

Welcome to the *Long Duration Energy Storage for Everyone, Everywhere (LD ESEE)* Request for Information (RFI) Webinar!

June 7th, 2022, 1:00 – 4:00 PM EDT

The webinar will begin shortly.

Agenda:

- 1:00 - 2:00 PM EDT: Crosscutting ESEE Overview, Workforce Development, and Equity, Environmental, and Energy Justice
- 2:00 - 2:30 PM EDT: Demo Initiative Overview and Q&A
- 2:30 - 3:00 PM EDT: Demo Projects Overview and Q&A
- 3:00 - 3:30 PM EDT: Pilot Grants Overview and Q&A
- 3:30 - 4:00 PM EDT: Rapid Operational Validation Initiative (ROVI) Overview and Q&A

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June 7th, 2022, 1:00 – 4:00 PM EDT



Kelly Cummins

Acting Director and Principal Deputy Director
for Clean Energy Demonstrations

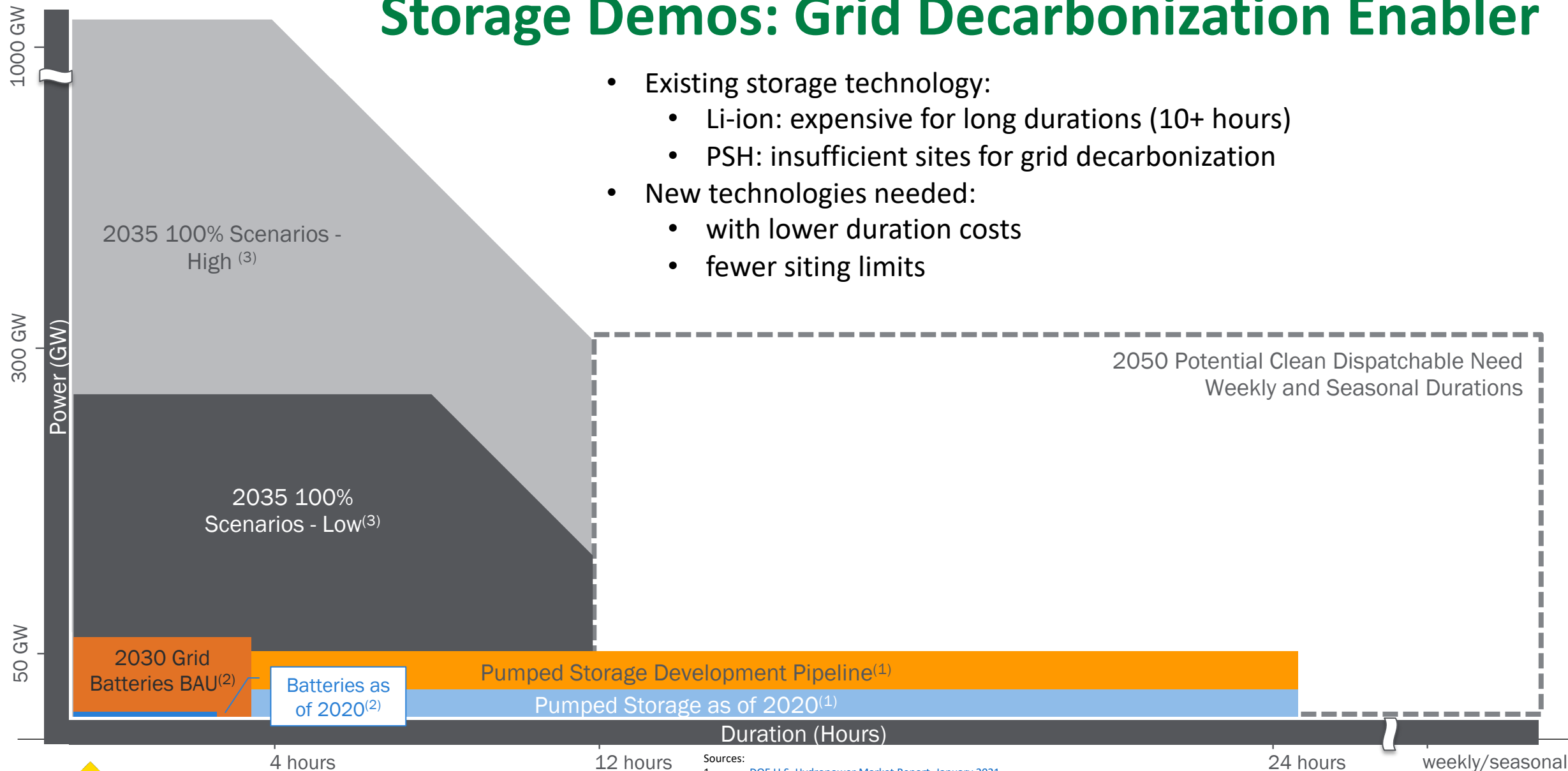
U.S. Department of Energy

Energy Storage for Everyone, Everywhere (ESEE) Overview



Storage Demos: Grid Decarbonization Enabler

- Existing storage technology:
 - Li-ion: expensive for long durations (10+ hours)
 - PSH: insufficient sites for grid decarbonization
- New technologies needed:
 - with lower duration costs
 - fewer siting limits



Sources:

1. [DOE U.S. Hydropower Market Report, January 2021](#)
2. [IHS, Grid-Connected Energy Storage Market Tracker—First Half 2021, 25 August 2021](#)
3. McKinsey “Net-zero Power,” December 2021; Princeton, “Net Zero America,” October 2021; The Long-Term Strategy of The United States, November 2021; NREL, Solar Futures Study, 2021
4. [IHS, Battery Market Tracker: First Half 2021, 05 Oct 2021](#)
5. DOE, Supply Chain Review: Water Electrolyzers and Fuel Cells, Forthcoming

LONG DURATION STORAGE SHOT TARGET



Reduce storage costs by
90% from a 2020
Li-ion baseline...



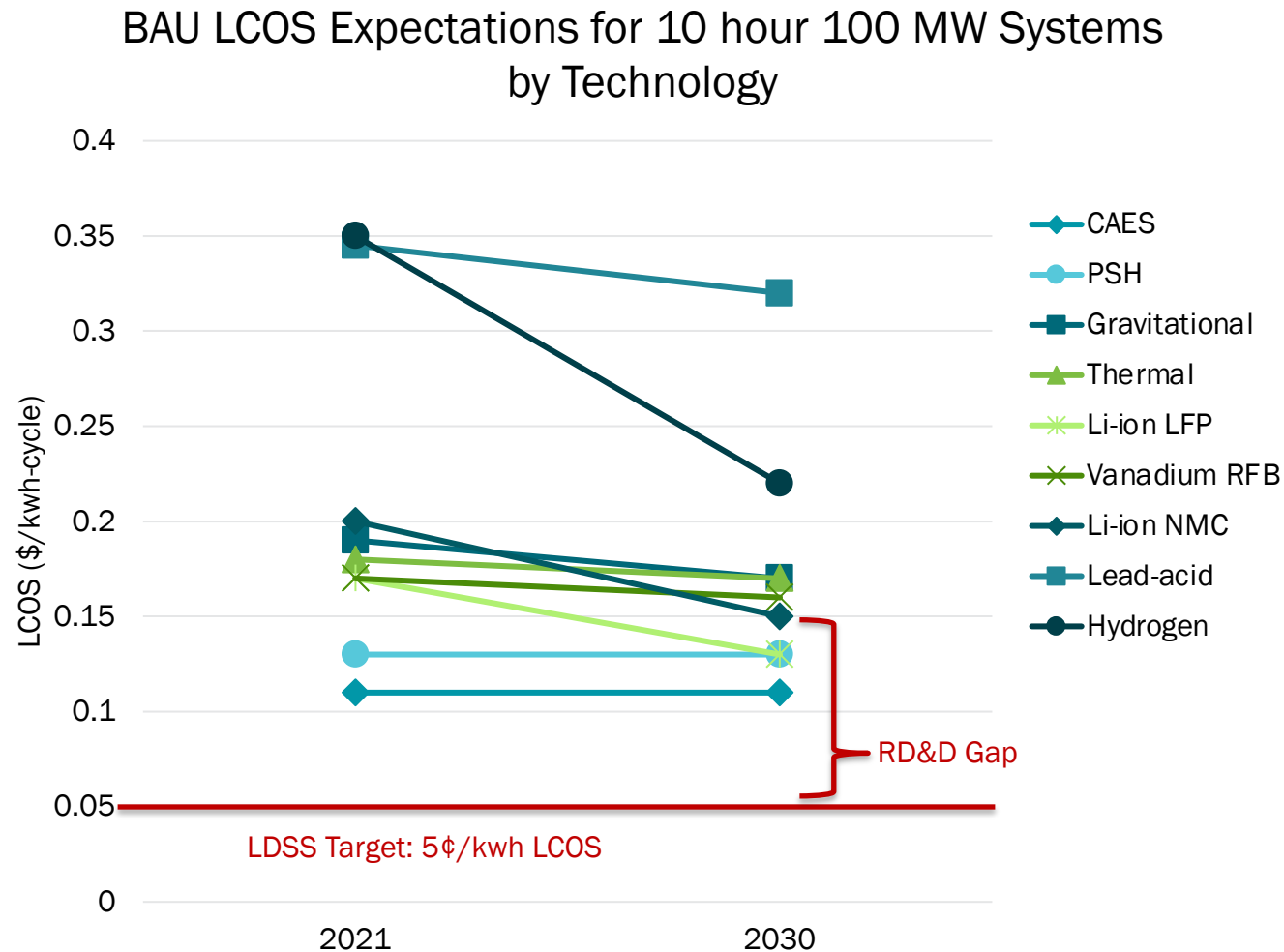
...in storage systems that
deliver **10+**
hours of duration



...in **1** decade

Affordable grid storage for clean power – any time, anywhere

RD&D Required for Cost-Effective Decarbonization



- 5¢/kwh LCOS enables dispatchable clean energy while minimizing rate increases
- Business as Usual LCOS Expectations will not achieve this goal
- New demonstrations at scale are a major step towards cost reductions and performance improvements

Source:
Forthcoming DOE/ESGC Cost and Performance Report

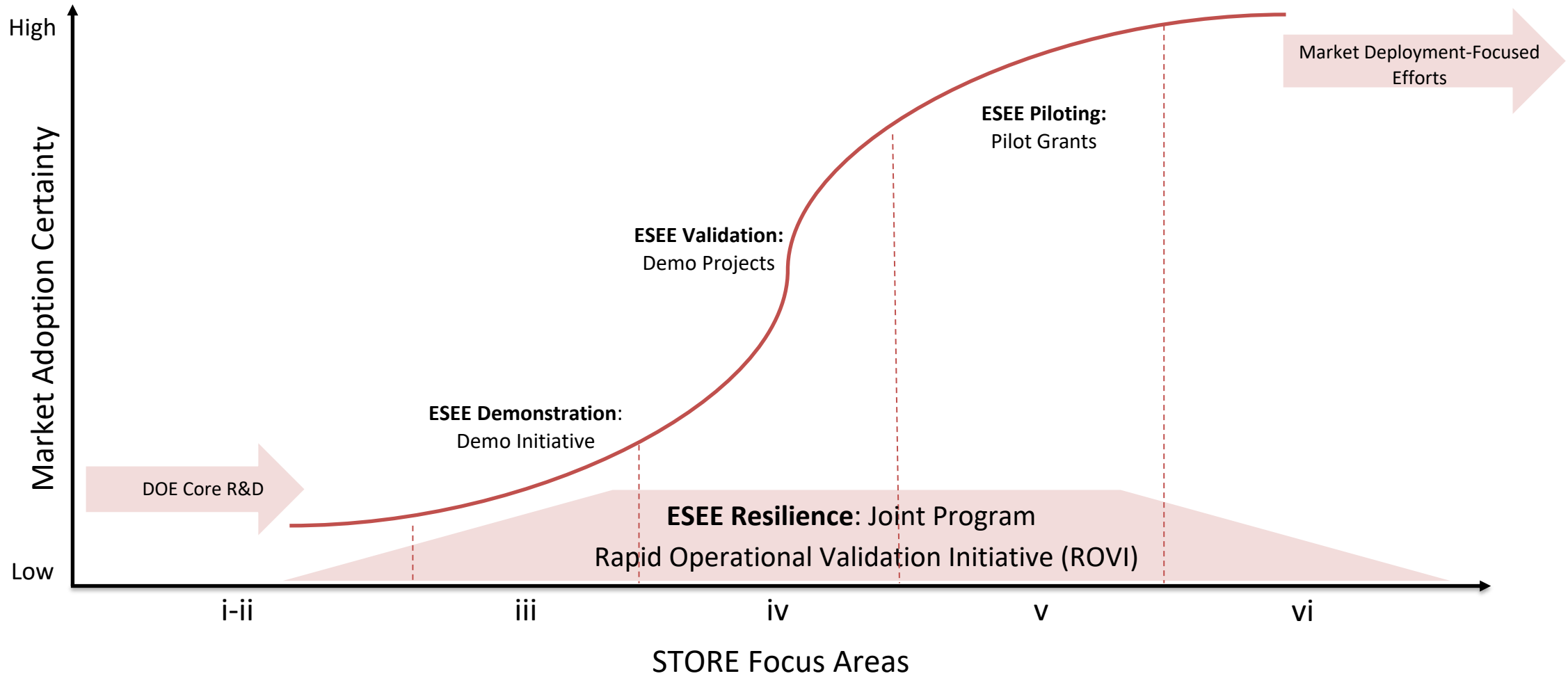
Long Duration Energy Storage for Everyone, Everywhere (ESEE)

- Key ESEE Initiative goals:
 - **Demonstrate** new, innovative storage technologies that may address future long duration needs.
 - **Validate** first-of-a-kind long duration systems at utility scale and validate pathways to Storage Shot 90% cost reduction targets.
 - **Pilot** storage to help new storage end users overcome institutional and informational barriers.
 - Increase **resilience** of critical government facilities.
- Activities beyond ESEE:
 - Scaling up domestic manufacturing
 - Incentives to accelerate deployment
 - Hydrogen and Generator Flexibility technologies

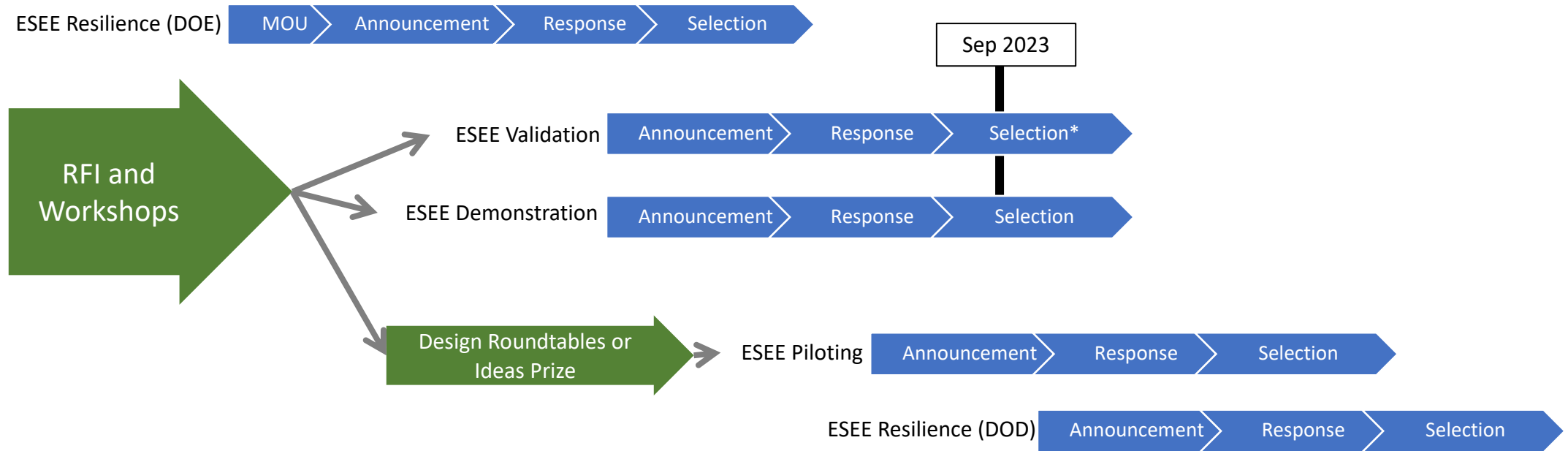
Four Demonstration Programs in ESEE

- \$355 million
- **ESEE Validation:** “Demo Projects” for first-of-a-kind LDES utility scale demonstrations.
 - **ESEE Piloting:** “Pilot Grants” to lower the barriers to storage deployments.
- \$150 million
- **ESEE Demonstration:** “Demo Initiative” for innovative early-stage long duration technologies.
 - **ESEE Resilience:** “Joint Program” for storage demonstrations on DOE/ DOD facilities.

Validate Storage at Increasing Scales



ESEE Timeline and Sequencing



*42 USC § 17232(c)(2)(A) deadline

Outreach

- Request for Information released May 12th for feedback on:
 - Demo Initiative (“ESEE Demonstration”)
 - Demo Projects (“ESEE Validation”)
 - Pilot Grants (“ESEE Piloting”)
- Extensive questions on program-specific considerations and crosscutting issues (e.g., success metrics, climate impact, supply chain, incentives, other Infrastructure bill programs, program exclusions)
- RFI includes section on workforce development and equity, environmental, and energy justice (EEEJ)
- Further engagement and listening sessions planned to follow webinar

Find updates on all opportunities at energy.gov/bil

BIL PROVISION NAME	TYPE OF ANNOUNCEMENT	STATUS	ANNOUNCEMENT DATE	RESPONSE DUE DATE
Energy Storage Demonstration and Pilot Grants; and Long-Duration Energy Storage Demonstration Initiative and Joint Program	Request for Information	Open	5/12/2022	6/16/2022
Transmission Facilitation Program	Request for Information and Notice of Intent	Open	5/10/2022	TBD: 30 Days after publication date in the Federal Register
Battery Material Processing Grants; and Battery Manufacturing and Recycling Grants	Funding Opportunity Announcement	Open	5/2/2022	Letter of Intent Deadline: 5/27/2022 and Full Application Submission Deadline 7/1/2022
Electric Drive Vehicle Battery Recycling and Second-Life Applications Program	Funding Opportunity Announcement	Open	5/2/2022	Concept Paper Submission Deadline: 5/31/2022 and Full Application Submission Deadline 7/19/2022
Carbon Storage Validation and Testing	Notice of Intent	N/A	4/29/2022	N/A
Preventing Outages and Enhancing the Resilience of the Electric Grid / Hazard Hardening	Request for Information	Open	4/27/2022	5/27/2022
	Notice of Availability and			

ESEE Resilience



ESEE Resilience – Introduction

Authorized in BIL Section 41001b(2) Joint Program - \$75 million*

Purpose: *Initiative that directs DOE, in consultation with DOD, to leverage existing infrastructure at DOE and DOD facilities/installations to demonstrate long duration energy storage (LDES) technologies. Through these demonstrations the DOE will help new, innovative technologies increase their commercial viability under a variety of operating conditions and system scales.*

ESEE Resilience - Program Statutory Requirements

Additional Provisions:

- Selected projects should consider deployments that operate a variety of environments that have different physical and market constraints
- Selected projects should cover systems at different scales with a balance of larger, higher cost and smaller, lower cost systems
- Goals and metrics, consistent with energy resilience and security policies, will be developed to track technological progress under this program
- Projects will be carried out in the field and will prioritize making information will be made available to the public with the objective of accelerating deployment of LDES technologies
- Projects will leverage existing test-bed infrastructure at DOE Facilities and DOD installations and can use funding to develop new infrastructure if appropriate

ESEE Resilience – Current Status

- This program does not have any specific questions in the RFI as the primary recipients of funding will be DOE or DoD/Military organizations
- Entities within the DoD and DOE are coordinating to sign a Memorandum of Understanding to establish groundwork for carrying out this program
- To carry out the DOE portion of this program we are considering conducting a Lab Call funding mechanism to allow DOE National Labs to competitively compete for funding

Workforce Development in LD ESEE



Bipartisan Infrastructure Law: Overarching Values

The is a once-in-a-generation investment in infrastructure that allows us to:

- provides the backbone for a more sustainable, resilient, and equitable economy
- enhance U.S. competitiveness in the world
- diversify regional economies to include supply chain and manufacturing industries
- ensure stronger access to economic and other benefits for underserved communities
- support the creation of good union jobs

BIL Workforce Priorities

- Strengthening economic prosperity is a key goal of the Administration and DOE
- Goal for all BIL provisions: to support the creation of good-paying jobs with the free and fair choice to join a union, the incorporation of strong labor standards, and high-road workforce development programs that ensure equitable access to jobs, especially through registered apprenticeship and quality pre-apprenticeship programs.
- Project labor agreements and community benefits agreements
- And other tools and methods as well

41001 RFI Workforce Questions

We welcome information and feedback on:

- Tools and practices that can ensure that the jobs associated with this work are good jobs
- Overall forecasts/estimates on job creation
- Input on what kinds of engagement can maximize the inclusiveness and diversity of the staffing and workforce for these jobs
- Where can organized labor be included/supported
- What kinds of workforce development efforts can be most impactful

Equity, Environmental, and Energy Justice in LD ESEE



Long Duration Energy Storage for Everyone, Everywhere

Funded by BIL which is guided by principles of **equity, environmental and energy justice (EEEJ)**

BIL intends to reinforce the Biden Administration's commitments to ensure that overburdened, underserved, underrepresented, and marginalized individuals and communities have access to federal resources

- EO 13985 – Advancing Racial Equity for Underserved Communities
- EO 14020 – Establishing White House Gender Policy Council
- **EO 14008 – Tackling the Climate Crisis at Home and Abroad**
 - Justice 40

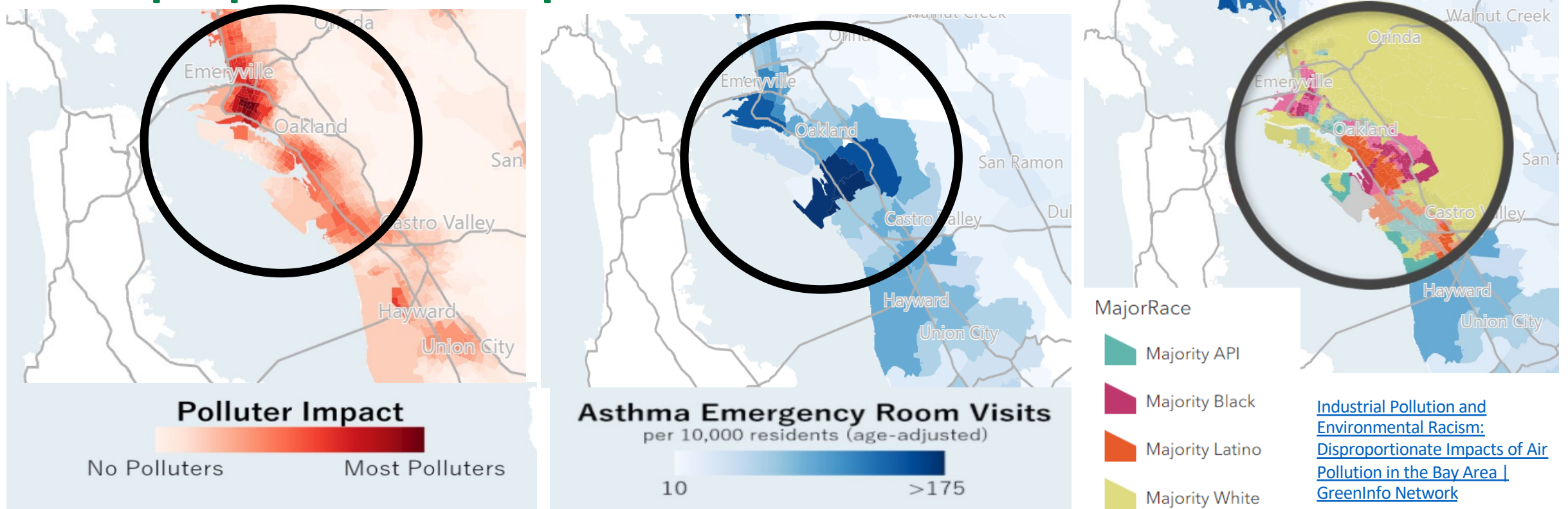
A view of Earth from space, showing the curvature of the planet and the sun rising over the horizon, creating a bright glow and lens flare effect. The sky is filled with stars.

Our Grand Challenge

How do we transform our energy system
while ensuring it becomes more
equitable and just?



A legacy of mining, energy drilling and pollution with disproportionate impacts on black and Latino communities



Communities near power plants and energy infrastructure are subjected to toxic pollutants that contribute to high rates of asthma, cancer, heart disease

SHARE

RESEARCH ARTICLE | SCIENCE POLICY



PM_{2.5} pollutants disproportionately and systemically affect people of color in the United States

Christopher W. Tessum^{1,*}, David A. Paoella^{2,†}, Sarah E. Chambliss³, Joshua S. Apte^{4,5}, Jason D. Hill⁶ and Julian D. ...

+ See all authors and affiliations

Science Advances 28 Apr 2021:
Vol. 7, no. 18, eabf4491
DOI: 10.1126/sciadv.abf4491

A tale of two cities - on the right is downtown Austin - to the left East Austin. Look who has power. @KVUE



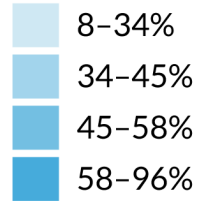
Resilience

Areas with a high share of minority population were more than four times as likely to suffer a blackout than predominantly white areas... The presence critical facilities does not otherwise explain the full disparity among communities.

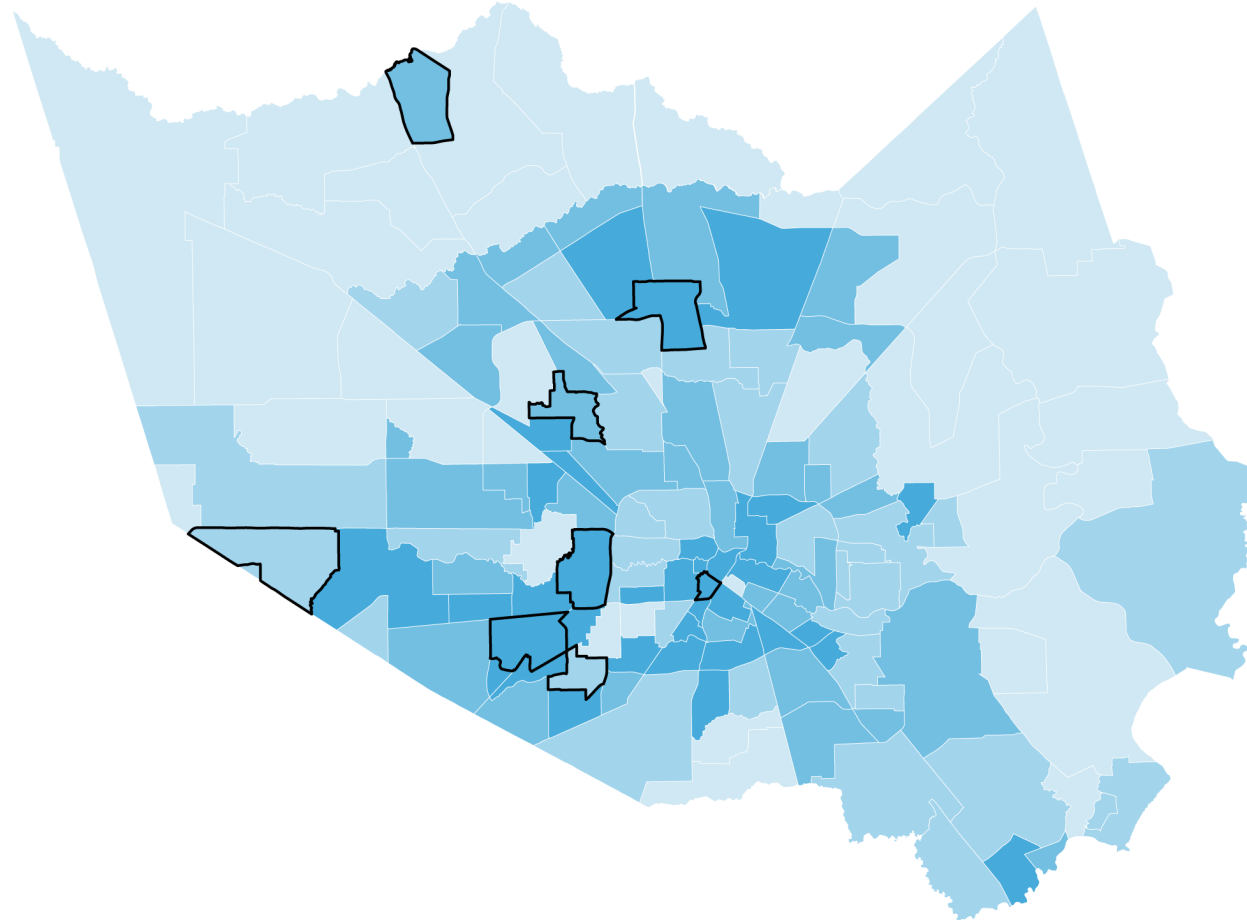
Carvallo, et al. (2021).

Harris County Neighborhoods with Larger Shares of Renters Experienced Longer Power Outages during Winter Storm Uri

Share of renter households



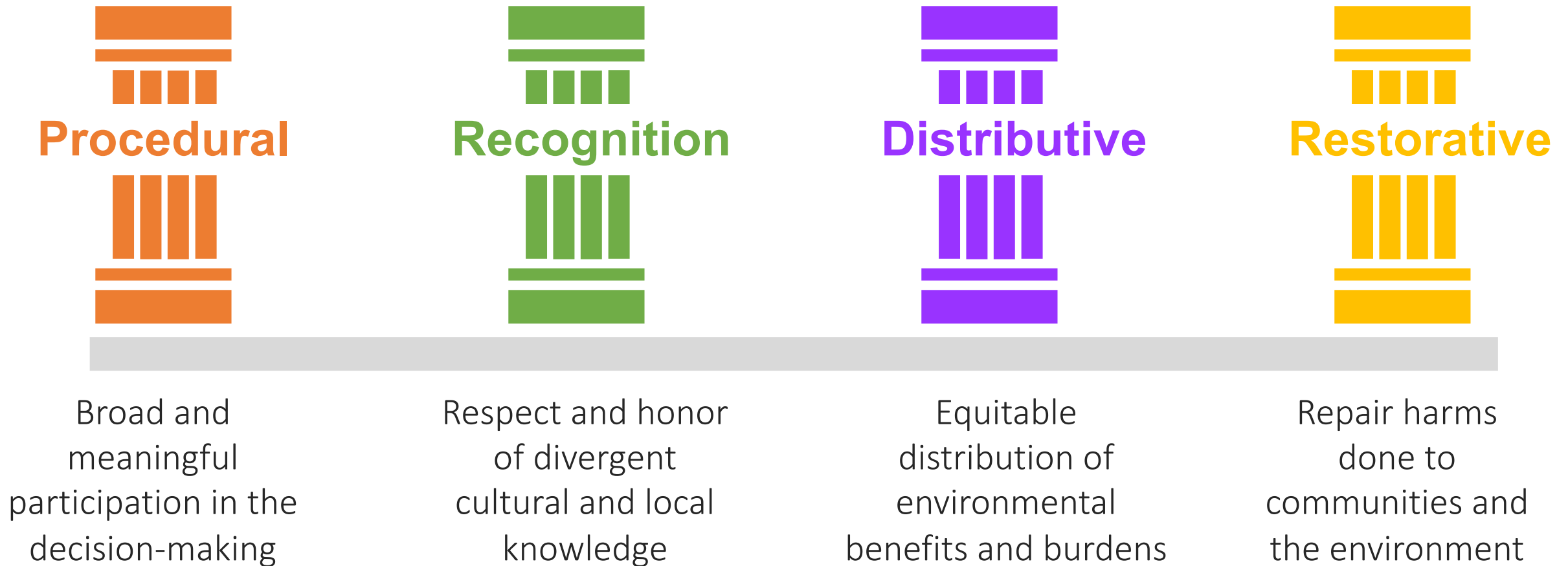
Areas where more than 1% of households didn't have power on February 19



URBAN INSTITUTE

Sources: CenterPoint Energy data for 2014 through 2018 and the American Community Survey.

Tenets of Energy and Environmental Justice



Heffron and McCauley, The Concept of energy Justice Across the Disciplines, 105 Energy Policy 658, 659 (2017)

What is Energy Justice?

Seeks **equity** in the **social** and **economic** participation in the energy system

While **remediating** social, economic, and health **burdens** on “frontline communities” explicitly centering their concerns

Aims to make energy more **accessible**, **affordable**, **clean**, and **democratically** managed for all communities.

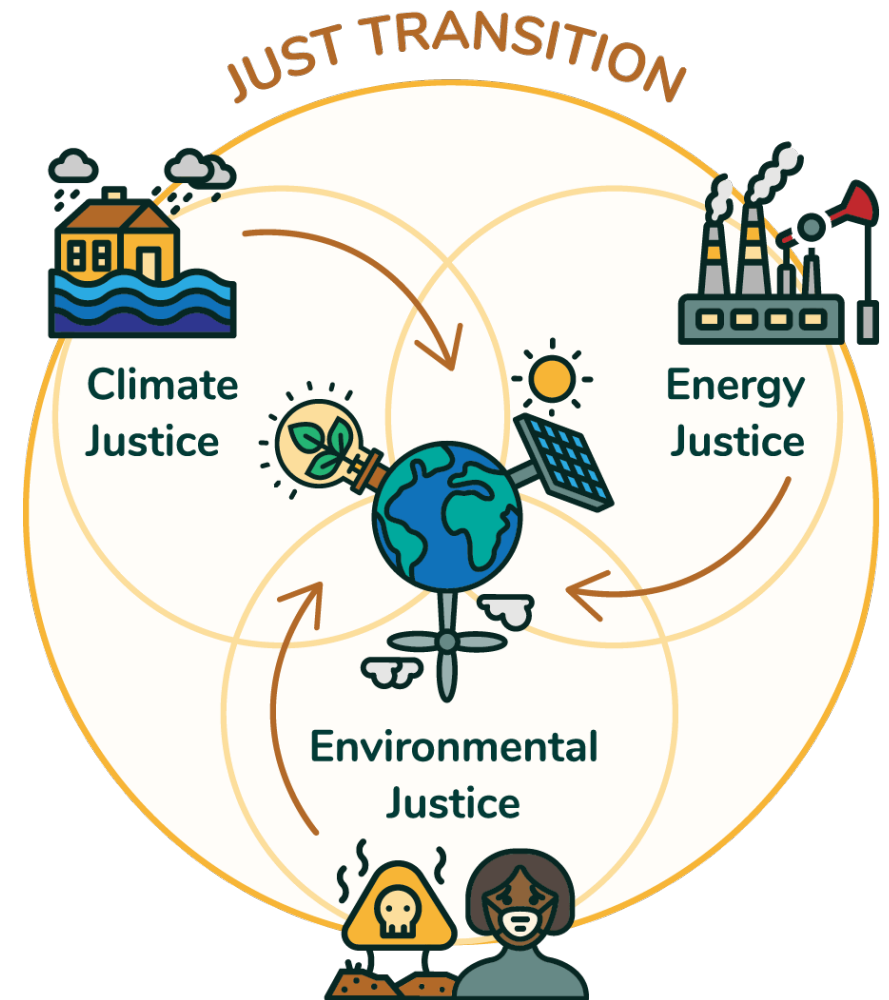


Image Credit: Initiative for Energy Justice [Section 1 - Defining Energy Justice: Connections to Environmental Justice, Climate Justice, and the Just Transition - Initiative for Energy Justice \(iejusa.org\)](#)

Justice40 as a Just Energy Transition Framework

What is Justice40?

EO 14008 -Sec 223 – Justice40 – how Federal investments might be made for **40% of the overall benefits** to flow to **disadvantaged communities**

Federal
investments



**40% of the overall
benefits**



**Disadvantaged
communities**



What does Justice40 Cover?



Federal Investments

- ✓ Federal grant and procurements
- ✓ Financing (credit, loans, and guarantees);
- ✓ Staffing costs
- ✓ Provision of goods and services
- ✓ Others per OMB

In these areas:

- ✓ **Climate change**
- ✓ **Clean energy and energy efficiency**
- ✓ Clean transportation
- ✓ Affordable and sustainable housing
- ✓ Training and workforce development
- ✓ Remediation of legacy pollution
- ✓ Clean water and waste infrastructure

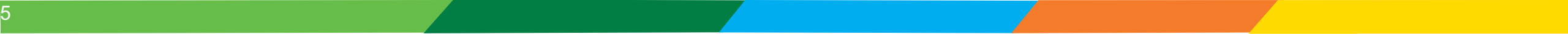
Defining Disadvantaged Communities (DACs)



Community:

- 1 Either a group of individuals living in **geographic proximity** to one another, or
- 2 geographically dispersed set of individuals where either type of group experiences **common conditions**





DOE Working Definition of Disadvantaged Community



Cumulative Burden. Census tract must have at least 30% low-income households and rank in the 80th percentile of cumulative sum of 36 burden indicators, where each input is equally weighted. Rankings are state-relative.

ENERGY BURDEN (5)

Transportation Burden
Energy Burden
Non-grid connected home heating fuel
Power outages
Duration of outages

FOSSIL DEPENDENCE (2)

IWG coal jobs ratio
IWG fossil energy jobs ratio

VULNERABLE POPULATIONS (19)

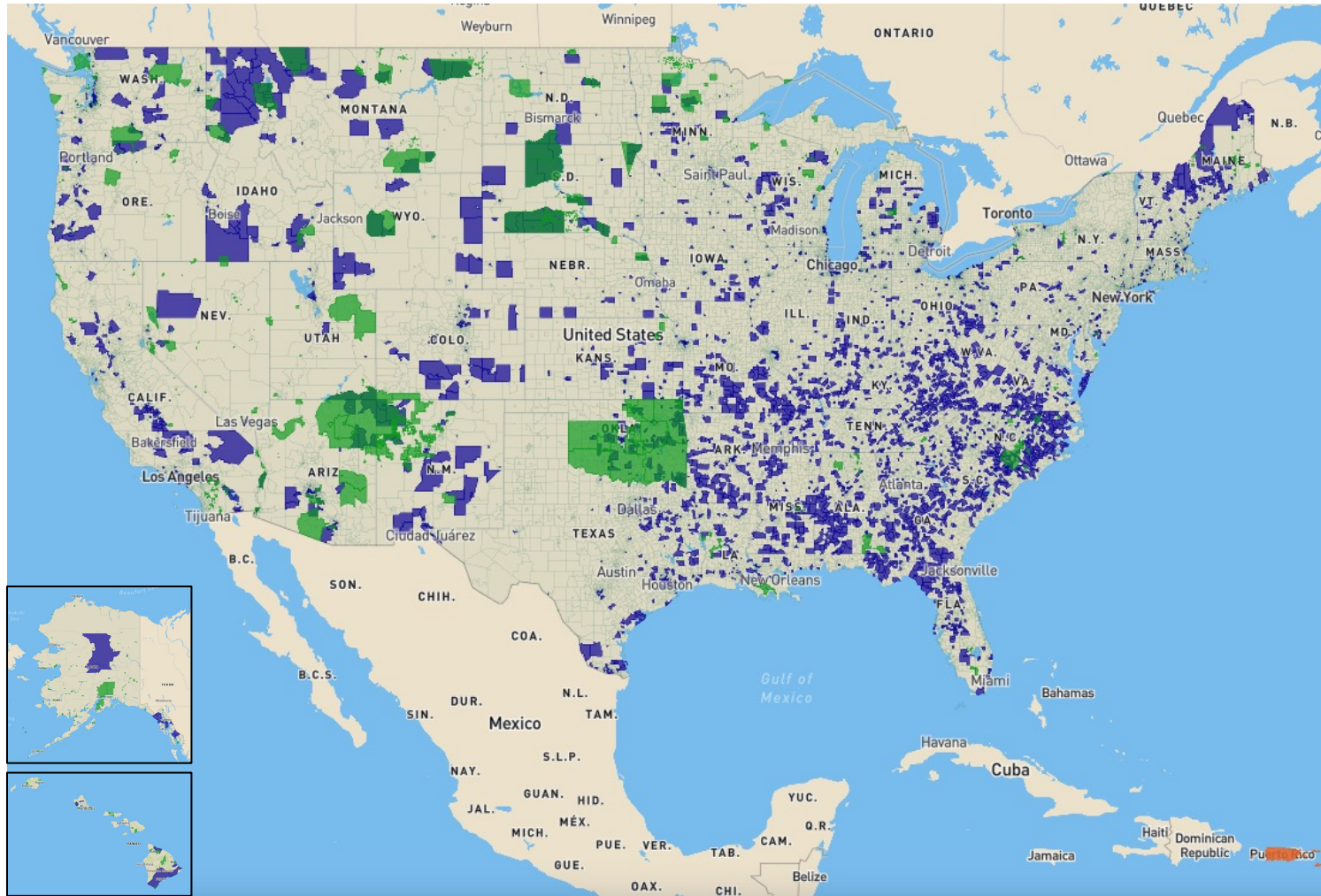
Housing burden	Renters*
Food desert	No internet
Job access (-)	Uninsured
Park access (-)	Disability
Commutes > 30 mins*	Incomplete plumbing
No vehicle*	Single parents
Unemployed	Mobile homes
Low Income*	Unhoused
No GED*	Age over 65*
Linguistic Isolation*	

ENVIRONMENTAL/ CLIMATE HAZARDS (10)

Lead paint
Diesel particulates
Cancer
Traffic volume
Water discharge
NPL sites
RMP facilities
TSD facilities
FEMA climate risk
PM 2.5

* Denotes that these variables are not inherently negative, but increase the vulnerability of the population to climate, environmental, and energy hazards

Geographic Distribution of DACs





Qualifying census tracts: 13,581 (18.6%)

Additional native lands: 703 native populations in 858 locations

US territories: Virgin Islands, Northern Marianas, Guam, American Samoa, Puerto Rico

Justice40 Policy Priorities

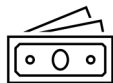


- 
- 
1. **Decrease** energy burden in disadvantaged communities (DACs).
 2. **Decrease** environmental exposure and burdens for DACs
 3. **Increase** parity in clean energy technology (e.g., solar, storage) access and adoption in DACs.
 4. **Increase** access to low-cost capital in DACs.
 5. **Increase** clean energy enterprise creation and contracting (MBE/DBE) in DACs.
 6. **Increase** clean energy jobs, job pipeline and job training for individuals in DACs.
 7. **Increase** energy resiliency in DACs.
 8. **Increase** energy democracy, including community ownership in DACs.



Sample Benefit Metrics

Benefit Category	Metric	Measurement
Reducing energy burden	Reduction in energy costs due to technology adoption	Annual energy expenditures (\$'s) in DACs before and after program intervention
Reducing environmental burden	Reduction in local pollutant emissions	Measurement of local pollutant (NO _x , SO ₂ , PM _{2.5}) in DACs before and after program intervention
Increase clean energy access	Increase access to clean energy serving DACs	% of local electricity generation mix from clean energy that serves DACs
Increase access to low-cost capital	Increase loans to MBEs/DBEs	Loan \$'s awarded to MBEs/DBEs / total \$'s of loans awarded
Increase enterprise creation	Increase contracts to MBEs/DBEs	# of contracts to MBEs/DBEs / total # of contracts
Increase resilience	Increase community resilience	Energy storage deployed in DACs / total energy storage deployed



Possible Benefits of Storage

Possible Storage Benefits

- Storage as an Equity Asset
- Facilitates renewables
- Equitable access to clean energy
- Manages peak demands
- Reduces energy prices
- Reduce utility disconnection
- Support grid reliability and resilience (backup power)
- Support energy independence
- Generate community wealth
- Mitigates outages or disruptions
- Location Flexibility
- Broad Uses
- Job opportunities

J40 Framework

- Encourages siting in disadvantaged communities
- Provides structure for measuring benefits
- Relates benefits to policy priorities

Possible Outcomes (Must be evaluated)

- Access
- Affordability
- Resiliency
- Jobs

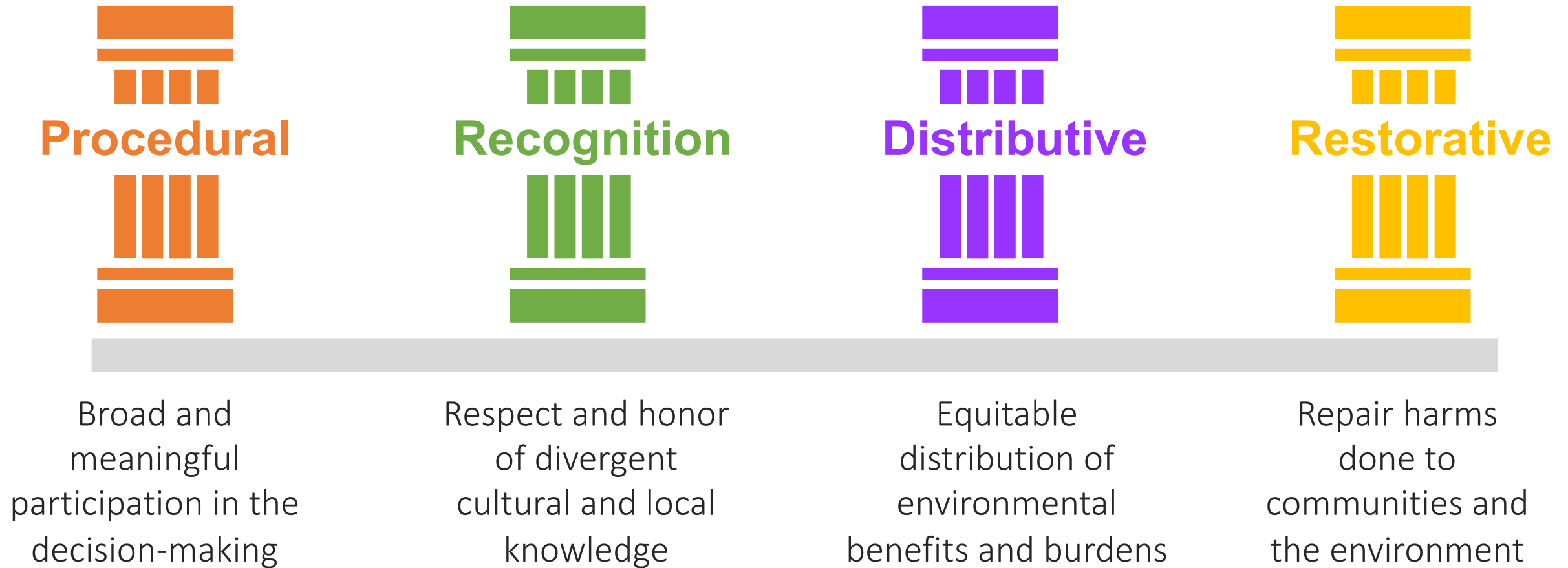
<https://link.springer.com/article/10.1007/s40518-021-00184-6>

Example RFI Questions related to EEEJ

- How can DOE incentivize partnerships with **community-based organizations**, especially those historically excluded from energy investments?
- What can DOE do to facilitate applicants' collaborations with potential financing **partners**?
- What **EEEJ concerns or priorities** are most relevant for the program?
- What **metrics** should be tracked to estimate environmental, social, and economic impacts of the program?
- How can 41001 energy storage programs be more accessible to community-owned microgrids, publicly owned utilities, and utility cooperatives? What are the specific needs of **community ownership models**?
- How can the program be deployed to support communities **transitioning from fossil fuels**?
- What might make the program more accessible to **rural & remote communities**?
- How can DOE facilitate participation of **minority-owned businesses**?

What are your ideas to strengthen these EEEJ pillars with LD ESEE?

Please provide comments in the RFI.



Heffron and McCauley, The Concept of energy Justice Across the Disciplines, 105 Energy Policy 658, 659 (2017)

Long Duration Energy Storage for Everyone, Everywhere *(LD ESEE) Request for Information (RFI) Webinar*

June 7th, 2022, 1:00 – 4:00 PM EDT

We will now take a break and resume with the Demo Initiative at 2:00 EDT.

- Find more updates on: energy.gov/bil
- Email dl-oced-engagement@hq.doe.gov to be added to the distribution list for OCED updates and engagement.
- Sign up for the Energy Storage Grand Challenge email list:
<https://www.energy.gov/energy-storage-grand-challenge>

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Demo Initiative Overview and Q&A

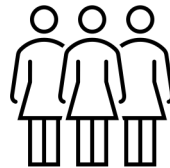
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Demo Initiative (“ESEE Demonstration”) Summary

Who we’re funding:

- Companies innovating energy storage
- Behind-the-meter storage customers (campuses, facilities)



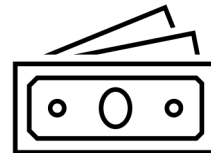
What we’re funding:

- Field or behind-the-meter demonstrations (< 100 kW) of small, lab-scale technologies proven at smaller scales.



How we’re funding:

- Cost-share grants
- Prizes
- Mechanisms informed by RFI



End Goal: Prepare a cohort of promising technologies for eventual utility-scale demonstration and gather sufficient data to accelerate the feasibility of utility-scale demos.

Demo Initiative – Program Statutory Requirements

Requirements:

- Ensure a range of different technology types
- Ensure regional diversity among projects
- Consider uses in the following applications
 - Bulk Power Level
 - Distribution Power Level
 - Behind-the-Meter
 - Microgrid (Grid Connected or Islanded Mode)
 - Off-grid

Demo Initiative – Target Criteria

“DOE anticipates that projects in this program will be small (< 100 kW) lab-scale systems that have proven operation in a controlled, behind-the-meter environment. Such projects will have sufficient integration, controls, and power conversion equipment (if applicable) for low-voltage (< 1000 V) AC input and output in moderately complex operational conditions.”

DOE is interested in feedback on how appropriate it is to target this level of maturity.

Demo Initiative – RFI Areas of Interest

DOE is evaluating funding mechanisms to carry out this program that aims to reduce barriers to participation for key communities such as disadvantaged communities and fossil energy communities in transition. **DOE is interested in feedback on how the following mechanisms may contribute or impede equitable project selection and community engagement:**

- Cost share grant awards and cooperative agreements
- Prize or challenge mechanisms
- Technical Assistance specifically for LDES
- Technology Investment Agreements (TIAs) or Partnership Intermediary Agreements (PIAs)
- Alternate funding mechanisms not listed

Demo Initiative – RFI Areas of Interest

DOE is evaluating inclusion of specific requirements and levels of allocated demonstrations for these demonstrations to ensure selected projects achieve overall program objectives in meaningful way. **DOE is interested in feedback or insights on the following aspects of the anticipated projects under this program:**

- Sufficient size of individual awards across different scale demonstrations
- What a portfolio of successful projects would look like (in terms of things such as technology, use case, community engagement, etc.) and how this success could be measured
- Use cases or applications for long duration storage (10+ hours) that would be most suitable for a low maturity technology
- Pathway to a LCOS of \$.05/kwh-cycle for demonstrated technology or other metrics that will indicate progress towards market viability
- Technologies or Technology Families that are most applicable
- Regional factors (such as market, policy, environmental justice, workforce, etc.) and partnerships that should be considered
- Requiring specific project milestones or using go, no-go points in the project

Demo Initiative – RFI Areas of Interest

DOE is evaluating how partnerships can be effectively leveraged to maximize the impact of a technology. **DOE is interested in feedback and insights on what types of partnerships will be most critical for a project funded by this opportunity.** Examples of partners and groups to consider include:

- Labor unions or other workforce organizations
- Organizations that engage with entrepreneurs or innovators in underserved communities

DOE is also interested in how the Justice40 initiative goals can be incorporated through selection criteria as well as relevant data to collect throughout the life of the project.

DOE is currently considering how an “equity, justice, and benefits paper” could be an element of a proposal that could help demonstrate anticipated benefits to disadvantaged/negatively impacted communities.

Demo Initiative – RFI Areas of Interest

DOE interested in feedback or insights on what considerations should be given to manufacturing and supply chain needs for the technology used in a project. This includes considering:

- Availability of a domestic, secure, and ethical source of materials;
- Ability to use underutilized manufacturing capacity including buildings and infrastructure
- Speed at which manufacturing can be scaled to meet future demand
- Types of analysis that an applicant could provide to demonstrate the above considerations

DOE is also interested in understanding what kinds of cybersecurity considerations, opportunities, barriers, and metrics are most relevant to this program.

RFI Reminders and FAQs

- RFI (DE-FOA-0002777) available at: <https://eere-exchange.energy.gov/>
- Responses due no later than 5:00 PM (ET) on **June 16, 2022**
 - Submit responses to EnergyStorage41001RFI@ee.doe.gov (subject line “BIL 41001 response”)
 - Responses must be provided as a Microsoft Word (.docx) or Adobe PDF (.pdf) attachment
 - Please copy and paste the RFI questions, **including the question numbering**, and use them as a template for your response.
 - Respondents may answer as many or as few questions as they wish
 - DOE will not pay for information provided under this RFI and no project will be supported as a result of this RFI.
- Information collected from this RFI will be used by DOE for planning purposes.
- DOE does not intend to publish any information collected in response to this RFI, but respondents are strongly advised to not provide proprietary, business sensitive or confidential information.

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Demo Projects Overview and Q&A

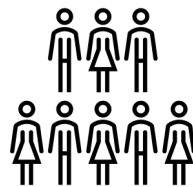
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Demo Projects (“ESEE Validation”) Summary

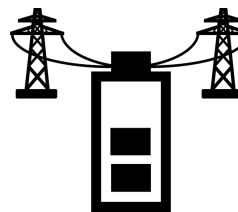
Who we’re funding:

- Vendors of innovative energy storage
- Engineering, Procurement, Construction (EPC)
- Offtakers



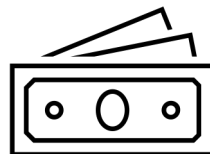
What we’re funding:

- At least 3 first-of-a-kind utility-scale demonstrations by September 2023
- Three required projects:
 - Weekly-seasonal durations
 - EV battery second life
 - Long cycle life Lithium battery



How we’re funding:

- Grants or Cooperative agreements
- Offtake agreements
- Anchor Tenant
- Technology Investment Agreement (TIA)/ Partnership Intermediary Agreement (PIA)
- Mechanisms informed by RFI



End Goal: Deploy innovative first-of-a-kind technologies at utility scale which might not otherwise proceed given potential technology risk.

Demo Projects – Program Statutory Requirements

- Demo Projects requires at least 3 projects to be funded by September 30, 2023. Several projects required in the text:
 - At least 1 project must be designed to further the development of technologies – “(v) for **weekly or monthly durations**, which have the capacity to discharge energy for 10 to 100 hours, at a minimum,” OR “(vi) for **seasonal durations**, which have the capability to address seasonal variations in supply and demand.” (BIL)
 - At least 1 project must “**demonstrate second-life applications of electric vehicle batteries** as aggregated energy storage installations to provide services to the electric grid[.]” (BIL)
 - \$20 million for implementation consistent with “section 3201 of the Energy Act of 2020 for **energy storage projects that are U.S-controlled, U.S.-made, and North American sourced and supplied**. The Department is directed to include in this program large scale commercial development and deployment of long cycle life, lithium-grid scale batteries and their components.” (Consolidated Appropriations Act, 2022)

Demo Projects – Target Criteria

“The goal of this program is to utilize BIL funding to deploy first-of-a-kind technologies at utility scale which might not otherwise proceed given potential technology risk. Such technologies should have the capacity to discharge energy for a duration of >10 hours at rated power, with sufficient third-party testing/ validation to substantiate a pathway to a levelized cost of storage of \$0.05/kWh-cycle by 2030. DOE proposes that projects in this program be 1st-of-a-kind MW-scale systems, with sufficient integration, controls, power conversion equipment (if applicable), and interconnection to the bulk power system.”

DOE is interested in feedback on how appropriate it is to target this level of maturity.

Demo Projects – RFI Areas of Interest

DOE is evaluating funding mechanisms to carry out this program that aims to reduce barriers to participation for key communities such as disadvantaged communities and fossil energy communities in transition. **DOE is interested in feedback on how the following mechanisms may contribute or impede equitable project selection and community engagement:**

- Cost share grant awards and cooperative agreements
- Offtake agreements
- Anchor Tenants
- Technology Investment Agreements (TIAs) or Partnership Intermediary Agreements (PIAs)
- Alternate funding mechanisms not listed

Demo Projects – RFI Areas of Interest

DOE is evaluating inclusion of specific requirements and levels of allocated demonstrations for these demonstrations to ensure selected projects achieve overall program objectives in meaningful way. **DOE is interested in feedback or insights on the following aspects of the anticipated projects under this program:**

- Sufficient size of individual awards across different scale demonstrations
- What a portfolio of successful projects would look like (in terms of things such as technology, use case, community engagement, etc.) and how this success could be measured
- Use cases or applications for long duration storage (10+ hours) that would be most suitable for a technology at this stage of maturity
- Pathway to a LCOS of \$.05/kwh-cycle for demonstrated technology or other metrics that will indicate progress towards market viability
- Technologies or Technology Families that are most applicable
- Regional factors (such as market, policy, environmental justice, workforce, etc.) and partnerships that should be considered
- Requiring specific project milestones or using go, no-go points in the project

Demo Projects – RFI Areas of Interest

DOE is evaluating how partnerships can be effectively leveraged to maximize the impact of a technology. **DOE is interested in feedback and insights on what types of partnerships will be most critical for a project funded by this opportunity.** Examples of partners and groups to consider include:

- Labor unions or other workforce organizations
- Organizations that engage with entrepreneurs or innovators in underserved communities

DOE is also interested in how the Justice40 initiative goals can be incorporated through selection criteria as well as relevant data to collect throughout the life of the project.

DOE is currently considering how an “equity, justice, and benefits paper” could be an element of a proposal that could help demonstrate anticipated benefits to disadvantaged/negatively impacted communities.

Demo Projects – RFI Areas of Interest

DOE interested in feedback or insights on what considerations should be given to manufacturing and supply chain needs for the technology used in a project. This includes considering:

- Availability of a domestic, secure, and ethical source of materials;
- Ability to use underutilized manufacturing capacity including buildings and infrastructure
- Speed at which manufacturing can be scaled to meet future demand
- Types of analysis that an applicant could provide to demonstrate the above considerations

DOE is also interested in understanding what kinds of cybersecurity considerations, opportunities, barriers, and metrics are most relevant to this program.

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Long Duration Energy Storage for Everyone, Everywhere *(LD ESEE) Request for Information (RFI) Webinar*

June 7th, 2022, 1:00 – 4:00 PM EDT

Pilot Grants Overview and Q&A

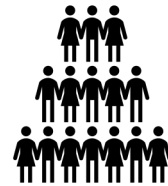
Agenda:

- 1:00 - 2:00 PM EDT: Crosscutting ESEE Overview, Workforce Development, and Equity, Environmental, and Energy Justice
- 2:00 - 2:30 PM EDT: Demo Initiative Overview and Q&A
- 2:30 - 3:00 PM EDT: Demo Projects Overview and Q&A
- 3:00 - 3:30 PM EDT: Pilot Grants Overview and Q&A
- 3:30 - 4:00 PM EDT: Rapid Operational Validation Initiative (ROVI) Overview and Q&A

Pilot Grants (“ESEE Piloting”) Summary

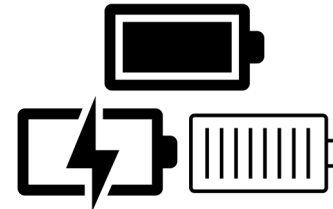
Who we’re funding:

- States, Tribes, Tribal Organizations
- Institution of higher education
- Electric utility
- Private energy storage company



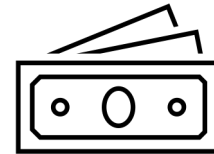
What we’re funding:

- Opportunities for communities to deploy storage for the first time
 - Emphasis on overcoming regulatory and institutional barriers of deployment.



How we’re funding:

Creative mechanisms informed by RFI and prize competition:



- “Competitive grant program”
- TIA/ PIA
- Credit Enhancements
- Institutional Support
- Energy Storage Subscription
- Warranty Backstop
- And more

End Goal: Build enduring capabilities (institutional, analytical, financial) for targeted communities to invest in storage resources that provide local benefits (including resilience, decarbonization, and financial).

Pilot Grants – Program Statutory Requirements

The eligible entities are financed for projects to meet at least 1 of the following objectives:

- (i) “a State energy office (as defined in section 15821(a) of this title);
- (ii) an Indian Tribe (as defined in section 4103 of title 25;
- (iii) a Tribal organization (as defined in section 3765 of title 38);
- (iv) an institution of higher education (as defined in section 1001 of title 20);
- (v) an electric utility, including-
 - (i) an electric cooperative;
 - (ii) a political subdivision of a State, such as a municipally owned electric utility, or any agency, authority, corporation, or instrumentality of a State political subdivision; and
 - (iii) an investor-owned utility; and
- (vi) a private energy storage company.”

1. To improve the security of critical infrastructure and emergency response systems.
2. To improve the reliability of transmission and distribution systems, particularly in rural areas, including high-energy cost rural areas.
3. To optimize transmission or distribution system operation and power quality to defer or avoid costs of replacing or upgrading electric grid infrastructure, including transformers and substations.
4. To supply energy at peak periods of demand on the electric grid or during periods of significant variation of electric grid supply.
5. To reduce peak loads of homes and businesses.
6. To improve and advance power conversion systems.
7. To provide ancillary services for grid stability and management.
8. To integrate renewable energy resource production.
9. To increase the feasibility of microgrids (grid-connected or islanded mode).
10. To enable the use of stored energy in forms other than electricity to support the natural gas system and other industrial processes.
11. To integrate fast charging of electric vehicles.
12. To improve energy efficiency.

Pilot Grants – Target Criteria

“The goal of this program is to build enduring capabilities for targeted communities to invest in storage resources that provide local benefits (including resilience, decarbonization, and financial).”

DOE is interested in feedback on how appropriate it is to target this level of maturity.

Pilot Grants – RFI Areas of Interest

DOE is evaluating funding mechanisms to carry out this program that aims to reduce barriers to participation for key communities such as disadvantaged communities and fossil energy communities in transition. **DOE is interested in feedback on how the following mechanisms may contribute or impede equitable project selection and community engagement:**

- Cost share grant awards and cooperative agreements
- Partnership Intermediary Agreements (PIAs)
- Credit enhancements
- Energy storage subscription model
- Institutional support
- Warranty backstop
- Alternate mechanisms not listed

DOE is also considering developing an initial “prize” stage or design roundtable competition for ideas on how eligible entities could use funds for leveraged demonstrations.

Pilot Grants – RFI Areas of Interest

DOE is evaluating inclusion of specific requirements and levels of allocated demonstrations for these demonstrations to ensure selected projects achieve overall program objectives in meaningful way. **DOE is interested in feedback or insights on the following aspects of the anticipated projects under this program:**

- Sufficient size of individual awards across different scale demonstrations
- What a portfolio of successful projects would look like (in terms of things such as technology, use case, community engagement, etc.) and how this success could be measured
- Use cases or applications for storage at this maturity level
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Pilot Grants – RFI Areas of Interest

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Long Duration Energy Storage for Everyone, Everywhere *(LD ESEE) Request for Information (RFI) Webinar*

June 7th, 2022, 1:00 – 4:00 PM EDT

Rapid Operational Validation Initiative (ROVI)

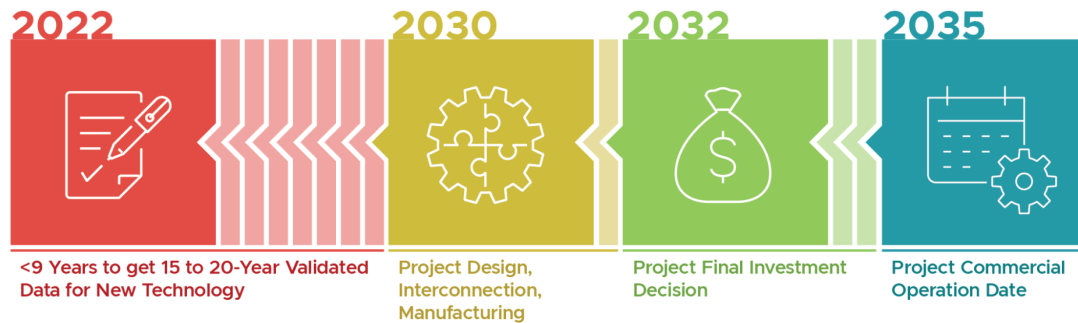
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Rapid Operational Validation Initiative: Need, Goals, and Objectives

Solving a Commercialization Gap:

To impact 2035 Clean Energy Goals, newly developed storage technologies will need to be validated at accelerated pace

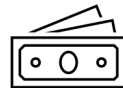


Fulfilling Congressional Requirements:

ESEE Validation and Piloting require “a report describing the performance of those programs” once every 3 years

ESEE Resilience must “help new, innovative long-duration energy storage technologies become commercially viable”

What we’re funding:



- Secure data hubs to collect field deployment data from all ESEE projects
- Tools to predict performance and life for a fully developed storage system

End Goal:

Bankable storage technologies
15- to 20-year financial grade performance projections
with 1 year of combined testing and validation

ROVI – RFI Areas of Interest

DOE seeks comment on

- What data project performers would be required to provide:
 - Technical Performance: performance characteristics at most basic repeatable unit, module, and system level
 - Frequency of collection: live feed to weekly, monthly, quarterly upload of data
 - Data ownership/anonymity: best methods to protect proprietary data
- How could ROVI tools impact commercial transactions? Examples:
 - Informing power purchase agreement performance parameters
 - Establishing warranty backstops
 - Facilitating debt financing
- How the outputs from ROVI could facilitate achievement of DOE policy priorities for Justice40? Examples:
 - Increasing access to clean energy
 - Enabling low-cost capital
 - Facilitating enterprise creation, clean energy jobs and training

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Thank you for attending! We look forward to your input and engagement.

- Find more updates on: energy.gov/bil
- Email dl-oced-engagement@hq.doe.gov to be added to the distribution list for OCED updates and engagement.
- Sign up for the Energy Storage Grand Challenge email list:
<https://www.energy.gov/energy-storage-grand-challenge>