

EESI Briefing: Investments in Clean Energy and Transportation Innovations in the Federal and Private Sectors

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April 13, 2023

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National Laboratory System Coast to Coast

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NREL Science Drives Innovation



Renewable Power

- Solar
- Wind
- Water
- Geothermal



Sustainable Transportation

- Bioenergy
- Hydrogen and Fuel Cells
- Transportation and Mobility



Energy Efficiency

- Advanced Manufacturing
- Buildings
- State, Local, and Tribal Governments



Energy Systems Integration

- Energy Security and Resilience
- Grid Modernization
- Integrated Energy Solutions

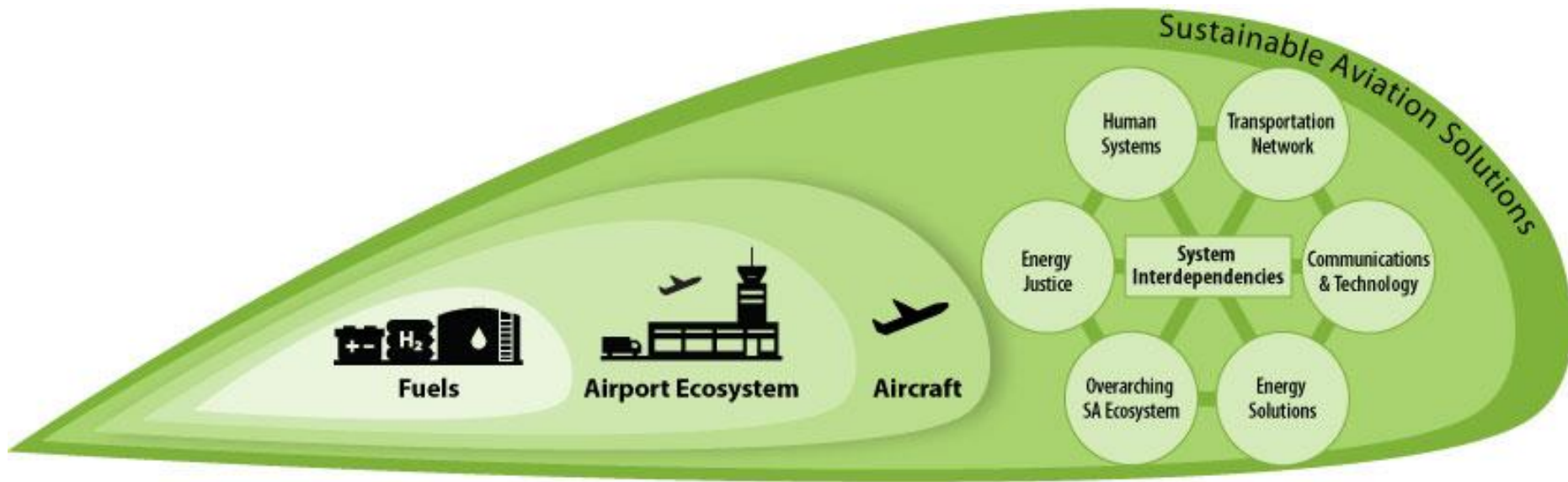


Floating Offshore Wind Systems

- Building wind plants in water depths greater than 60 meters offers tremendous opportunity for expanded wind deployment
- Floating solutions stretch the capabilities for system design and optimization
- NREL's offshore wind turbine research capabilities focus on the long-term needs of the industry, including developing innovative controls at the turbine and plant levels, advancing modeling and simulation capabilities to assess and optimize novel designs, and supporting standards development.

Shell Collaboration:

- Exploring use of active wake steering for US offshore wind projects
- Yield assessment and loads analysis with active wake steering
- New operating regime with large scale (~1GW) bottom-fixed offshore wind plants that use 15-MW class turbines.



A Holistic Approach to Aviation Decarbonization

- Low- and Net-Zero-Carbon Aviation Fuels and Energy Carriers
- Integrated, Decarbonized Ground Aviation Infrastructure
- Sustainable Aircraft of the Future



The Los Angeles 100% Renewable Energy Study



The Challenge:

- How can Los Angeles ensure its transition to 100% clean energy with high levels of electrification improves energy justice?

Our Solution:

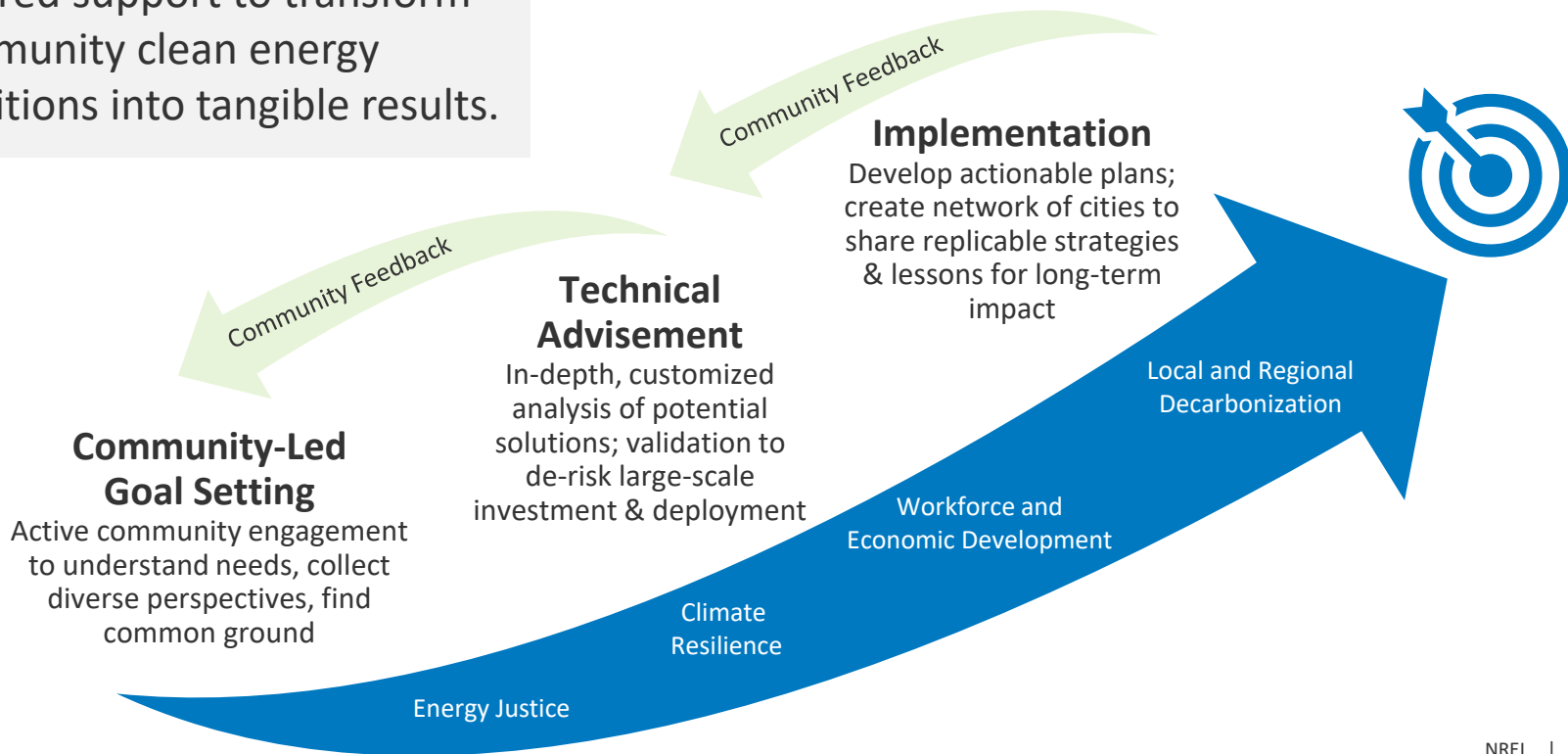
- Prioritize energy justice outcomes based on community input
- Analyze clean-energy transition pathways that maximize energy justice outcomes for all communities in LA

Potential Impact:

- Improved understanding of factors contributing to energy inequities
- Implementation-ready strategies to address energy justice in LA
- Replicable approaches for incorporating energy justice in future research

C2C: Clean Energy to Communities

Tailored support to transform community clean energy ambitions into tangible results.



Partnering for Impact

In **2022**, NREL had more than 1,000 active partnerships with industry, academia, and government.



In 2022, NREL signed a partnership with **Fortescue Future Industries**, a subsidiary of the Australian mining powerhouse, to advance green hydrogen production and technologies.



NREL and power management company **Eaton** expanded on their decade-long partnership in 2018 by co-locating at the lab's Energy Systems Integration Facility to work on grid integration.



WELLS FARGO

Cofounded by NREL in 2014 and now in its 12th cohort, the **Wells Fargo Innovation Incubator (IN²)** provides cleantech startups with \$250K in technical assistance via multimillion-dollar state-of-the-art facilities.



In 2022, NREL and the **Lithuanian Energy Agency** agreed to conduct a multiyear study to develop pathways for how Lithuania can achieve a secure, reliable, and 100% carbon-free electricity system.



Thank you

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This work was authored by the National Renewable Energy Laboratory, operated by Alliance for Sustainable Energy, LLC, for the U.S. Department of Energy (DOE) under Contract No. DE-AC36-08GO28308. The views expressed in the article do not necessarily represent the views of the DOE or the U.S. Government. The U.S. Government retains and the publisher, by accepting the article for publication, acknowledges that the U.S. Government retains a nonexclusive, paid-up, irrevocable, worldwide license to publish or reproduce the published form of this work, or allow others to do so, for U.S. Government purposes.

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