



ENERGY STORAGE FOR SOCIAL EQUITY (ES4SE) Initiative

2023 DOE Office of Electricity Peer Review
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Program Overview – Links Between Energy Storage & Community Objectives

WHY ENERGY STORAGE?

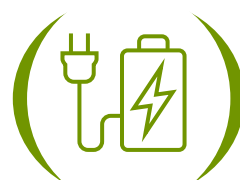
Locational flexibility



Wide applications



Broad uses for storage



HOW CAN ENERGY STORAGE SUPPORT COMMUNITY GOALS AND ADDRESS NEEDS?

Access



Affordability



Environmental Impact



Social Impact



Decarbonization



Resiliency





Technical Assistance

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Program Overview – Energy Justice and Energy Storage

Energy Justice Tenets

Distributive Justice (where?)

The unequal allocation of benefits and burdens and unequal distribution of the consequences

Recognition Justice (who?)

The practice of cultural domination, disregard of people and their concerns, and misrecognition

Procedural Justice (how?)

The fairness of the decision-making process

Restorative Justice

The response to those impacted by the burdens of energy projects

Energy Inequities

Energy Burden

Percent of income spent to cover energy cost.

Energy Insecurity

The inability to meet basic household energy needs.

Energy Poverty

A lack of access to basic, life-sustaining energy.

Energy Vulnerability

The propensity of a household to suffer from a lack of adequate energy services in the home.



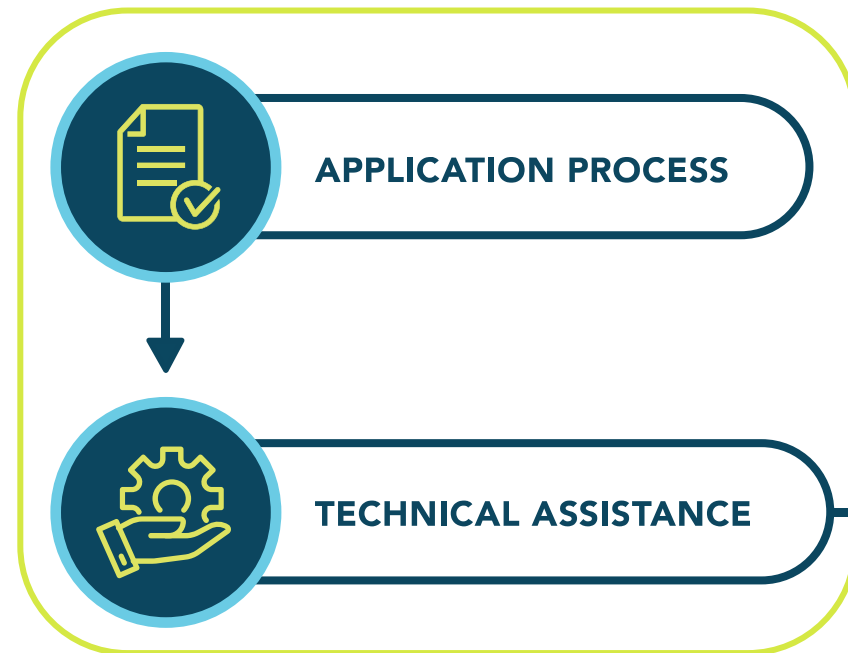
How Energy Storage Fits

- Curb demand charges
- Reduce affordable housing energy cost
- Maintain operation in facilities critical to public health and safety
- Reduce utility disconnection
- Support grid reliability and resilience (backup power)
- Intentional siting in underserved communities
- Serve remote communities
- Support energy independence
- Generate community wealth

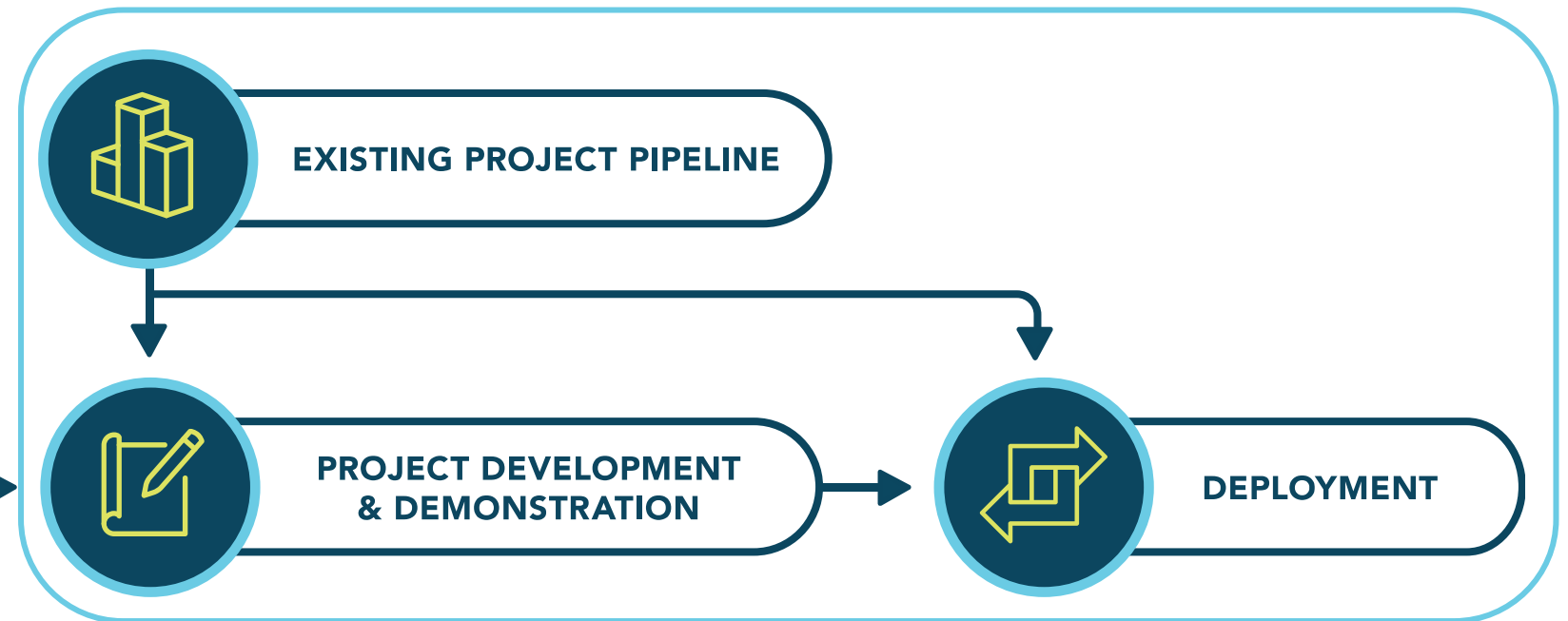


ES4SE Program Overview – Program Phases

Phase 1- PNNL



Phase 2- Sandia



OUTCOMES

Connect disadvantaged communities with energy solutions that support equitable outcomes

Demonstrate the role of energy storage in energy equity

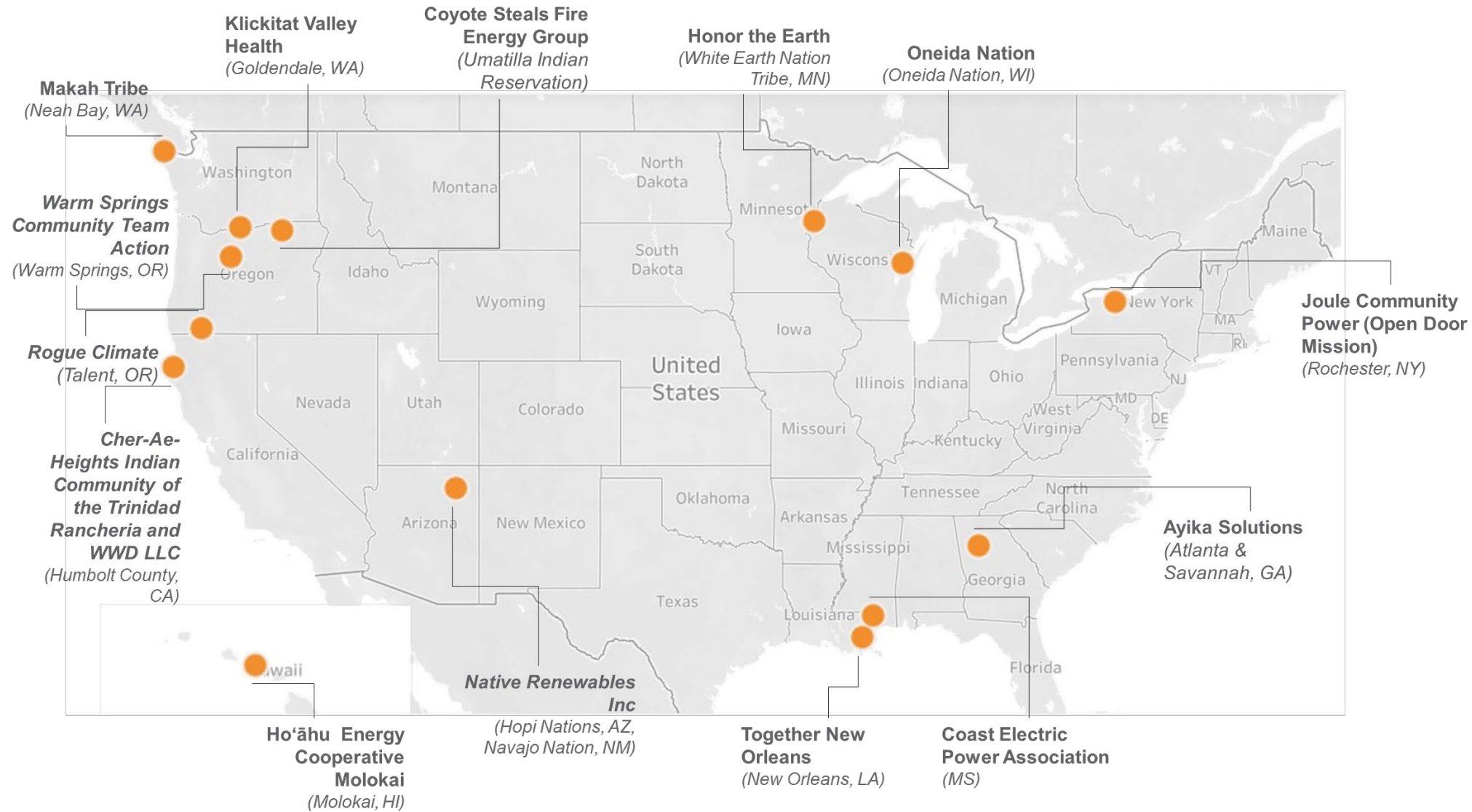
Develop methods and metrics to analyze impact of investment on equity


Report on lessons learned and best practices to support future work across DOE

Grow and strengthen DOE project pipeline




Energy Storage for Social Equity Initiative is a distinctive new technical assistance program




 Focus on the problem with many possible solutions

 Linking Grid and Community Resilience

 Workforce and equity are part of the assistance

 Cohort of Communities

 Direct connection to future project funding

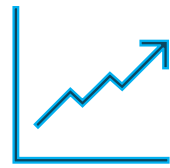
 Easy Access and Targeted Outreach



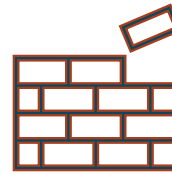
Centering communities and co-developing technical solutions with equity and workforce



Center Communities



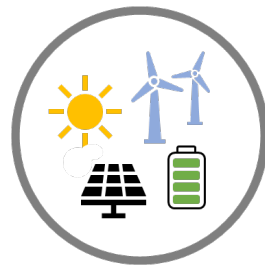
Benefits flow to intended recipients



Build community capacity and skills



Knowledge sharing



Microgrids



Off-grid Systems



Resilience Hubs



PV + BESS for Commercial and Residential Buildings

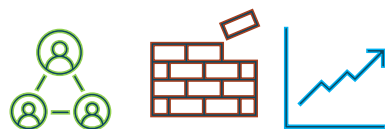


Community Centered Technical Assistance Outcomes over 12 months



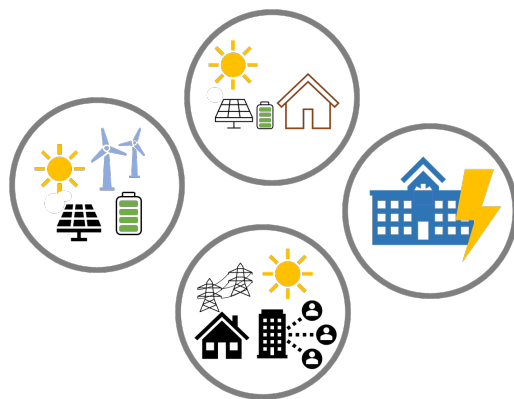
Center Communities

- PNNL led and supported over 650 community meetings, including 4 program meetings
- Completed 7 workshop agreements, compensating communities for travel for speaking engagements
- Conducted 24 community interviews for Program Evaluation and lessons learned
- Partnered on 8 community Storymaps



Build community capacity and skills

- Equity & Workforce analysis for 14 communities
- Regulatory and State education leading to visibility and funding support for 3 communities
- Resources for Participants and Community to reference beyond the program
- Provided 14 Funding memos and continuing on-going funding support for FOAs, grants, etc.



- Diverse technical solutions: Microgrid, Off-grid, Resilience Hubs, Commercial & Residential bldgs
- PNNL completed 82 individual technical economic analysis and deliverables and 16 final reports
- Led and facilitated 3 technical workshops
- Partnered with WMBE start-up focused on Operations & Maintenance training for microgrids
- Completed 14 Readiness Assessments for PDDA



Community Touchpoints over 12 months

- Together New Orleans Lighthouse Launch (2022)
- NAEUC Conference (2022)
- Makah Tribe site visits ETIPP & ES4SE Coordination and Technical visit (2022)
- Joule/ODM (2022)
- SEIN (2023)
- Oneida Nation Visit (2023)
- Tribal Energy Equity Summit (2023)
 - (Oneida Nation, 10 Power, White Earth Nation, CTUIR)
- Community Panels – WITH Compensation
 - Seattle Grid Resilience (CTUIR)
 - SxSW (Makah Tribe, Be Smart Home Solutions, Ho‘āhu Energy Cooperative Moloka‘i)
 - PNNL Energy Storage Panel (Akiing 8th Fire Solar, Oneida Nation, TNO)
 - ESGC (Joule/ODM, Ayika, KVH)
 - 2023 OE Energy Storage Peer Review (KVH, TNO)



Project Development and Deployment

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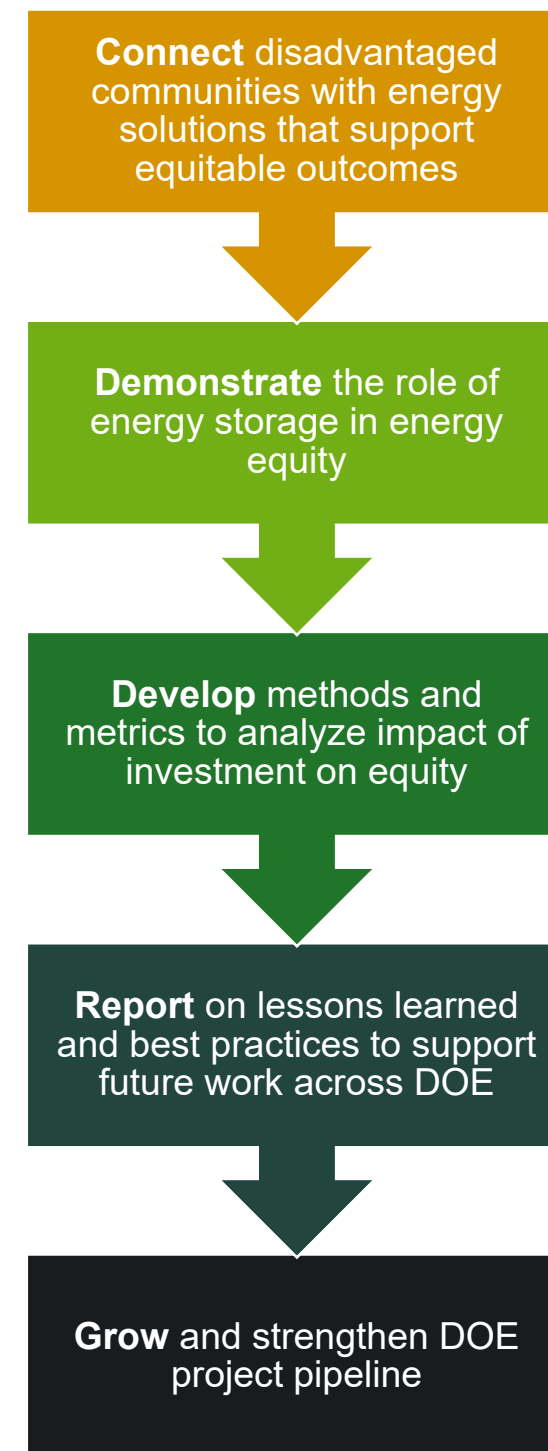


What is Project Development and Deployment Assistance

Provide project support for development and deployment of energy storage systems, in alignment with the goals of ES4SE, in order to transition an identified solution into a system deployment to meet community needs.

Sandia will provide assistance to the communities to get projects off paper and into implementation:

- **PDDA support** offers third party technical and engineering assistance in project implementation. This is available to all participants at no cost.
- **PDDA cost share funding** will be available to projects who require some financial assistance in order to build their proposed project. The goal is to try and fund all ES4SE communities.





Project Development and Deployment Assistance

PDDA support is technical and engineering assistance in implementation of the project that the participant has selected in their readiness assessment. This support includes:

- Development of request for proposal (RFP)
- Review of bids
- Review of design plans
- Review of safety plans and commissioning plans
- Safety review of the system
- Application of codes and standards
- System installation and commissioning guidance
- Recommend O&M strategy
- Local first responder/safety training

Sandia will provide PDDA support to all communities that request it, regardless of whether they are selected for cost share assistance.

In addition, Sandia will provide cost share support to projects that require financial assistance in order to build their project. Projects are evaluated in a selection process.



Project Cost Share Funding Selection



Cost share selection based on community need

Cost share amount not fixed, but dependent on project

Goal is to support as many projects as possible with available funding

- Two part process:
 - Readiness assessment – Review of project proposals co-developed between communities and labs
 - Scope of the project
 - Site location
 - Estimated project cost
 - Funding for the project
 - Project execution resources
 - Project Prioritization
 - Impact of the energy storage project to the community
 - The value that PDDA cost share support would bring to the success of the project
 - The technical and financial feasibility of the proposed project



Cost Share Selections

Sandia performed analysis on all 14 readiness assessments received

- Four initial projects were selected for cost share funding in April 2023
- Remaining projects waited until Aug. 31, 2023 to hear back regarding additional grants/other funding
- Final assessments are being made for the remaining 10 ES4SE participants and final selections will be announced in the next month

Initial Projects



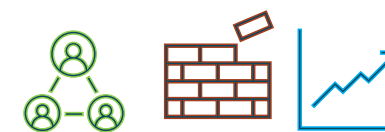
Ayika Solutions, Inc.





FY24 PDDA Activities

- Project initiation with new cost share communities
- Continue project activities with previously selected communities
- Engaging with communities in collaboration with PNNL on Equity and Workforce Support
 - **Procurement and Contracts Review and Guidance**
 - Summarizing best practices and host virtual workshop
 - **Workforce Training Strategy**
 - Summarizing best practices and host virtual workshop
 - **Relationship Building and Growing Network Partners**
 - Identify others in the community doing similar or complimentary work and make recommendations for strategic partnership
 - **Co-developing Community Metrics and Goals**
 - Summarize best practices and host virtual workshop to support communities members in metric and goal development, measurement tools, analysis





Equity & Workforce

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Guiding Principles: EJ Tenets and Associated Actions

Procedural (decision-making process)

- Community engagement
- Information gathering and incorporation into project plans (feedback loop)
- Information sharing

Recognition (representation)

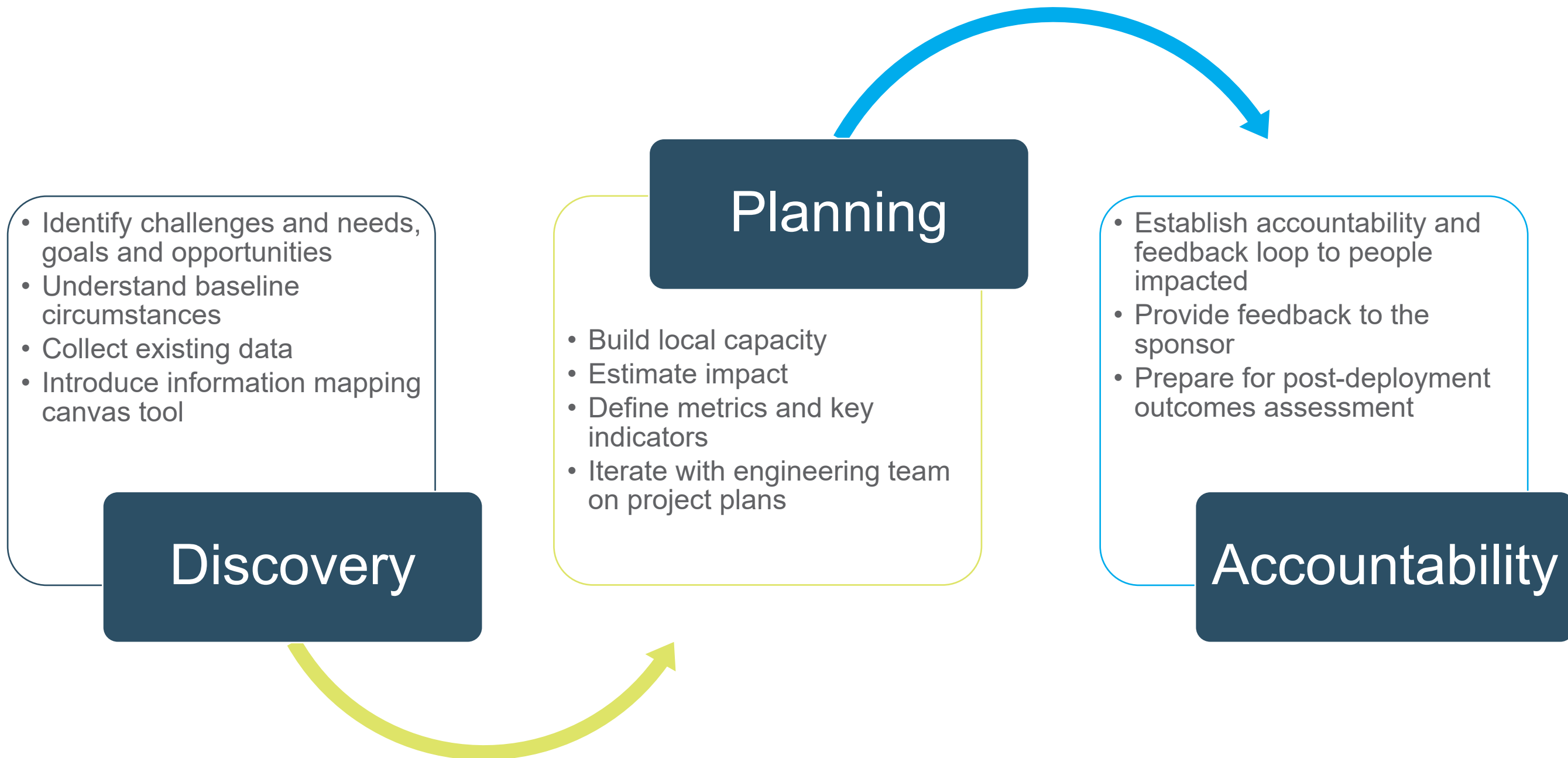
- Baseline analysis and exploration of data sources
- Identification of challenges and benefits for different stakeholders
- Documentation of lived experience and historical knowledge
- Partnerships

Distribution (of benefits and harms)

- Evaluation of negative externalities and risks
- Site selection
- Energy access and affordability
- Local workforce development
- Metrics



Our Approach





Building Trust and Relationships



- Positioning
 - Honor community knowledge
 - Self-awareness, humble, and learner's mindset from researchers
 - Acknowledge position of power with labs and DOE



- Familiarity
 - Researchers do pre-work before engaging
 - Common touchpoints
 - Reduce staff turnover



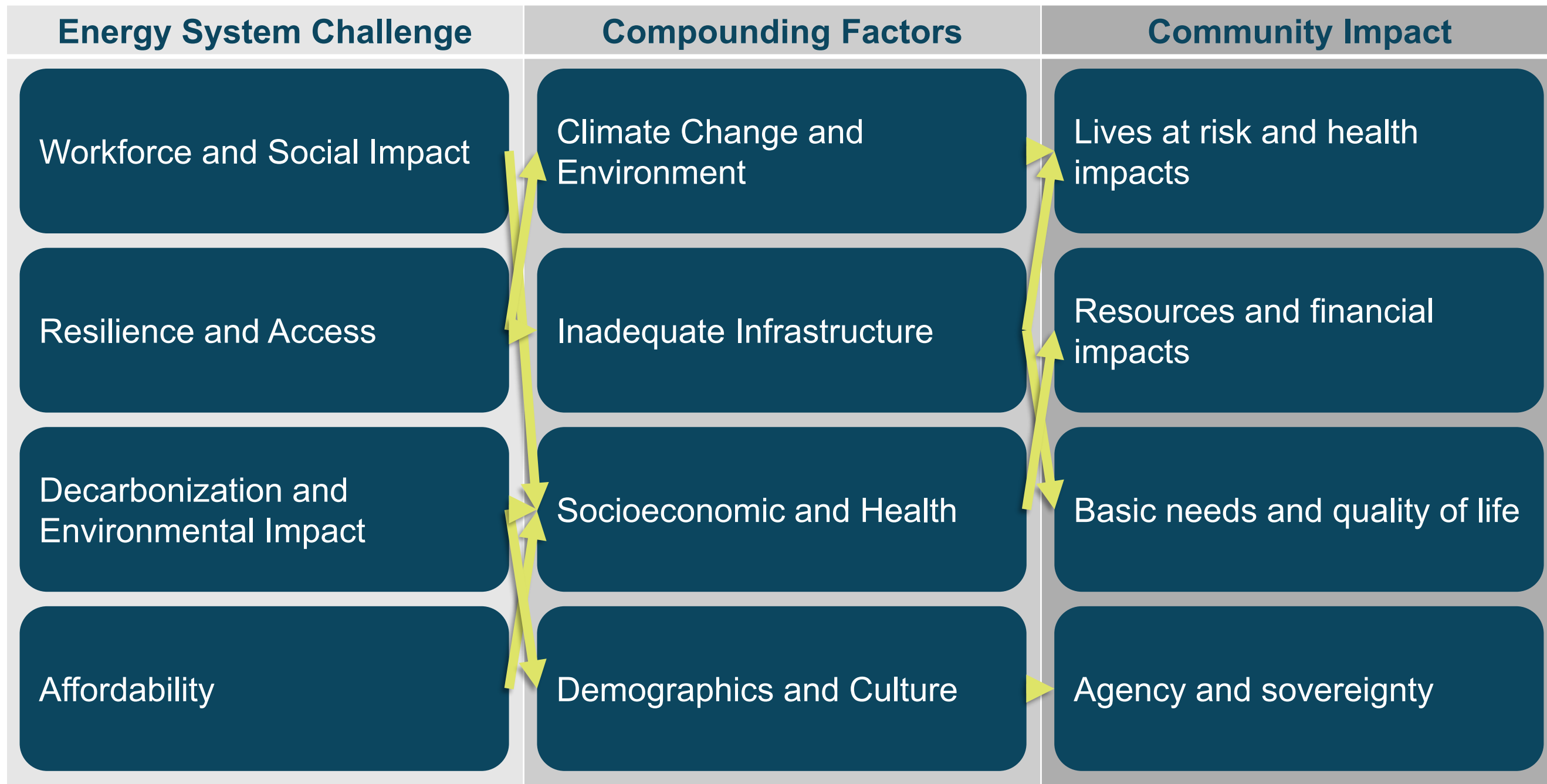
- Engagement
 - Regular bi-weekly meetings
 - In-person visit



- Takes time!
 - Sharing findings and recommendations – seeing results from the work

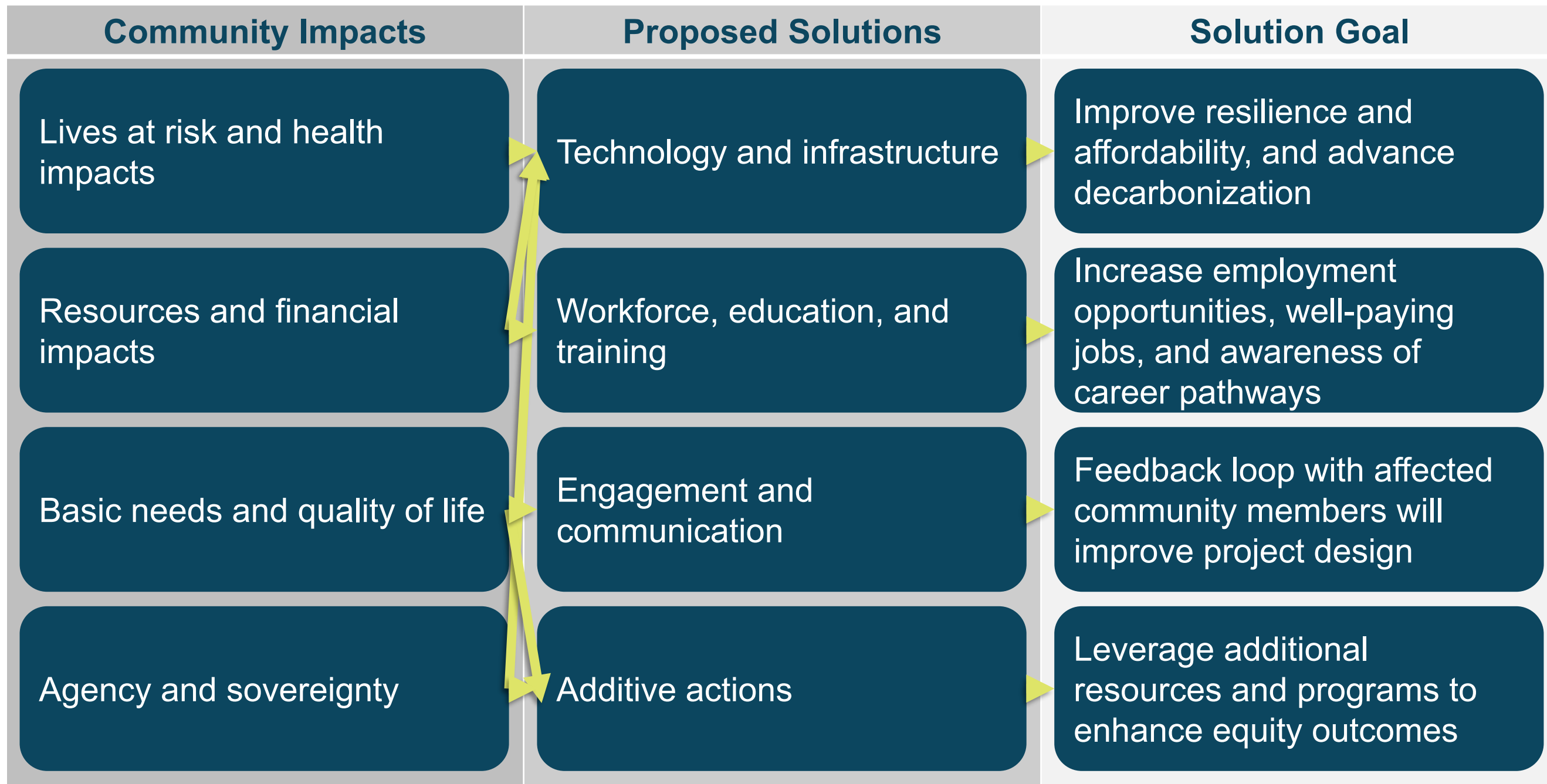


Discovery Themes





Planning Themes





Accountability Themes

Area of Desired Impact	Associated Metrics	
Improve resilience	Monitor outage frequency and duration at project sites and utilities	Number of people accessing resilience hubs and services utilized
Reduce costs and energy burden	Cost of energy per kilowatt-hour before and after system is connected	Number of residential electric disconnections for nonpayment per month
Improve energy access	Regular assessments of service levels	Reduction in household vulnerabilities
Provide workforce opportunities	Training and certification needs identified and fulfilled for existing staff	Change in wages for training program participants



Workforce Development

- Goals
 - Build local capacity, awareness, and skills
 - Consider opportunities for skills development or job market expansion



- Take a broad and holistic view incorporating multigenerational opportunities
- Retain value in the community through vertical integration
- Ask vendors to train and contract with local workers for install and maintenance
- Identify and address barriers to workforce participation



Goals and Outcomes Achieved So Far

- Community-researcher partnership set goals, identified opportunities, and guided projects to maximize equity impact
- Interventions are linked to results through exercises and tools, ensuring project benefits flow to the intended recipients
- Communities have expanded capacity and refined skills for amplified and sustained benefits.
- Creative solutions are shared across communities with similar challenges
- Equity reports are used in grant applications and to gain support
- Previously unknown community challenges were uncovered and have opened the possibility for additive equity actions
- Awareness of community challenges has increased and is inspiring others to look deeper for solutions to needs



Looking Ahead

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ES4SE Looking Ahead

- Project development and deployments
 - Focus on centering and maintaining community relationships
 - Continue working on project deployment activities for initial cost share communities
 - Project initiation for new cost share participants
 - Provide technical support for non-cost share projects that have received other funding
 - Development of project best practices and workshops for communities
- Collaboration and continuation of equity, social benefits, and workforce support from PNNL with communities in PDDA



Acknowledgements

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THANK YOU

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