



## Greenhouse Gas Mitigation

### Background

The challenges of climate change have pushed Federal Land Managers to think and act on an ecosystem scale, creating unprecedented partnership opportunities with other land managers, policy makers and the public. At the same time the National Park Service (NPS) must demonstrate sustainability through leadership; in how we operate and manage our facilities, vehicles and lands; how we conserve energy; and how we engage innovative leadership at all levels.

The NPS is committed to conserving forest carbon stocks, reducing our greenhouse gas emissions by reducing our operational footprint, expanding our sustainable practices, and sharing information about the actions we are taking with the visiting public, partners and surrounding communities.

### Approach

There are two general approaches to greenhouse gas mitigation:

- Natural carbon storage in vegetation as a side-benefit of natural resource management actions such as forest conservation, habitat restoration, and fire management; and,
- Reduction of emissions from oil, coal, and other fossil fuels used for vehicles and buildings.

In keeping with the NPS mission of preserving resources, the first priority is to protect existing natural systems that hold carbon, old-growth forests and wetlands. Although existing federal guidelines do not require or recommend including ecosystem sequestration in greenhouse gas (GHG) inventories, national park forests contribute to removing CO<sub>2</sub> from the atmosphere and contain carbon at some of the highest densities in the world.

The NPS developed the *Green Parks Plan*, an implementation road map for GHG mitigation efforts as a component of the *NPS Climate Change Response Strategy*. This plan establishes goals for energy



**Parks are exploring innovative ways to mitigate their greenhouse gas (GHG) emissions. The Jefferson Memorial uses propane lawn mowers for landscape maintenance, which produce 26% less GHG emissions. Many parks are finding even more cost effective ways of reducing GHG emissions, like switching to compact fluorescent light bulbs. NPS photos.**

conservation and GHG emission reductions, the significant areas where we can demonstrate environmental leadership and make our greatest contribution to a global effort to use resources more mindfully.

At the core of the *Green Parks Plan* (GPP) is a comprehensive and vigorous Environmental Management System (EMS) framework to guide planning, monitoring, and reporting on our goals and objectives. A key goal of the GPP is for all parks to measure their GHG emissions and to enter into the Climate Friendly Parks program.

The NPS Climate Friendly Parks program has promoted sustainable operations and climate change education in parks since 2003. The sustainability portion of the program emphasizes conservation, energy improvements, and renewable energy.

Greenhouse gas emission inventories provide a mechanism to track progress as well as an example to encourage change beyond our borders. The Climate Friendly Parks program helps each park establish GHG emission inventory baselines and sets conservation targets with meaningful actions to achieve emission reductions. Results of these actions can be tracked in combination with all the mitigation efforts outlined in the *Green Parks Plan* and the *NPS A Call to Action*.

### More Information

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## Status and Next Steps

**Forest carbon:** Management of forests and wetlands naturally mitigates climate change by conserving carbon stocks and encouraging vegetation growth that sequesters more carbon. The NPS took a lead role in developing the Intergovernmental Panel on Climate Change (IPCC) scientific guidelines for quantifying ecosystem carbon and has conducted research with the University of California, Berkeley that quantified the substantial forest carbon stocks of Redwood, Sequoia, and Yosemite National Parks.

**Emissions Inventories:** As of January 2015, over 189 parks have completed their GHG inventories, and more are working to complete them. A growing number of parks are using the Climate Leadership In Parks (CLIP) Tool to develop actions for their EMS plans.

**Climate Action Plans:** Parks participating in the Climate Friendly Parks (CFP) program now have the option of incorporating the action items developed during the CFP process directly into their existing EMS plans, or into separate Climate Action Plans. Some of these items include; GHG emissions reductions across multiple areas of sustainability, including energy management, transportation, waste management, and education and outreach.

**A Call to Action:** The August 25, 2011 *Call to Action* emphasizes reducing our carbon footprint. Many parks have already accomplished, or are in the process of changing light bulbs, caulking windows, upgrading their fleet to more fuel efficient vehicles, installing photovoltaic systems and incorporating sustainable choices into their daily operations to reduce waste, reduce dependency on petroleum, conserve energy and water, and increase use of renewable energy sources. The least cost, but often the most difficult element to change is NPS staff and visitor behavior. Daily changes in our lifestyle can make tremendous reductions in the amount of energy, materials, and water we consume. The *My Green Parks* website focuses on engaging, inspiring, and educating NPS staff to increase efficiencies and maximize each dollar. The release of *A Call to Action* supports these mitigation efforts by calling on the National Park Service to reduce our carbon footprint and showcase the value of renewable energy to the public.

**The Green Parks Plan:** The 2012 *Green Parks Plan* is the NPS sustainability vision that further outlines mitigation targets. Some of the key objectives in the Green Parks Plan are listed in the table below.

Goal Categories and Key Objectives		2016 Goal	2020 Goal
<b>EC—Environmental Compliance</b>			
	The NPS will implement EMSs Servicewide by 2012.	100% of appropriate organizations implement EMS	100% of appropriate organizations implement EMS
<b>CC—Climate Change Mitigation &amp; Facility Adaptation</b>			
	The NPS will reduce Scope 1 & 2 GHG emissions from the 2008 baseline and strive for operational carbon neutrality.	30% GHG reduction	50% GHG reduction
<b>EM—Energy Management</b>			
	The NPS will conserve energy and reduce Servicewide energy intensity from the 2003 baseline.	35% energy intensity reduction	40% energy intensity reduction
<b>WM—Water Management</b>			
	The NPS will conserve potable water (non-irrigation) from the 2007 baseline.	20% reduction of potable water use intensity	30% reduction of potable water use intensity
<b>FT—Fleet &amp; Transportation Management</b>			
	The NPS will right-size its fleet.	Right-sizing analysis complete and 100% of recommendations implemented	Right-sizing analysis complete and 100% of recommendations implemented
<b>PW— Environmental Purchasing &amp; Waste Reduction/ Management</b>			
	The NPS will divert solid waste from landfills.	50% diversion of solid waste	60% diversion of solid waste
<b>IE—Healthy Indoor Environments</b>			
	The NPS will ensure healthy workspace environments for park employees and living quarters for employees living in NPS housing.	70% of employees report “satisfaction”	90% of employees report “satisfaction”
<b>OE—Outdoor Environmental Quality &amp; Sustainable Sites</b>			
	The NPS will reduce light pollution from park facilities with the goal of dark night sky preservation.	70 Night Sky friendly lighting projects completed	100 Night Sky friendly lighting projects completed
<b>BP—Best Practices in Sustainable Facilities Management</b>			
	The NPS will fully integrate the <i>GPP</i> with EMSs and other sustainability planning initiatives.	100% <i>GPP</i> integration	100% <i>GPP</i> integration