LSU | Institute for Energy Innovation

THE WATER CAMPUS | JULY 18, 2023

CO-PRODUCTION WORKSHOP REPORT

PREPARED BY

LSU FOUNDATION
LSU OFFICE OF RESEARCH & ECONOMIC DEVELOPMENT
MELARA ENTERPRISES

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OUR MISSION

An independent, trusted, and highly respected voice of the energy transition, supporting state, community, and parish policy development.

OUR VISION

A national model, where leaders in energy-related thought, talent and industrial impact will have the opportunity to invest in the pursuit of a shared vision for the future of energy.

Position LSU as a leader in expertise associated with informed decisions around technology as well as environmental, social and governance issues.

OUR FOCUS

Advancing scholarship, discovery, outreach and commercialization in these areas:

- Hydrogen/CCUS
- Coastal resiliency
- Low-carbon fuels
- Environmental justice
- Community engagement
- Other areas associated with the energy transition

OUR LEADERSHIP

THE INSTITUTE IS LED BY A FULL-TIME EXECUTIVE DIRECTOR, WITH GUIDANCE FROM AN ACADEMIC COMMITTEE AND BOARD OF DIRECTORS.

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CARBON CAPTURE & SEQUESTRATION REPORT

Introduction:
Carbon Capture and Sequestration (CCUS) is a critical technology to combat climate change and reduce CO2 emissions. CCUS poses unique challenges in Louisiana due to its geology and historical practices. Industry professionals and academic researchers have identified various best practices and research areas to implement and monitor CCUS projects in the state effectively.

CO2 Injection and Monitoring:
Research is needed to identify more effective and sensitive data sources for monitoring CO2 injection sites in challenging geologies, such as shallow lakes. Emerging technologies like airborne electromagnetic data, acoustic monitoring, seismic monitoring, and fiber optic sensors hold promise for long-term monitoring and data accuracy.

Expertise and Resources for Monitoring:
Louisiana should possess a publicly accessible digital 3D subsurface map to optimize land use for various purposes, including water protection, CO2 storage, and oil and gas activities. A subsurface map could lead to potential benefits in terms of utilization for identifying ideal locations for different types of transitional energy. It would create an integrated plan for Louisiana for maximized land use, identifying optimal locations for water protection, CO2, oil and gas, and solar. If developed by independent researchers with verifiable information, it would also generate an opportunity to better educate the community on the safe allocation of assets, advance local acceptance and reduce the friction of cost for industry. State agencies must improve the availability of LAS data on subsurface wells to enable informed decision-making and regulatory changes in the state's best interests.

Fair Distribution of Economic Benefits and Costs:
To ensure fair distribution among stakeholders, fees generated from CCUS activities should be shared with local parishes where projects are located. This collaboration with communities can be encouraged through scholarships and other advantages. Stakeholders' views, including investors, landowners, and communities, must be considered to create a viable fee structure that accounts for the longer operating phase's value realization.

Guiding Principles from Other Regions:
Louisiana can learn from successful case studies, like those in The Netherlands, to design effective fee structures and educate the public about CCUS. It is essential to address community concerns and invest in first responder equipment and training to build confidence in handling potential leaks. Additionally, exploring CO2 use cases, like enhanced oil recovery and industrial processes, can provide alternative options to pure sequestration.

CARBON CAPTURE & SEQUESTRATION CONTINUED

Other Research Interests:
Further research should investigate the positive impact of CO2 sequestration on coastal erosion, as introducing pressure underground can deform the surface. Deployed strategically, could this be a benefit to slow down the subsidence of the Louisiana coastline? Other research recommendations include examining processes using CO2 to create useful products. Risk mitigation and project management must be prioritized to ensure the safe implementation of CCUS projects.

Conclusion:
CCUS holds great promise for Louisiana in addressing climate change and reducing CO2 emissions. By adopting best practices, investing in monitoring technologies, and involving all stakeholders in fee structure design, the state can successfully implement CCUS projects and contribute to a more sustainable future while addressing unique geological and environmental challenges.

SOLAR DEPLOYMENT REPORT

Introduction:
The adoption of solar energy in Louisiana faces challenges related to aesthetics, public opinion, infrastructure, and resilience. Industry professionals and researchers emphasize the need for careful planning, community engagement, and technological advancements to drive solar integration in the state successfully. The report highlights key insights and proposes strategies to address these challenges and ensure a sustainable solar energy future for Louisiana.

Aesthetics and Visual Integration:
Converting land into solar farms can face social pushback. Industry partners can play a role in changing public opinion through landscaping efforts and demonstrating the economic benefits of solar energy. Exploring alternative deployment options like floating solar and underdeveloped communities can mitigate aesthetic concerns. However, glare from solar panels remains a challenge that requires further research.

Deployment in Large Open Spaces vs. Existing Structures:
Large-scale solar farms in open spaces may impact biodiversity and require careful consideration to avoid ecological disruption. Challenges related to grid expansion and burying transmission lines need to be addressed. Retrofitting existing structures for solar integration requires addressing aesthetics and durability concerns.

Severe Weather Resilience and Adaptation:
Building resilient solar infrastructure requires better understanding of energy patterns and household usage during natural disasters. Research into solar panel risk categories and equipment availability for higher risk levels can enhance reliability. Collaboration between developers to share open tools and data can accelerate research on solar resiliency. Policy and regulatory support are critical to foster rapid solar adoption.

Lessons from European Experience:
European countries provide valuable lessons on solar deployment and community education. Effective guidelines and regulations can balance solar integration without compromising aesthetics or disrupting landscapes. Public perception and awareness of solar benefits are essential for successful implementation.

Policy and Decision-Making Guidance:
Regulation and adoption of solar energy in Louisiana may be hindered by political considerations. Policymakers should prioritize the need for diversified energy sources and lower emissions to ensure long-term resilience. Looking at successful European models can offer guidance for promoting public acceptance and achieving solar integration goals.

Conclusion:
Solar integration in Louisiana requires a comprehensive approach that considers aesthetics, community engagement, resilience, and policy support. By leveraging industry partnerships, adopting best practices from other regions, and conducting extensive research on solar technologies and resiliency, Louisiana can overcome challenges and embrace solar energy as a significant component of its energy future. Fostering public acceptance, addressing ecological concerns, and establishing robust regulatory frameworks will play a pivotal role in the state's transition to a more sustainable and resilient energy landscape.

ENVIRONMENTAL JUSTICE REPORT

Introduction:
The energy transition in Louisiana brings forth a range of environmental justice challenges and concerns. These challenges stem from activities like air and water pollution, health impacts on communities, disparities in resource allocation, and historical implications along the river, leading to pockets of poverty and exclusion. Industry professionals and academic researchers have identified various key areas that need attention to address these issues effectively.

Distribution of Harms & Benefits:
The energy transition activities in Louisiana have resulted in a disproportionate distribution of harms and benefits. The perception is that air pollution from energy production is linked to adverse health outcomes, impacting vulnerable communities disproportionately. These communities must be informed and given a voice in decision-making processes to ensure fairness and equity.

Socioeconomic Disparities:
Historical implications along the river, such as land ownership and plantations, have put certain communities at a disadvantage. The resulting perceptions and realities of exclusion have led to disparities in resource allocation, wealth distribution, and workforce development opportunities. Despite some progress, efforts to bridge the gap must be sustained.

Industry-Community Interface:
Industry professionals often struggle to effectively interface with communities due to a lack of empathy, understanding, or cultural awareness. Establishing a meaningful connection and building trust with the impacted communities are crucial steps toward addressing environmental justice concerns.

Taxation and Resource Allocation:
The complexity of Louisiana's tax structure and heavy exemptions for industries have created uncertainty regarding actual tax burdens. This impacts resource allocation in parishes, leading to differing levels of economic prosperity. Addressing taxation and ensuring transparency can help create more equitable resource distribution.

Planning and Community Engagement:
A collective impact framework, involving trusted organizations, shared measurement, and communication among all stakeholders, can enhance community engagement and foster equity in decision-making processes. Procuring locally and co-producing solutions with the communities' input are essential for building trust and ensuring success.

Policy Landscape and Trust:
The lack of trust across society, including skepticism towards science, poses a challenge to implementing effective environmental policies. Policy decisions should be made with clear goals and realistic expectations to avoid overpromising and underdelivering. Ensuring comprehensive assessments and addressing potential long-term implications are essential to avoid unintended consequences.

ENVIRONMENTAL JUSTICE CONTINUED

Community Benefit and Education:
Efforts to improve K-12 education in science and technology, informing the public about energy transition benefits, and creating an informed voting population are crucial for building community support. Quantifying the benefits and measuring progress empower communities and facilitate targeted initiatives that benefit the most vulnerable populations.

Conclusion:
Addressing environmental justice challenges in Louisiana's energy transition requires a multifaceted approach. Effective community engagement, transparent policies, equitable resource allocation, and a focus on education are vital to achieving environmental justice. Collaborative efforts among industry professionals, academic researchers, government, and communities can pave the way for a more equitable and sustainable future.

THE RFP

TO VIEW THE RFP, CLICK THE LINK BELOW
RESEARCH FOR ENERGY INNOVATION 2023-I (PHASE I)

APPLICATION DEADLINE	AUGUST 13,2023 | 11:59 PM

DESCRIPTION

LSU Institute for Energy Innovation (IEI) has funds to support synthesis and experimental research at LSU Baton Rouge Campuses (A&M, AgCenter, Pennington Biomedical Research Center) to stimulate innovation in energy transition. The first phase of IEI research funds for energy innovation (Research for Energy Innovation 2023-I) is seeking proposals that describe projects in two grant categories: (1) SYNTHESIS RESEARCH ($50K-$100K per project with near-term deliverables); and (2) EXPERIMENTAL RESEARCH ($250K per year for 1-2 years).
Phase I funding is design to stimulate the formation of academic teams around specific near-term projects to meet the information needs of informing the public on carbon capture technologies and community benefits associated with energy and climate adaptations.

APPLY

PRESENTATION SLIDES & VIDEO RECAP

TO VIEW THE SLIDEDECK
CLICK HERE

WORKSHOP VIDEO RECAP
CLICK HERE

THANK YOU

THE LSU INSTITUTE FOR ENERGY INNOVATION THANKS YOU FOR YOUR PARTICIPATION IN THE CO-PRODUCTION WORKSHOP. WE ARE GRATEFUL FOR YOUR COMMITMENT TO ADVANCING THE FIELD OF ENERGY INNOVATION AND FOR SHARING YOUR EXPERTISE WITH US. WE LOOK FORWARD TO CONTINUING THIS RELATIONSHIP AND EXPLORING NEW AVENUES FOR COLLABORATION, AS WE BELIEVE THAT TOGETHER, WE CAN DRIVE TRANSFORMATIVE CHANGES IN THE ENERGY SECTOR.

EXIT SURVEY

To help the **Institute for Energy Innovation** improve and enhance our collaborative working efforts, we need your feedback on your experience at the Co-Production Workshop. Please take a few moments to complete a brief exit survey. Your comments will help us refine our future events and tailor them to better meet your needs.

Click here or scan the QR code to complete the survey.