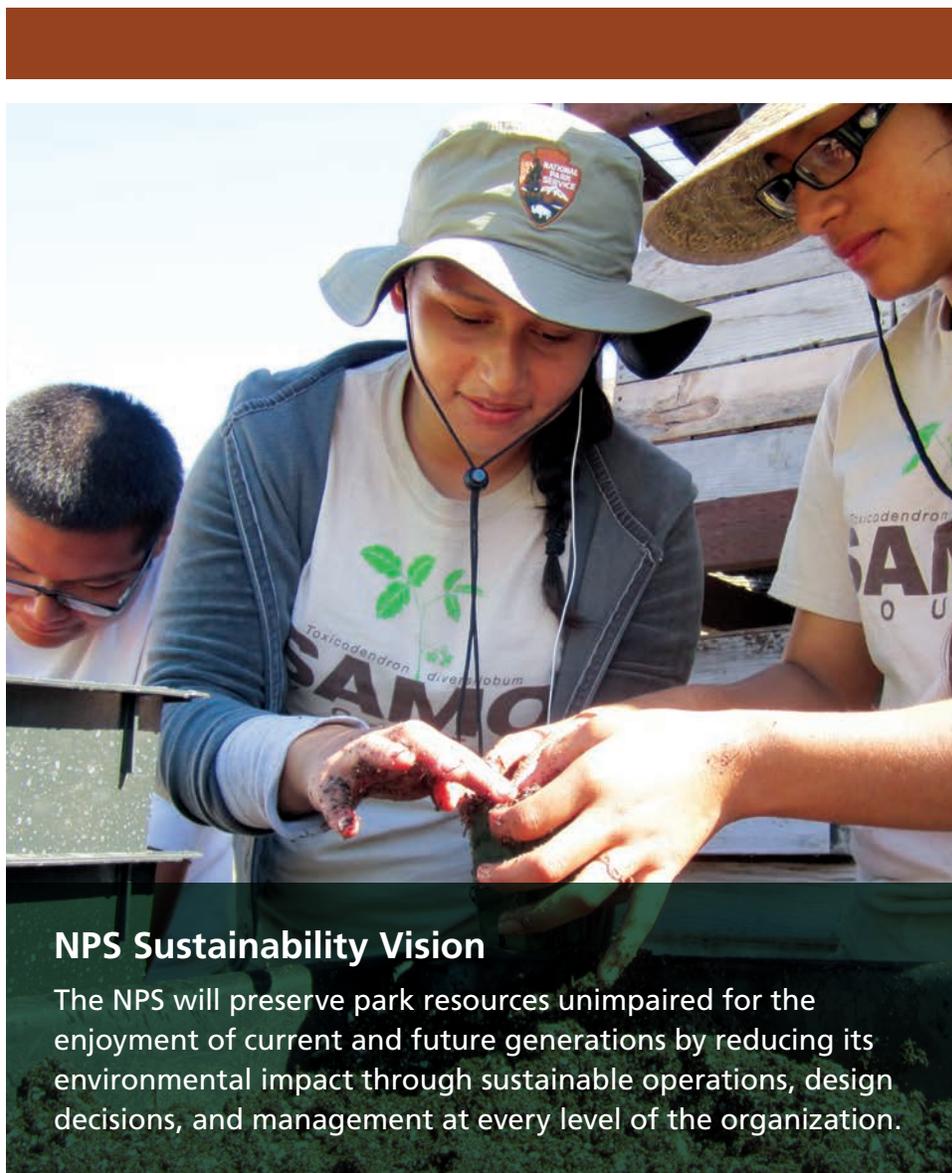




2015 Green Parks Performance Brief



NPS Sustainability Vision

The NPS will preserve park resources unimpaired for the enjoyment of current and future generations by reducing its environmental impact through sustainable operations, design decisions, and management at every level of the organization.



Introduction

The *Green Parks Plan (GPP)*—released on Earth Day 2012—defines the National Park Service’s (NPS) collective vision and strategic plan for sustainable operations. In 2013, Director Jarvis furthered the NPS commitment to sustainable operations by adding “Go Green” into the agency’s *Call to Action*.

Green Parks Plan Goals

The **2012 GPP** specifies nine goals designed to lessen the NPS impact on the environment and improve human welfare. Each goal includes two to five specific performance objectives.



Continuously Improve Environmental Performance

The NPS will meet and exceed the requirements of all applicable environmental laws.



Be Climate Friendly and Climate Ready

The NPS will reduce GHG emissions and adapt facilities at risk from climate change.



Be Energy Smart

The NPS will improve facility energy performance and increase reliance on renewable energy.



Be Water Wise

The NPS will improve facility water use efficiency.



Green Our Rides

The NPS will transform our fleet and adopt greener transportation methods.



Buy Green and Reduce, Reuse, and Recycle

The NPS will purchase environmentally friendly products and increase waste diversion and recycling.



Preserve Outdoor Values

The NPS will minimize the impact of facility operations on the external environment.



Adopt Best Practices

The NPS will adopt sustainable best practices in all facility operations.



Foster Sustainability Beyond Our Boundaries

The NPS will engage visitors about sustainability and invite their participation.

■ Goal with Measurable Objective(s)

■ Goal without Measurable Objective

On the Cover: Members of the SAMO Youth Empowerment & Training Program work with seedlings in the native plant nursery at Rancho Sierra Vista in Santa Monica Mountains National Recreation Area. Credit: NPS/SAMO.

Annual Reporting

The *GPP* provides the NPS with important sustainability goals, but to make a real and lasting impact, agency staff will continually monitor, evaluate, and improve performance against these goals. The annual *Green Parks Performance Brief* provides a mechanism for demonstrating this progress.

The Performance Brief focuses especially on the five goals with measurable objectives. In addition, the Performance Brief includes park and regional highlights from the past year.

The NPS is on track to achieve two measurable objectives as of 2015:

- **Reduce Scope 3 GHG emissions** under the *Be Climate Friendly and Climate Ready* goal.
- **Divert solid waste from landfills** under the *Buy Green and Reduce, Reuse, and Recycle* goal.

The NPS will work to improve performance related to four measurable objectives:

- **Reduce Scope 1 and 2 GHG emissions** under the *Be Climate Friendly and Climate Ready* goal.
- **Reduce building energy intensity** under the *Be Energy Smart* goal.
- **Reduce water use intensity** under the *Be Water Wise* goal.
- **Reduce fossil fuel consumption** under the *Green Our Rides* goal.

In 2015, NPS performance was affected by the transition to a new reporting system—the Financial and Business Management System (FBMS)—and an increase in the number of parks reporting. Thus, some of the increases in performance metrics can be attributed to these changes in reporting. Nonetheless, to further advance the NPS sustainability vision, the agency must continue to:

- Supply parks with the tools needed to evaluate and improve performance so that each park understands how to best contribute to meeting NPS sustainability goals.

- Invest with intent by providing targeted funding to parks and focusing on the goals that need improvement.
- Assess the resiliency of NPS infrastructure as part of the NPS commitment to sustainability to ensure that the agency mindfully manages assets in the face of change.
- Communicate and applaud NPS achievements to recognize success and continually learn from efforts.

Looking Ahead

In 2016, as part of the NPS Centennial Celebration, the agency celebrates 100 years of sustainability and looks forward to advancing and expanding park sustainability in the century to come.

The NPS is proud of the many sustainability projects and initiatives that have been implemented at park, regional, and national levels to reduce energy and water consumption, to limit waste generation, and to more sustainably manage facilities and the vehicle fleet. And the NPS recognizes the champion parks and individuals across the Service that have spearheaded these great accomplishments.

After 100 years of sustaining and preserving over 400 parks, the NPS has gained a better understanding of sustainability best practices and is adapting agency operations thanks to lessons learned along the way. The agency takes pride in being a leader in sustainability and to continue this leadership, the NPS will strive for net zero energy, water, and waste parks in the next century.

As the NPS celebrates its 100th birthday, the agency is updating the *GPP* to account for recent progress and to refresh its vision of the future. The agency is modifying the *GPP* goals and objectives to extend the goals into the future and increase focus on key areas, including partnerships and sustainable landscapes. Next year's Performance Brief will therefore report on progress related to these newly enhanced goals and objectives.

In the meantime, the agency continues to report on progress related to the 2012 *GPP* goals and to celebrate sustainability accomplishments at parks and regions across the country.



Be Climate Friendly and Climate Ready

Reduce GHG emissions and adapt facilities at risk from climate change.

Fast Facts:

Total 2015 GHG Emissions:¹ 388,246 MTCO₂e*

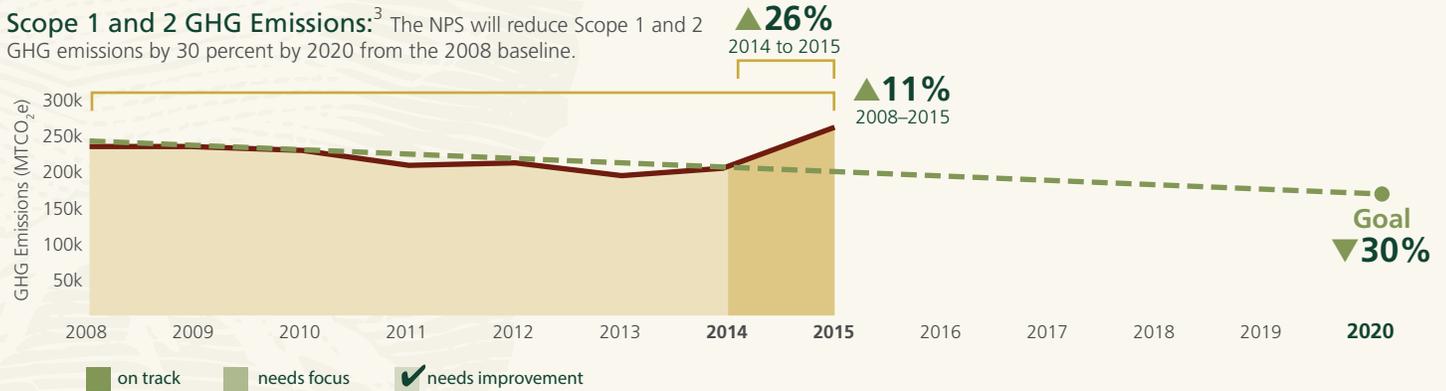
Scope 1 GHG Emissions: 117,720 MTCO₂e

Scope 2 GHG Emissions:² 142,662 MTCO₂e

Scope 3 GHG Emissions: 127,864 MTCO₂e

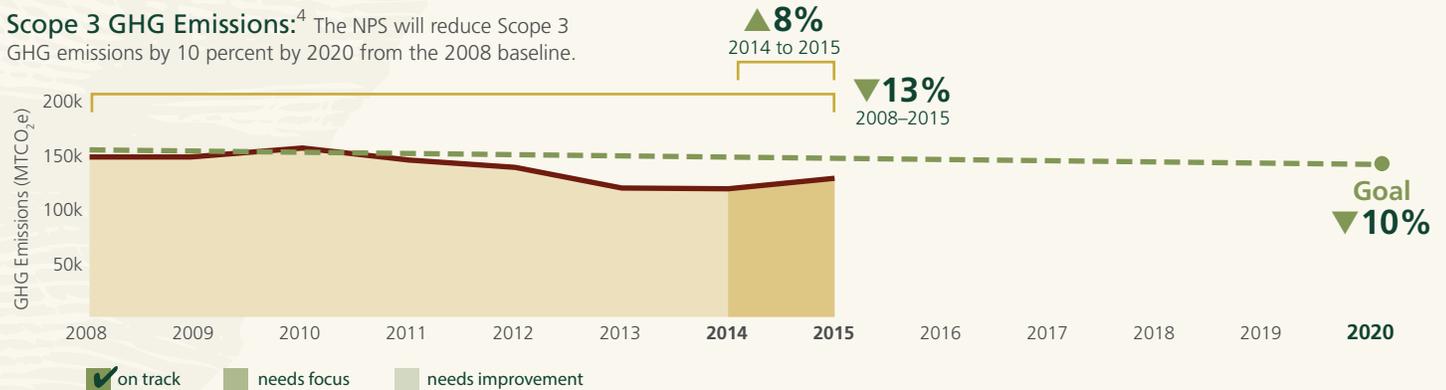
Goal Progress: Scope 1 and 2 GHG Emissions up 11% since 2014

Scope 1 and 2 GHG Emissions:³ The NPS will reduce Scope 1 and 2 GHG emissions by 30 percent by 2020 from the 2008 baseline.



Goal Progress: Scope 3 GHG Emissions down 13% since 2008

Scope 3 GHG Emissions:⁴ The NPS will reduce Scope 3 GHG emissions by 10 percent by 2020 from the 2008 baseline.



*Metric tons of carbon dioxide equivalent

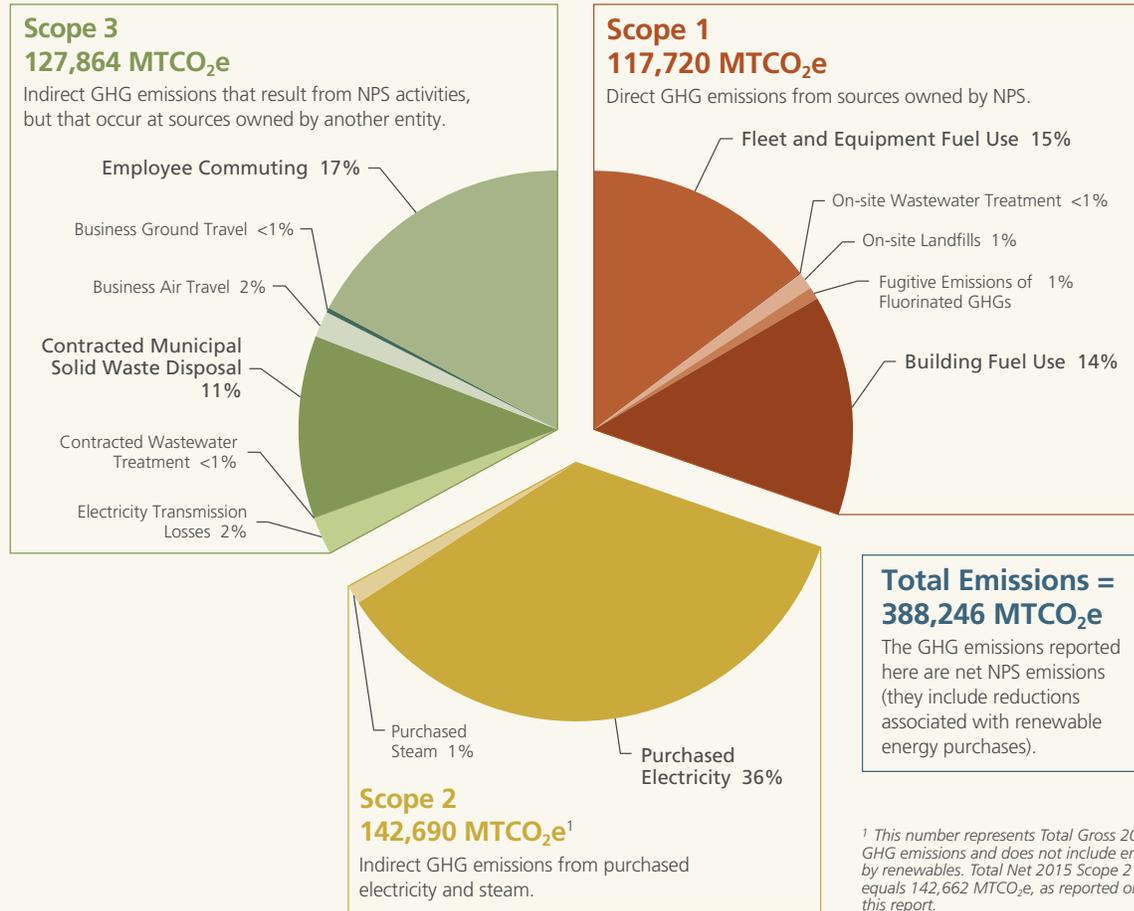
¹ The GHG emissions reported here are net emissions from NPS operations (they include reductions associated with renewable energy purchases).

² This number represents Total Net 2015 Scope 2 GHG emissions and includes emissions offset by renewables. Total Gross 2015 Scope 2 GHG emissions equals 142,690 MTCO₂e, as reported on Page 5 of this report.

³ Scope 1 and 2 emissions are associated with direct on-site sources such as fossil fuel combustion and electricity consumption from the grid, respectively.

⁴ Scope 3 emission sources such as commuter travel and off-site wastewater treatment are indirect in nature.

2015 GHG Emissions Inventory by Source



2015 Green Parks Success Story: Coastal Parks Assess Impacts of Sea Level Rise

The Climate Change Response Program (CCRP) and the Sustainable Operations and Climate Change Branch (SOCC) collaborated on a project to assess the impacts of a 1-meter increase in sea level rise (SLR) on facilities and natural and cultural resources in 40 coastal parks. Completed in 2015, Phase One of this project helped coastal parks to better understand their risk to SLR and other climate change-related impacts, and to apply this information as they develop and implement climate change adaptation strategies. Now in Phase Two, SOCC has completed five new assessments to date, and expects to complete 25 more in Fiscal Year 2016. Through collaboration with Western Carolina University, SOCC has developed a standardized method and tool for conducting comprehensive climate change assessments at coastal parks as part of this project. This work is also taking place internationally: two assessments have been completed in parks in Jamaica and Panama under an agreement between the U.S. Agency for International Development (USAID) and the NPS.

What is Driving Performance?



New Reporting System:
More parks reporting electricity consumption through FBMS.
(▲ from 327 in 2014 to 353 in 2015).



Be Energy Smart

Improve NPS facility energy performance and increase reliance on renewable energy.

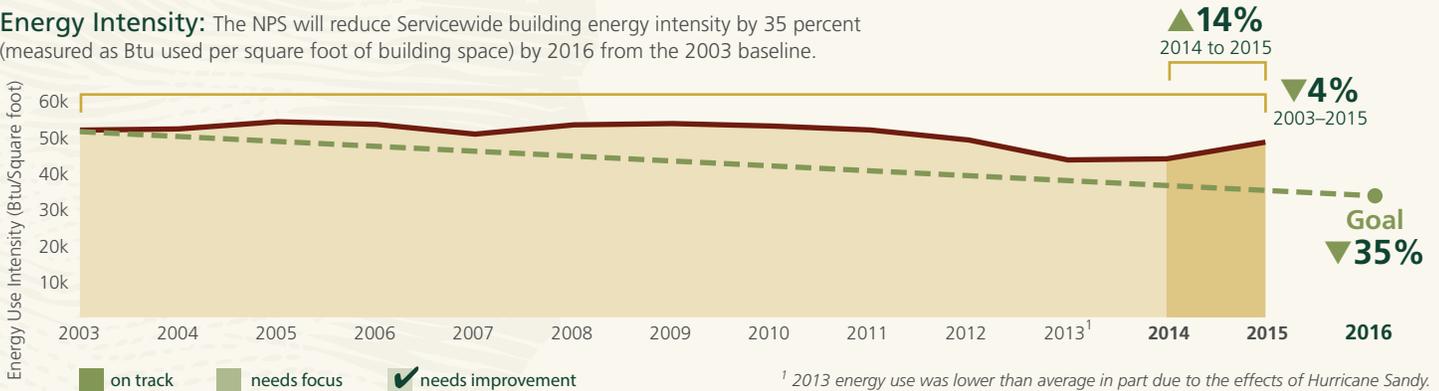
Fast Facts:

Energy Consumption:
1.76 trillion Btu
(▲ 33% since 2014)

Energy Intensity:
49.8 kBtu/square foot
(▲ 14% since 2014)

Goal Progress: Energy Intensity down 4% since 2003

Energy Intensity: The NPS will reduce Servicewide building energy intensity by 35 percent (measured as Btu used per square foot of building space) by 2016 from the 2003 baseline.



What is Driving Performance?



New Reporting System: Both the number of parks reporting and total consumption reported varied from previous trends due to the transition to FBMS. The top 10 historically consuming parks reported electricity use over 120% higher than previous years.



Facility type: The size, number, and type of facilities at a given park affect energy usage.



Weather and location: Both play important roles in determining monthly and annual energy consumption.

2015 Green Parks Success Story: Yellowstone National Park Repurposes Hybrid Car Batteries to Store Solar Energy

Parks across the country have been integrating hybrid and all-electric vehicles into their fleets because they give off little or no harmful emissions, and they are a great opportunity to showcase parks' commitment to sustainability with park visitors. At closer inspection however, the overall long-term impacts of the vehicles' large battery packs—and the hazardous materials they contain—present a challenge that parks must address. Partnering with Toyota, Yellowstone National Park's Lamar Buffalo Ranch has found a great green solution. The ranch recycles battery packs from older-generation hybrid vehicles that are still able to hold a substantial charge and repurposes them to store solar energy. The park is using 280 of these nickel-metal hydride battery packs to store enough solar energy to fully power the ranch's five buildings.



Be Water Wise

Improve facility water use efficiency.

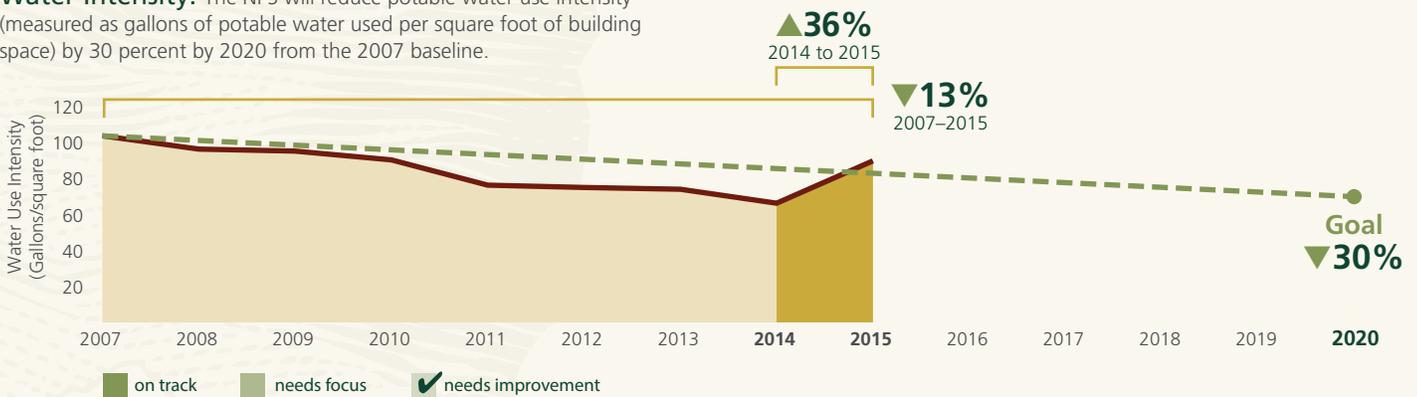
Fast Facts:

Water Consumption:
3.2 billion gallons
(▲ 59% from 2014)

Water Use Intensity:
89.4 gallons/square foot
(▲ 36% from 2014)

Goal Progress: Water Use Intensity down 13% since 2007

Water Intensity: The NPS will reduce potable water use intensity (measured as gallons of potable water used per square foot of building space) by 30 percent by 2020 from the 2007 baseline.



2015 Green Parks Success Story: Redwood National Park Conserves Water by Replacing Lawns with Native Plants

In 2015, in response to California’s recent historic drought, Redwood National and State Parks replaced approximately 10,000 square feet of irrigated lawn with drought-friendly native coastal plants at the Crescent City park headquarters office and visitor center, which accommodates nearly 30 staff plus daily park visitors. Between 2012 and 2014, indoor and outdoor uses at the site used an average of 40,000 cubic feet (almost 300,000 gallons) of water per year. By replacing the lawn that surrounds the building with more than 600 individual plants that do not require any supplemental watering—including 40 species of grass, wildflowers, shrubs and trees—water usage in 2015 dropped to 21,000 cubic feet, an almost 50 percent reduction from the recent 2012–2014 average. Additionally, the parks have dramatically reduced the labor costs, noise, fuel use, and carbon emissions generated by the regular mowing and edging previously needed to maintain the lawn.

What is Driving Performance?



New Reporting System: Both the number of parks reporting and total consumption reported varied from previous trends due to the transition to FBMS. Most of the 2015 “top consuming parks” reported substantially higher (e.g., by an order of magnitude) water consumption in 2015 compared to 2014—potentially the result of reporting system errors.



Park location: Parks located in arid or semi-arid regions have historically used more water.



Number of employees and park visitors: More people equals more consumption.



Facility type: The size, number, and type of facilities at a given park affect water usage.



Green Our Rides

Transform our fleet and adopt greener transportation methods.

Fast Facts:

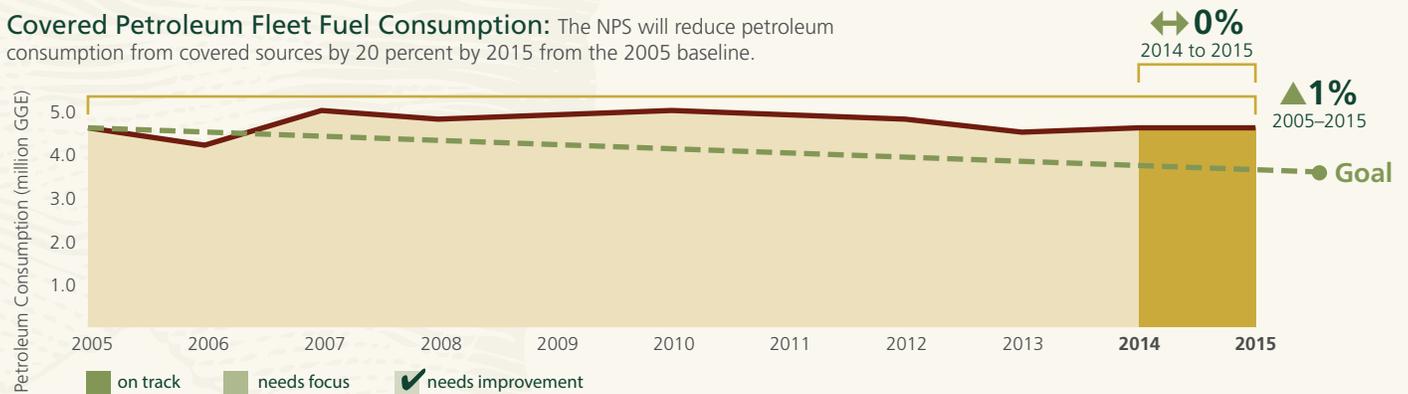
Petroleum Consumption:
4.6 million GGE¹
(↔0% from 2014)

Alternative Fuel Consumption:
0.46 million GGE
(▼20% from 2014)

Fleet Size: 11.4 thousand vehicles
(▲1% from 2014)

Goal Progress: Petroleum Fuel Consumption up <1% since 2005

Covered Petroleum Fleet Fuel Consumption: The NPS will reduce petroleum consumption from covered sources by 20 percent by 2015 from the 2005 baseline.



What is Driving Performance?



Fleet composition:

Size, type, and number of vehicles.



Fuel consumption:

Amount of petroleum versus alternative fuel used.



Miles traveled:

Distance and use of different vehicle types.

2015 Green Parks Success Story: Great Smoky Mountains National Park Greens Its Rides

Great Smoky Mountains National Park worked with the Clean Cities National Parks Initiative, Black Bear Solar Institute, East Tennessee Clean Fuels Coalition, Land of Sky Clean Vehicles Coalition, and Nissan to install and operate the first public direct current (DC) fast charging stations in the National Park System. The two high-speed charging stations, which were up and running in September 2015, are located at the Oconaluftee and Sugarlands visitor centers and enable increased all-electric travel to and around the park. This “Green Gateway to the Great Smoky Mountains” will help to improve air quality in and around the most heavily visited U.S. national park. As part of their green fleet efforts, the park also replaced three gasoline passenger vehicles with low-speed electric vehicles, converted five gasoline mowers to propane, and installed “Be our Idol, Don’t Idle” signs that encourage drivers to reduce emissions by turning off their vehicles when stopped within the park.

¹ Fuel consumption is presented in units of gasoline gallon equivalents (GGE).



Buy Green and Reduce, Reuse, and Recycle

Purchase environmentally preferable products and increase waste diversion and recycling.

Fast Facts:

Municipal Solid Waste (MSW) Landfilled or Burned: 39,685 Tons (▼16% from 2013)

MSW Diverted: 85,812 Tons (▲264% from 2013)

Goal Progress: NPS Exceeded 50% Waste Diversion Goal for MSW and C&D Waste

Waste Diversion: The NPS will divert 50 percent of annual construction and demolition (C&D) waste and municipal solid waste (MSW) from landfills annually.



¹ 2015 data were unavailable at the time this report was published.

2015 Green Parks Success Story: Fire Island National Seashore Employs Source-Reduction Strategies

Fire Island National Seashore, located off the south shore of Long Island, New York, is working to reduce the climate impacts of its operations by demonstrating the principle that lowering consumption can reduce energy use, cut costs, and lead to fewer GHG emissions—in addition to diverting waste from the landfill. Given its isolated location, which visitors and staff access mainly by ferry, waste disposal is particularly challenging and expensive. Producing less waste and recycling as much as possible directly affect the park’s bottom line. As a result, the park implemented several source-reduction strategies. A streamlined purchasing plan facilitated the switch to less toxic janitorial products and an overall reduction in the number of products on site. An opportunity to reexamine the environmental footprint of its operations while rebuilding after Hurricane Sandy allowed the park to consolidate services and downsize from 10 garages to two. The park also has a proactive waste-reduction program.

What is Driving Performance?



More complete and accurate reporting from parks



Increased waste diversion activities and programs at parks



2015 Regional Accomplishments

IMR

- Bryce Canyon National Park installed a 150 kW Concentrating Photovoltaic (CPV) solar array.
- IMR increased accuracy and tracking of solid waste diversion.
- Zion National Park incorporated an electric vehicle charging station.

MWR

- MWR partnered with the Innovators Educational Foundation to plan for the **2016 American Solar Challenge**, a competition to design, build, and drive solar-powered vehicles.
- Dayton Aviation Heritage received a Certified Green Business rating from the City of Dayton, Ohio. The park has installed LED lighting, water-saving devices, and a rain recovery system, among other things.

NCR

- NCR completed installation of a Phase 1 Region-wide ESPC project.
- Manassas National Battlefield installed a photovoltaic system.
- The region developed a “How To” Compost Guide for the NCR parks.

NER

- Cape Cod National Seashore completed a \$208,000 project with Flex Park funding, designed to produce 8.6 kW.
- Independence National Historical Park purchased three electric utility vehicles through the Clean Cities program, including an electric garbage truck.
- NER executed over \$1 million of sustainability upgrades through the Flex Park program.
- NER completed a comprehensive GHG inventory for the region, including data from all parks.

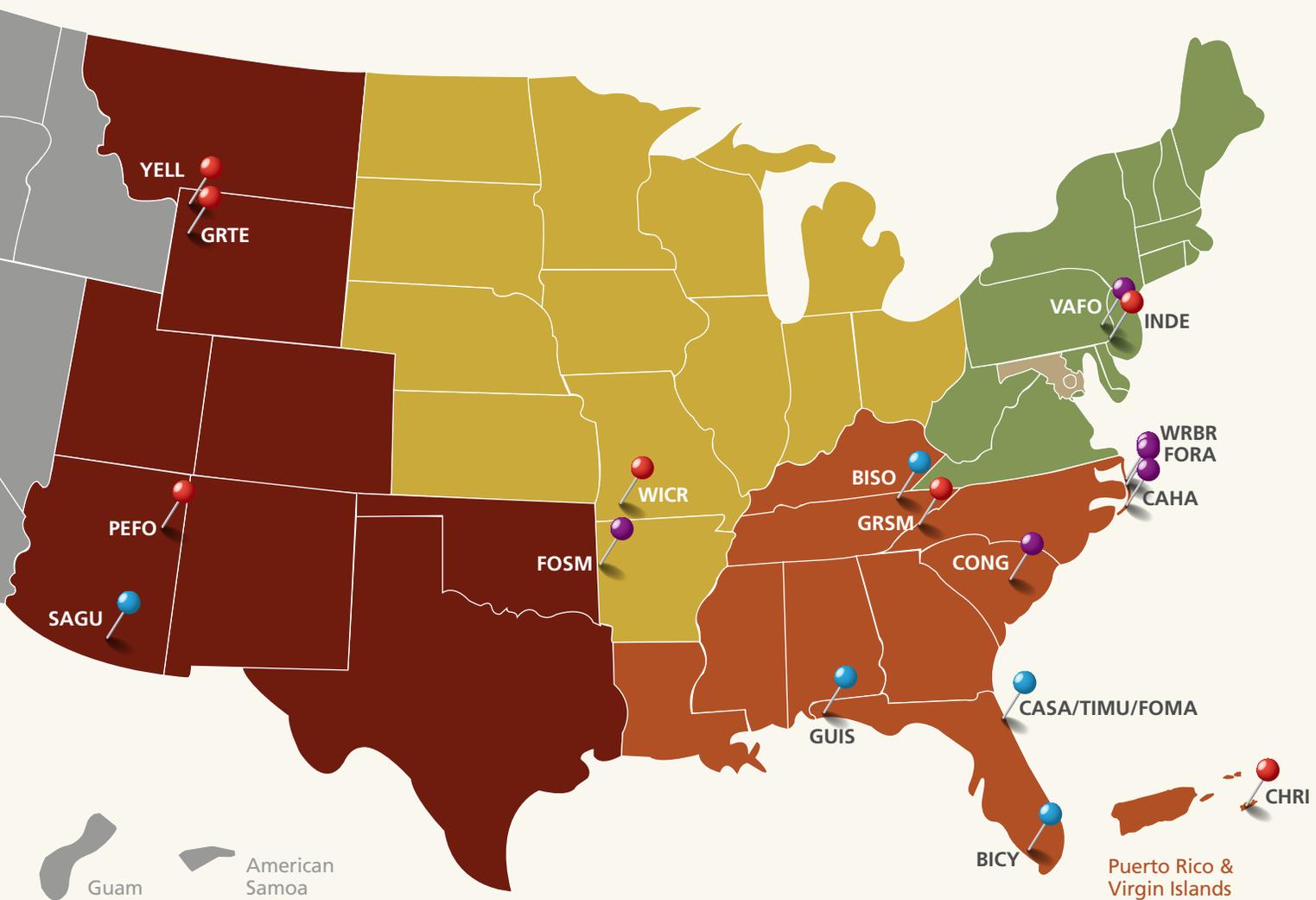
PWR

- Craters of the Moon National Monument and Preserve improved sustainable practices in all aspects of facility operations and achieved a 47% reduction in water use.
- Haleakala National Park installed a 15.3 kW photovoltaic (PV) array and battery storage system.
- Pinnacles National Park and PWR celebrated the closure of Grassy Canyon firing range, ridding the area of lead bullet fragments.

SER

- The Blue Ridge Parkway conducted a lighting retrofit Parkway-wide with Flexible Park Base Sustainability funds.
- Big South Fork National River and Recreation Area completed a significant project remediating petroleum-contaminated soils at a historical oil and gas well site.
- Cowpens National Battlefield and Ninety Six National Historic Site received an honorable mention in the NPS Environmental Achievement Awards.





- Obtained Clean Cities Funding & Support**
- CHRI
 - GRTE
 - PEFO
 - WICR
 - GRSM
 - INDE
 - PORE
 - YELL

- Held Climate Friendly Parks Workshop**
- BICY
 - GUIS
 - BISO/OBRI
 - KATM
 - CASA/TIMU/FOMA
 - SAGU

- Became Climate Friendly Parks Member**
- CAHA
 - FORA
 - KLGO
 - WRBR
 - CONG
 - FOSM
 - VAFO

Data for Fiscal Year 2015.



National Park Service
U.S. Department of the Interior