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DEPARTMENT OF
ENERGY RESOURCES

SMART Land Use Policy Update

December 10th, 2024

Objectives

Protect Massachusetts' **highest value forests** contributing to emissions reductions in the Natural Working Lands sector

Balance solar development within the built environment with cost-effective ground mounted development

Create a mechanism to **mitigate the impact of solar** infrastructure

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Context

This proposed framework replaces the Greenfield Subtractors and Community Benefits Adder, as presented in the SMART 3.0 Straw Proposal.

- The proposed framework applies to large (>250kW AC) ground-mounted projects
- Eligible projects will still be subject to:
  - on-site visitation from an Environmental Monitor (and related expense)
  - updated Performance Standards
  - any new Siting & Permitting requirements established by the 2024 Climate Bill
- Projects will NOT be subject to the proposed framework if they are:
  - receiving a locational adder (building, agriculture, canopy, brownfield, landfill)
  - sited on previously developed land
    - *areas degraded by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, abandoned dumping yards, or other degraded areas as determined by DOER*

Ineligible Siting

Ground-mounted projects >250 kW AC are ineligible for SMART incentives if their footprint overlaps with any of the following:

Metric	Threshold	Data Source
BioMap Core Habitat	All	MassWildlife
Areas of Critical Environmental Concern (ACEC)	All	DCR
Potential carbon equivalent emissions plus foregone sequestration over 40 years	Top 20% of MA forests	Resilient Land Mapping Tool
Other applicable state & nationally protected lands including, but not limited to, protected open space (Article XCVII of the Amendments to the Constitution), wetland resource areas (310 CMR 10.04), and properties included in the State Register (950 CMR 71.03).		

In-Lieu Fee Mitigation

Upfront fee for ground-mounted projects >250 kW on undeveloped land.

- Each project will pay a fee based on the impact of their development
- Mitigation fee calculation is informed by weighted criteria related to environmental impacts and policy goals
    - Carbon storage
    - Ecological integrity
    - Agricultural potential
    - Cumulative impacts
    - Grid alignment
- Funds will be directed to a trust account to support conservation, ecosystem and biodiversity programs
- DOER intends to annually review data sources, criteria, and weightings to reflect policy goals

Scoring Mechanism

Project impacts will be scored 1-4 across 5 key factors:

				Score		
			4 (Most Impactful)	*3*	*2*	*1 (Least Impactful)*
Weight	*3*	**Carbon Storage**	*Potential carbon emissions plus foregone sequestration in metric tons of CO2e per acre over 40 years*	Second highest quintile *295-326 mt/ac CO2e*	Third quintile *261-295 mt/ac CO2e*	Fourth quintile *241-261 mt/ac CO2e*	Fifth quintile *<241 mt/ac CO2e*
	3	**Ecological Integrity**	*State Ecological Integrity Score of project footprint*	>0.75	0.5-0.75	0.25-0.5	<0.25
	2	**Agricultural Potential**	*Project footprint overlap with farmland soils*	Project footprint overlaps with Prime Farmland	>25% overlap with Farmland of Statewide or Unique Importance	<25% Farmland of Statewide or Unique Importance	No farmland overlap
	1	**Cumulative Impacts**	*MW/capita of large ground mounted SMART solar systems*	Highest quartile counties *Franklin* *Berkshire* *Hampshire* *Worcester*	Second highest quartile *Plymouth* *Hampden* *Bristol*	Second lowest quartile *Barnstable* *Nantucket* *Norfolk*	Lowest quartile *Middlesex* *Essex* *Dukes* *Suffolk*
	1	**Grid alignment**	*Project distance from grid infrastructure or inclusion in CIP or ESMP investment area*	Project >5 miles from current or planned substation	2-5 miles from substation	<2 miles from substation	In a CIP Area or ESMP investment area

*All individual metrics and cutoffs are subject to change

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Fee Calculation

Instead of a flat, per kWh subtractor, DOER is proposing a dynamically-calculated, one-time fee:

Total Fee = *(Max per acre fee * (Carbon storage*3 + Ecological integrity*3 + Agricultural potential*2 + Cumulative impacts + Grid alignment)/40) * Acres impacted*

Max per acre fee - $50,000

Acres impacted – footprint of panels + land permanently impacted by construction (clearing, grading, roadways)

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Example Scoring Mechanism & Fee

Weight			Score			
			4 (Most Impactful)	*3*	*2*	*1 (Least Impactful)*
	3	**Carbon Storage**	Potential carbon equivalent emissions plus foregone sequestration potential of project footprint 295-326 mt/ac	**261-295 mt/ac**	241-261 mt/ac	<241 mt/ac
	3	**Ecological Integrity**	State Ecological Integrity score of project footprint >0.75	Ecological Integrity 0.5-0.75	**Ecological Integrity 0.25-0.5**	Ecological Integrity <0.25
	2	**Agricultural Potential**	Project footprint overlaps with Prime Farmland	>25% Farmland of Statewide or Unique Importance	**<25% Farmland of Statewide or Unique Importance**	No farmland overlap
	1	**Cumulative Impacts**	Highest quartile county by large ground mounted SMART MW/capita Franklin Berkshire Hampshire Worcester	**Second highest quartile** Plymouth Hampden Bristol	Second lowest quartile Barnstable Nantucket Norfolk	Lowest quartile Middlesex Essex Dukes Suffolk
	1	**Grid alignment**	Project >5 miles from current or planned substation	2-5 miles from substation	<2 miles from substation	**In a CIP Area or ESMP investment area**

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Example Scoring Mechanism & Fee

Metric	Weight	Score	Total
Carbon Storage	3	3	9
Ecological Integrity	3	2	6
Agricultural Potential	2	2	4
Cumulative Impacts	1	3	3
Grid alignment	1	1	1
Total			**23**

Total Fee = *($50,000 * (23/40) * 39.2 acres* = **$1,127,000**

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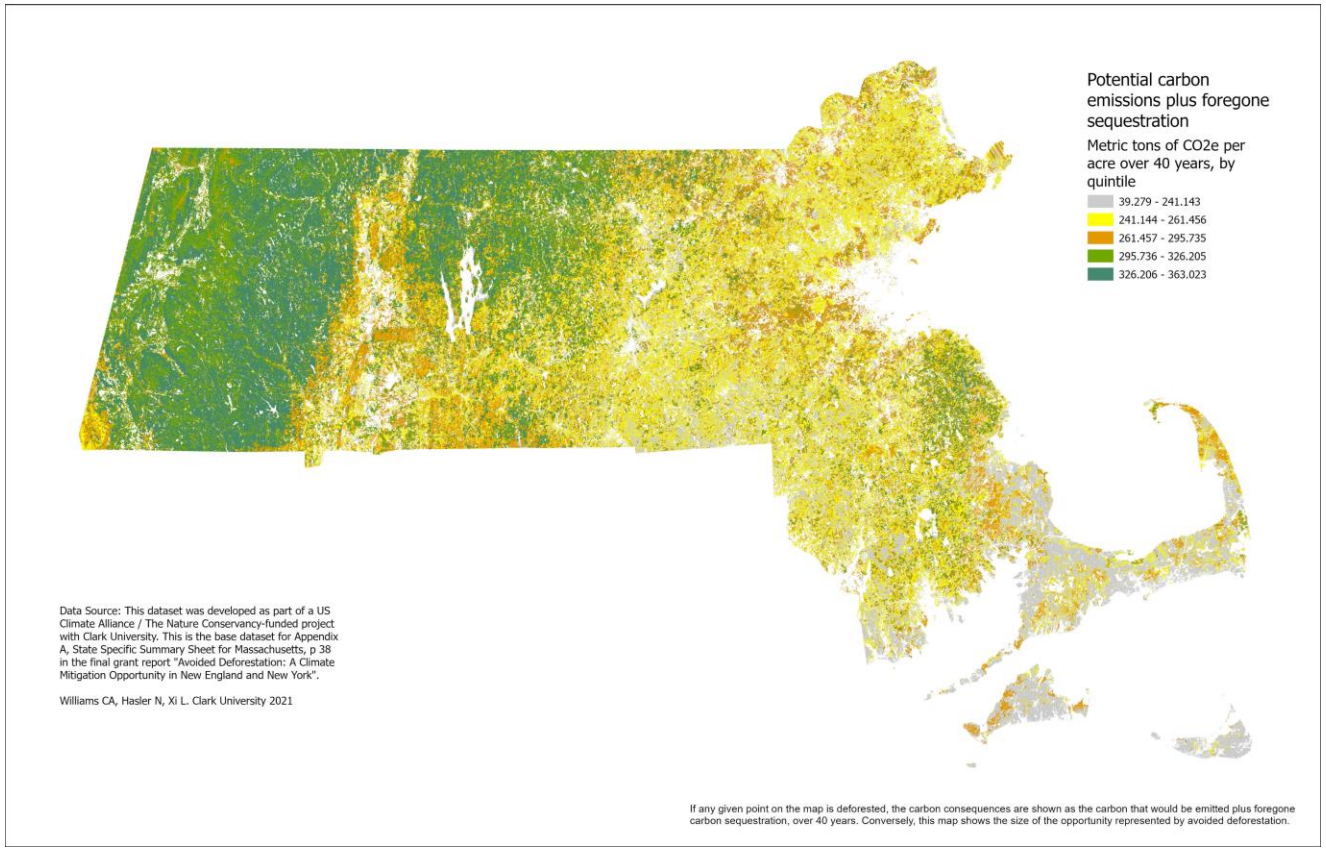
Carbon Storage

Proposed Weight: 3

Potential carbon emissions (equivalent) + foregone sequestration over 40 years for project footprint

- Peer-reviewed data from Clark University, publicly available through The Nature Conservancy's *Resilient Land Mapping Tool*
- Scoring indexed to distribution of sequestration potential across Massachusetts
- Ongoing update to reflect 2020 forest landscape and generate relevant data layer



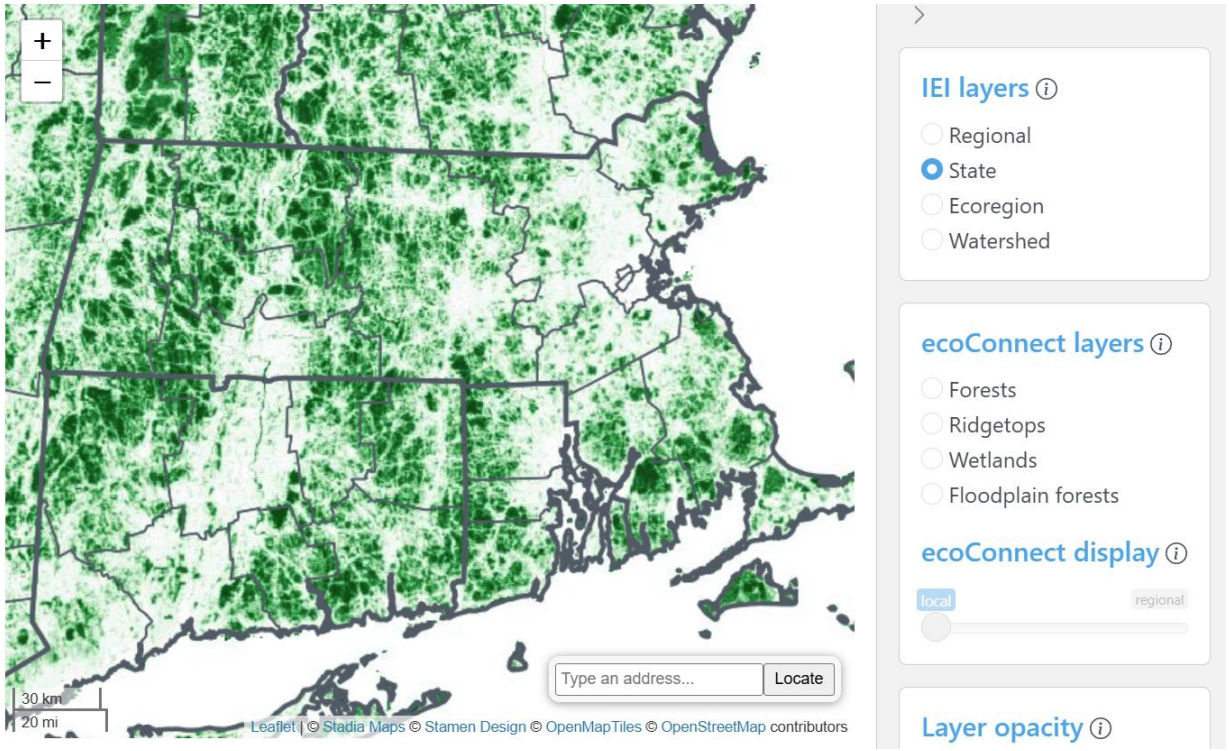
			Score			
			4 (Most Impactful)	*3*	*2*	*1 (Least Impactful)*
Weight	*3*	**Carbon Storage**	Second highest quintile *295-326 mt/ac CO2e*	Third quintile *261-295 mt/ac CO2e*	Fourth quintile *241-261 mt/ac CO2e*	Fifth quintile *<241 mt/ac CO2e*

Ecological Integrity

Proposed Weight: 3

Assessment of the ability of a site to support biodiversity and ecosystem processes over the long term

- Product of the Conservation Assessment and Prioritization System applied to northeast states by the UMass Landscape Ecology Lab
- Model evaluates two dozen landscape metrics for every point in the landscape
  - metrics are combined into an Index of Ecological Integrity, which scores each point in the landscape relative to all other points in the same system
- Scoring is indexed to Massachusetts
- Publicly available data visualization and calculator through UMass' *EcoAssess*



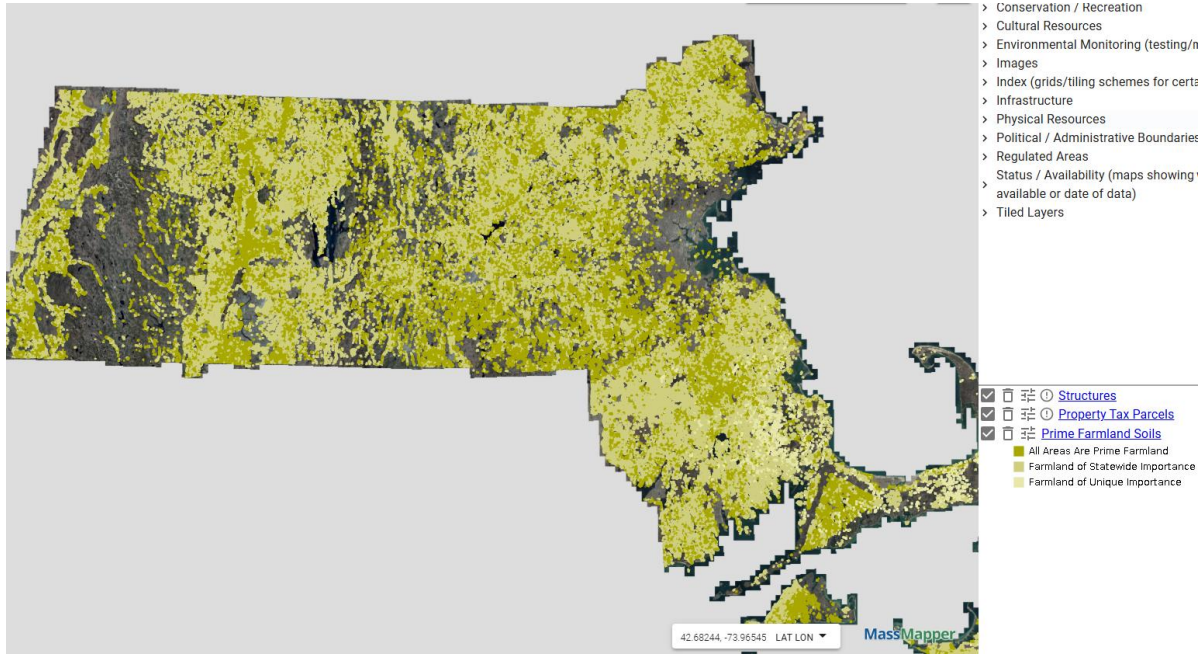
			Score			
			4 (Most Impactful)	*3*	*2*	*1 (Least Impactful)*
Weight	*3*	**Ecological Integrity**	Ecological Integrity >0.75	Ecological Integrity 0.5-0.75	Ecological Integrity 0.25-0.5	Ecological Integrity <0.25

Agricultural Potential

Proposed Weight: 2

Assessment of agricultural potential through farmland soil classification system that evaluates physical and chemical characteristics suitable for food production

- Soil survey data from USDA Natural Resources Conservation Service
- Publicly available data visualization through MassGIS' *MassMapper*



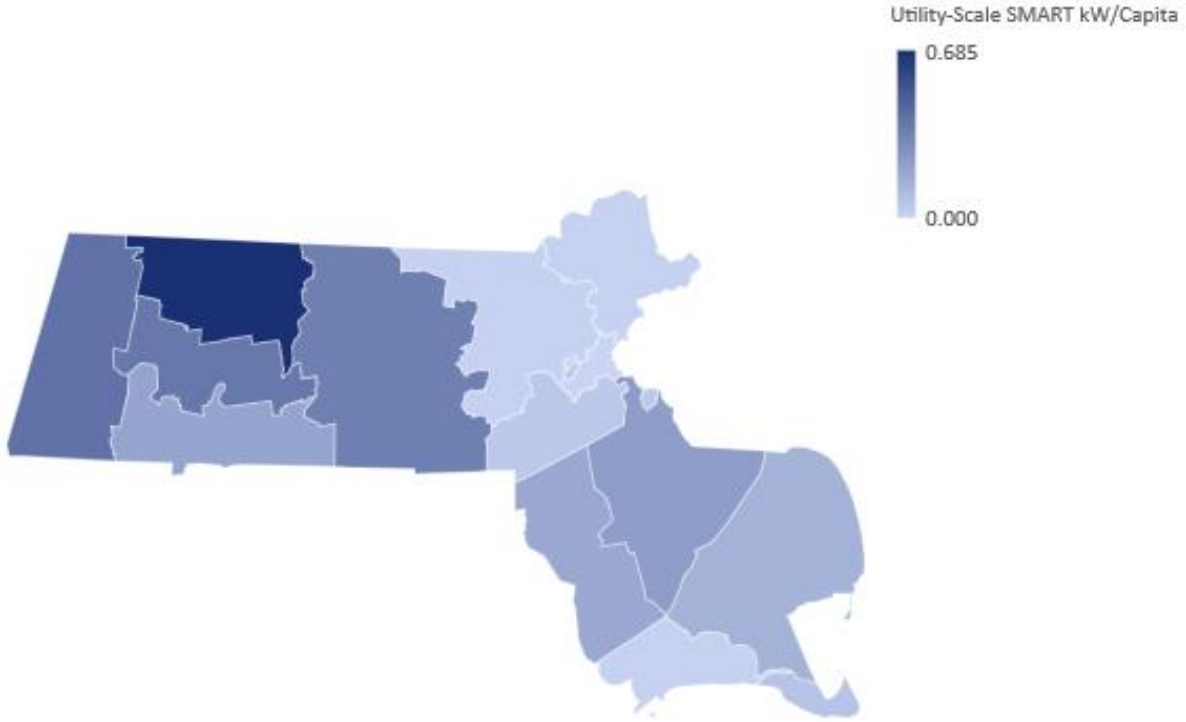
			Score			
			4 (Most Impactful)	*3*	*2*	*1 (Least Impactful)*
Weight	*2*	**Agricultural Potential**	Project footprint overlaps with Prime Farmland	>25% overlap with Farmland of Statewide or Unique Importance	<25% overlap with Farmland of Statewide or Unique Importance	No farmland overlap

Cumulative Impacts

Proposed Weight: 1

Assessment of historical development trends of ground-mounted solar through SMART MW/capita by county

- Higher penalty for siting in counties with more ground-mounted solar per capita to encourage equitable distribution of infrastructure
- Quartiles to be published annually



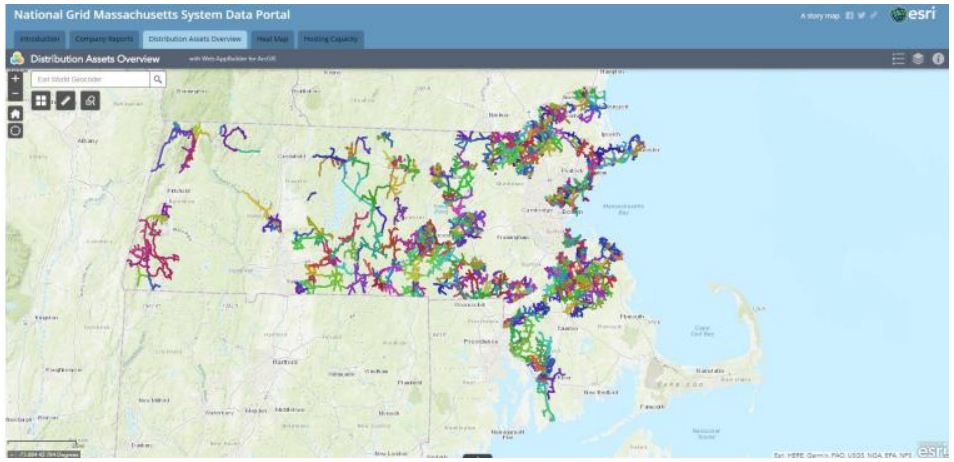
			Score			
			4 (Most Impactful)	*3*	*2*	*1 (Least Impactful)*
Weight	*1*	**Cumulative Impacts**	Highest quartile counties *Franklin* *Berkshire* *Hampshire* *Worcester*	Second highest quartile *Plymouth* *Hampden* *Bristol*	Second lowest quartile *Barnstable* *Nantucket* *Norfolk*	Lowest quartile *Middlesex* *Essex* *Dukes* *Suffolk*

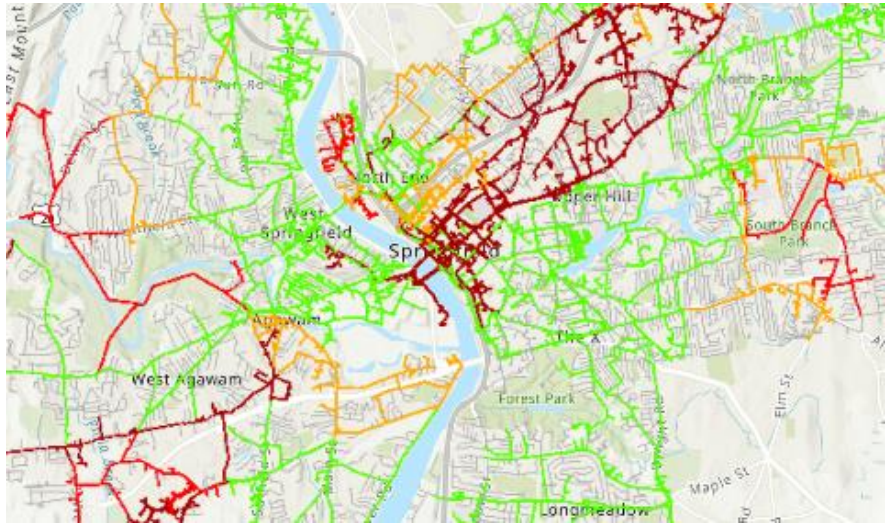
Grid Alignment

Proposed Weight: 1

Assessment of long-term cost and ecological impact of grid infrastructure build-out

- Currently proposed as distance to existing or planned substations or inclusion in a CIP or ESMP investment area
- Intend to maintain adaptability to ongoing LTSPP or other future grid planning initiatives
- Each EDC maintains a Hosting Capacity Map with relevant grid infrastructure





			Score			
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Weight	*1*	**Grid alignment**	Project >5 miles from current or planned substation	2-5 miles from substation	<2 miles from substation	In a CIP Area or ESMP investment area

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Breakout Rooms