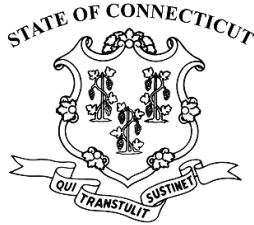


# Appendices

## Appendix I: Public Act 25-125, Section 12



### ***Substitute House Bill No. 5004***

### ***Public Act No. 25-125***

#### ***AN ACT CONCERNING THE PROTECTION OF THE ENVIRONMENT AND THE DEVELOPMENT OF RENEWABLE ENERGY SOURCES AND ASSOCIATED JOB SECTORS.***

Sec. 12. (NEW) (*Effective from passage*) (a) The Commissioner of Energy and Environmental Protection shall evaluate how to integrate and advance nature-based solutions in the state that support climate change mitigation, climate change adaptation, ecosystem resilience and biodiversity through (1) the microgrid and resilience grant and loan pilot program authorized pursuant to section 16-243y of the general statutes, (2) the open space and watershed land acquisition program authorized pursuant to sections 7-131d to 7-131k, inclusive, of the general statutes, as amended by this act, and (3) other applicable state and federal programs administered by the Department of Energy and Environmental Protection that advance nature-based solutions, including, but not limited to, (A) federal Clean Water Act programs, (B) the Long Island Sound Study program, and (C) the Urban Forestry program. The department's efforts to advance such nature-based solutions shall be known as the nature-based solutions initiative.

(b) The commissioner shall, as part of such evaluation, consider best practices that encourage the use of the state's ecosystems to naturally sequester and store carbon, reduce greenhouse gas emissions, increase biodiversity and protect against climate change impacts including: (1) Increasing carbon sequestration through increased forest acreage, including reforestation, (2)

controlling invasive species, (3) encouraging soil health across all landscapes, (4) protecting carbon stocks through avoiding the conversion of forests and wetlands to other purposes, (5) restoring habitats to improve biodiversity, (6) increasing climate-smart agriculture and soil conservation to reduce greenhouse gas emissions while improving habitat and protecting biodiversity, (7) increasing community resilience by improving water quality and addressing flooding and drought through nature-based stormwater management and shoreline protection that uses nature-based approaches such as living shorelines, (8) improving air quality and reducing urban heat island effects through urban forestry and increasing green spaces, and (9) increase access to open space for public health benefits.

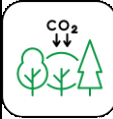

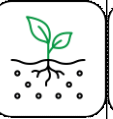

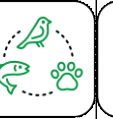

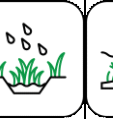



(c) Not later than July 1, 2026, the commissioner shall post such nature-based solutions initiative program evaluation on the department's Internet web site for review and written comment. As part of that evaluation, the commissioner shall seek review and input from the Departments of Agriculture, Public Health, Housing, Transportation, the Insurance Department, the Connecticut Green Bank and the Office of Policy and Management. In addition, the commissioner shall host one listening session before such nature-based solutions initiative is so posted in order to seek public comment.

Governor's Action:  
Approved July 1, 2025

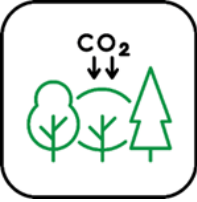
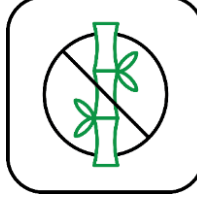





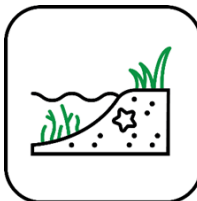


## Appendix II: DEEP's NBS-Related Management Plans, Policies & Guidance

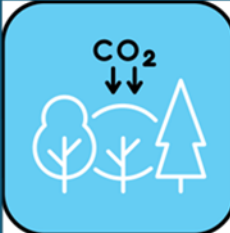
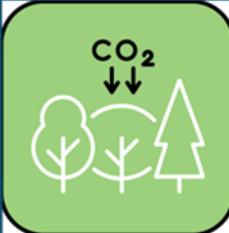
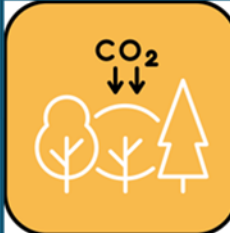

In addition to administering the NBS-related programs listed in the body of this report, DEEP conducts its operations based on many **plans**, **policies/regulations**, and **guidance** documents that are also closely associated with the 10 NBS practices highlighted in Public Act 25-125. Below the following list of plans, policies, and guidance (with links to webpages with additional information), the list is cross-referenced with icons representing NBS best practices and color-coded for emphasis (similar to how state agency programs are presented in Chapters II and III).

- [Agricultural Wastewater Guidance](#)
- [Aquifer Protection Act](#)
- [Best Management Practices for Golf Course Water Use](#)
- [Coastal Management Act](#)
- [Commercial Stormwater General Permit](#)
- [Comprehensive Open Space Acquisition Strategy \(“Green Plan”\)](#)
- [Connecticut Beach Association's Guide to Coastal Activities and Permitting](#)
- [Connecticut Golf Industry Best Management Practices](#)
- [Connecticut Guidelines for Soil Erosion and Sediment Control](#)
- [Connecticut's Aquifer Protection Area Program Municipal Manual](#)
- [Flood Management Act](#)
- [Forest Action Plan](#)
- [Forest Management Plans on State Lands](#)
- [Governor's Council on Climate Change \(GC3\) Phase 1 Report: Near Term Actions 2021](#)
- [Living Shorelines Primer](#)
- [Living Shorelines Techniques](#)
- [Long Island Sound Blue Plan](#)
- [Low Impact Development Appendix to the Connecticut Guidelines for Soil Erosion and Sediment Control](#)
- [Low Impact Development Appendix to the Connecticut Stormwater Quality Manual](#)
- [Manual of Best Management Practices for Agriculture](#)
- [Nuisance Aquatic Vegetation Management](#)
- [Recommendations for Phosphorus Strategy Pursuant to PA 12-155 Final Report](#)
- [Resident's Guide to Green Roofs \(2010\)](#)
- [Resident's Guide to Low Impact Development \(2008\)](#)
- [Resident's Guide to Rain Gardens \(2009\)](#)
- [Resident's Guide to Vegetated Riparian Areas \(2011\)](#)
- [Statewide Comprehensive Outdoor Recreation Plan \(SCORP\)](#)
- [Stormwater Quality Manual](#)
- [Tidal Wetlands Act/Regulations](#)
- [Wildlife Action Plan](#)

Policy Guidance, Management, and Plans	Carbon sequestration	Control Invasives	Soil Health	Avoid Conversion	Restore Habitats	Climate-Smart Ag	Stormwater Management	Shoreline Protection	Urban Forestry	Open Space
										
<a href="#">Agricultural Wastewater Page</a>	N/A	N/A	Primary purpose	N/A	Co-benefit	Primary purpose	Co-benefit	N/A	N/A	N/A
<a href="#">Aquifer Protection Act</a>	N/A	Eligible	Co-benefit	Eligible	Eligible	N/A	Primary purpose	Eligible	Eligible	Eligible
<a href="#">Best Management Practices for Golf Course Water Use</a>	Co-benefit	Eligible	Primary purpose	Co-benefit	Co-benefit	N/A	Primary purpose	Eligible	Eligible	N/A
<a href="#">Coastal Management Act</a>	N/A	N/A	N/A	N/A	Co-benefit	N/A	Eligible	Eligible	N/A	N/A
<a href="#">Commercial Stormwater General Permit</a>	N/A	N/A	Eligible	N/A	N/A	N/A	Primary purpose	N/A	N/A	N/A
<a href="#">Comprehensive Open Space Acquisition Strategy ("Green Plan")</a>	N/A	N/A	N/A	Eligible	N/A	N/A	N/A	N/A	Eligible	Primary purpose
<a href="#">Connecticut Beach Association's Guide to Coastal Activities and Permitting</a>	N/A	N/A	Co-benefit	Primary purpose	Primary purpose	N/A	Co-benefit	Primary purpose	N/A	N/A
<a href="#">Connecticut Golf Industry Best Management Practices</a>	Co-benefit	Co-benefit	Co-benefit	Co-benefit	Co-benefit	N/A	Primary purpose	N/A	N/A	N/A
<a href="#">Connecticut Guidelines for Soil Erosion and Sediment Control</a>	N/A	N/A	Primary purpose	N/A	Co-benefit	N/A	Eligible	Eligible	N/A	N/A
<a href="#">Connecticut Guidelines for Soil Erosion and Sediment Control</a>	Co-benefit	N/A	Primary purpose	Co-benefit	Co-benefit	N/A	Eligible	Eligible	Co-benefit	Eligible
<a href="#">Connecticut's Aquifer Protection Area Program Municipal Manual</a>	N/A	Eligible	Co-benefit	Eligible	Eligible	N/A	Primary purpose	Eligible	Eligible	Eligible
<a href="#">Flood Management Act</a>	N/A	N/A	N/A	N/A	N/A	N/A	Eligible	Eligible	N/A	N/A
<a href="#">Forest Action Plan</a>	Eligible	Eligible	Eligible	Eligible	Eligible	N/A	N/A	N/A	Eligible	Co-benefit
<a href="#">Forest Management on State Lands</a>	Eligible	Primary purpose	Primary purpose	Primary purpose	Primary purpose	N/A	Eligible	Eligible	Co-benefit	Primary purpose
<a href="#">Governor's Council on Climate Change (GC3) Phase 1 Report: Near Term Actions 2021</a>	Primary purpose	N/A	Primary purpose	Primary purpose	Co-benefit	Primary purpose	Primary purpose	Eligible	Primary purpose	N/A
<a href="#">Living Shorelines Primer</a>	N/A	N/A	Co-benefit	Co-benefit	Co-benefit	N/A	Primary purpose	Primary purpose	N/A	N/A
<a href="#">Living Shorelines Techniques</a>	N/A	N/A	Co-benefit	Co-benefit	Co-benefit	N/A	Primary purpose	Primary purpose	N/A	N/A
<a href="#">Long Island Sound Blue Plan</a>	N/A	N/A	N/A	Eligible	N/A	N/A	N/A	Co-benefit	N/A	N/A
<a href="#">Low Impact Development Appendix to the Connecticut Guidelines for Soil Erosion and Sediment Control</a>	Co-benefit	N/A	Primary purpose	Co-benefit	Co-benefit	N/A	Primary purpose	N/A	Co-benefit	Eligible
<a href="#">Low Impact Development Appendix to the Connecticut Stormwater Quality Manual</a>	Co-benefit	N/A	Primary purpose	Co-benefit	Co-benefit	N/A	Primary purpose	Eligible	Co-benefit	Eligible
<a href="#">Manual of Best Management Practices for Agriculture</a>	N/A	N/A	Primary purpose	N/A	Primary purpose	Primary purpose	Co-benefit	N/A	N/A	N/A
<a href="#">Nuisance Aquatic Vegetation Management</a>	N/A	Primary purpose	Eligible	N/A	Primary purpose	N/A	Eligible	N/A	N/A	Eligible
<a href="#">Recommendations for Phosphorus Strategy Pursuant to PA 12-155 Final Report</a>	N/A	N/A	Co-benefit	N/A	N/A	N/A	Primary purpose	N/A	N/A	N/A
<a href="#">Resident's Guide to Green Roofs (2010)</a>	N/A	N/A	Eligible	N/A	Primary purpose	N/A	Primary purpose	N/A	Primary purpose	Primary purpose
<a href="#">Resident's Guide to Low Impact Development (2008)</a>	N/A	N/A	Co-benefit	N/A	Co-benefit	N/A	Primary purpose	Eligible	Eligible	Co-benefit
<a href="#">Resident's Guide to Rain Gardens (2009)</a>	N/A	N/A	Eligible	N/A	Primary purpose	N/A	Primary purpose	N/A	Eligible	Eligible
<a href="#">Resident's Guide to Vegetated Riparian Areas (2011)</a>	N/A	N/A	Co-benefit	N/A	Co-benefit	N/A	Primary purpose	N/A	N/A	Eligible
<a href="#">Statewide Comprehensive Outdoor Recreation Plan (SCORP)</a>	N/A	N/A	N/A	Co-benefit	N/A	N/A	N/A	N/A	N/A	Primary purpose
<a href="#">Stormwater Quality Manual</a>	N/A	N/A	Eligible	Co-benefit	Co-benefit	Co-benefit	Primary purpose	Eligible	N/A	N/A
<a href="#">Tidal Wetlands Act/Regulations</a>	N/A	N/A	N/A	Eligible	Primary purpose	N/A	Co-benefit	Eligible	N/A	N/A
<a href="#">Wildlife Action Plan</a>	Eligible	Eligible	Co-benefit	Eligible	Primary purpose	N/A	Eligible	Eligible	N/A	N/A

## Appendix III: Key to NBS Best Practice Icons and Color-Coding

1		Increase <b>carbon sequestration</b> through increased forest acreage, including reforestation	2		<b>Control invasive species</b>
3		Encourage <b>soil health</b> across all landscapes	4		Protect carbon stocks through <b>avoiding the conversion</b> of forests and wetlands to other purposes
5		<b>Restore habitats</b> to improve biodiversity	6		Increase <b>climate-smart agriculture</b> and soil conservation to reduce greenhouse gas emissions while improving habitat and protecting biodiversity
7		Increase community resilience by improving water quality and addressing flooding and drought through nature-based <b>stormwater management</b>	8		Increase community resilience by improving water quality and addressing flooding and drought through nature-based <b>shoreline protection</b> including living shorelines
9		Improve air quality and reduce urban heat island effects through <b>urban forestry</b> and increasing green spaces	10		Increase access to <b>open space</b> for public health benefits

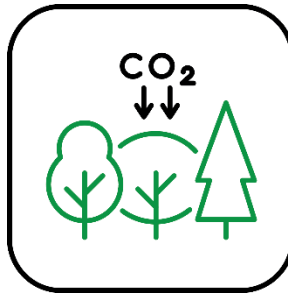
			
<b>Primary Purpose</b> <b>BLUE</b> means this NBS practice is a <b>TOP PRIORITY</b> for a Program	<b>Co-Benefit</b> <b>GREEN</b> means this NBS practice is a <b>ADDITIONAL BENEFIT</b> for a Program	<b>Eligible</b> <b>ORANGE</b> means this NBS practice is <b>ELIGIBLE</b> but <u>not</u> a top priority for a Program	<b>Not Applicable</b> <b>GREY</b> means the NBS practice is <b>NOT APPLICABLE</b> to a Program

## Appendix IV: More about the NBS Icons

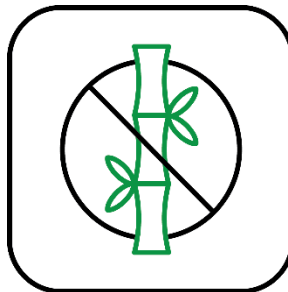
There are 10 NBS practices identified in Section 12 of P.A. 25-125 and, of course, many more that are not included in this report. As noted earlier, it can be difficult to describe each of these practices concisely, so DEEP developed icons to more easily communicate information visually with simple images substituted for potentially large blocks of text. The intention is that each icon not only would correspond with the individual NBS identified in P.A. 25-125, but also the icons can be experienced collectively as a set with some consistency amongst style and base colors.

The icons were initially developed by DEEP under a Canva Pro software license enabling staff<sup>61</sup> to combine elements and publish unique designs for the focused purpose of this report. The icons were finished using Adobe Illustrator software with attention to consistent line widths, color scheme (black and green base images, with color-coded icon sets created in Blue, Green, Orange, and Grey), and simplified images across the icon set.

### 1. Increase carbon sequestration through increased forest acreage, including reforestation



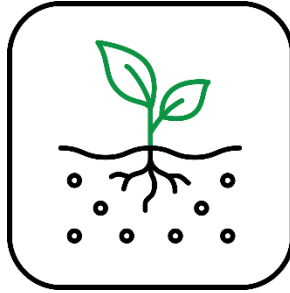
### 2. Control invasive species



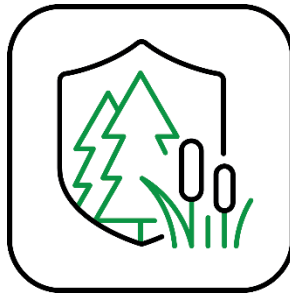
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<sup>61</sup> Special thanks to Jordan DiDomenico, Environmental Analyst II in DEEP's Office of Environmental Review & Strategic Initiatives (ERSI), for her artistic vision in launching and coordinating the icon effort, along with Joe Cunningham, Visual Media Designer III in the Office of Communications, for his expertise in simplifying, sharpening, and giving final form to the icons.

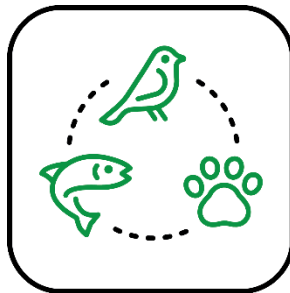
**3. Encourage soil health across all landscapes**



**4. Protect carbon stocks through avoiding the conversion of forests and wetlands to other purposes**



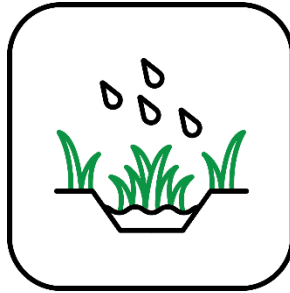
**5. Restore habitats to improve biodiversity**



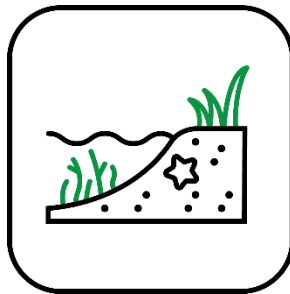
**6. Increase climate-smart agriculture and soil conservation to reduce greenhouse gas emissions while improving habitat and protecting biodiversity**



7. Increase community resilience by improving water quality and addressing flooding and drought through nature-based stormwater management



8. Increase community resilience by improving water quality and addressing flooding and drought through nature-based shoreline protection including living shorelines



9. Improve air quality and reduce urban heat island effects through urban forestry and increasing green spaces



10. Increase access to open space for public health benefits.



## Appendix V: Definitions of key terms

Section 12 of [P.A. 25-125](#) specifies that nature-based solutions must 1) reflect the concepts of climate adaptation and mitigation, ecosystem resilience, and biodiversity; as well as 2) utilize the state's ecosystems to naturally sequester and store carbon, reduce greenhouse gas emissions, increase biodiversity, and protect against climate change impacts.

Key terms to understand NBS are included below from the glossary of terms produced by the Intergovernmental Panel on Climate Change (IPCC):<sup>62</sup>

**Adaptation:** In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects. The array of strategies and measures that are available and appropriate for addressing adaptation involve a wide range of actions that can be categorized as structural, institutional, ecological, or behavioral.

**Biodiversity:** *Biodiversity* or biological diversity means the variability among living organisms from all sources including, among other things, terrestrial, marine and other aquatic *ecosystems*, and the ecological complexes of which they are part; this includes diversity within species, between species, and of *ecosystems* (UN, 1992).

**Climate:** In a narrow sense, *climate* is usually defined as the average weather -or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities- over a period of time ranging from months to thousands or millions of years. The classical period for averaging these variables is 30 years, as defined by the World Meteorological Organization (WMO). The relevant quantities are most often surface variables such as temperature, precipitation and wind. *Climate* in a wider sense is the state, including a statistical description, of the *climate system*.

**Climate Change:** A change in the state of the *climate* that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. *Climate change* may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent *anthropogenic* changes in the composition of the *atmosphere* or in *land use*. Note that the United Nations Framework Convention on Climate Change (UNFCCC), in its Article 1, defines *climate change* as ‘a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere, and which is in addition to natural climate variability observed over comparable time periods.’ The UNFCCC thus makes a distinction between *climate change* attributable to human activities altering the atmospheric composition and *climate variability* attributable to natural causes.

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<sup>62</sup> Definitions are from the Intergovernmental Panel on Climate Change (IPCC), 2022: Annex II: Glossary [Möller, V., R. van Diemen, J.B.R. Matthews, C. Méndez, S. Semenov, J.S. Fuglestedt, A. Reisinger (eds.)]. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2897–2930, [doi:10.1017/9781009325844.029](https://doi.org/10.1017/9781009325844.029).

**Ecosystem:** A functional unit consisting of living organisms, their non-living environment and the interactions within and between them. The components included in a given *ecosystem* and its spatial boundaries depend on the purpose for which the *ecosystem* is defined: in some cases, they are relatively sharp, while in others they are diffuse. *Ecosystem* boundaries can change over time. *Ecosystems* are nested within other *ecosystems*, and their scale can range from very small to the entire *biosphere*. In the current era, most *ecosystems* either contain people as key organisms or are influenced by the effects of human activities in their environment.

**Ecosystem Services:** Ecological processes or functions having monetary or non-monetary value to individuals or society at large. These are frequently classified as (1) supporting services such as productivity or *biodiversity* maintenance, (2) provisioning services such as food or fiber, (3) regulating services such as *climate regulation* or *carbon sequestration* and (4) cultural services such as tourism or spiritual and aesthetic appreciation.

**Greenhouse Gases (GHGs):** Gaseous constituents of the *atmosphere*, both natural and *anthropogenic*, that absorb and emit radiation at specific wavelengths within the spectrum of radiation emitted by the Earth's *ocean* and *land* surface, by the *atmosphere* itself and by clouds. This property causes the greenhouse effect. Water vapor (H<sub>2</sub>O), *carbon dioxide* (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), *methane* (CH<sub>4</sub>) and *ozone* (O<sub>3</sub>) are the primary GHGs in the Earth's *atmosphere*. Human-made GHGs include sulphur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (HFCs), chlorofluorocarbons (CFCs) and perfluorocarbons (PFCs); several of these are also O<sub>3</sub>-depleting (and are regulated under the Montreal Protocol).

**Hazard:** The potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury or other *health impacts*, as well as damage and loss to property, *infrastructure*, *livelihoods*, *service provision*, *ecosystems* and environmental resources.

**Impacts:** The consequences of realized *risks* on *natural* and *human systems*, where *risks* result from the interactions of *climate-related hazards* (including *extreme weather/climate events*), *exposure*, and *vulnerability*. *Impacts* generally refer to effects on lives, *livelihoods*, *health* and *well-being*, *ecosystems* and species, economic, social and cultural assets, services (including *ecosystem services*) and *infrastructure*. *Impacts* may be referred to as consequences or outcomes and can be adverse or beneficial.

**Invasive Species:** A species that is not native to a specific location or nearby, lacking natural controls, and that has a tendency to rapidly increase in abundance, displacing *native species*. *Invasive species* may also damage the human economy or human *health*.

**Mitigation (emissions):** A human intervention to reduce *emissions* or enhance the *sinks* of *greenhouse gases*.

**Nature-Based Solutions (NBS):** Actions to protect, sustainably manage and restore natural or modified *ecosystems* that address societal challenges effectively and adaptively, simultaneously providing human *well-being* and *biodiversity* benefits. (IUCN, 2016).

**Nature-Based Solutions (NBS) Initiative:** DEEP’s efforts to advance nature-based solutions in Connecticut.<sup>63</sup>

**Resilience:** The capacity of interconnected social, economic and ecological systems to cope with a hazardous event, trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure. *Resilience* is a positive attribute when it maintains capacity for *adaptation*, learning and/or *transformation* (Arctic Council, 2016).

**Resilience (State):** The ability to prepare for and adapt to changing conditions and withstand and recover rapidly from deliberate attacks, accidents or naturally occurring threats or incidents, including, but not limited to, threats or incidents associated with the impacts of climate change<sup>64</sup> such as risks related to extreme heat, drought or prolonged or intense exposure to precipitation.<sup>65</sup>

**Risk:** The potential for adverse consequences for human or ecological systems, recognizing the diversity of values and objectives associated with such systems. In the context of *climate change*, *risks* can arise from potential *impacts* of *climate change* as well as human responses to *climate change*. Relevant adverse consequences include those on lives, *livelihoods*, *health* and *well-being*, economic, social and cultural assets and investments, *infrastructure*, services (including *ecosystem services*), *ecosystems*, and species.

In the context of *climate change impacts*, *risks* result from dynamic interactions between *climate-related hazards* with the *exposure* and *vulnerability* of the affected human or ecological system to the *hazards*. *Hazards*, *exposure* and *vulnerability* may each be subject to *uncertainty* in terms of magnitude and *likelihood* of occurrence, and each may change over time and space due to socio-economic changes and human decision-making.

**Sequestration:** The process of storing carbon in a carbon pool.

**Sink:** Any process, activity or mechanism which removes a *greenhouse gas*, an *aerosol*, or a *precursor* of a *greenhouse gas* from the *atmosphere*.

**Source:** Any process or activity which releases a *greenhouse gas*, an *aerosol*, or a *precursor* of a *greenhouse gas* into the *atmosphere*.

**Sustainability:** Involves ensuring the persistence of *natural* and *human systems*, implying the continuous functioning of *ecosystems*, the conservation of high *biodiversity*, the recycling of natural resources and, in the human sector, successful application of *justice* and *equity*.

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<sup>63</sup> The “Nature-Based Solutions Initiative” is defined in P.A. 25-125, not in the IPCC glossary of terms.

<sup>64</sup> Definition from [CGS Sec. 16-243y](#), which established state’s microgrid and resilience grant program.

<sup>65</sup> Added risks related to extremes referenced in [P.A. 25-33, Section 16 \(c\)\(3\)\(E\)](#).

## Appendix VI: Summary of Public Comments