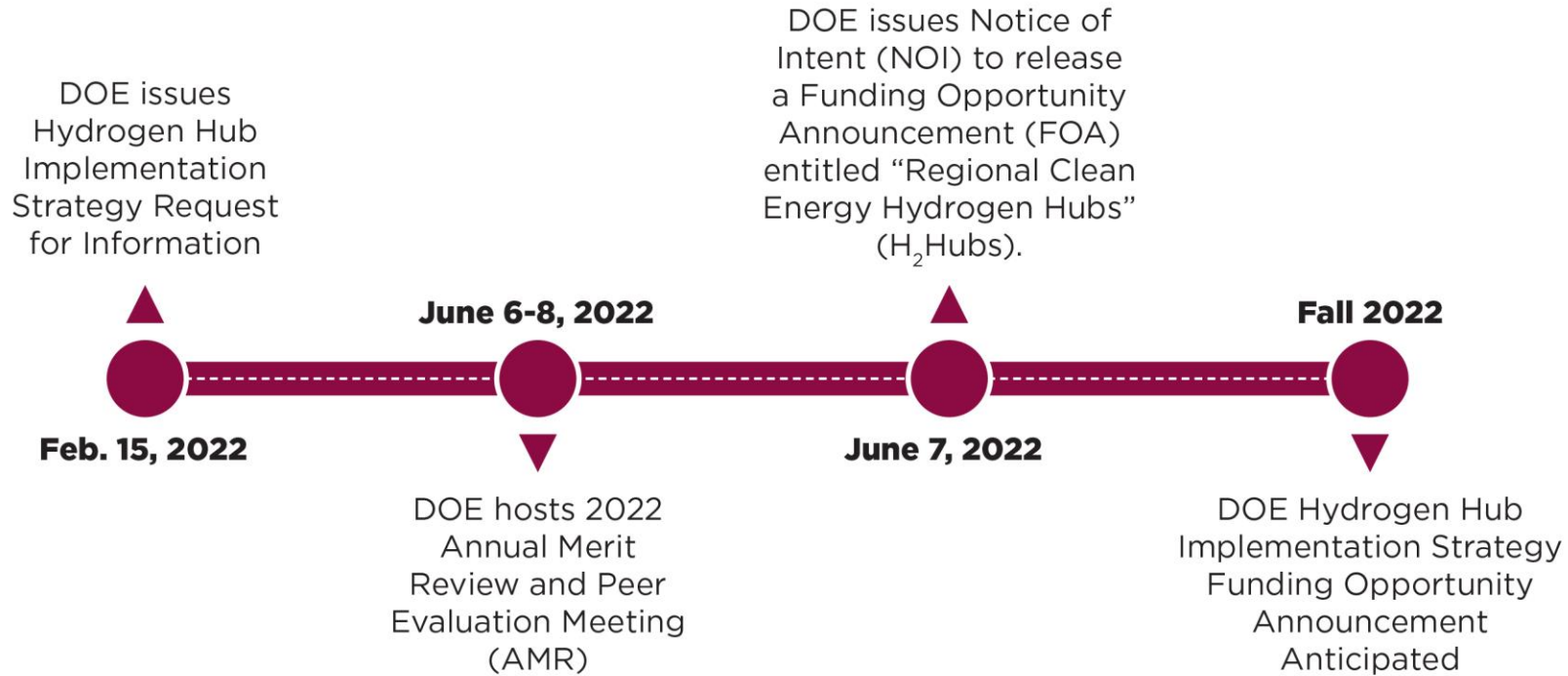
**BE BOLD.** Shape the Future.<sup>®</sup>  
**New Mexico State University**

# DOE Hydrogen Hub Implementation

- Focus on decarbonizing industry sectors that are hard to electrify
- Broad consideration of production and end-use impacts
- Community engagement and workforce development



# DOE Funding Opportunity Timeline



DOE Matchmaker website created to align interested parties with potential demonstration sites



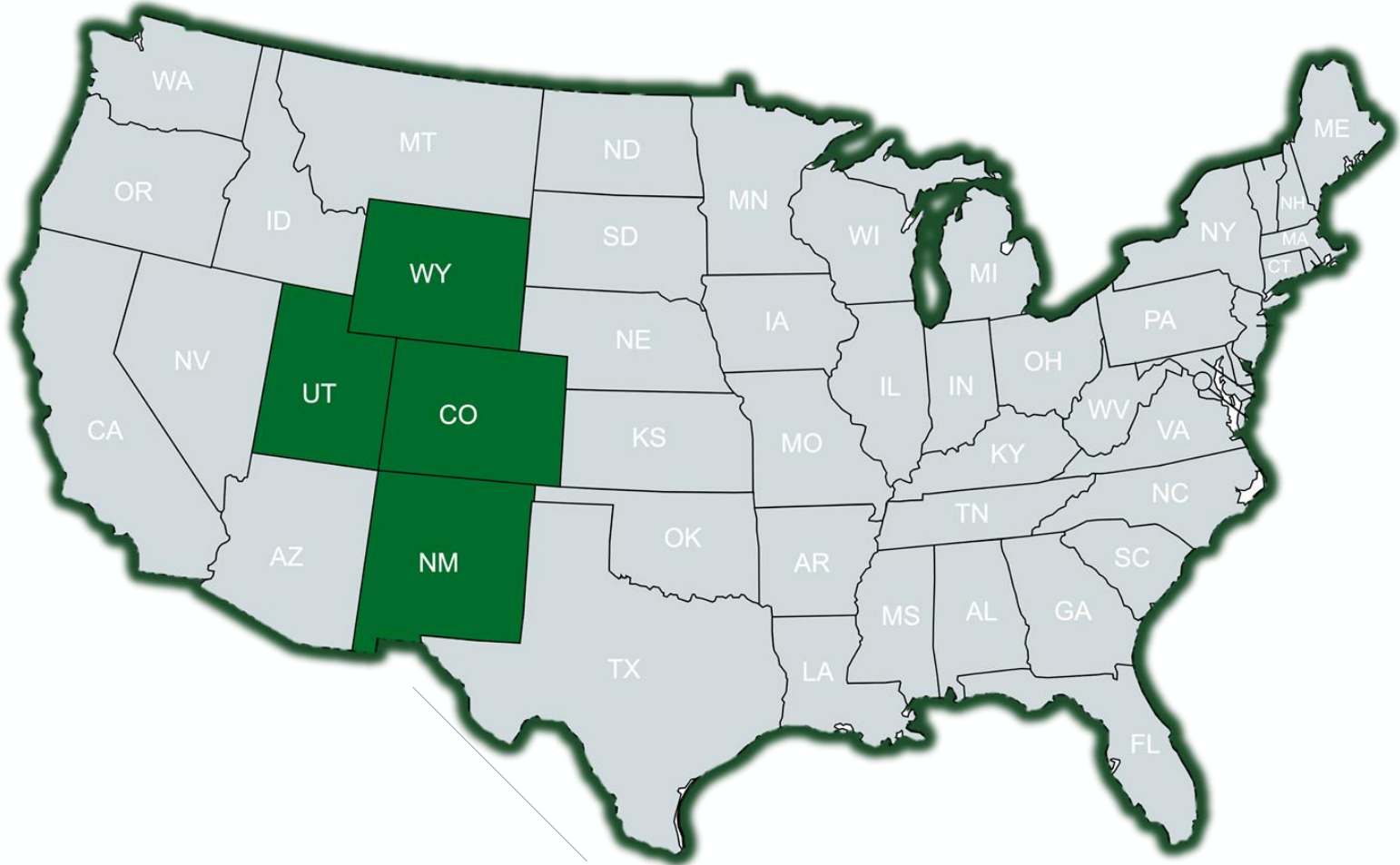
**BE BOLD.** Shape the Future.®

# DOE Hub Selection Criteria

- Feedstock Diversity — at least one from each of the following:
  - Fossil fuels
  - Renewable energy
  - Nuclear energy
- End-use Diversity — at least one from the following:
  - Power sector
  - Industrial sector
  - Residential and commercial heating sector
  - Transportation sector
- Geographic diversity — hubs located in different U.S. regions using energy resources that are “abundant” to the region
- Location in natural gas-producing regions: at least two hubs in regions with “greatest natural gas resources”
- Employment — prioritizes hubs likely to create skilled training and long-term employment opportunities for the “greatest number of residents in the region”

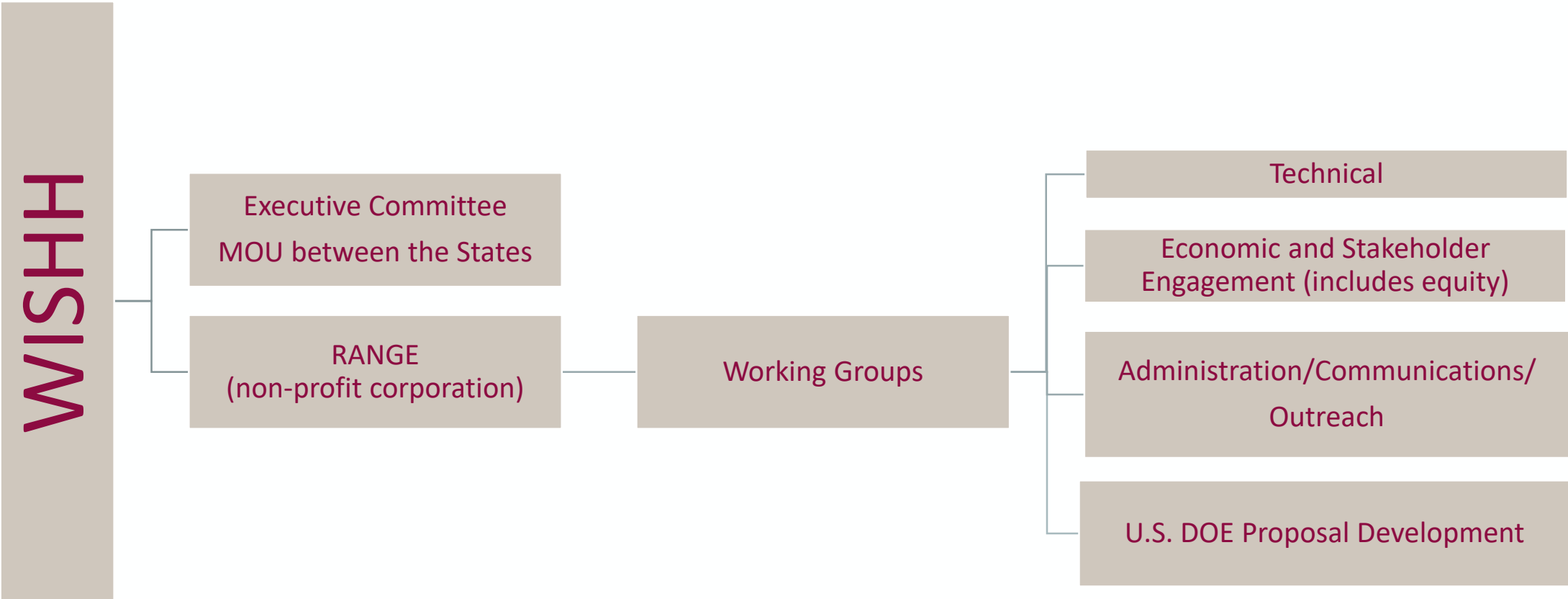


# Western Interstate-State Hydrogen Hub (WISHH)

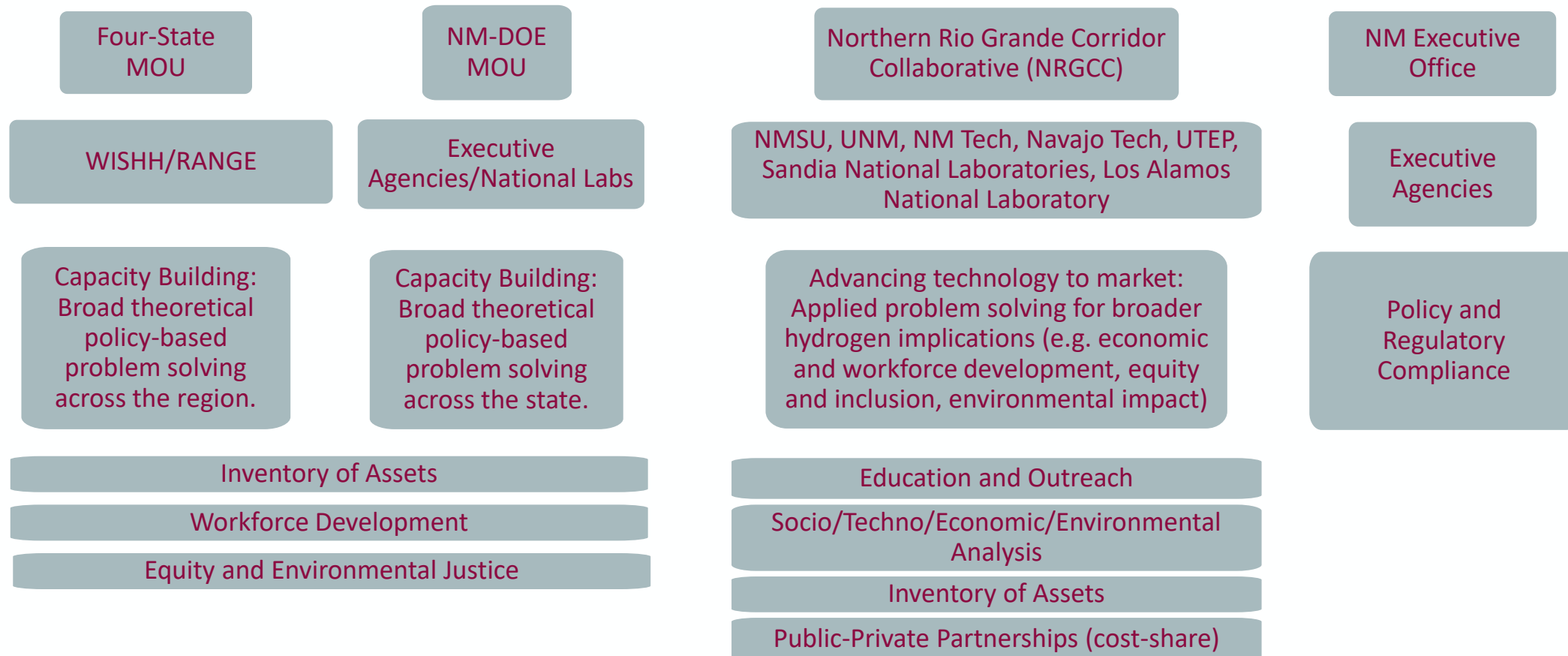


**BE BOLD.** Shape the Future.®

# WISHH/RANGE Organizational Structure



# NM Clean Hydrogen Organizational Model



# WISHH/RANGE Demonstration Project Areas of Interest

- Heavy and Medium Duty Transportation
  - Cross territory transport trucks (Class 8)
  - Last mile delivery (Class 5-6)
  - H<sub>2</sub> transport trailers
  - Fueling stations and depots
- Rail
  - Locomotive
  - Rail cars (compressed and liquified)
- Hydrogen Production
  - Wind — electrolyzer (green)
  - NG — Steam Methane Reformation — Carbon Capture (blue)
- Repurpose of existing coal plants
  - Repower H<sub>2</sub> boiler
  - Repower Gas Turbine
  - Carbon Capture
- Geologic Storage and Sequestration
  - CO<sub>2</sub>
  - Hydrogen
- Pipelines
  - Repurposed NG pipelines (H<sub>2</sub>)
  - Blending (NG and H<sub>2</sub>)
  - New (H<sub>2</sub>)
- Industrial uses
  - Refineries
  - Ammonia
  - Steel
  - Cement
  - Processing plants (NG)
- Airports
  - Ground equipment
  - Local power
  - Aircraft (FC, combustion)





# NM Priority: Advance Low-Carbon Economy

## Opportunities

- Economic diversification
  - Technology Commercialization
  - Technology start-ups
  - Supply chain
- Create economic and workforce opportunities for communities in transition
- Create aligned workforce training and education programs
- Identify strategies to align renewable resources for maximum clean energy benefit
- Identify new applications for non-traditional water resources (e.g. produced water, brackish water) through NM Produced Water Research Consortium
- Identify strategies for carbon sequestration beyond geological storage (e.g. agricultural applications, wetlands)

## Challenges

- Align hydrogen production pathways with climate goals
- Invest in relevant infrastructure to ensure effective and scalable adoption of technology
- Address environmental justice across engaged communities
- Address strategies to mitigate environmental impacts
- Scale demonstrations and technology to support broader statewide economic opportunities
- Address carbon capture at point of production and upstream methane leakages
- Securing required industry cost-share for DOE Hydrogen Hub proposal



# NM Potential Partner Engagement

- Big Navajo Energy
- Navajo Nation Oil and Gas
- Navajo Transitional Company
- Navajo Agricultural Products
- PESCO
- Bayo Tech
- Enchant Energy
- Albuquerque Sunport
- Exxon Mobil
- OXY
- Plug Power
- Chevron
- NGL
- Tallgrass
- Newpoint Energy
- 4 Corners Economic Development Association
- Baker Hughes
- WSP
- AECOM
- Meta/Facebook
- Others TBD

