STONE ENVIRONMENTAL

Renewable Energy Planning in Massachusetts Possibilities for Vermont Communities

Massachusetts Clean Energy Center's Community Energy Strategies Program

May 20, 2016

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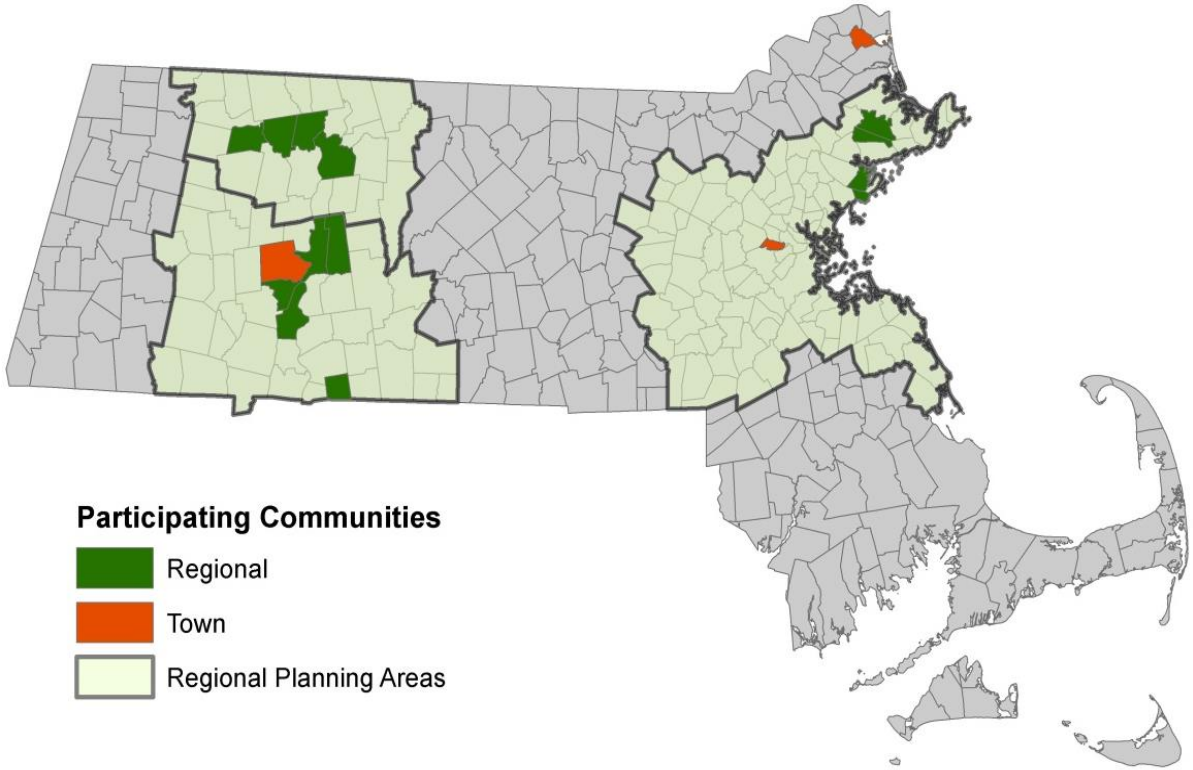
Resilient Vermont: 2016

Clean Energy Road Map Project

- Stone worked with the Massachusetts CEC & DOER and 15 Communities to Assist them with their development of a clean energy roadmap between 2013 – 2015.
- Role
  - Develop Useful Statewide and Local Databases
  - Develop Reusable/User Customizable GIS Siting Tools
  - Conduct Various Individual Community Analyses
  - Provide and Online Story Maps of Their Clean Energy Roadmap

Community Energy Strategies Program Goals

- Assist *Green Communities* to **identify and implement** an optimal mix of existing strategies and incentives to address local interests, needs, and opportunities for clean energy development.
- Provide **educational opportunities** to support Community Energy Strategies planning context, activities, and results.
- Support **development** of local clean energy planning engagement and capacity to promote ongoing ownership and implementation of clean energy goals.

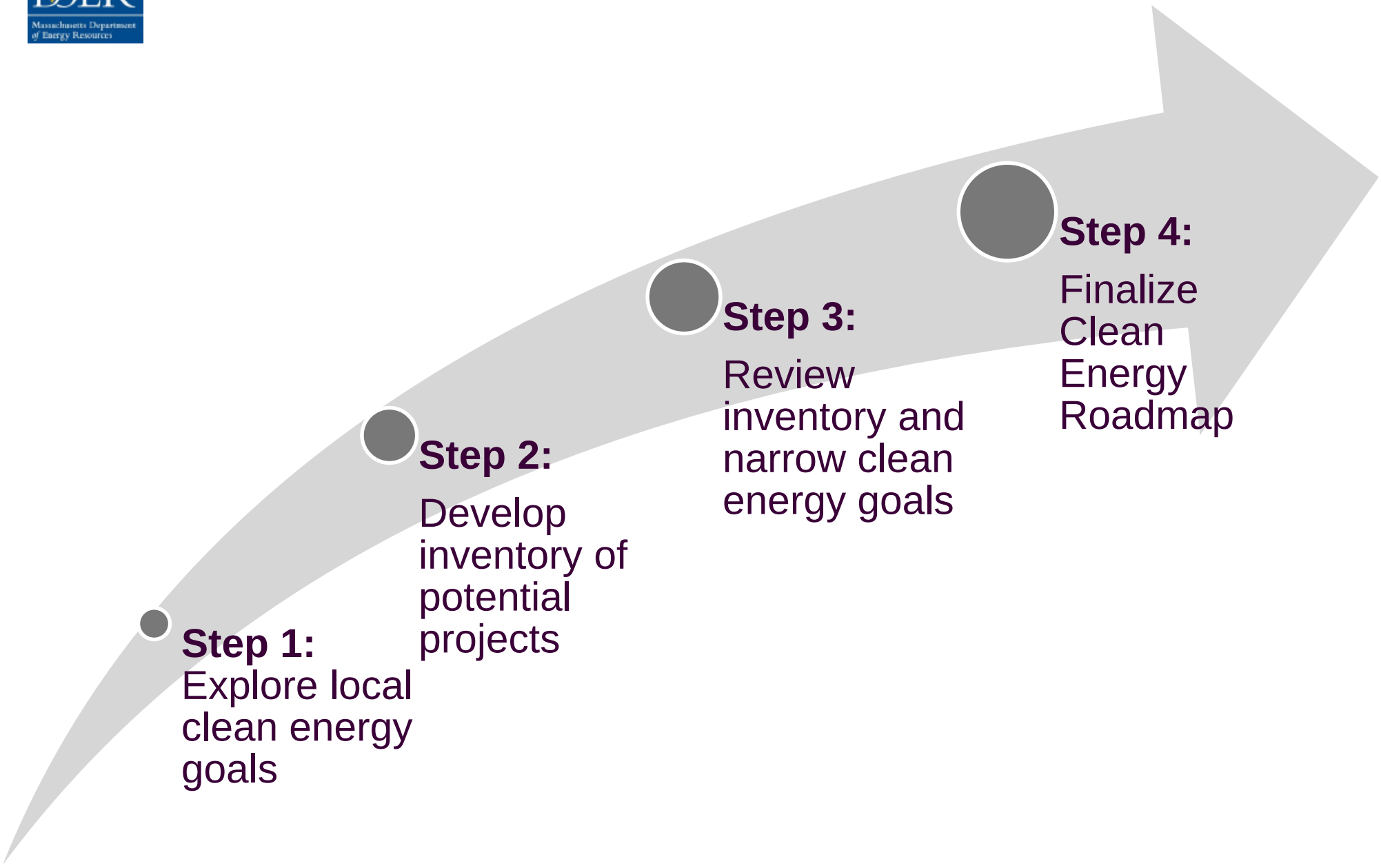


Community Energy Strategies Pilot Program

Project Assumptions

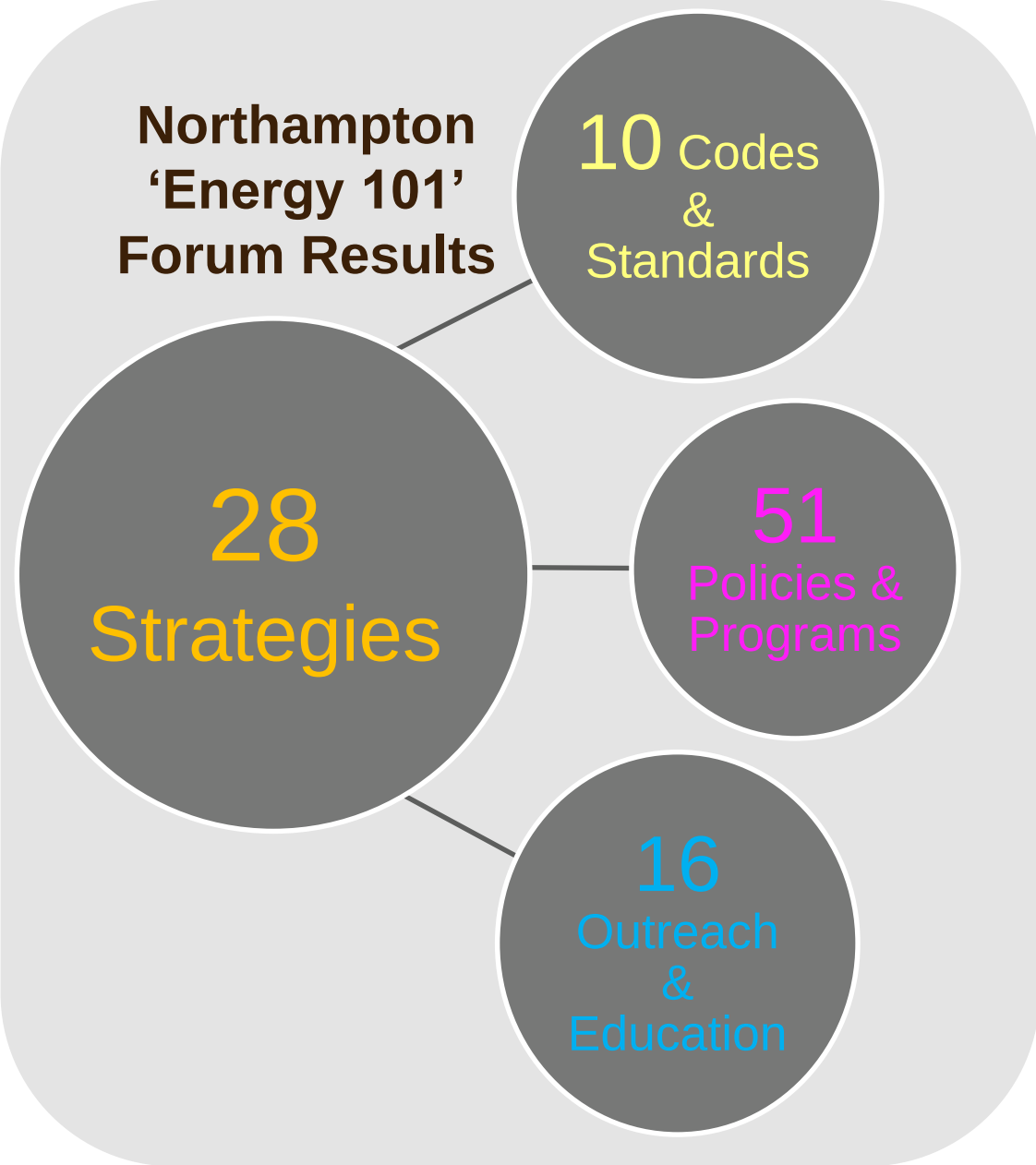
- Assess clean energy opportunities at the community or regional level based on:
  - Local clean energy goals
  - Local clean energy resources

Community Energy Strategies Pilot Program – 4 Steps



Step 1: Explore Local Clean Energy Goals

- 'Energy 101' public forum
- Brainstorm to develop full listing of potential strategies, codes & standards, policies & programs
- Clean Energy Working Group helps guide process and narrow goals



Step 2: Develop Inventory of Potential Clean Energy Projects—Provide GIS Data and Analysis to Support

GIS Data Compilation

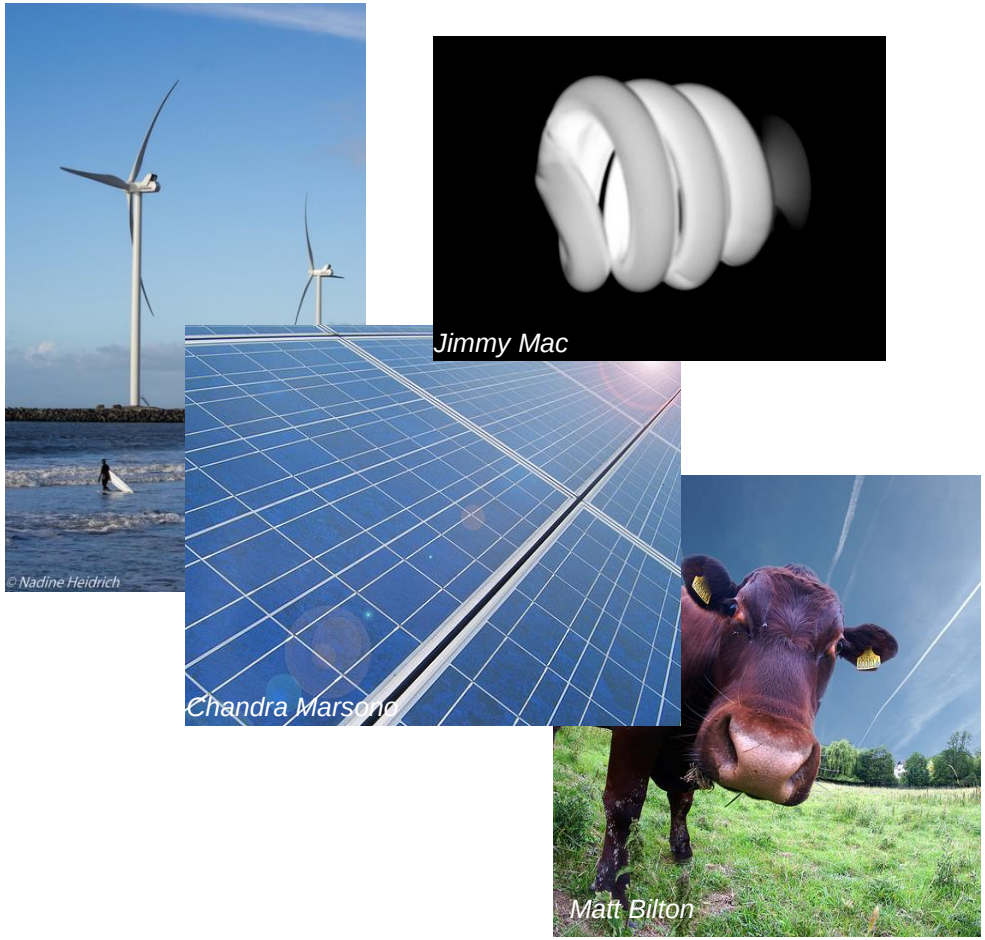
- Well over 200 databases

GIS-based Evaluation:

- Energy Efficiency
  - Housing
  - Commercial Structures
  - Street Lighting
- EV Charging Stations
- Other Community Specific Analyses…

GIS-based Site Suitability Analyses:

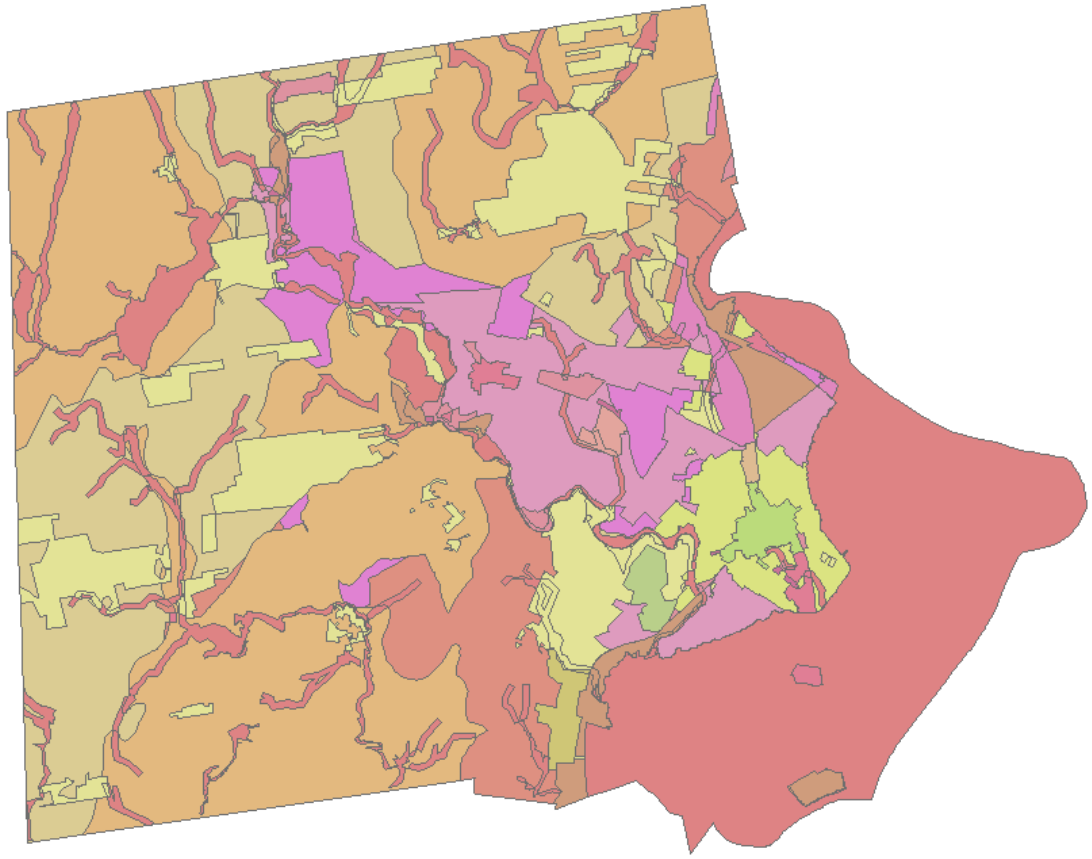
- Wind
- Large Ground Mounted Solar PV
- Solar Canopies
- Bike Share Locations
- Anaerobic Digestion



GIS-based Site Suitability Analyses

Identify and characterize areas that meet minimum threshold criteria

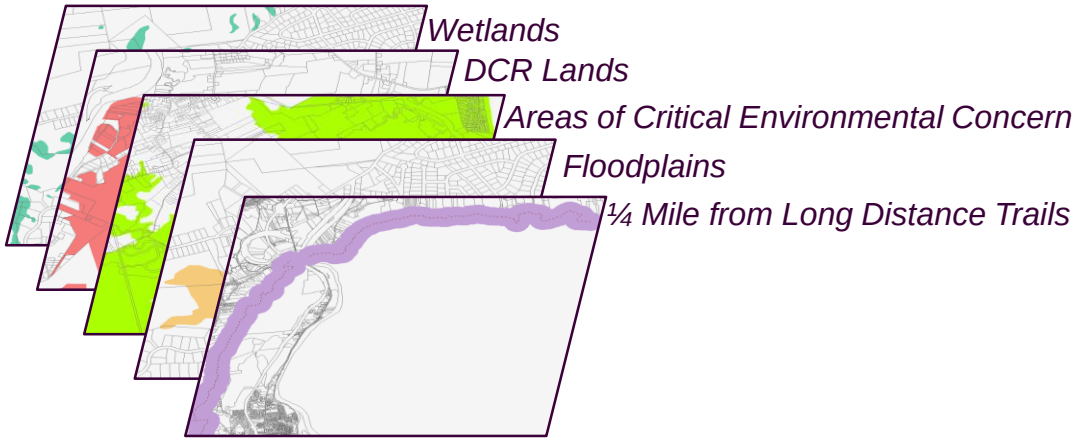
- Exclusion layers
- Concern layers
- Community-specific setbacks for the exclusion layers, concern layers, parcel boundaries and buildings
- Add additional zoning or conserved land restrictions
- Identify minimum parcel size requirements



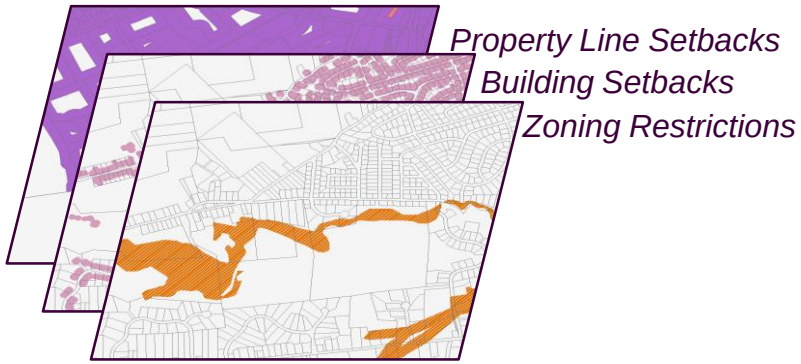
Solar Site Selection Example

Exclusion Items: *Layers that clearly indicate incompatibility based on minimum technical requirements or regulatory status*

Statewide Datasets



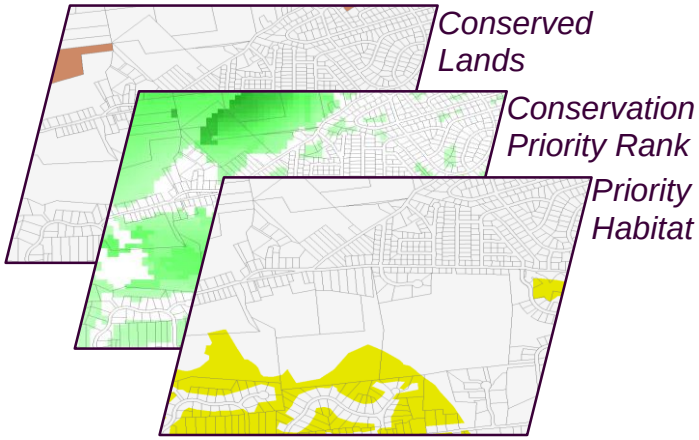
Local Datasets



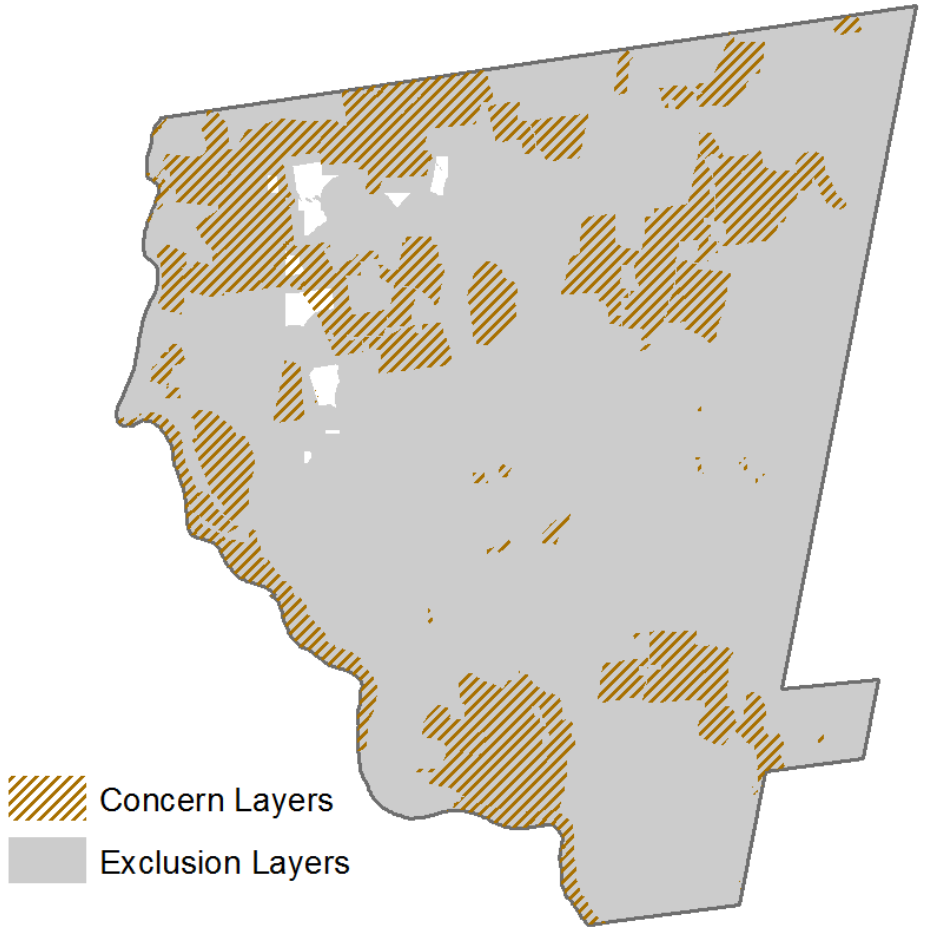
Solar Site Selection Example

Concerns: Layers that do not clearly indicate incompatibility but whose presence and selected attributes will inform decisions.

Statewide Datasets

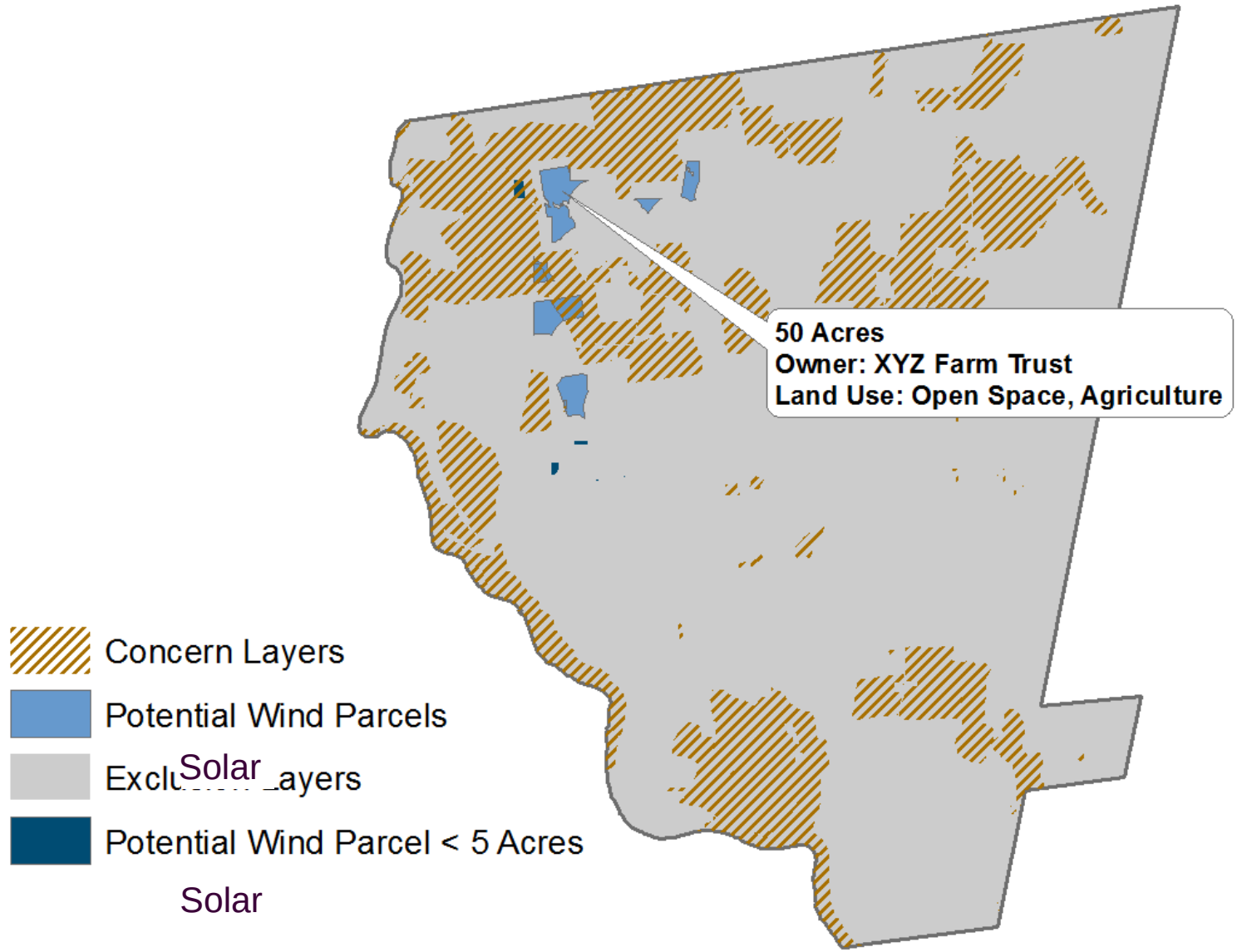


Local Datasets



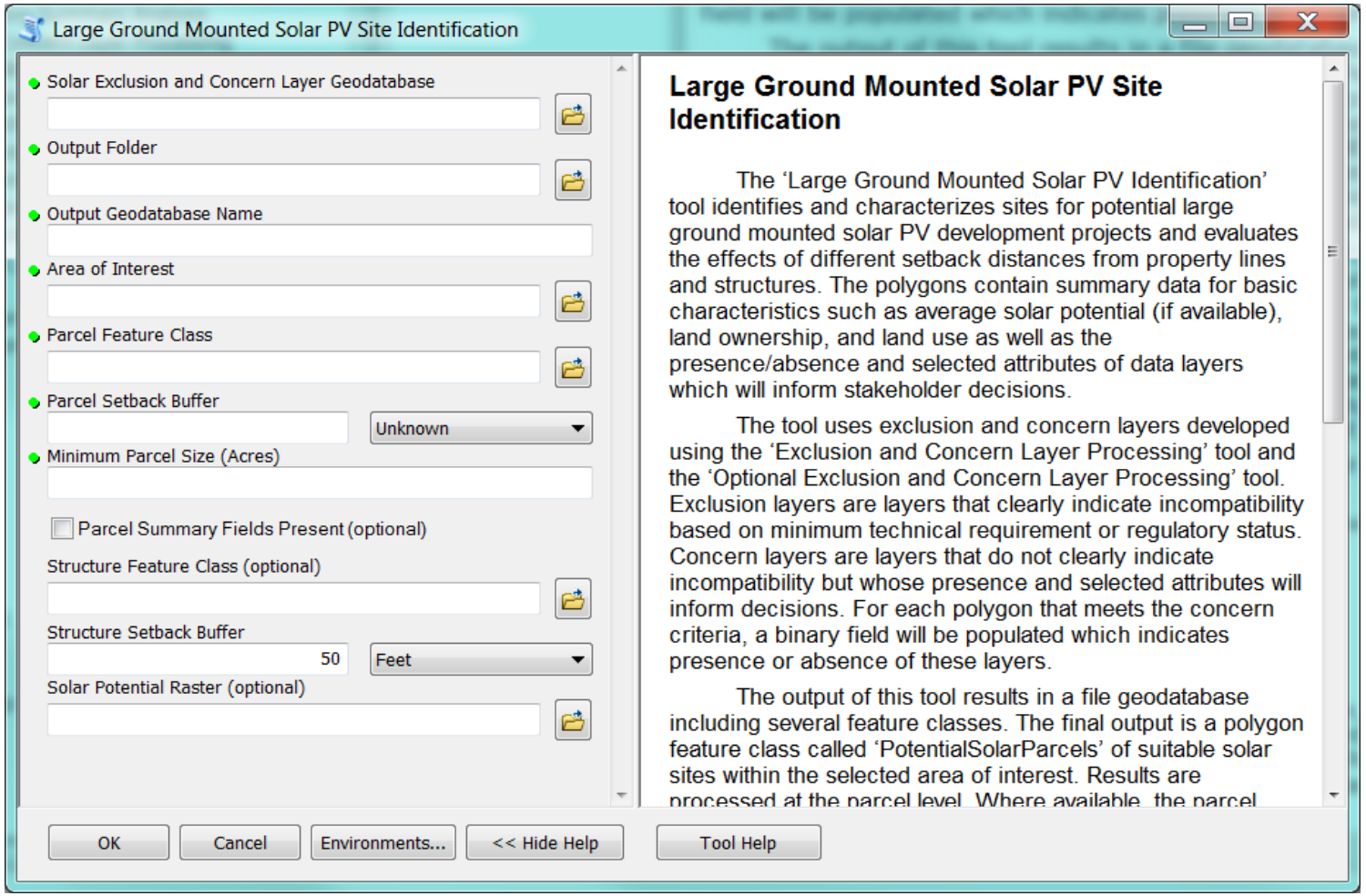
Solar Site Selection Example

***Combine** Exclusions, Concerns, and Minimum Parcel Cut-off*



Using Reusable GIS Tools for Clean Energy Site Evaluation and Suitability Allows for:

- Repeatability
- Flexibility
  - Use local data inputs
  - Alter setback distances
- Iterative analyses
  - Test multiple scenarios



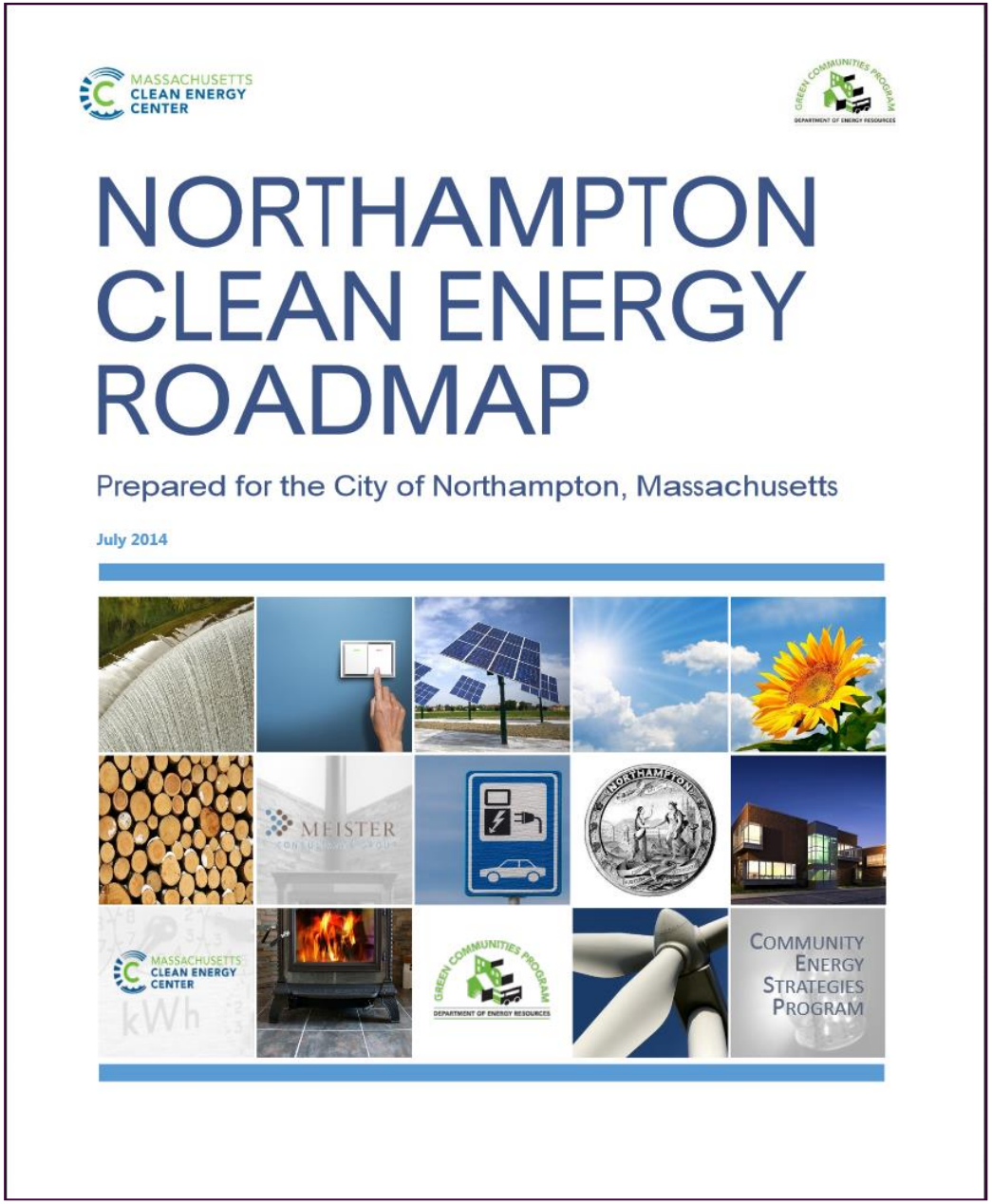
Step 3: Review Inventory & Narrow Clean Energy Goals

- Clean Energy Working Group reviews inventory
- ‘Energy 201’ public forum to narrow goals and establish priorities
- ‘Energy 201’ public forum provides education about technologies of interest
- Revise analyses, where needed

Step 4: Finalize Clean Energy Roadmap

- Final site suitability analyses compiled and presented
- Actual project options developed
- Interactive web maps of results to share with public

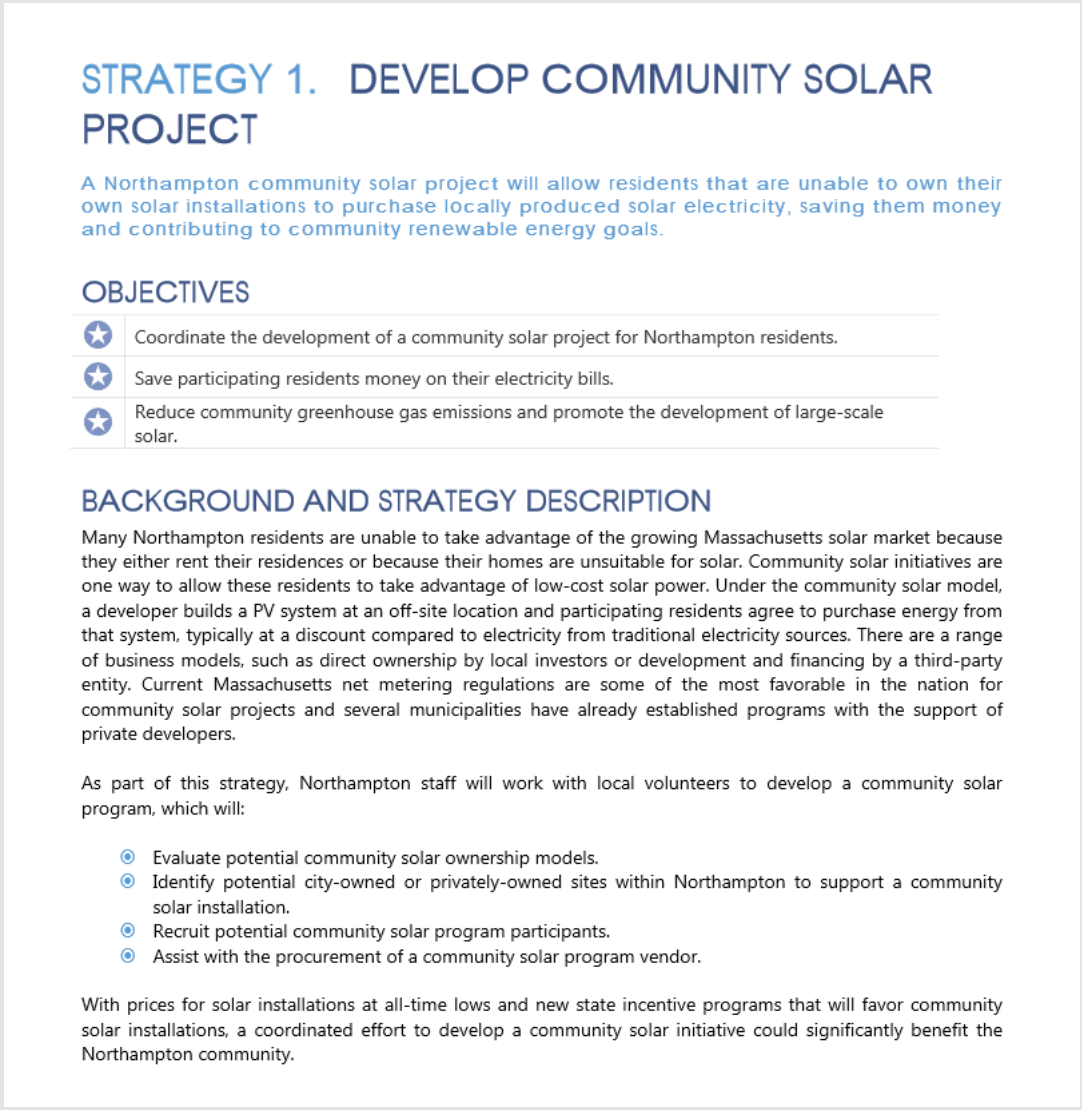
http://mapping.masscec.com.s3.amazonaws.com/CESP/ROADMAPS/Northampton.pdf



Step 4: Finalize Clean Energy Roadmap

Actual Project Options

- Strategies
  - Objectives
  - Description
  - Benefits & Risks
  - Financial Costs & Benefits
  - Next Steps
  - Resources



STRATEGY 1. DEVELOP COMMUNITY SOLAR PROJECT

A Northampton community solar project will allow residents that are unable to own their own solar installations to purchase locally produced solar electricity, saving them money and contributing to community renewable energy goals.

OBJECTIVES

- Coordinate the development of a community solar project for Northampton residents.
- Save participating residents money on their electricity bills.
- Reduce community greenhouse gas emissions and promote the development of large-scale solar.

BACKGROUND AND STRATEGY DESCRIPTION

Many Northampton residents are unable to take advantage of the growing Massachusetts solar market because they either rent their residences or because their homes are unsuitable for solar. Community solar initiatives are one way to allow these residents to take advantage of low-cost solar power. Under the community solar model, a developer builds a PV system at an off-site location and participating residents agree to purchase energy from that system, typically at a discount compared to electricity from traditional electricity sources. There are a range of business models, such as direct ownership by local investors or development and financing by a third-party entity. Current Massachusetts net metering regulations are some of the most favorable in the nation for community solar projects and several municipalities have already established programs with the support of private developers.

As part of this strategy, Northampton staff will work with local volunteers to develop a community solar program, which will:

- Evaluate potential community solar ownership models.
- Identify potential city-owned or privately-owned sites within Northampton to support a community solar installation.
- Recruit potential community solar program participants.
- Assist with the procurement of a community solar program vendor.

With prices for solar installations at all-time lows and new state incentive programs that will favor community solar installations, a coordinated effort to develop a community solar initiative could significantly benefit the Northampton community.

Step 4: Finalize Clean Energy Roadmap

Northampton Clean Energy Map Gallery

Back to Roadmap

Map Categories

Start Here

Community Information

Buildings and Efficiency

Renewable Energy ...

Transportation

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About the Maps

These maps were created as companions to the Clean Energy Roadmap. Each map features multiple layers that correspond to specific strategies to increase local renewable energy generation, renewable heating and cooling, building energy efficiency, and sustainable transportation. Each map layer has a brief description with links to the corresponding sections of the Clean Energy Roadmap. Simply select a map to open!

Additional Resources

CESP Northampton Website

DOER Green Communities Division

Sustainable Northampton

About the Community Energy Strategies Pilot Program

The Community Energy Strategies Pilot Program (CESP) is an initiative developed by the Massachusetts Clean Energy Center in collaboration with the Department of Energy Resources Green Communities Division. The program, delivered in partnership with local officials and community volunteers, helps communities identify and develop strategies for implementing the mix of clean energy projects and incentives best suited to address local interests, needs, and opportunities for clean energy development across all sectors.

MASSACHUSETTS CLEAN ENERGY CENTER DOER

energyplanning@masscec.com

Massachusetts Community Energy Road Map Links

http://mapping.masscec.com.s3-website-us-east-1.amazonaws.com/MassCEC/Northampton/

http://mapping.masscec.com.s3-website-us-east-1.amazonaws.com/MassCEC/Watertown/

http://mapping.masscec.com.s3-website-us-east-1.amazonaws.com/MassCEC/FRCOG/

http://mapping.masscec.com.s3-website-us-east-1.amazonaws.com/MassCEC/PVPC/

http://mapping.masscec.com.s3-website-us-east-1.amazonaws.com/MassCEC/MAPC/

Discussion and Questions

Thank You!

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