Federal Funding Sources for EVSE Resilience

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UPPER COASTAL PLAIN COUNCIL OF GOVERNMENTS

Overview

- EV Charging and Microgrid Overview
- Inflation Reduction Act of 2022
  - Tax Credits for Vehicles
  - Alternative Fuel Infrastructure Tax Credit
  - Business Energy Investment Tax Credit
  - Clean Electricity Production Tax Credit
- Bipartisan Infrastructure Law of 2021
- National Electric Vehicle Infrastructure (NEVI)
- Diesel Emissions Reduction Act
- Carbon Reduction Program
- Clean School Bus Program
- Climate Pollution Reduction Grant
- Charging and Fueling Infrastructure Grants
- Other Opportunities

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For specific advice, we always recommend that you consult with a professional in the appropriate profession.

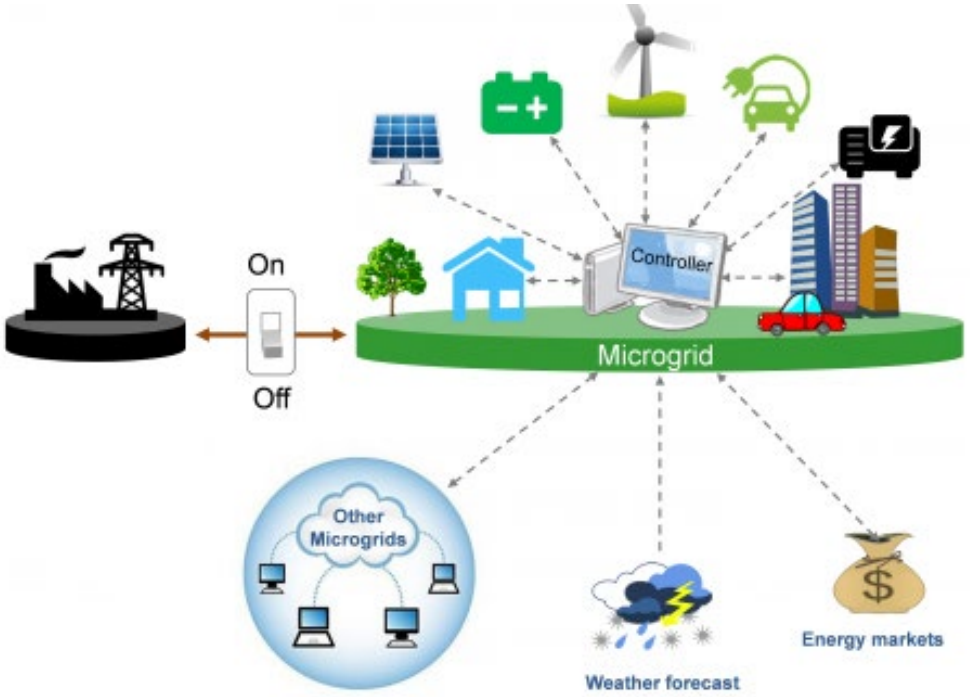
EV Charging 101

- Level 1 Charging:
  - Charging through a 120V outlet;
  - Typically 1 kw power output
  - 40-50 hours to charge light-duty electric vehicle
- Level 2 Charging:
  - 240 V (residential) or 208V (commercial);
  - 7 kw-19 kw power output
  - 4-10 hours to charge light-duty electric vehicle
  - common level of charging for overnight fleet charging for light-duty vehicles;
- DC fast charger:
  - Typically 50-350 kw power output
  - Best for corridor charging and charging heavy-duty vehicles.

Microgrid Overview

A microgrid is a **group of interconnected loads and distributed energy resources** within clearly defined electrical boundaries that acts as a **single controllable entity** with respect to the grid.

A microgrid can **connect and disconnect** from the larger utility grid to enable it to operate in both **grid-connected** or **island-mode**.



Source: U.S. Department of Energy Microgrid Exchange Group

Inflation Reduction Act of 2022

- Expanded Tax Credits for Vehicles, Fueling Infrastructure, and Alternative Fuels
- Expanded Business Energy Investment Tax Credit (ITC)
- Support for Domestic Manufacturing
- Carbon Reduction Program
- Environmental Justice 40: Goal that 40% of federal funding go to disadvantaged communities

Tax Credits for Vehicles

- Light-duty EV tax credit
- Used EV tax credit
- **Commercial Clean Vehicle tax credit**
  - **Most useful to government fleets**
  - **Direct pay option for tax-exempt entities to receive the credit**
  - **Up to $7500 for vehicles GVWR under 14,000 lbs**
  - **Up to $40,000 for vehicles GVWR > 14,000 lbs**
  - **For plug-in electric vehicles and fuel cell vehicles**
  - **Manufacturing requirements for the vehicles and batteries**

Direct Pay Option for Commercial Clean Vehicle Tax Credits

- Allows entities that don't owe federal taxes to claim the tax credit
- Must own the vehicle
- Eligible entities include:
  - tax-exempt organizations
  - States, and political subdivisions such as local governments
  - Indian tribal governments
  - the Tennessee Valley Authority
  - rural electric co-operatives
  - U.S. territories

Alternative Fuel Infrastructure Tax Credit

- Can be used for fueling infrastructure for the following fuels:
  - Electricity (EV chargers)
  - Propane
  - Natural Gas
  - Biofuels (B20 and above, E85)
  - Hydrogen
- Up to 30% of the cost, not to exceed $100,000
- Must be located in a census tract that meets one of the following requirements:
  - Non-urban census tract
  - At least 20% poverty rate; or
  - Metropolitan and non-metropolitan area census tract where the median family income is less than 80% of the state median family income level (or less than 80% of the metropolitan area income if in a metropolitan area).

Business Energy Investment Tax Credit

- Also referred to as ITC and falls under Section 48 of IRS Tax Code
- Base Credit:
  - For systems <1 MW 30% if construction begins by 1Jan2025
  - For systems >1 MW 6% of installed cost of system plus
- Domestic Content Bonus: 10% or 2%
- Energy Communities Bonus: 10% or 2%
- Labor requirements for higher amounts (applicable to systems >1 MW):
  - All workers paid prevailing wages
  - A percentage of workers are apprentices: 12.5% in 2023, 15% thereafter
- LMI Communities or Indian Land Bonus: 10%
- Qualified LMI building or economic benefit: 20%

Source: https://programs.dsireusa.org/system/program/detail/658/business-energy-investment-tax-credit-itc

ITC Eligible Technologies

- Solar Technologies
- Fuel Cells
- Wind Turbines
- Geothermal Systems
- Microturbines
- Combined Heat and Power (CHP)
- Offshore Wind
- Waste Energy Recovery
- Energy Storage Systems, both paired with generation and installed as a stand-alone system
- Thermal Energy Storage Systems
- Qualified Biogas Property
- Microgrid Controllers
- Interconnection Property associated with the installation of energy property with a maximum net output of not greater than 5 MW-AC to provide for the transmission or distribution of the electricity produced or stored by such property, and which are properly chargeable to the capital account of the taxpayer.

Source: https://programs.dsireusa.org/system/program/detail/658/business-energy-investment-tax-credit-itc

ITC Summary Values over Time

			Start of Construction						
			2006 to 2019	2020 to 2021	2022	2023 to 2033	The later of 2034 (or two years after applicable year[a])	The later of 2035 (or three years after applicable year[a])	The later of 2036 (or four years after applicable year[a])
ITC	**Full rate** (if project meets labor requirements[b])	Base Credit	30%	26%	30%	30%	22.5%	15%	0%
		Domestic Content Bonus				10%	7.5%	5%	0%
		Energy Community Bonus				10%	7.5%	5%	0%
	Base rate (if project does not meet labor requirements[b])	Base Credit	30%	26%	6%	6%	4.5%	3%	0%
		Domestic Content Bonus				2%	1.5%	1%	0%
		Energy Community Bonus				2%	1.5%	1%	0%
	Low-income bonus (1.8 GW/yr cap)	<5 MW projects in LMI communities or Indian land				10%	10%	10%	10%
		Qualified low-income residential building project / Qualified low-income economic benefit project				20%	20%	20%	20%

a "Applicable year" is defined as the later of (i) 2032 or (ii) the year the Treasury Secretary determines that there has been a 75% or more reduction in annual greenhouse gas emissions from the production of electricity in the United States as compared to the calendar year 2022.

b "Labor requirements" entail certain prevailing wage and apprenticeship conditions being met.

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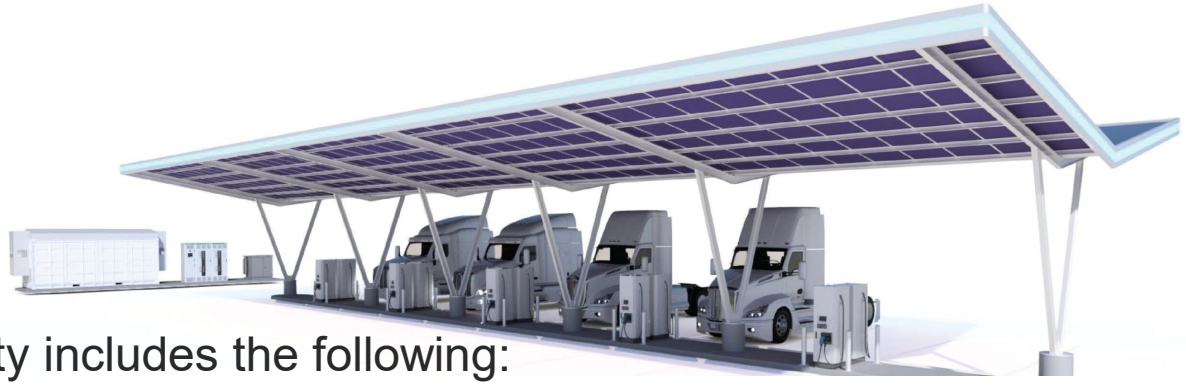
Source: https://www.energy.gov/eere/solar/federal-solar-tax-credits-businesses

Microgrid Components Eligible under ITC



Eligible property includes the following:

- Solar PV panels, inverters, racking, balance-of-system equipment, and sales and use taxes on the equipment;
- Installation costs and certain prorated indirect costs;
- Step-up transformers, circuit breakers, and surge arrestors;
- Energy storage devices that have a capacity rating of 5 kilowatt hours or greater (even if not charged with solar)
- For projects 5 MW or less, the tax basis can include the interconnection property costs spent by the project owner to enable distribution and transmission of the electricity produced or stored by the system—this can include costs that are incurred beyond the point at which the energy property interconnects to the distribution or transmission systems.

Source: https://www.energy.gov/eere/solar/federal-solar-tax-credits-businesses

Clean Energy Production Tax Credit

			Start of Construction						
			2006 to 2019	2020 to 2021	2022	2023 to 2033	The later of 2034 (or two years after applicable year[a])	The later of 2035 (or three years after applicable year[a])	The later of 2036 (or four years after applicable year[a])
PTC for 10 years ($2022)	**Full rate** (if project meets labor requirements[b])	Base Credit			2.75 ¢	2.75 ¢	2.0 ¢	1.3 ¢	0.0 ¢
		Domestic Content Bonus				0.3 ¢	0.2 ¢	0.1 ¢	0.0 ¢
		Energy Community Bonus				0.3 ¢	0.2 ¢	0.1 ¢	0.0 ¢
	Base rate (if project does not meet labor requirements[b])	Base Credit			0.55 ¢	0.55 ¢	0.4 ¢	0.3 ¢	0.0 ¢
		Domestic Content Bonus				0.1 ¢	0.0 ¢	0.0 ¢	0.0 ¢
		Energy Community Bonus				0.1 ¢	0.0 ¢	0.1 ¢	0.0 ¢

a "Applicable year" is defined as the later of (i) 2032 or (ii) the year the Treasury Secretary determines that there has been a 75% or more reduction in annual greenhouse gas emissions from the production of electricity in the United States as compared to the calendar year 2022.

b "Labor requirements" entail certain prevailing wage and apprenticeship conditions being met.

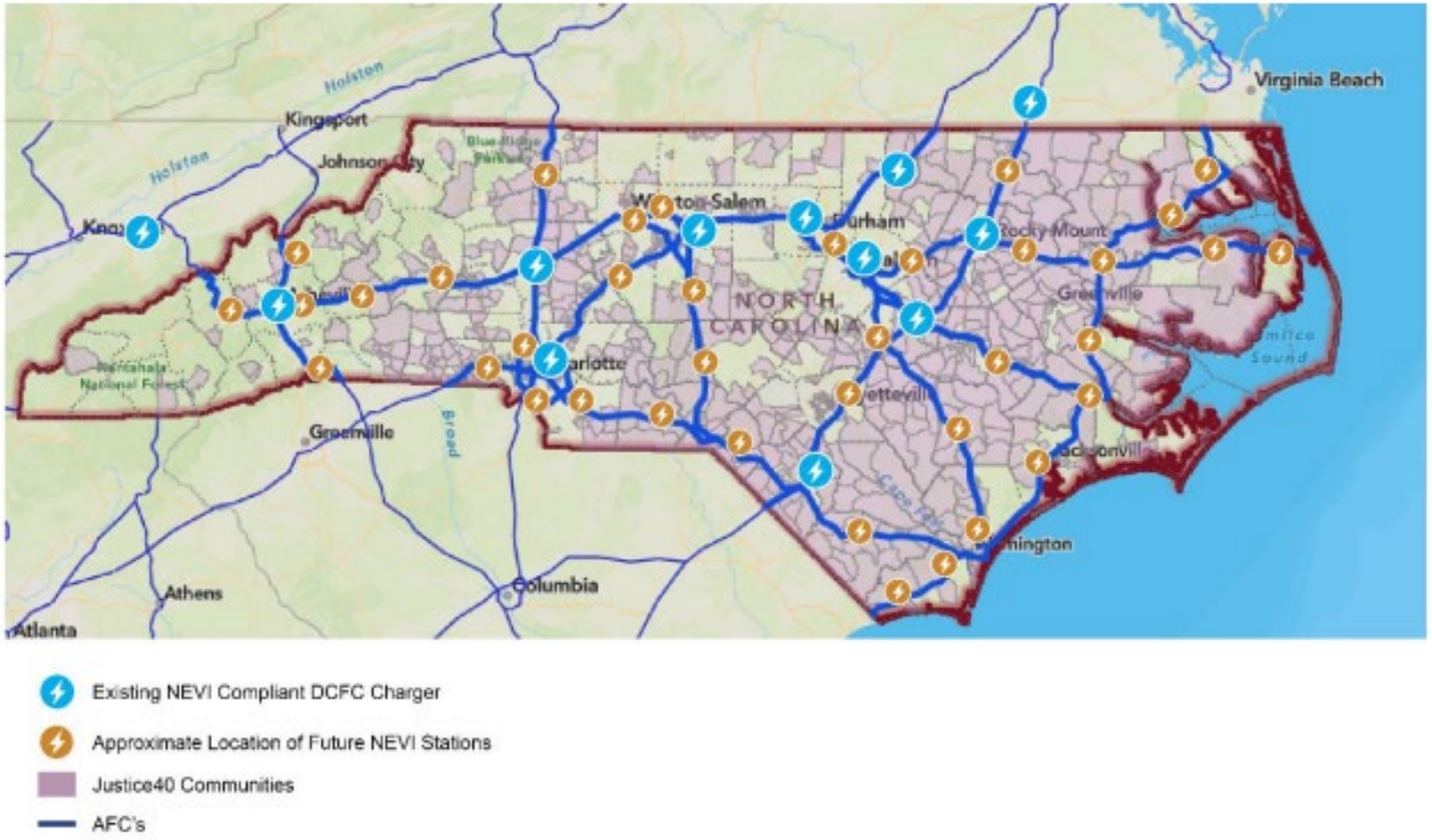
The federal renewable electricity production tax credit (PTC) is an inflation-adjusted per-kilowatt-hour (kWh) tax credit for electricity generated by qualified energy resources and sold by the taxpayer to an unrelated person during the taxable year. The duration of the credit is 10 years after the date the facility is placed in service.

Source: https://www.energy.gov/eere/solar/federal-solar-tax-credits-businesses

Bipartisan Infrastructure Law

- Created new grant programs: NEVI, CFI, Carbon Reduction Program, Clean School Bus Program, Low or Zero Emission Ferry Program, Regional Clean Hydrogen Hubs
- Increased funding to many existing grant programs

National Electric Vehicle Infrastructure (NEVI)



Source: North Carolina Plan Update for Electric Vehicle (EV) Infrastructure Deployment, NCDOT, August 2023

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NEVI Phase 1 and 2 in North Carolina

- Phase 1: build high-powered DC fast chargers along designated corridors
- Phase 2: Competitive grants for community charging
  - Level 2 or DC fast chargers

Photo by Heather Brutz

Diesel Emissions Reduction Act (DERA)

- Both federal and state programs
  - Administered by the US EPA and designated state air quality agency
- Goal is reducing emissions from diesel vehicles
- Vehicles that are replaced must be destroyed
- Age restrictions on the vehicles to be upfitted or replaced
- The current round of NC DERA funding is open and applications are due Feb. 2. More info at https://www.deq.nc.gov/about/divisions/air-quality/motor-vehicles-and-air-quality/mobile-sources-emissions-reductions-grant

DERA Eligible Technologies

Eligible Technology	EPA Funding Limit	Mandatory Cost Share
Drayage Truck Replacement	50%	50%
Vehicle or Equipment Replacement with EPA Certified Engine	25%	75%
Vehicle or Equipment Replacement with CARB Certified Low-NOx Engine	35%	65%
Vehicle or Equipment Replacement with Zero-Tailpipe Emission Power Source	45%	55%
Engine Replacement with EPA Certified Engine	40%	60%
Engine Replacement with CARB Certified Low-NOx Engine	50%	50%
Engine Replacement with Zero-Tailpipe Emission Power Source	60%	40%

Source: Presentation by Will Carnright, US EPA

Carbon Reduction Program

- Administered by NCDOT and metropolitan planning organizations: https://www.ncdot.gov/initiatives-policies/environmental/climate-change/Pages/electric-vehicles.aspx
- Goal is reducing greenhouse gas emissions
- Allowable activities:
  - Truck stop electrification
  - Diesel retrofits
  - Vehicle to infrastructure communication equipment
  - Public transportation
  - Port electrification
  - Charging and fueling infrastructure
  - Purchase or lease of zero-emission vehicles

Clean School Bus Program

- Thus far, there has been a round of rebates and a competitive round; more rounds of each expected
- The applications for rebates are currently open; applications due January 31, 2024
- Rebates: lottery system with a fixed amount ($345,000 for priority districts; $200,000 for other districts)
- Electric schoolbuses and associated infrastructure
- Eligible applicants: school districts, state and local government programs, federally recognized Indian tribes, non-profit organizations, and eligible contractors
- https://www.epa.gov/cleanschoolbus

Photo by Amira Ferjani

Climate Pollution Reduction Grant

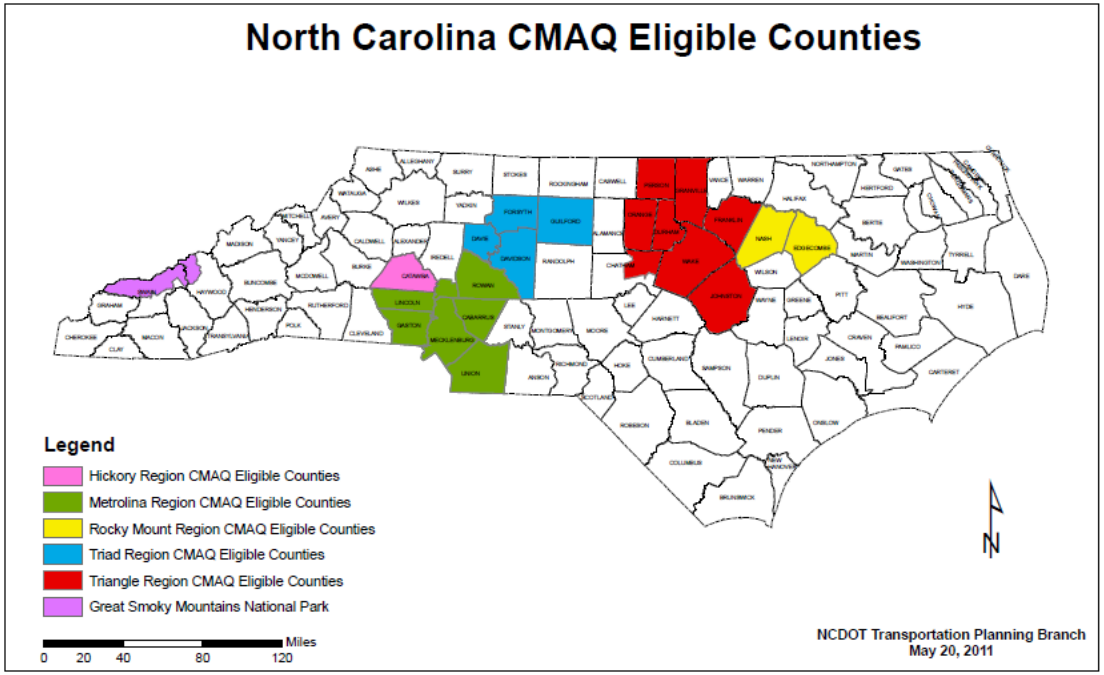
- Administered by NC DEQ; statewide money and regional money for Charlotte and Raleigh regions for planning
- A Priority Climate Action Plan will be developed
- Based on the plan, NC will be able to apply for additional funding in future years to implement projects that reduce greenhouse gas emissions
- NC DEQ is currently requesting input on the Priority Climate Action Plan. Both in-person and virtual info sessions are planned. For more info: https://www.deq.nc.gov/energy-climate/state-energy-office/inflation-reduction-act/climate-pollution-reduction-grant

Charging and Fueling Infrastructure (CFI) Grants

- Administered by FHWA
- First round of funding closed; should be more rounds in future years
- Minimum $500,000
- Chargers need to be Buy America compliant and follow federal minimum charging standards

Clean Fuels and Advanced Technologies (CFAT)

- Administered by NC Clean Energy Technology Center
- RFP expected in early Winter
- EV infrastructure can be in all counties; otherwise must be in CMAQ eligible counties
- Eligible technologies include EV chargers, alt fuel vehicles, idle reduction technologies, and diesel retrofits



Email CFAT_Grants@ncsu.edu to ask to subscribe to our newsletter and receive the funding notice when released.

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Other Upcoming Opportunities, details pending

- EPA Environmental and Climate Justice Grants
- EPA Clean Heavy Duty Vehicle Program
- EPA Clean Ports Grants (NOFO expected February 2024)

Advice for successful grants

- Read the grant carefully and understand what you will be evaluated on
- Consider who you need help/information/support letters from early
- Consider how the grant fits into your larger organizational goals for your fleet and facilities
- For grants for vehicle purchases, think about infrastructure at the outset
  - Do you have infrastructure in place?
  - If not, have you consulted with your utility about whether there are any needed grid improvements and who will pay for those?

Metrics for grants

- If the goal is emissions reductions, you will probably need to provide the following information: annual mileage for vehicles, fuel usage
- Environmental justice: how will the project reduce impacts on low-income and disadvantaged communities? Have you engaged the community in planning for the project? Is this project part of a larger plan or effort that you have engaged the community on?

DOE RACER: Resilient REDDI Communities Project

Goal: To enable local communities, through the leadership of their emergency management agencies and local organizations, to make informed decisions for deployment of resilient solar PV and energy storage projects where they will have the greatest impact on improving community resilience.

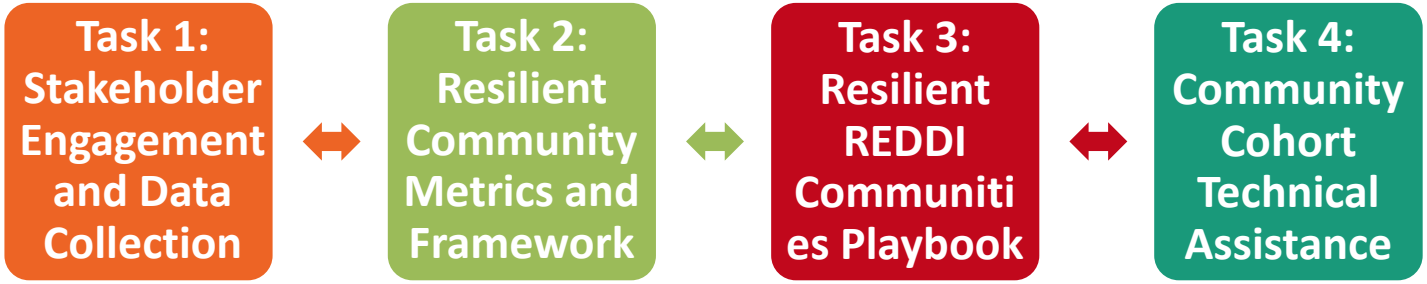
Hot Springs Microgrid - Duke Energy

Rose Acre Microgrid – Tideland EMC

DOE RACER: Resilient REDDI Communities Project

Approach:

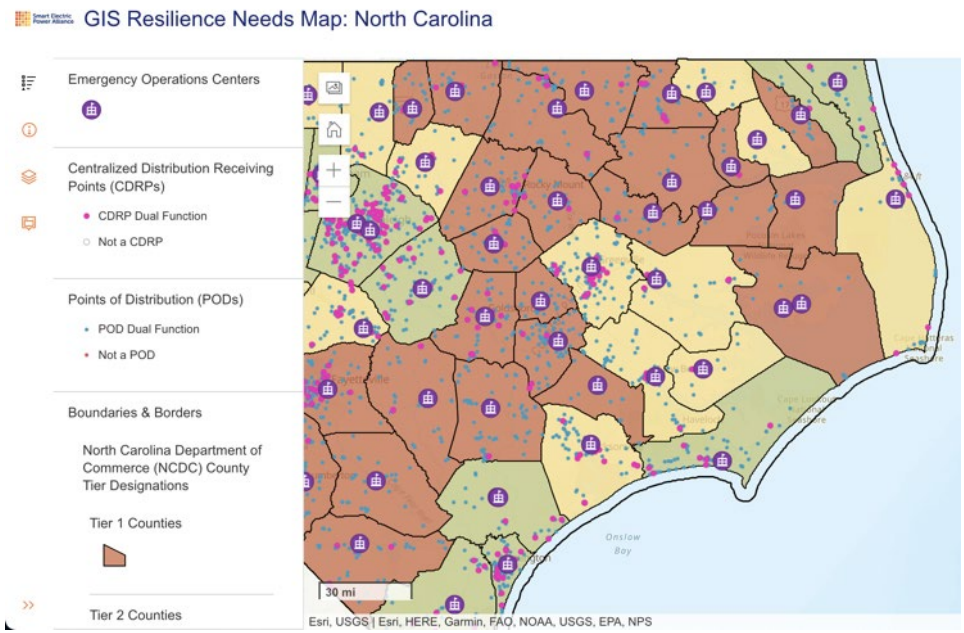
The proposed project will develop a system to guide communities interested in integrating energy resilience in their master planning. This system will include a set of community resilience metrics (RMs), an implementation framework, and a playbook intended for local emergency managers and their communities.



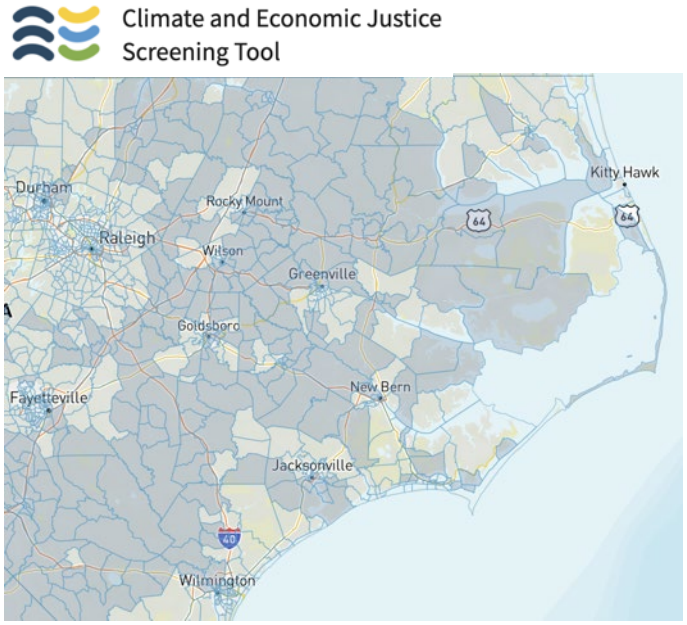
DOE RACER: Resilient REDDI Communities Project

Task 4: Community Cohort Technical Assistance

Innovation: To validate and disseminate the results, the team will support a cohort of 12 communities in developing ready-to-implement resilient solar PV and energy storage projects to validate the new resilient community metrics and framework.



https://sepa-2021.maps.arcgis.com/apps/instant/sidebar/index.html?appid=812b733b193e40b983f9babb0359fc16



https://screeningtool.geoplatform.gov/en/

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Other Resources

- Alternative Fuels Data Center Incentives database: https://afdc.energy.gov/
- Database of State Incentives for Renewables & Efficiency (DSIRE): https://www.dsireusa.org/
- NC Division of Air Quality: https://www.deq.nc.gov/about/divisions/air-quality/motor-vehicles-and-air-quality
- NCDOT: https://www.ncdot.gov/initiatives-policies/environmental/climate-change/Pages/default.aspx
- Electrification Coalition EV Funding Finder Tool: https://electrificationcoalition.org/ev-funding-finder/

Any questions?

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