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Office of Energy Efficiency & Renewable Energy
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Re: Regional Clean Hydrogen Hubs Request for Information DE-FOA-0002664

Submitted by:
Washington State Department of Commerce
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Pacific Northwest context

Gov. Jay Inslee directed the Washington State Department of Commerce to coordinate the formation of a single entity to respond to the anticipated US Department of Energy H2Hub Funding Opportunity Announcement. This entity will build on the region's history of collaboration and develop a compelling, results-oriented Pacific Northwest regional H2Hub proposal. Washington State and the Pacific Northwest provide a policy and energy landscape critical for the success of an H2Hub including:

- 2021 State Energy Strategy articulates a significant role for hydrogen in achieving emission reduction targets, as well as equity framework informing energy strategy;
- Legislation aimed at accelerating development of renewable and green electrolytic hydrogen, including bills providing authorities and incentives and enabling efficient siting and permitting of alternative energy resources including renewable and green electrolytic hydrogen infrastructure, as well as state operating budget commitments to support development of a competitive H2Hub application;
- Existing low-cost and clean electrical grid, including wealth of non-emitting hydropower;
- A long-standing tradition of strong private sector and public and private utility leadership as well as collaboration with research organizations to demonstrate

innovative energy networks such as the Pacific Northwest Smart Grid Demonstration Project;

- Statutory requirements to entirely eliminate fossil fuels from electricity generation by 2045 (100% clean electricity standard), emissions limits requiring net zero greenhouse gas emissions by 2050, and a cap and invest program tied to the GHG emission limits and covering approximately 75% of Washington State emissions;
- Powerful guiding legislation supporting equity, environmental and energy justice (EEEJ) that informs effective community engagement and ensures EEEJ is a central focus in state environmental work;
- State incentives for clean energy projects and investment projects in clean technology manufacturing, clean alternative fuels production, and renewable energy storage built with high labor standards, supporting workforce development and creation of good jobs including union jobs.

Entities, including the Consortium for Hydrogen and Renewably Generated E-Fuels (CHARGE) Network, the Renewable Hydrogen Alliance (RHA), Washington Green Hydrogen Alliance, Washington State University, Pacific Northwest National Laboratory, and many private corporations, utilities, and ports are in communication with each other on the answers contained within – all with a common goal of advancing a coordinated Pacific Northwest regional proposal later this year.

Category 1: **Regional Clean Hydrogen Hub Provisions and Requirements**

C1. 1d. What supportive activities would make the hydrogen hubs successful and sustainable (e.g., workforce development, community-based organization engagement, domestic manufacturing, labor standards, etc.)?

In order to be successful and sustainable over the long term, hydrogen hubs must be planned with input and engagement from a diverse array of partners and be able to identify a variety of expected benefits to different communities. To help achieve this, hydrogen hubs should be planned with many stakeholders at the table, including Tribes, community-based organizations, unions, and more, along with public sector and private industry representatives and state agencies. The following activities will help to ensure these outcomes:

- **Development of shared principles for each regional hydrogen hub.** Partners helping develop a hub proposal should agree on shared principles that will guide the development of the overall hub structure and strategy as well as specific projects and policies developed. These should seek to enhance human wellbeing and bring an equity lens, while being responsive to local needs and priorities in each region. Principles should ensure an equitable distribution of both energy and non-energy benefits from the hydrogen economy. These principles should seek to reflect and incorporate recommendations in the Washington State Energy Strategy (including following pathways to achieve net zero emissions by 2050 and centering equity provisions), as well as additional guidance and recommendations related to the hydrogen economy. Activities related to researching, developing policies, crafting agreements, and other

relevant activities that advance the principles should be included in all relevant phases of H2Hub work. These principles should be closely tied to the plans noted below.

- **Equity, Environmental and Energy Justice (EEEJ) plan.** H2Hub activities should include development of an EEEJ plan as an early Phase 1 activity. An EEEJ plan should be specific to each region and proposed hub, and should reference and propose to act in accordance with any state-level EEEJ laws, including the Healthy Environment for All (HEAL) Act in Washington State. They should also be aligned with the federal Justice40 Initiative. These plans would ensure all relevant stakeholders and Tribal sovereigns are at the table early and on a continuous basis as states like Washington develop this transformation of the energy economy.
- **Workforce Development and Jobs Plan**. Each H2Hub should develop a specific plan regarding how workforce development will occur, as an early Phase 1 activity. This should include consideration of how to utilize tools that support high labor standards and good, ideally union jobs, including but not limited to: apprenticeship utilization; use of Project Labor Agreements (PLAs)/Community Workforce Agreements (CWAs) that include labor standards; tools that support the participation of Women-, Minority/BIPOC-, and Veteran-owned businesses and workers; commitments to utilize local and US-made materials where possible; and policies that provide employment and training to workers in the fossil fuel and related sectors, with a focus on training and transition to clean energy jobs that utilize similar transferrable skills.
- **Tribal engagement.** In addition to ideally having Tribal governments as part of each hub, Tribal engagement activities are critical in relation to specific proposed activities and projects. Such engagement should include formal Government to Government consultation when requested by Tribes, and other communication strategies for Tribes that choose not to participate in H2Hub planning but may be impacted by the work. State Tribal liaisons are also important resource people to include as part of proposal development.
- **Community engagement.** Work planning and implementing hydrogen hubs must include meaningful community engagement activities, implemented in accordance with the EEEJ plan. Planners should seek the involvement of community stakeholders based on geographical proximity, potential to be impacted e.g. along transportation routes, and potential to perceive positive or negative impacts, e.g. community organizations and neighborhood associations. Community engagement should seek to educate those potentially impacted about the technologies involved, reducing any effects from misinformation or lack of information on project timing, as well as providing opportunities to receive input that may improve the EEEJ outcomes of proposed H2Hub projects and activities.
- **Consultation and utilization of relevant mapping tools and geospatial data that can help to advance equity.** These may include environmental justice mapping tools such as the Environmental Health Disparities (EHD) map in Washington State, and/or other environmental, health, economic, risk and hazard, or related databases that can help identify geographic areas where benefits of H2Hub projects and activities may be placed to help to improve health and wellbeing and reduce environmental health disparities.

- **Domestic, clean technology manufacturing.** Washington State maintains a strong focus on the economic development potential inherent in the energy system transformation underway. Using the H2Hubs to lay the groundwork for an increase in the domestic manufacturing of all parts of the hydrogen supply chain is highly desirable. The US will not be a true leader in the coming global hydrogen economy if the advanced manufacturing of hydrogen related equipment, and the related workforce expertise, resides outside of our country.
- **Energy emergency management and planning.** State energy emergency management offices are responsible for developing and implementing statewide emergency management plans and energy resilience plans for each of the sectors represented including renewable resources. Collaboration between the energy emergency management office and state agencies, local jurisdictions, Tribal Nations, and special purpose districts in the development and implementation of any of these plans is vital to ensuring the reliability of the system and will have critical and relevant information for supporting energy-resilient program design.
- **Industry Cluster Development.** WA Commerce's Innovation Cluster Accelerator Program is supporting the development and maturation of industry-led consortia working to accelerate innovation and economic growth in nine key sectors in Washington state, including the following relevant to the H2Hub: CHARGE hydrogen energy cluster; CleanTech Alliance, advancing carbon reduction in the built environment; Maritime Blue, working to decarbonize the maritime sector; and Washington VERTical, working to build the advanced nuclear reactor supply chain.

3. FEEDSTOCK DIVERSITY: "To the maximum extent practicable– (i) at least 1 regional clean hydrogen hub shall demonstrate the production of clean hydrogen from fossil fuels; (ii) at least 1 regional clean hydrogen hub shall demonstrate the production of clean hydrogen from renewable energy; and (iii) at least 1 regional clean hydrogen hub shall demonstrate the production of clean hydrogen from nuclear energy."

C1. 3d. Should DOE prioritize the repurposing of historic fossil infrastructure in the regional hub(s) focused on production from fossil fuels and if so, over what time frame? If yes, should DOE incentivize an eventual transition from fossil fuels to another fuel source? What conditions should DOE place on the carbon intensity of the fossil fuels (with CCS) used in this hub other than what is already specified in the BIL?

Yes, DOE should incentivize the transition from fossil fuels to non-emitting fuel sources.

DOE should require rigorous accounting of greenhouse gas emissions in evaluating hydrogen hub proposals. Hubs that produce clean hydrogen from fossil fuels should not be categorically excluded, but the objectives of this program will not be realized unless accounting measures protect against the production of hydrogen that has no lower carbon intensity than fossil natural gas or petroleum fuels.

Consider the social cost of carbon in project design: programs that use the social cost of carbon as a metric help reveal the true project impact to ratepayers and provide more accurate cost benefit analyses.

C1. 3e. How might hydrogen production be constrained by the availability of clean electricity or natural gas supply and distribution? Will hydrogen producers provide a sustainable market/revenue stream for clean electricity and natural gas that encourages new investments to expand electricity generation and natural gas production capacity? Are separate federal, state, or local incentives to expand clean electricity generation or natural gas production capacity available, necessary, or adequate?

H2Hubs that rely on electrolysis and use clean electricity supplies hold the greatest potential for transforming the nation's economy and eliminating energy-related greenhouse gas emissions. However, even with electrolytic hydrogen production, DOE must ensure that (a) electricity will be provided from substantially renewable or non-emitting sources and (b) state policies are in place to ensure adequate supplies of clean electricity. Electricity supplies for hydrogen production must be additional to the supplies needed to meet other electricity requirements.

DOE should consider the electrolytic hydrogen policy model developed and enacted by Washington State. Washington has enacted requirements ensuring that electricity supplies are carbon neutral as of 2030 and 100% renewable or non-emitting as of 2045. It has enacted tax preferences and local government authority favoring electrolytic and renewable hydrogen, using these statutory definitions:

- "Green electrolytic hydrogen" means hydrogen produced through electrolysis and does not include hydrogen manufactured using steam reforming or any other conversion technology that produces hydrogen from a fossil fuel feedstock (defined in SB 5910).
- "Renewable hydrogen" means hydrogen produced using renewable resources both as the source for the hydrogen and the source for the energy input into the production process (defined in RCW 54.04.190).
- "Renewable resource" means: (i) Water; (ii) wind; (iii) solar energy; (iv) geothermal energy; (v) renewable natural gas; (vi) renewable hydrogen; (vii) wave, ocean, or tidal power; (viii) biodiesel fuel that is not derived from crops raised on land cleared from old growth or first growth forests; or (ix) biomass energy (defined in RCW 54.04.190).

This policy framework does not require that any state immediately limits its electrolytic hydrogen production to clean power sources, but it ensures a hydrogen supply that is less carbon intensive than processes that use fossil fuel feedstocks. This will help to avoid constraints around the amount of clean electricity available.

In addition, DOE should prioritize investing in states that have passed 100% clean electricity policies, such as Washington state's Clean Energy Transformation Act. States with these policies will be able to provide demonstration and modelling around how to incorporate clean electricity in H2Hub efforts which can help to promote additional efforts to generate and use clean electricity around the country, both as part of the hydrogen economy and more broadly.

DOE should consider providing additional incentives for the percentage of electricity used as an energy input that is renewable or clean/non-emitting. This will help to encourage the generation and use of clean electricity overall including for the purposes of producing green electrolytic hydrogen.

C1. 3f. Should H2Hub funding be made available to upgrade or develop new dedicated clean electric or heat generating energy resources (e.g., renewables or other clean generation sources) needed to produce clean hydrogen?
Yes, additional funding to support upgrades that will increase the amount of clean and renewable electricity available will help support the increased power needs related to increased production and use of electrolytic hydrogen while encouraging decarbonization in regional power grids.

Strong consideration should be given to providing funding to bridge clean energy generation projects from research to demonstration and on to commercialization as part of the overall hydrogen initiative. New ways of generating clean energy and heat and how these new technologies interact with hydrogen production should be an area of interest as hydrogen becomes integrated into the future energy grids. The DOE should look to leverage existing or future state programs to help maximize funding in this area.

C1. 4c. The climate value of displacement may vary across end uses. How should the climate benefit of different hydrogen end uses be considered?

Displacing fossil fuel use and greenhouse gas emissions is a critical outcome of H2Hubs. This displacement should be focused strategically to contribute to achieving net-zero targets in hard-to-decarbonize sectors such as marine, aviation, steel, aluminum, and cement, as well as surface transportation, including heavy-duty vehicles such as transit, trucking, and drayage equipment. Proposals that would use hydrogen in applications readily served by less expensive clean technologies, such as batteries in light duty vehicles or domestic space and water heating, should be evaluated accordingly.

In addition to displacing fossil fuel use, H2Hubs should specifically find ways to prioritize the creation of co-benefits related to EEEJ, workforce development, and related energy and non-energy outcomes. Additional credit or consideration may be warranted for projects and activities that are priorities for a regional hub or that create important co-benefits. Suggested considerations in addition to climate benefit:

- Projects where an EEEJ evaluation has been conducted or similar actions have been taken to benefit vulnerable populations and reduce health disparities in accordance with the EEEJ plan.
- Projects that have been developed or supported by a Tribal nation.
- Projects and activities that include high labor standards and provide good jobs for local workers.

- Projects that increase community resilience and reduce the reliance on traditional sources for emergency back-up power to critical facilities and other critical infrastructure sectors that are dependent upon energy for continued operations. This is especially important for rural and typical end-of-the-line users, such as populations most vulnerable to climate change impacts including extreme weather.

7. EMPLOYMENT: DOE "shall give priority to regional clean hydrogen hubs that are likely to create opportunities for skilled training and long-term employment to the greatest number of residents of the region."

C1. 7.a. What tools should H2Hubs utilize to meet the goals of creating good union jobs and work opportunities for local residents in the construction phase of the project and in the long-term operations phase of the project?

H2Hubs should prioritize the creation and support of good jobs, especially union jobs, and workforce development opportunities for local residents. This will ensure multiple benefits for workers and local economies are delivered through H2Hubs, which is aligned with the Biden administration's greenhouse gas reduction targets that also aim to create "good-paying union jobs."

Particular tools that should be utilized include: Apprenticeship utilization (RCW 39.04.320), responsible bidder criteria (RCW 39.04.350) and prevailing wage (RCW 39.12) requirements, like those used in Washington State.

C1. 7b. What tools should H2Hubs utilize to meet the goals of providing opportunities for workers displaced from fossil industries and other industrial or resource-based industries in decline?

It is important that H2Hubs include opportunities for workers displaced from fossil fuel industries and other impacted industries. Worker retraining, pathways to early retirement for those nearing retirement age, continuation of benefit programs, and related policies can help to support workers who are impacted by a transition to a clean energy economy. Please see Washington State's Climate Commitment Act (SB 5126) Section 29(j) regarding investments and activities supporting clean energy transition and assistance. Washington State also has seen declines in the manufacturing and industrial sectors, including aluminum, timber, pulp and paper, and other industries. For this reason, H2Hubs should also be developed in ways that support decarbonization of existing industries through the use of renewable and green electrolytic hydrogen where possible, in ways that support the long-term durability of these industries in the US in a low-carbon economy. Additional opportunities to create new jobs in hydrogen-related manufacturing should be prioritized.

Worker retraining opportunities for those displaced should focus on transitioning the worker to occupations that utilize similar transferrable and specific skills, while also allowing displaced workers access to other traditional worker retraining options in the community and technical college and public workforce development systems.

Support for communities that are highly dependent on fossil fuel industries is important as well, since transitions may impact families, other local businesses, and a local tax base. When H2Hub projects are developed in such communities, priority local hire provisions (such as those commonly included in project labor agreements (PLAS), or community workforce agreements (CWAs) will be particularly important to help to provide new work opportunities in the clean hydrogen sector.

C1. 7c. How should short-term build-out (i.e., construction phase) employment and long-term operational employment opportunities be measured and evaluated?

Short-term build-out employment should be measured by at least the following criteria:

- Number of apprentices;
- Diversity of apprentices;
- Number of apprentice hours;
- Average wages/benefits (prevailing wage) of journey workers;
- Number of local hires.

Long-term employment should be measured and evaluated based on at least the following criteria:

- Number of permanent jobs created in manufacturing, production, and end use of hydrogen and hydrogen related equipment and facilities;
- Number of jobs supported/retained in energy-intensive, trade-exposed industries where use of hydrogen supports decarbonization requirements and helps avoid displacement or leakage of industries to other jurisdictions;
- Demographic data regarding workforce to track diversity (including number and percentages of women, non-binary, workers of color, and related data);
- Job quality data, including average wages/benefits, and whether workers are represented by a union;
- Number of workers transitioning from the fossil fuel industry or related industries impacted by a transition to a clean energy economy.

C1. 7d. What would "success" look like, especially related to Diversity, Equity and Inclusion (DEI) and support for union and energy transition jobs?

Success related to DEI, union, and energy transition jobs will look different in different regions, and should in particular focus on improving over time, in terms of increasingly creating and benefitting a more diverse workforce and supporting union and energy transition jobs. Ideally it will include metrics that show short-term and long-term employment is at least as diverse as the regional economy is on average. In particular, these metrics should focus on racial equity and push states to create metrics with transparent information about race and ethnicity. The 2021 analysis lead by BW Research Partnerships for E2 underscores the importance of centering racial equity in a conversation about DEI in clean energy jobs.

In relation to short-term employment, success will look like high overall data regarding number of projects under PLAs/CWAs with local hire provisions, and apprentice demographics relative

to the communities in which the projects are located (meaning that the population of apprentices hired for a project is at least as diverse as the overall community where a project is located).

In terms of energy transition success, new hydrogen projects developed in areas where fossil fuel workers are being displaced due to the transition to a clean energy economy should seek to provide jobs to up to 100% of the energy transition applicants who qualify for particular positions. A variety of mechanisms to support transitioning workers and communities should be supported. One good statewide model for this work is the Centralia Coal Transition Grants provided by TransAlta in Washington. These grants are designed to improve energy efficiency; enhance worker retraining and economic development; and seed energy technology projects that improve the environment.

C1. 7e. How should H2Hubs include workforce development and training activities (e.g., by including institutions of higher education, such as MSIs, community-based organizations, registered apprenticeship programs, joint labor-management apprenticeship programs and quality community-based pre-apprenticeship programs, as project partners)? In addition to each H2Hub having its own workforce development and jobs plan, should there be a nationally coordinated effort between hubs (and other hydrogen activities) to ensure an adequately trained workforce is available? If so, how should this be designed?
Pre-apprenticeship programs must have formal connections to at least one apprenticeship program to ensure actual career pathways. Joint labor-management apprenticeship programs, construction labor organizations, and construction management organizations must be included as project partners. H2Hubs should be designed to include a workforce development committee that includes these partners and public workforce development system partners. It is critical that new training programs are not developed if there is no training gap to fill. The priority should be to move displaced workers directly into new fields that utilize their existing craft and transferrable skills. Workers often do not want to return to the classroom and disrupt their wages and benefits.

For longer-term workforce development, educational stakeholders should be engaged to leverage unique and interesting aspects of H2 implementation in order to create STEM content supplementing educational efforts in the area served and demonstrating potential careers in these technologies.

C1. 7f. How will the H2Hub training model offer opportunities for a range of jobs across the hydrogen supply chain?
H2Hubs training should focus on opportunities that address a wide range of sectors related to the hydrogen supply chain. These should include:

- Short-term construction: Prevailing wage (which includes both wages and benefits), apprenticeship utilization, and project labor agreements should be a requirement of any H2Hub supported project.
- Long-term employment in hydrogen-related manufacturing, production, storage, and use.

- Supply chain: Apprenticeship utilization should be maximized in all key parts of the supply chain including
    - Manufacturing of materials used in hydrogen production, transportation, storage, and use.
    - Trucking/transportation
    - End-use sectors including port and maritime operations, industrial operations, and others.

C1. 7g. How should labor standards be incorporated in project planning stages to support the creation of high-quality, good-paying jobs?
Prevailing wage (which includes both wages and benefits), apprenticeship utilization, and project labor agreements should be a requirement of H2Hub supported projects.

Category 2: **Solicitation Process, FOA Structure, and H2Hubs Implementation Strategy**
C2. 8. DOE is evaluating funding mechanisms for the H2Hubs projects in accordance with the BIL. What applicable funding mechanisms are best suited to achieve the purposes of the H2Hubs (e.g., Cooperative Agreements,[1] Grants, Other Transactions Authority)?
We recommend that funding for H2Hubs be provided via annual Grants and underpinned with Cooperative Agreements for those enduring organizations that will inherit an H2Hub post-construction, startup, and commissioning. Additionally, a special provision for Landowners and Merchants may need to be established, such as a Limited Public Offering.

C2. 9. What are the key review criteria (e.g., technical merit, workplan, market transformation plan, team and resources, financial, regional economic benefits, environmental justice, DEI) that DOE should use to evaluate and select the H2Hubs as well as evaluate readiness to move from Phase 1 to Phase 2?
The completion of meaningful stakeholder engagement with a focus on projects sponsored or supported by Tribes, labor union participation in planning and the incorporation of labor standards in project development, and engagement with community-based organizations are critical conditions for successfully moving to Phase 2. Siting and permitting processes in Washington State have recently been updated to include an enhanced role for the Energy Facility Site Evaluation Council (EFSEC) in permitting clean energy including hydrogen production, clean energy manufacturing, and energy storage projects, and part of this policy change includes enhanced focus on community engagement and environmental justice.

The number and scope of team members and commitments from additional stakeholders should be a metric for review criteria. Washington has an extensive list of labor, environment, industry, and government partners to bring to the table. Demonstrable examples of meaningful involvement should be required to help triage states that are creating a truly equitable process. Documents could include:

- Meetings notes and agendas from outreach meetings;
- Community letters of support;

- Co-created or community-created strategic plans with official sign off from diverse stakeholders;
- Official roles (i.e. voting members) for community and diverse stakeholder roles on planning committees;
- Demonstrated Government to Government consultations with Tribal leadership.

Specifically in relation to EEEJ issues, Washington State has passed an extensive environmental justice bill, the Healthy Environment for all (HEAL) Act, which requires an Environmental Justice Assessment be conducted for certain significant state actions and projects, including Tribal consultation. An Environmental Justice Assessment or similar project review process should be completed for all significant projects proposed as part of Phase 1 planning in order to proceed with Phase 2 funding and implementation. Such assessments should be conducted at the beginning of the planning process.

Many states including Washington State also have diverse Tribal Nations with presence across the state with deep connections to parts of the landscape from time immemorial, and they must be consulted to evaluate readiness to proceed with proposed H2Hub projects and activities.

C2. 21. Based on EPAct 2005, Section 988, the cost share requirement for demonstration and commercial application projects is 50% cash and/or in-kind and must come from non-Federal resources (50% of the total project cost which includes both DOE share and recipient cost share). For example, a $1B award for the Phase 2 Hub Deployment will require $1B in matching cost share. Is it feasible for projects to meet this 50% cost share requirement on an invoice-by-invoice basis?

We recommend that DOE waive the cost sharing requirement for those Hydrogen Hub organizational participants that are nonprofits, universities, or that will not have enduring hydrogen application or commercial missions.

In order to efficiently develop and operate Hydrogen Hubs, a regional organization will need to have effective business, finance, audit, safety, standardization, quality control, and other essential oversight support functions. That means, to provide proper oversight and establish an enduring regional Hydrogen utilization program, we will need to enlist and incorporate into our Hydrogen Hub organization the best education, research, and worker training organizations in our region. Unfortunately, requiring foundational organizations like universities, national labs, tribes, and nonprofits to acquire 50% cost sharing funds will be hard if not impossible for them and that may exclude them from participating in the establishment of this important capability. So, to effectively develop, build, operate, and implement enduring regional Hydrogen operations, it is essential to waive the cost sharing requirement for foundational and oversight organizations.

C2. 22. Is there sufficient manufacturing capacity to produce the necessary hydrogen related components/equipment within the U.S. to supply all the eventual H2Hubs? What

incentives/programs exist or can be put in place to encourage and foster U.S. manufacturing? What potential challenges or opportunities might exist to meet the new Buy American requirements in the BIL?
It will be valuable to use US-made materials where possible, to support aligned goals around economic development and domestic job creation. Research into the expected material needs and sources should be discussed in H2Hub applications and in Phase 1 work. Policies that prioritize use of domestic content (such as the Buy American provisions outlined by the Biden Administration) or materials with a lower carbon footprint (such as Buy Clean policies adopted in California and other states) should be considered. Some states are considering policies that would prioritize procurement of materials both with a lower carbon footprint as well as those made by companies that comply with certain responsible manufacturing standards, and these should also be considered (see the proposed Buy Clean, Buy Fair Washington Act).

Category 3: Equity, Environmental and Energy Justice (EEEJ) Priorities
EEEJ benefits will be a high priority as the H2Hubs are developed. For the purposes of this RFI, DOE has identified the following non-exhaustive list of policy priorities as examples to guide DOE's implementation of Justice402 in DACs: (1) decrease energy burden; (2) decrease environmental exposure and burdens; (3) increase access to low-cost capital; (4) increase the clean energy job pipeline and job training for individuals; (5) increase clean energy enterprise creation (e.g., minority-owned or diverse business enterprises); (6) increase energy democracy, including community ownership; (7) increase parity in clean energy technology access and adoption; and (8) increase energy resilience.

C3. 1. What strategies, policies, and practices can H2Hubs deploy to support EEEJ goals (e.g., Justice40)? How should these be measured and evaluated for the H2Hubs?
Requiring the development of and adherence to an EEEJ Plan will be critical and should be required for all H2Hubs, with plans being completed and utilized during Phase 1 before being considered for Phase 2. This will allow for specific strategies, policies, and practices in each regional context to be incorporated and addressed. EEEJ Plans should include the suggested list provided in the Category 3 description, including decreasing energy burden, decreasing environmental exposure and burdens, and related polities. Washington State has a strong understanding of how our state climate and energy policy can support EEEJ goals contained within the *Washington 2021 State Energy Strategy: Transitioning to an Equitable Clean Energy Future*.

Specifically, the following strategies, policies, and practices should be utilized:

- Development of an EEEJ Plan as part of each proposed H2Hub;
- A specific project review system to identify ways to increase EEEJ outcomes and avoid disproportionate harm in planning, siting, and implementing all projects. An example of such a system is Environmental Justice Assessments called for as part of the Healthy Environment for All (HEAL) Act in Washington State;

- Clear targets to prioritize investment in overburdened or disproportionately impacted communities and requirements for public facing publication and update on progress;
- Mapping tools to identify overburdened or disproportionately impacted communities. An example is the Environmental Health Disparities Map, managed by the Washington State Department of Health;
- A clear process for and commitment to communication with Tribes and Tribal communities as well as formal Government to Government Tribal consultation;
- A clear process for and commitment to meaningful community engagement with fenceline and potentially impacted communities in relation to proposed projects;
- Use of Project Labor Agreements (PLAs) or Community Workforce Agreements (CWAs) with labor standards and local hire provisions to ensure that project construction supports good quality jobs and benefits the local workforce;
- Grid infrastructure, hosting capacity, and outage mapping to ensure that locational and geographic conversations about hydrogen consider community and grid resilience.

DOE should consider prioritizing H2Hub application from states or regions where a comprehensive environmental justice policy has been passed since the prior analysis and discussions will significantly increase the chances that work will truly be conducted with an equity lens. An example of such a policy is the Healthy Environment for All (HEAL) Act in Washington State, which includes a definition of environmental justice, guidelines for creation and use of Environmental Justice Assessments, community engagement recommendations for state agencies, and guidance that agencies should establish a goal of directing 40% of grants and expenditures in ways that create environmental benefits for vulnerable populations and overburdened communities.

C3. 2. What EEEJ concerns or priorities are most relevant for the H2Hubs?
One priority will be to work with community organizations and EEEJ-focused organizations to learn more about hydrogen and the H2Hub process, so they can better evaluate the potential opportunities and risks related to incorporating hydrogen into the local energy system. There will be a need to ensure projects are planned and sited with input from relevant communities including Tribes, communities on the fenceline of new facilities, and others with potential to experience environmental benefits or burdens due to particular projects. For these reasons, community organizations should be at the table, and a robust EEEJ plan including a process for conducting Environmental Justice Assessments (or related analyses) for specific proposed projects will be critical.

Another priority is to engage with workers in industries that may be significantly impacted by transitioning to hydrogen. These workers and their representatives (especially labor unions) will be able to evaluate the potential impacts to workers in these sectors of the economy and ensure their needs and priorities are a focus in how the H2Hub is developed. This should include but not be limited to workers in the following sectors:

- Building and construction trades, who may build or maintain hydrogen infrastructure. Within this category, particular focus is needed to engage;

  - Electrical workers, especially in relation to green electrolytic hydrogen production
  - Pipefitters
- Heavy industry and manufacturing, where hydrogen may provide a cleaner fuel source;
- Transportation including long-haul and drayage truck driving;
- Port operations and longshore workers;
- Refineries;
- Agriculture and other end users of materials that include hydrogen such as fertilizers.

Collaborating with the state energy emergency management office and local emergency managers will support the critical equity conversations related to public health and safety and grid reliability and resilience. Conversations about energy resilience will bring important stakeholders to the table as communities are thinking about the transition to renewable energy sources. An example of how this has worked well in Washington State is through the FEMA Building Resilience Infrastructure for Communities (BRIC) grant program. With new technology comes the need to understand how communities will be impacted during times of disasters and energy supply disruptions, especially with increasing impacts from climate change threatening coastal, rural, and isolated communities.

C3. 3. What measures should H2Hub project developers take to ensure that harm to communities with environmental justice concerns, including local pollution, are mitigated?
The following non-exhaustive list measures should be utilized:

- Development of an EEEJ Plan as part of each proposed H2Hub;
- A specific project review system to identify ways to increase EEEJ outcomes and avoid disproportionate harm in planning, siting, and implementing all projects. An example of such a system is Environmental Justice Assessments called for as part of the Healthy Environment for All (HEAL) Act in Washington State;
- Clear targets to prioritize investment in overburdened or disproportionately impacted communities;
- Mapping tools to identify overburdened or disproportionately impacted communities. An example is the Environmental Health Disparities Map, managed by the Washington State Department of Health;
- A clear process for and commitment to communication with Tribes and Tribal communities as well as formal Government to Government Tribal consultation;
- A clear process for and commitment to meaningful community engagement with fenceline and potentially impacted communities in relation to proposed projects;
- Use of Project Labor Agreements (PLAs) or Community Workforce Agreements (CWAs) with labor standards and local hire provisions to ensure that project construction supports good quality jobs and benefits the local workforce;
- Connecting with local and state energy emergency managers to map grid infrastructure, hosting capacity, and outages to ensure that locational and geographic conversations about hydrogen consider community and grid resilience.

C4. 4. How can H2Hubs ensure community-based stakeholders/organizations are engaged and included in the planning, decision-making, and implementation processes (e.g., including community-based organizations on the project team)?

It should be required that community-based organizations and/or organizations focused on advancing EEEJ are at the table at all stages of planning H2Hubs. Funding should be available to provide stipends to support participation from community members, especially individuals with lower incomes and with lived experience that is critical to the process. An EEEJ Plan should be required, with regular updates on how it is being adhered to required and reviewed by DOE at key stages.

C5. 5. How can DOE support meaningful and sustained engagement with H2Hub relevant disadvantaged communities?

DOE should structure the program to include requirements that community-based organizations and/or organizations focused on advancing EEEJ are at the table at all stages of planning H2Hubs, as well as tying funding and advancement through the process to completion of and satisfactory adherence to an EEEJ plan. If this is required, it will motivate other stakeholders to prioritize this work.

Funding should be available to provide stipends to support participation from community members, especially individuals with lower incomes and with particular lived experience that is critical to the process. This is critical to ensuring that disadvantaged community members can provide meaningful input.

DOE should plan community level specific webinars and workshops to support continued learning and technical information for a broad public audience. Providing high resolution graphics and one-pagers for local decision makers will help support an ecosystem of learning and support local hydrogen champions advocating hydrogen as a clean energy solution.

Often, energy emergency managers discussing reliability issues are the first introduction communities have to hearing about clean energy (for better or worse!). Working to connect with emergency managers will help provide critical information for communities at a very fundamental and early stage of the conversation. Washington has found that leading clean energy policy through a resilience lens can be a valuable way to host conversations about the benefits of the clean energy transition.