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Onsite Distributed Hydrogen Production and End Use Solicitation Concept

Additional submitted attachment is included below.

CEC staff are seeking responses and comments to the following to shape the direction and scope of this solicitation:

1. Are the Project Elements in Section IV of this document realistic, reasonable, and feasible?
   If the specified water consumption limits are for the incoming unpurified water and/or for balance of plant operation, 13.5kg of water/kg of hydrogen produced is too low. Please consider limitations above 13.5.

2. What would be the appropriate level of project funding that would leverage private investments associated with the work proposed in this draft concept, and why? How would limiting the use of grant funds to Eligible Project Costs in Section III impact the project? What changes do you recommend if any, and why?
   Please clarify what tasks are included in installation as it pertains to the equipment. This should include direct labor for installation.

3. Provide any feedback on the two-phase solicitation approach. Are the 1-month abstract deadline and 3-month full application deadline realistic?
   Yes

4. To ensure that funded projects and their impacts can inform future deployment of hydrogen in California, should the CEC consider additional performance metrics beyond those proposed for the M&V plan in Section IV?

   Considering additional performance metrics beyond those proposed in Section IV of the M&V (Monitoring and Verification) plan would be beneficial for ensuring that funded projects and their impacts can effectively inform future deployment of hydrogen in California. These additional metrics could provide a more comprehensive and nuanced understanding of the projects' outcomes and their broader implications for the state's hydrogen initiatives.

   By incorporating a diverse set of performance metrics, the California Energy Commission (CEC) can:

   Capture Comprehensive Data: Additional metrics can capture a wider range of data points, offering a more complete picture of project performance. This can include factors like energy efficiency, emissions reduction, economic impacts, and social benefits.

   Address Specific Project Goals: Different projects may have unique objectives beyond those outlined in Section IV. Tailoring metrics to address specific goals ensures that the evaluation is aligned with the project's intended outcomes.

   Support Comparative Analysis: Having a broader set of metrics allows for more robust comparative analysis across different projects. This can help identify best practices, areas for improvement, and trends that can inform future deployment strategies.

Reflect Evolving Industry Standards: The field of hydrogen technology is evolving rapidly. Including additional metrics can help ensure that evaluation practices keep pace with industry advancements and best practices.

Enhance Transparency and Accountability: A more comprehensive set of metrics can enhance transparency and accountability in the evaluation process, instilling confidence in stakeholders and the public that projects are being rigorously assessed.

Consider Long-term Impacts: Some impacts of hydrogen projects may manifest over an extended period. Additional metrics can help track and evaluate these longer-term effects, providing valuable insights for future planning.

5. What type of technical assistance is needed to ensure equitable participation and project success, if any?

6. Are there specific end uses we should target with the one to five metric ton hydrogen capacity? If so, why?

Transportation Sector: Prioritizing the transportation sector for this capacity range can have a significant impact on reducing emissions. Hydrogen fuel cells are well-suited for heavy-duty vehicles, such as trucks, buses, and trains. By focusing on transportation, California can make substantial progress towards its emissions reduction goals.

Aviation Sector: Aviation is a significant contributor to global greenhouse gas emissions. Hydrogen-powered aircraft have the potential to drastically reduce emissions compared to traditional jet fuel. By targeting aviation, California can make a substantial impact on reducing the carbon footprint of air travel.

Industrial Processes: Hydrogen is a crucial input for various industrial processes, including refining, chemical production, and steelmaking. Targeting these sectors can lead to substantial emissions reductions and help decarbonize critical industries.

Backup Power and Grid Balancing: Hydrogen can play a pivotal role in energy storage and grid balancing. By focusing on applications like backup power for critical infrastructure and grid stability, California can enhance its resilience to power disruptions and promote a more reliable and sustainable energy system.

Energy-intensive Manufacturing: Industries with high energy consumption, such as cement and glass production, can benefit from hydrogen as a low-carbon energy source. Targeting these sectors can lead to substantial emissions reductions and promote sustainable industrial practices.

Remote and Off-grid Applications: Hydrogen can provide a clean energy solution for remote and off-grid areas where conventional grid access is limited. This can improve energy access and reduce reliance on fossil fuels in these regions.

Demonstration and Learning Opportunities: Focusing on specific end uses allows for concentrated efforts and resources, enabling more effective demonstration projects. These projects serve as valuable learning experiences, providing insights into the challenges, benefits, and potential scalability of hydrogen technologies.

By targeting specific end uses, California can maximize the impact of its hydrogen deployment efforts. This approach aligns with the state's emissions reduction goals and positions it as a leader in sustainable energy innovation. Additionally, it sets the stage for broader adoption and scaling of hydrogen technologies in the future.

7. Are there any concerns with this solicitation allowing the use of CCUS for a project to be carbon neutral? If so, why?

Allowing the use of CCUS (Carbon Capture, Utilization, and Storage) in a project to achieve carbon neutrality can raise certain concerns:

Effectiveness and Permanence of Carbon Capture: There may be concerns about the effectiveness of CCUS technologies in capturing and permanently storing carbon emissions. Questions may arise regarding the long-term stability of storage sites and the potential for leakage or other environmental risks.

Energy Intensity of CCUS: The energy required to operate CCUS facilities can be significant. This raises questions about the net emissions reduction achieved, as the energy used for carbon capture could potentially offset the emissions savings.

Resource Allocation and Opportunity Cost: Prioritizing CCUS in projects could divert resources and attention away from other potentially more effective decarbonization strategies or technologies. It's essential to weigh the benefits of CCUS against other approaches.

Incentives for Direct Emission Reductions: Allowing CCUS may inadvertently reduce incentives for direct emissions reductions at the source. It's important to strike a balance between encouraging innovative technologies and ensuring that efforts are made to reduce emissions at their origin.

Environmental and Social Considerations: There could be concerns about the potential environmental and social impacts of CCUS projects, such as land use, water usage, and potential disruption to local communities. It's crucial to conduct thorough environmental and social impact assessments.

Regulatory and Compliance Challenges: Ensuring proper regulatory oversight and compliance with environmental and safety standards for CCUS projects is critical. Failure to do so could lead to unintended consequences or environmental risks.

Lack of Long-Term Data and Experience: The field of CCUS is relatively nascent compared to some other decarbonization technologies. This means there may be limited long-term data on the performance and safety of large-scale CCUS projects.

While CCUS holds promise as a tool for achieving carbon neutrality, it is important to approach its implementation with a critical eye and to carefully evaluate the specific circumstances of each project. It may be prudent to set clear guidelines, conduct thorough assessments, and ensure ongoing monitoring and reporting to address potential concerns. This will help maximize the benefits of CCUS while minimizing any potential drawbacks.

8. Please provide relevant comments regarding other considerations not explicitly listed above.
   Production facilities of 5 metric tons per day is not considered large, as referenced in IV. Project Focus. Please consider raising the production rate to at least 25 metric tons per day.