Equitable Decarbonization

Impacts and Opportunities

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Agenda

- Introduction
  - About EPRI
  - Background on Equitable Decarbonization
- Key Areas of Focus
  - Policy Making
  - Power Generation
  - Energy Efficiency
  - Electrification
  - Resilience
- Discussion and Closing

Nonprofit

Chartered to serve the public benefit, with guidance from an independent advisory council.

Thought Leadership

Systematically and imaginatively looking ahead to identify issues, technology gaps, and broader needs that can be addressed by the electricity sector.

Independent

Objective, scientific research leading to progress in reliability, efficiency, affordability, health, safety, and the environment.

Scientific and Industry Expertise

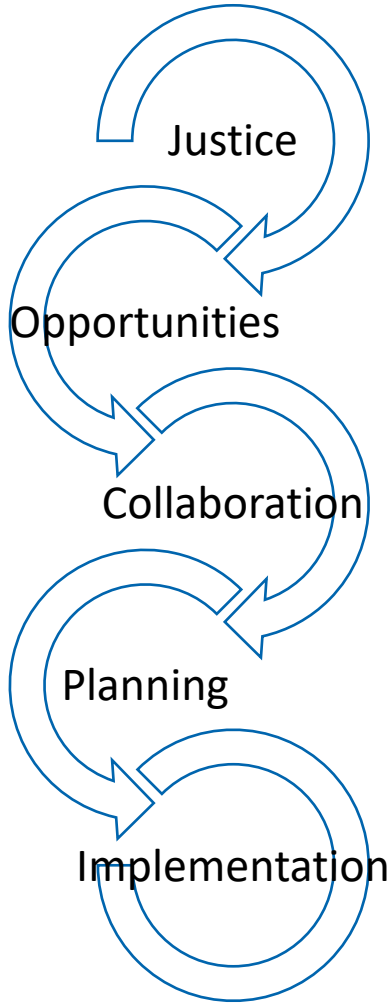
Provide expertise in technical disciplines that bring answers and solutions to electricity generation, transmission, distribution, and end use.

Collaborative Value

Bring together our members and diverse scientific and technical sectors to shape and drive research and development in the electricity sector.

Background in Equity and the Clean Energy Transition

- Disadvantaged communities can benefit from energy transitions and resilience efforts
- Equitably distributing costs and benefits requires deliberate planning and program implementation
- Public and private sector decision-making will directly impact resilience and equity
- Ensuring distributive and procedural justice is important to a beneficial transitions
- New analytical tools and demonstration projects can deliver early benefits



Unprecedented Opportunity

KEY AREAS OF FOCUS

Policy Making

How can modeling and decision-making consider present and future equity outcomes in addition to least cost objectives?

How can modeling account for societal and environmental costs and benefits along with return on investment and other financial considerations?

How can the benefits and costs of the energy transition and their distribution be quantified?

POTENTIAL STRATEGIES

ADDING EQUITY METRICS INTO ECONOMIC AND LOAD FORECASTING MODELS AND/OR POST HOC SCENARIO ANALYSES

TRACKING IMPACT OVER TIME (EX. AFFORDABILITY, RESILIENCE, ENVIRONMENT)

USING SPATIAL VISUALIZATION OR MAPPING TOOLS (EX. EJSCREEN)

Power Generation

How can equity for consumers, communities, and workers be integrated into plant decommissioning processes?

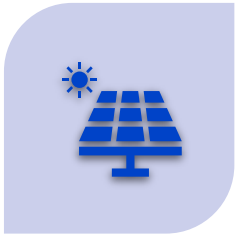
How can non-utility scale generation (e.g., rooftop and community solar) impact equity?

How can and what kinds of community power generation and acquisition/aggregation solutions impact/advance equity?

POTENTIAL STRATEGIES

PROACTIVE COMMUNITY INVOLVEMENT IN DECOMMISSIONING OR SITING PROCESSES

TARGETED WORKFORCE AND SUPPLY CHAIN OPPORTUNITIES FOR LOCAL POWER GENERATION DEVELOPMENT



UNDERSTANDING WHERE THE RESOURCE IS BEING BUILT VS WHO IS GETTING THE BENEFIT (AND *MITIGATE*)

Energy Efficiency and Electrification

How can costs of retrofits and upgrades be allocated equitably and better integrated onto program and rate design?

What technologies and policies increase consumer adoption? What barriers prevent people from participating in programs or adopting new technology?

How can electrification respond to community needs and address gentrification and integration issues for public housing and other public infrastructure?

POTENTIAL STRATEGIES

ELEVATE AWARENESS, EDUCATION, AND ACCESS ON AVAILABLE PROGRAMS AND PRODUCTS

ADDRESS COMMUNICATION BARRIERS FOR THOSE FOR WHOM ENGLISH IS THERE SECOND LANGUAGE

FINANCING AND INVESTMENT OPPORTUNITIES FOR RENTERS VS OWNERS AND FOR NEW CONSTRUCTION VS RETROFITS

Resilience

How can we better understand under-resourced community and household needs for services during a power outage or significant event?

Do we need to redefine critical infrastructure and critical loads?

How can utilities and local governments partner and communicate to advance adaptation and resilience?

POTENTIAL STRATEGIES

USING VISUALIZATION OR MAPPING TOOLS THAT INCORPORATE EQUITY FACTORS

ASSESS HOLISTIC COMMUNITY AND HOUSEHOLD NEEDS AND PURSUE COLLABORATIVE SOLUTIONS

ADVANCING SAFE, RELIABLE, AFFORDABLE, AND CLEAN ENERGY FOR SOCIETY THROUGH GLOBAL COLLABORATION, SCIENCE AND TECHNOLOGY INNOVATION, AND APPLIED RESEARCH.

Together…Shaping the Future of Energy

APPENDIX

Grounding Scenario Analysis and Goal Setting in Science

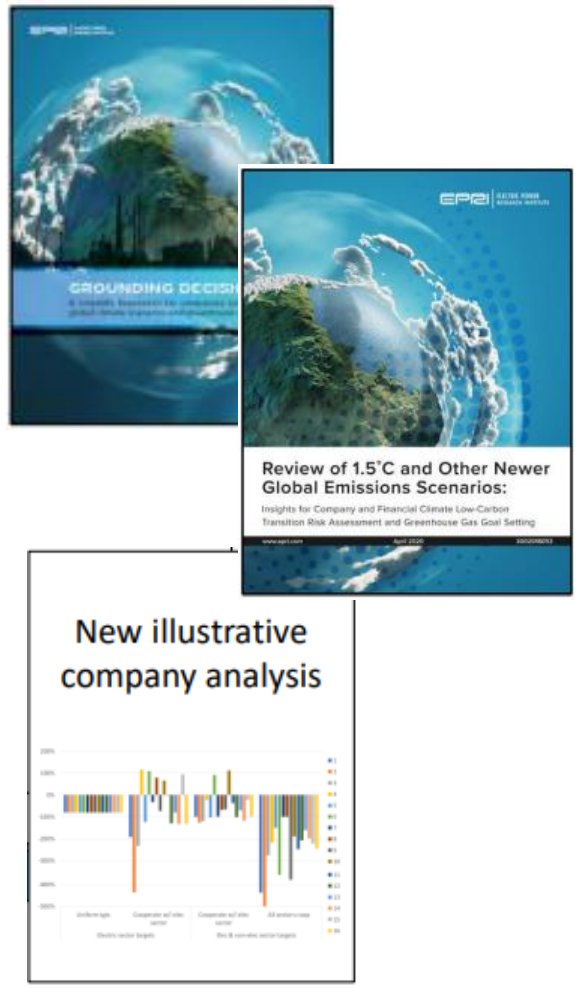
TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

MOODY'S

…and more

- **Significant ESG enthusiasm, but simplified methods and metrics yield limited value – company-specific scenarios that consider a range of pathways and uncertainties can deliver more insight**
  - Many basic methods and benchmarks have been introduced to build momentum – choosing a single pathway/future can be risky
  - Robust strategies are resilient to uncertainty and different futures
  - Multiple alternatives exist for aligning company actions with international goals (e.g., 1.5C or 2C)
- **Unique company circumstances and priorities, coupled with the range of future outcomes and uncertainties, better informs strategy, risk management and goal setting.**
  - Companies manage and balance multiple objectives – e.g., safety, reliability, access, affordability, economic development, environment and equity
  - EPRI research demonstrates that a singular approach, i.e., net-zero by 2050 for all companies is not the most efficient or effective sector or economywide approach
- **Scenario analysis should be dynamic and refined as numerous variable assumptions change**
- **Stakeholder education about company-specific analysis, strategy, risk management and goal setting is key**



Scientific understanding is required for grounded dialogue and informed decisions

Plant Closure

Economic and social impacts

- Job losses
  - Direct, indirect, induced
- Lower local tax base and revenues
  - Reduced public services and investments
- Loss of personal and community identity
  - Mental health
  - Family structure
  - Sense of place

Pre-existing & underlying challenges

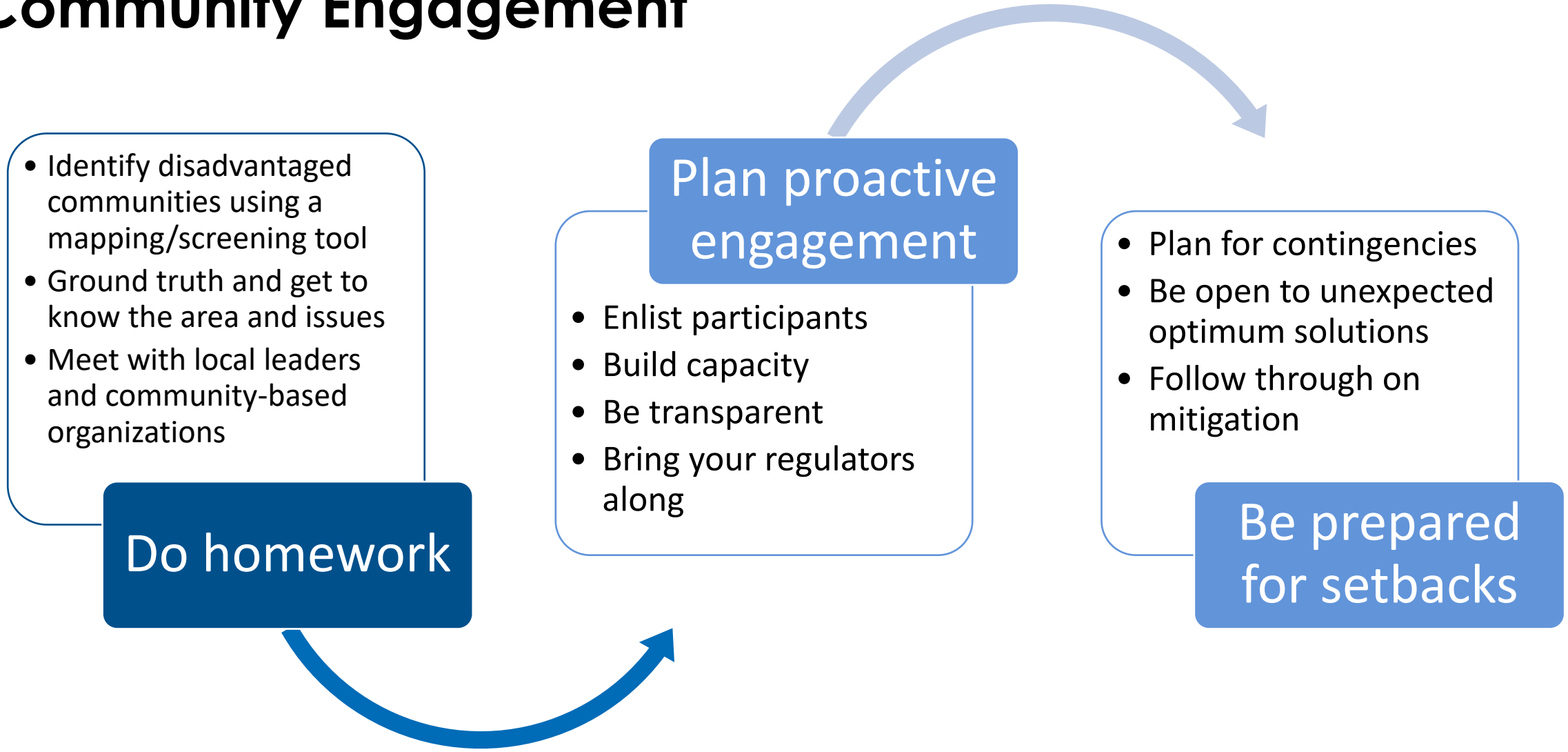
- Resources
  - Debt and insufficient resources
- Economic diversity
  - Few industries offering similar jobs
- Workforce readiness
  - Undereducated workforce with narrow skillsets
- Civil society
  - Political and organizational capacity

Opportunities

- Resources and programs
  - Assistance
- Economic diversity
- Education and career support
- Processes and capacity for engagement and advocacy
- Specific opportunities
  - Industrial and non-industrial redevelopment
  - Environmental conservation
  - Community development

A Realistic Assessment is Key to Planning a Just Transition

Community Engagement



From **Informing** (eg public workshop) to **Involvement** and **Empowerment**

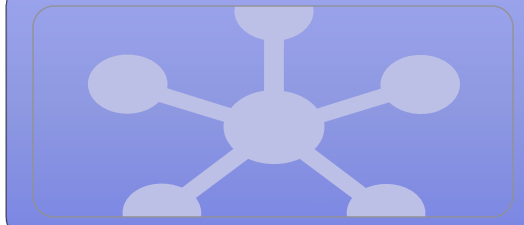
Not all communities experience disruptions the same way

Climate change and extreme weather – and their infrastructure, economic, human, and societal impacts – are impacting resilience in numerous ways including energy supply and power delivery as well as essential community services.

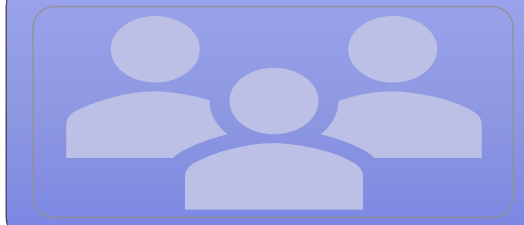
https://www.energy.gov/sites/default/files/2021-05/2.2_SETO_Resilience_Workshop_Valuing_Resililience_Bobby_Jeffers.pdf

Resilience Opportunities

Resilience planning presents opportunities to support and advance vulnerable communities



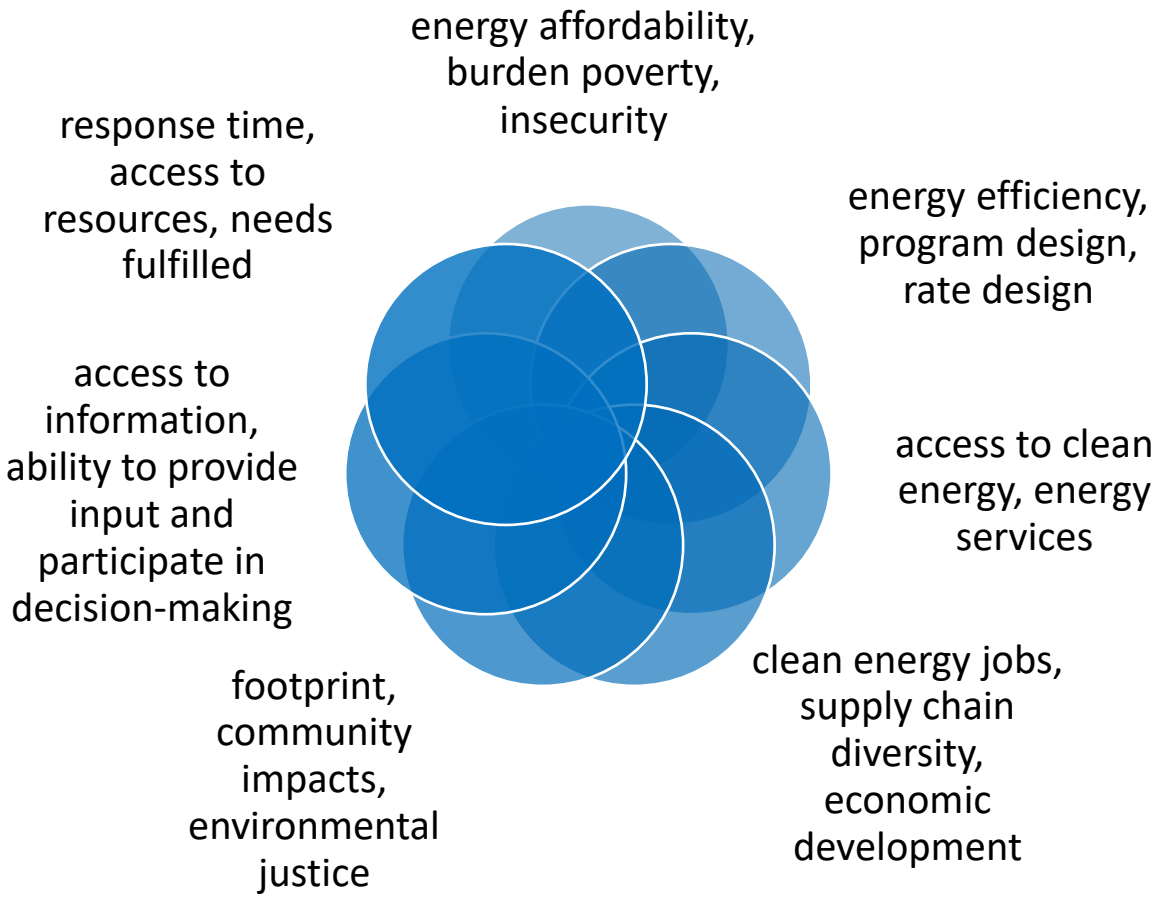
The equitable distribution of the benefits from grid resilience investments depends on how utilities and their regulators shape and implement plans that consider needs in disadvantaged and vulnerable communities



Involving community members helps identify needs and develop solutions that address community priorities

To address equity and resilience, grid hardening, community resources, and customer solutions – such as undergrounding, microgrids, electric transportation, and energy efficiency – may be allocated for disadvantaged and vulnerable communities.

Measuring Equity in Energy System Planning



"Traditional" Electric System Metrics

- Number and Duration of Outages (affecting LI-BIPOC)
- Weighted Value of Lost Load (across economic strata)
- Unserved load for critical services (expanded or new definitions)
- Investment ($/capita FL-LI-BIPOC; $/DAC/total community cost)

Measuring equity can involve quantitative, qualitative, and procedural elements; and the metrics associated with these vary widely as to data availability, alignment, and impact