

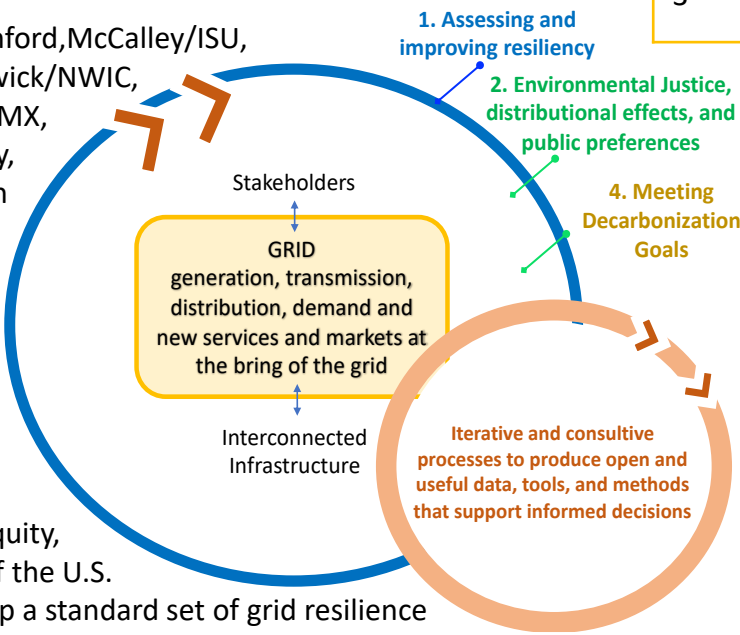
An Equitable, Affordable & Resilient Nationwide Energy System Transition (EARNEST)

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Summary: EARNEST develops user-friendly decision-making tools and data repositories that are informed by the community and stakeholders; that are multi-objective, that incorporate simultaneously metrics of resiliency and distributional impacts; that are tailored to different time horizons (from seconds to decades); that capture different geographical contexts, and that ensure environmental sustainability. EARNEST deploys **eight pilot projects across all six NERC regions, Alaska, Hawaii, Puerto Rico**; trains an interdisciplinary highly skilled workforce.

Key Personnel: Azevedo/Stanford, McCalley/ISU, Donti/MIT, Bikdash/NCAT, Bostwick/NWIC, Jenkins/Princeton, Guillen/TEC.MX, Victor/UCSD, Rosehart/UCalgary, Sepasi/HENI, Webber/UT-Austin Li/UTK, Vaishnav/UMichigan, Canizares/UWaterloo, Mani/WSU, EPRI, NRECA ANL, LLNL, NREL, PNNL.

Goals: G1) To understand and develop a baseline of the current state of resiliency, distributional and procedural equity, and energy-related emissions of the U.S. electricity sector; G2) To develop a standard set of grid resiliency and distributional and procedural equity metrics; G3) To develop generalizable open-source data products, tools, and models that will support grid decisions that explicitly include resiliency, distributional and procedural equity under a decarbonized and resilient grid in the North America (US-Canada-Mexico); G4) To test the suitability of these tools in real-world setting by analyzing eight Pilot Projects (PP) under a decision uncertainty framework; G5) To equip an interdisciplinary highly skilled workforce that can tackle the emerging challenges of the grid of the future; and G6) To work with, and learn from, traditionally under-represented groups, jointly with regulators and utilities to provide more equitable solutions for a deeply decarbonized resilient grid.



Program Summary

Year	Key Milestones & Deliverables
1	<ul style="list-style-type: none"> An online tool mapping the baseline Report on resilience metrics
2	<ul style="list-style-type: none"> Repository of best practice resilience plans Open-source modeling framework and tool
3	<ul style="list-style-type: none"> Community resilience investment blueprints Workforce development summary

Period of performance: 36 months
 Federal funds: \$20M
 Cost-share: \$5M
 Total budget: \$25M

Impact: EARNEST produces: 1) the first-ever baseline of the current state of resiliency, equity, and energy-related emissions and damages; 2) a standard set of grid resiliency and equity metrics; 3) open-source data products, tools, and models that support grid investment decisions in the North America (US-Canada-Mexico); 4) 100 National grid resiliency fellows.

Key Idea/Take-Away:

Open Research & Innovation that can spur resilient and just solutions for the grid.

