



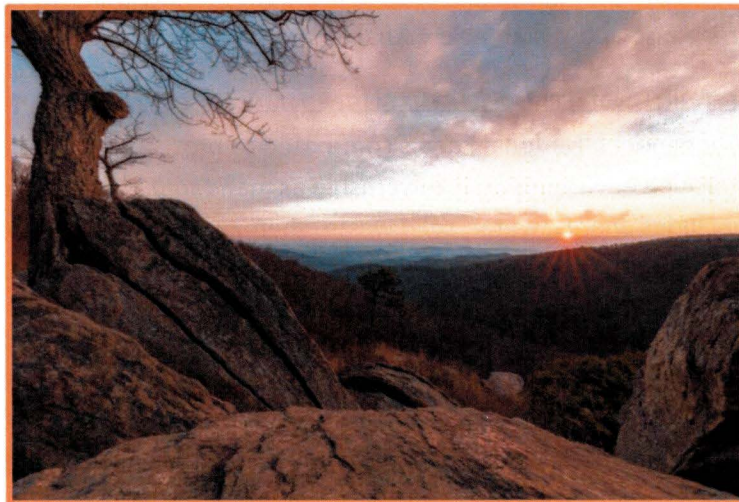
SHENANDOAH NATIONAL PARK

CLIMATE FRIENDLY PARKS ACTION PLAN

2016

BACKGROUND/INTRODUCTION

The National Park Service (NPS) acknowledges that climate change will likely threaten the very cultural and natural resources we strive to preserve. Through the establishment of federal directives, executive orders and NPS policies, the agency is taking action to respond to climate change (CC) through adaptation and mitigation. These directives and guidelines include Federal Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*, as well as NPS policies, plans, and strategies. The primary driver for NPS response to CC is the [Green Parks Plan](#) (GPP), and the NPS Climate Change Response Strategy



Hazel Mountain Overlook—Shenandoah National Park

The GPP is intended to organize sustainability implementation objectives into a single strategic plan. The plan includes nine strategic goals and over 34 performance objectives addressing a range of topics in the key categories of sustainability and climate change. The overall objective is to address climate change from a facilities standpoint. The Climate Friendly Parks (CFP) Program directly supports the NPS in reaching goals outlined in the GPP by identifying park specific energy, water, fleet fuel and solid waste management performance targets. This is done by engaging park staff from multiple areas of expertise to develop a CFP Action plan. These areas include:

- 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.

As a participant in the National Park Service (NPS) Climate Friendly Parks (CFP) program, Shenandoah National Park (SHEN) belongs to a network of parks nationwide that are putting climate friendly behavior at the forefront of park operations and

resource management. As part of this program, SHEN has conducted a greenhouse gas (GHG) emission inventory, participated in a climate change and sustainability educational workshop, set climate change mitigation and GHG emission reduction goals, and integrated these actions into a park-wide Environmental Management System (EMS).

The EMS takes a systematic approach to identifying and addressing environmental impacts at the park. The EMS provides a framework for tracking environmental protection and sustainability priorities and details the implementation of these actions. By integrating CFP-related actions into the park’s EMS, SHEN is taking an integrated approach to climate change response and sustainable management of park resources.

ENVIRONMENTAL POLICY & SUSTAINABILITY COMMITMENT STATEMENT

Shenandoah National Park is committed to protecting and preserving its natural, cultural, and archeological resources through environmental stewardship as mandated by the Organic Act and the park’s enabling legislation. This commitment includes energy, water, solid waste, chemical use, and GHG emissions reductions (collectively called sustainability) as required by federal Executive Orders and Department of the Interior and NPS policy.

Our staff, volunteers, and contractors will be expected to follow our environmental, pollution prevention, energy reduction, and related procedures and programs. Together we will examine and conduct operations and activities in a professionally sound manner, effectively and efficiently complying with the letter, spirit, and intent of applicable environmental regulations, standards, executive orders, and policies related to sustainability.

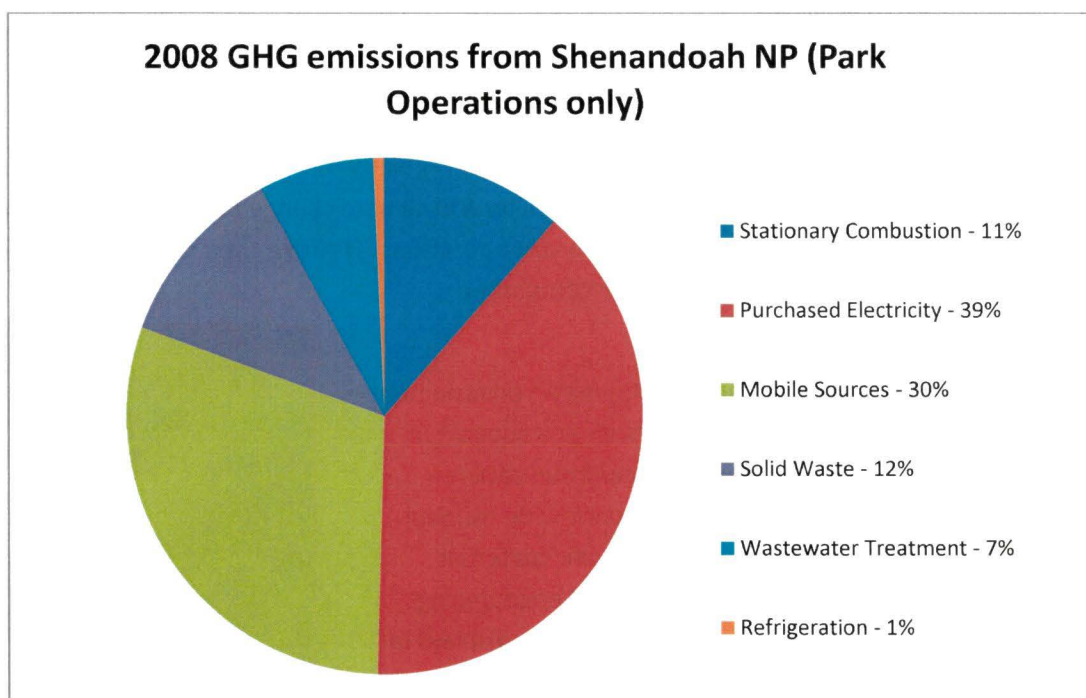
ACCOMPLISHMENTS

Prior to holding the CFP workshop, SHEN had already started to embark on our sustainability journey by embedding sustainability actions in our EMS. As part of these efforts, SHEN has taken a number of actions which have reduced our environmental impact.

| Sustainability Concern | Completed Actions |
|---|---|
| GHG Emissions: Be Climate Friendly & Climate Ready, Green Our Rides, Be Energy Smart | Performed energy audits for all park buildings including concessions and housing |
| | Replaced older gasoline mowers with six new propane mowers |
| | Right sized the fleet by reducing the overall number of vehicles and replacing vehicles with smaller and more fuel efficient models |
| | Replaced all incandescent lights with compact fluorescent lights or LED lights |
| | Purchased for installation quick charging stations for electric vehicles at visitor center |
| | Use 100% Biodiesel fuel in summertime (B20) |
| Waste: Buy Green and Reduce, Reuse & Recycle | Measured and developed a baseline for waste generation at the park |
| | Eliminated single use plastic water bottle sales in the park |
| Education / Communication: Foster Sustainability Beyond Our Boundaries | Held a Climate Friendly Park workshop |
| | Developed a monthly all staff email to encourage sustainable actions |
| | Developed an exhibit for the Byrd Visitor Center that highlights how climate change has impacted the park, actions that the park has taken to mitigate climate change, and interacts with visitors to calculate their own carbon footprints |
| Water: Be Water Wise | Installed all low flow toilets in park and some are dual flush |
| | Planted drought tolerant plants |
| | Replaced blowers with more energy efficient variable frequency blowers and installed more efficient pumps in Big Meadows wastewater treatment plant |

BASELINE GREENHOUSE GAS EMISSIONS PROFILE

Shenandoah National Park developed a greenhouse gas inventory for 2008 using the Climate Leadership in Parks (CLIP) tool. Total emissions for park operations only were calculated to be 2,683 metric tons of Carbon dioxide equivalent (MTCO₂E)— see figure below. If emissions generated from park employee commuting are included, another 29,908 MTCO₂E should be added. Concessions operations (2,330 MTCO₂E) and visitor campfires and vehicle emissions (26,559 MTCO₂E) inside the park together add another 28,885 MTCO₂E. SHEN was developed with the Skyline Drive as a central part of the park, and many visitors come specifically to complete a tour of the entire length of the park; vehicle emissions will be higher in this park because of that. Our objective is to set an increasingly sustainable example in our park operations, to encourage employees and visitors to explore sustainable actions on their own. The two biggest pieces of the park operations emissions “pie” are purchased electricity (39%) and mobile sources (30%). Having this baseline helps inform the goals and targets we have set and the actions we are taking to meet them.



GOALS & ACTIONS

As part of the CFP program, SHEN has developed a number of goals. To help meet these goals, the park will develop annual actions and track them through the EMS. The first year of those actions are listed out below. We will continue to chart our progress against the goals annually and refine our actions as part of the plan, do, check, act process.

| | GHG Emissions | Climate Change Response | Education |
|-------------------------|--|--|--|
| Goal | Reduce GHG emissions by 15% from baseline year of 2008 by 2020 | Reduce energy trend line by 2020 | Develop and reach visitors about climate change and sustainability practices by 2020 via a climate change website |
| 2016 Action Plan | <ul style="list-style-type: none"> Reduce idling by establishing and communicating a parkwide no idling policy to park staff and visitors; finalize the no idling policy Track building energy usage and identify opportunities for increased efficiency Investigate alternative energy options for individual park buildings Identify areas to eliminate mowing | <ul style="list-style-type: none"> Utilize power strips in centrally located areas within park offices Reduce winter temperature setting to 65F and increase summer setting to 75F | <ul style="list-style-type: none"> Create a park specific climate change message to share with every visitor coming to the park Complete development of a SHEN-specific climate change webpage |

ROLES, RESPONSIBILITIES, & RESOURCES

The “Green Team” is an interdisciplinary group of park employees that regularly monitors and updates sustainability goals for the park. This team also works together to identify sustainability and climate change challenges, track progress toward achieving goals, and works with other staff to continually improve operations. Through their leadership, the park ensures that sustainability initiatives move forward and goals are accomplished.

EDUCATION & COMMUNICATION

By improving communication within SHEN, we are developing an environment that provides guidance and clarity while instilling ownership and support in accomplishing goals and initiatives. SHEN has improved communication amongst employees through all-employee meetings and park-wide training sessions. In addition, SHEN continues to develop Park-specific materials highlighting the Park’s efforts to mitigate climate change, and encouraging visitors to reduce emissions through Ranger programs, interactive displays in our visitor centers, and sharing the park story through newspaper articles and interviews.

CONCLUSION

The elements of our EMS form the foundation of the environmental protection, climate change response, and sustainability work that we will accomplish at Shenandoah National Park. We hope that visitors will check back in with us and see how we progress as our program continues to evolve!



Shenandoah Salamander

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National CFP Representative

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