Climate Leadership in Public Places (CLIPP) Tool

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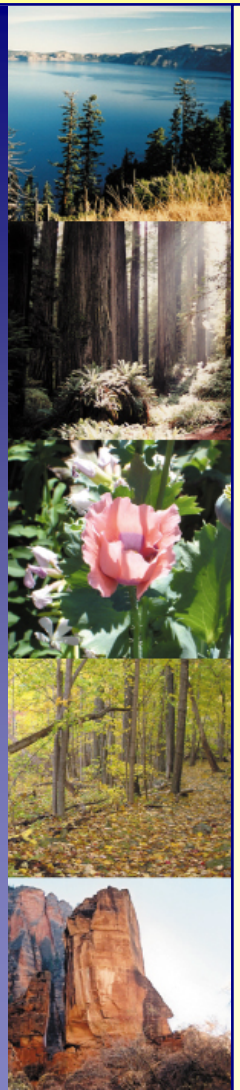
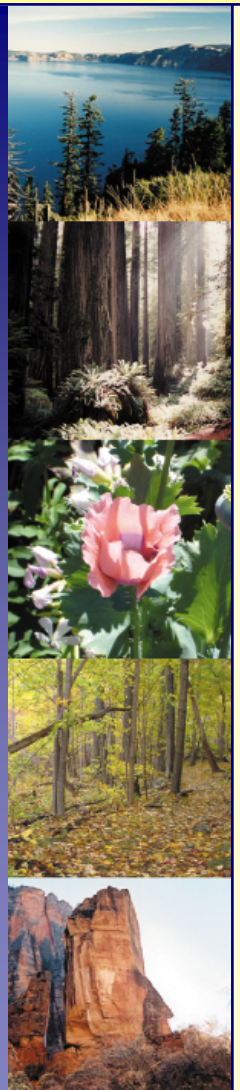
Overview



- Program background
- Purpose of CLIPP tool
- Tool design
- Moving forward

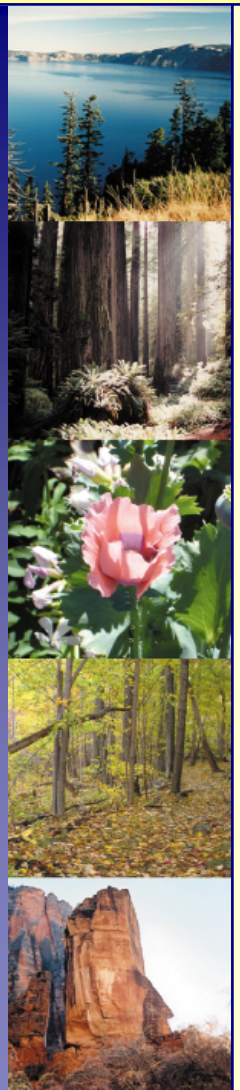
Background



Climate Friendly Places Program

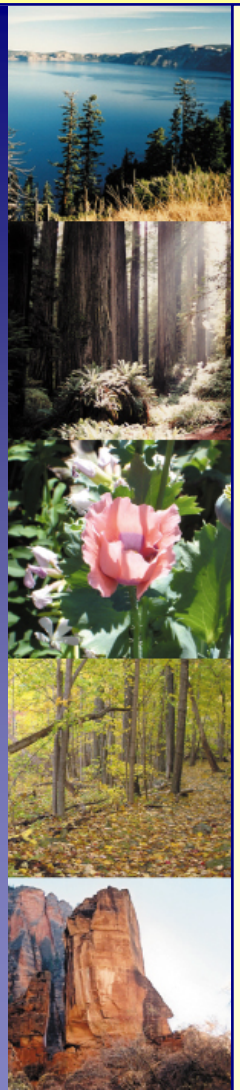
- Aims to reduce emissions of greenhouse gases (GHGs) and criteria air pollutants (CAPs)
- Primary goals are three-fold:
  - Educate
  - Mitigate
  - Communicate

Background (cont'd)



- Since 2003, 3 parks have completed inventories
  - Gateway National Recreation Area (CAP & GHG)
  - Glacier National Park (GHG)
  - Zion National Park (GHG)

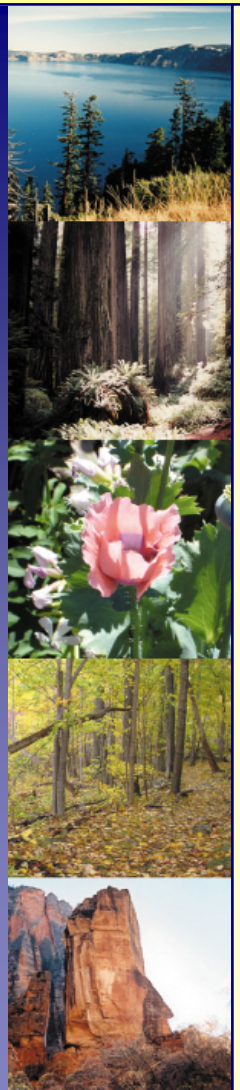
Purpose of the CLIPP Tool



Enables parks to:

- Inventory GHG and CAP emissions
- Identify and assess possible mitigation actions and outreach activities
- Commit to emissions reductions

Tool Design



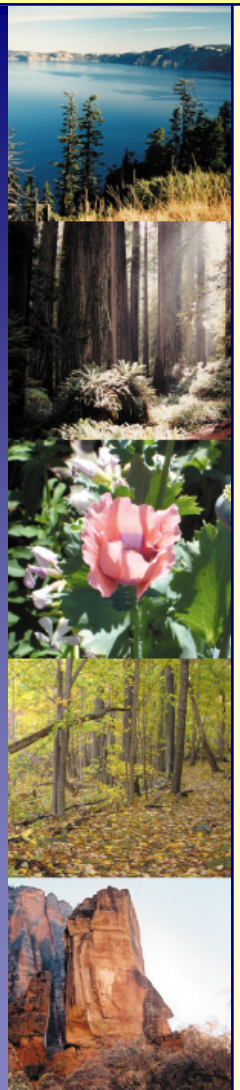
Designed to:

- Maximize usability
- Produce high-quality estimates
- Educate users

Unique features include:

- Excel-based
- Transparent calculations
- Customized to park level
- Outreach section

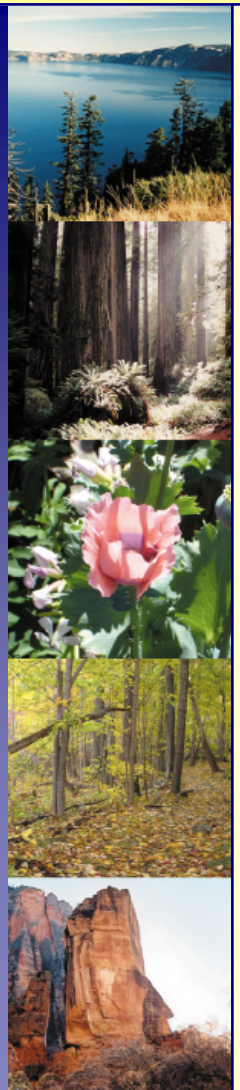
Tool Design (cont'd)



Emissions covered by Tool:

	Emissions	Sectors
GHGs:	CO_2 CH_4 N_2O HFCs	Stationary combustion Purchased electricity Mobile combustion Fertilizer Wastewater Landfills Forestry Refrigeration/AC Petroleum and natural gas activities
CAPs:	SO_2 NO_x VOCs PM_{10} $PM_{2.5}$ CO	Stationary Sources Mobile Sources Area Sources

Tool Overview



- **Welcome sheet**
- Control sheet
- GHG emissions sheets
- CAP emissions sheets
- Outreach sheet
- Mitigation sheets
- Emission summary/pledge
- Optional sheets

Climate Leadership In Public Places Tool (CLIPP)

Welcome to the Climate Leadership in Public Places Tool! This tool is designed to help your park identify ways to reduce the impact that your employees, concessionaires, and visitors have on the environment. In particular, this tool focuses on greenhouse gases, the gases that contribute to climate change, and criteria air pollutants, which lead to numerous air quality and public health problems.

The tool consists of three sections: (1) creating an inventory of your current emissions and outreach activities (what you're doing now), (2) planning for emission reductions (what you *could* do), and (3) reporting your results (what can you / have you achieved).

The tool estimates emissions of the following greenhouse gases (GHGs): carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and hyrdofluorocarbons (HFCs). Additionally, the tool estimates emissions of the following criteria air pollutants (CAPs): sulfur dioxide (SO_2), nitrogen oxides (NO_x), volatile organic compounds (VOC), particulate matter (PM_{10} and $PM_{2.5}$), and carbon monoxide (CO).

On each page, you will be asked to enter activity data into the pale yellow cells. The accuracy of the tool's estimates is driven in large part by the quality of the input data. For this reason, users are encouraged to obtain park-specific data to the greatest extent possible. However, for some sections, default data is available to ensure the most complete inventory possible.

Once all data has been gathered, completion of the tool should take 3 to 7 hours. However, all sections do not need to be completed in one sitting; feel

Emissions in Your Park

CLIPP estimates emissions of both greenhouse gases (GHGs) and criteria air pollutants (CAPs). While both types often result from similar activities, you'll notice some variations in how they are accounted.

Greenhouse Gases contribute to climate change on a *global* scale. It doesn't matter *where* they are emitted; they will have the same impacts on climate change regardless of their source. For this reason, CLIPP sometimes calculates emissions that occur outside of park boundaries but are directly attributable to activities within the park. Examples include emissions at landfills and at power plants.

Criteria Air Pollutants are *local* in their impact. High concentrations of CAPs can have adverse health and environmental impacts in a specific area, but do not impact other areas. Thus, CLIPP only considers CAP emissions that occur within park boundaries. While activities such as electricity use ultimately result in CAP emissions (i.e., at the power plant), these emissions will not affect the local air quality at the park.

Reducing GHGs and CAPs can have both **direct** and **indirect** benefits. For example, reducing paper use has the direct benefit of lowering the emissions associated with its decomposition in a landfill. It also has the indirect benefits of reducing the emissions associated with producing and transporting that paper. In general, CLIPP considers only direct benefits of mitigation actions; however, there are a few places where CLIPP calculates indirect benefits to illustrate additional benefits of

Once all data has been gathered, completion of the tool should take 3 to 7 hours. However, all sections do not need to be completed in one sitting; feel free to save your work and return to it later. You may also go back and change your inputs at any time. The worksheets are set up in the order below.

...considers only direct benefits of mitigation actions; however, there are a few places where CLIPP calculates indirect benefits to illustrate additional benefits of mitigation actions (these benefits are not included in overall totals).

Getting Started	GHG Emission Estimates	CAP Emission Estimates	Emission Reduction Actions
1. Control Sheet	1. Stationary Combustion	1. Stationary Sources	1. Outreach Activities
2. General Information	2. Purchased Electricity	2. Mobile Combustion	2. Energy Mitigation
3. Requested Data	3. Mobile Combustion	3. Area Sources (Burning)	3. Transportation Mitigation
	4. Fertilizer	4. Area Sources (Non-burning)	4. Land Use Mitigation
	5. Wastewater	5. CAP Emissions Summary	5. Waste Mitigation
	6. Waste		6. Area Sources Mitigation
	7. Forestry		7. Outreach Strategies
	8. Refrigeration/AC		8. Mitigation Summary
	9. Petroleum and Natural Gas		9. Final Emissions Report
	10. GHG Emissions Summary		

Hint: Keep an eye out for pale yellow cells and Blue "Helpful Hint" boxes. Pale yellow cells indicate places where you should enter data. Clicking on the blue "Helpful Hint" boxes will display some additional information that may be useful in completing the worksheets.
You may notice additional color shading throughout the tool. The complete color key is displayed to the right.

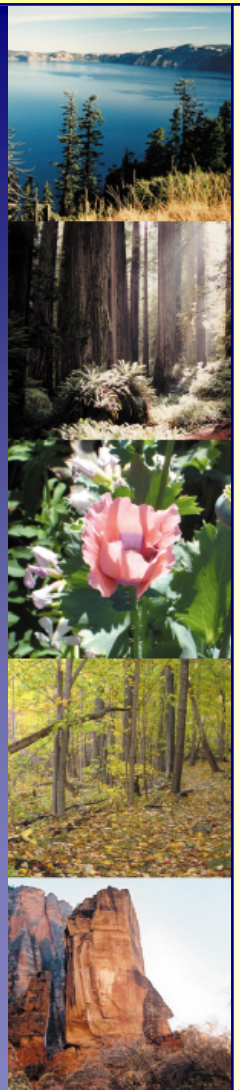
	Input Data into Yellow Cells
Helpful Hint	Click for Additional Information
	Emissions from Current Activities
	Potential Emission Reductions from Mitigation Activities

Please use the blue arrows to navigate to each sheet. Note that if you indicate on the Control Sheet that you will not be estimating emissions from some sources, those worksheets will be skipped over automatically. To preview a summary of a list of information requested throughout the tool, please select the Proceed to Data Requested arrow below. Otherwise, click on Proceed to Control Sheet to start estimating emissions!

Proceed to Control Sheet

Proceed to Requested Data

Tool Overview



- Welcome sheet
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- Optional sheets

Climate Leadership In Parks

File Edit Module Options

Type a question for help

Getting Started
The Control Sheet

This page allows you to set the parameters of the tool. You will be asked to select a park, inventory year, the park units for which you'd like to estimate emissions, etc. Simply follow the steps below to set the parameters, then continue on to the subsequent sheets to complete the emissions calculations.

Please complete this sheet prior to beginning any other worksheets. Note that changing the parameters on this page will impact any calculations already completed on other sheets.

Directions

1) Establish your park's emissions and activities during the Inventory year by following the directions in Section I below.
2) Then, enter information on current outreach and education activities (Step 7).
3) Next, estimate the amount of emissions you'd like to reduce by completing Section II below.
4) Finally, you may review your park's summary report by clicking on the button in Section III.
5) If you wish to completely reset the tool, click on the "Reset the CLIPP Tool" button at the bottom of this page.

Section I: Current Emissions and Activities

1 Please select your park from the list below.

Please note that selecting a new park will clear all stored information from the tool.

Select a park . . .

2 Please select a year to inventory. All data should be gathered for this year.

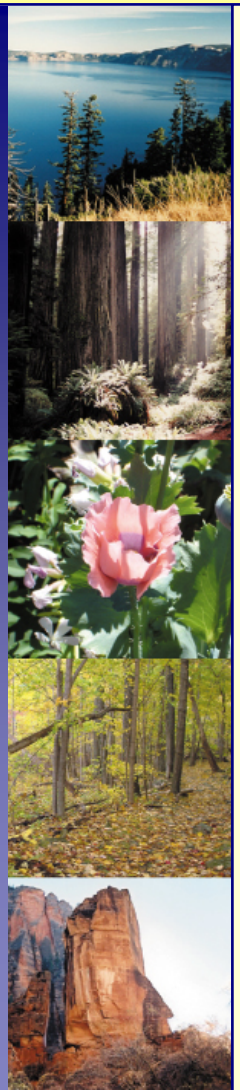
2002 Helpful Hint

3 Please select the park units for which the baseline inventory will be completed.

You may include park operations, visitors, one specific concessionaire, other concessionaires, and other permitted activities.

- ☐ Park Operations
- ☐ Visitors
- ☐ Concessionaire <Enter Concessionaire> Please enter the name of your primary concessionaire in the yellow box.
- ☐ Other Concessionaires
- ☐ Other Permitted Activities Helpful Hint

Tool Overview



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File Edit Module Options

Section 1: Current Emissions and Activities (2002)

CO_2, CH_4, and N_2O from Stationary Combustion

Return to Control | Go to Previous Sheet | Continue Section 1

Stationary activities such as heating buildings, cooking, burning wood – essentially anything that combusts fuel to generate energy – result in greenhouse gas emissions. When fuel is combusted within park boundaries, such as to run a generator, 'direct' greenhouse gas emissions are produced. However, even though some fuel combustion may occur outside of park boundaries, the park may be contributing to emissions elsewhere; 'indirect' emissions occur from fuel combustion at non-park locations that are used to power park activities (for example, the burning of coal at a power plant to supply electricity used within the park). Direct emissions are estimated below, while indirect emissions from purchased electricity are estimated in the next step.

Sheet Overview

* Please follow Steps 1-4 below to calculate your stationary source emissions.
* Emission results can be viewed in the table at the bottom of the sheet.
* Once you have completed estimating emissions for all desired park units, click on "Continue Section 1" to go to the next worksheet.

1) Please select the first park unit for which you'd like to estimate emissions

Park Unit		Results Saved?
Park Operations	Select	Yes
Visitors	Select	No
<Enter Concessionaire>	Select	No
Other Concessionaires	Select	No
Other Permitted Activities	Select	No

Stationary Combustion Emissions Calculator

Current calculations: **Visitors**

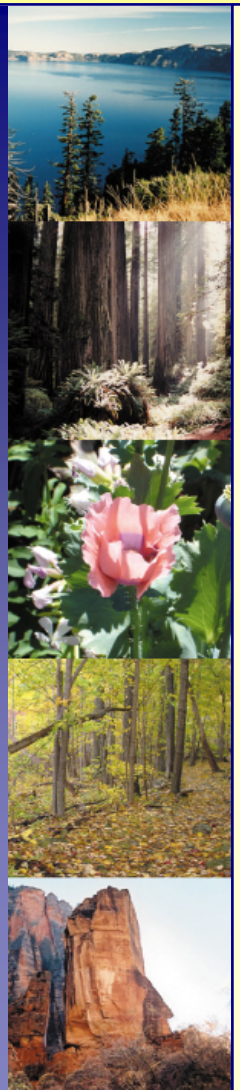
☐ Use default data where available?

2) In the yellow cells, please enter the amount of each fuel consumed. If you would like to enter data for "other" fuel, please also click on the "factors" box to enter the necessary information. Emission results for the current park unit are displayed in the table to the right.

Fuel Use

Fuel	DATA INPUTS Consumption	Unit	EMISSION RESULTS Metric Tons of Carbon Equivalent (MTCE) CO_2	CH_4	N_2O	Total
Natural Gas	3,000	cubic feet	0.0	0.0	0.0	**0.0**
Distillate Fuel	1,000	gallons	2.7	0.0	0.0	**2.8**
Propane	600	gallons	0.9	0.0	0.0	**0.9**
Lubricants		gallons	0.0	0.0	0.0	**0.0**
Kerosene		gallons	0.0	0.0	0.0	**0.0**
Wood		cords				

Tool Overview



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File Edit Module Options

Section 1: Current Emissions and Activities (2002)

SO_x, NO_x, VOC, and PM_{10} from Stationary Sources

Return to Control | Go to Previous Sheet | Continue Section 1

Criteria air pollutant (CAP) emissions can come from stationary sources such as boilers, heaters, generators, gasoline storage tanks, and wastewater treatment. For sources that consume fossil fuels (such as boilers, generators, etc.), the combustion of natural gas, distillate oil, propane, and coal results in emissions of sulfur dioxide (SO_2), nitrogen oxides (NO_x), volatile organic compounds (VOC), and particulate matter (PM_{10}). Both the device type (e.g. boiler, furnace) and the control type (e.g. flue-gas recirculation, low-NOx burners) impact criteria air pollutant emissions. Stationary emissions also result from the volatilzation of organic compounds from gasoline storage tanks as well as the treatment of wastewater. Volatile organic compound (VOC) emissions are driven by the quantity of gasoline throughput and tank size (for storage tanks) and the quantity of wastewater treated (for wastewater treatment activities).

Sheet Overview

* Please follow Steps 1-5 below to calculate your stationary source CAP emissions.
* Emission results can be viewed in the orange cells at the bottom of the sheet.
* Once you have completed estimating emissions for all desired park units, click on "Continue Section 1" to go to the next worksheet.

1) Please select the first park unit for which you'd like to estimate emissions

Park Unit		Results Stored?
Park Operations	Select	No
<Enter Concessionaire>	Select	No
Other Concessionaires	Select	No
Other Permitted Activities	Select	No

Stationary Source Emissions Calculator

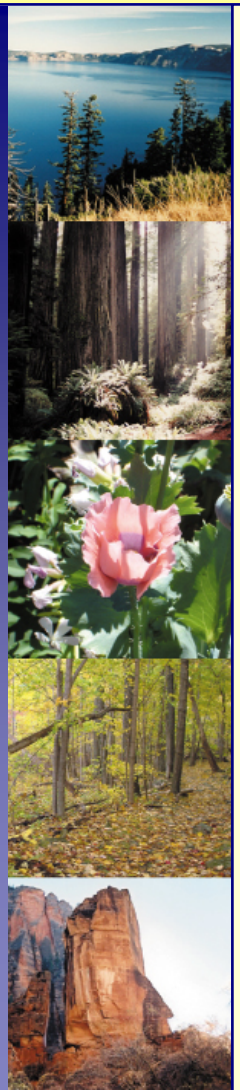
Current calculations: **Park Operations**

2) Please select those sources for which you would like to estimate stationary CAP emissions from the list below. For boilers, heaters, and generators, please also select the fuel type(s) for which you would like to estimate emissions.

Boilers, Heaters, and Generators

- ☐ Natural Gas
- ☑ Distillate Fuel
- ☐ Propane
- ☑ Anthracite Coal
- ☐ Bituminous Coal
- ☐ Sub-bituminous Coal

Tool Overview



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Section 1: Current Emissions and Activities (2002)

Increasing Awareness among Employees, Visitors, Park Partners, and the Surrounding Community

Return to Control | Go to Previous Sheet

Through daily activities, the average American caused about 6.6 metric tons of carbon equivalent (MTCE) to be released into the atmosphere in 2002. That's approximately the same amount of greenhouse gases annually stored by 20 acres of forest, or emitted by burning 2,800 gallons of gasoline!

With over 420 million people visiting the National Park System each year, parks are excellent resources for educating the public about the causes and effects of greenhouse gas emissions. If each one of those 420 million visitors reduced their greenhouse gas impact by just 10 percent, their greenhouse gas emissions savings would be equivalent to removing 167 million cars from the road or saving 4.8 million acres of forest from being cut down.

Parks have the ability to help individuals reduce the amount of greenhouse gas emissions they cause by educating them about ways they can conserve energy, reduce waste, and other activities that will cut back on their emissions. Conservation starts at the park, and by teaching park and concessionaire employees how to reduce their emissions, parks will not only reduce their own emissions, but their employees will set an example and be better equipped to educate visitors. By educating visitors, the park can help reduce emissions throughout the nation, and contribute to raising environmental awareness in the public.

In an effort to make sure they "walk the talk," many parks have established Green Teams to help identify ways the park can minimize its environmental impact. Green teams are made up of staff from many, if not all, of the departments within each national park. Their mission is to develop action plans for greening each national park. Green teams implement the employee education programs for the Climate Friendly Parks program and can be integral parts of GHG mitigation efforts.

Sheet Overview

* Please answer the questions below regarding the presence of a Green Team in your park.
* Then, click on the "Return to Control" to continue to Section II.

Green Team

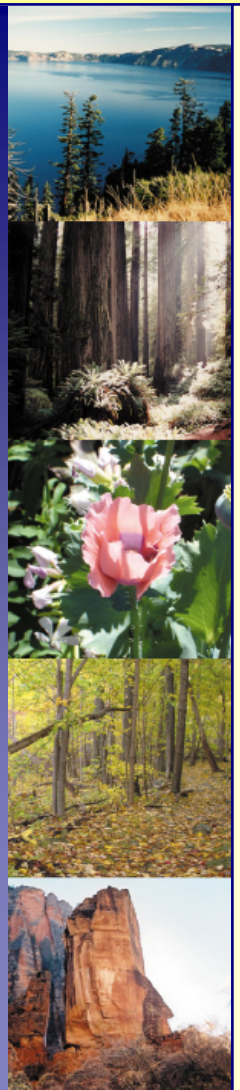
Does your park have a Green Team?

Yes No

How many individuals are on your park's Green Team?

In the box below, enter actions your park's Green Team takes to reduce greenhouse gas emissions.

Tool Overview



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  - **Energy**
  - **Transportation**
  - **Land use and agriculture**
  - **Waste**
  - **Area sources**
  - **Education and outreach**
- Emission summary/pledge
- Optional sheets

Climate Leadership In Parks

File Edit Module Options

Type a question for help

Section 2: Emission Reduction Actions

Return to Control | Go to Previous Sheet | Continue Section 2

Reducing Emissions from Energy Consumption at Glacier National Park

Increase Stationary-Source Energy Efficiency for:

- ☐ Park Operations
- ☐ Visitors
- ☐ Glacier Park Inc.
- ☐ Other Concessionaires
- ☐ Other Permitted Activities

Reduce Electricity Consumption for:

- ☑ Park Operations
- ☐ Glacier Park Inc.
- ☐ Other Concessionaires
- ☐ Other Permitted Activities

Replace Boilers, Heaters, and Generators for:

- ☐ Park Operations
- ☐ Glacier Park Inc.

Other Mitigation Actions:

- ☐ Install Energy Efficient Light Fixtures
- ☐ Other Mitigation Actions

Park Operations

Park unit: Park Operations

GHGs can be reduced by simply encouraging employees to be mindful of their electricity use. Small actions such as turning off lights and appliances when not in use and raising the thermostat on airconditioners by a degree or two can translate into large emission savings.

Please enter the percent by which Glacier National Park would like to commit to reducing electricity use among park operations.

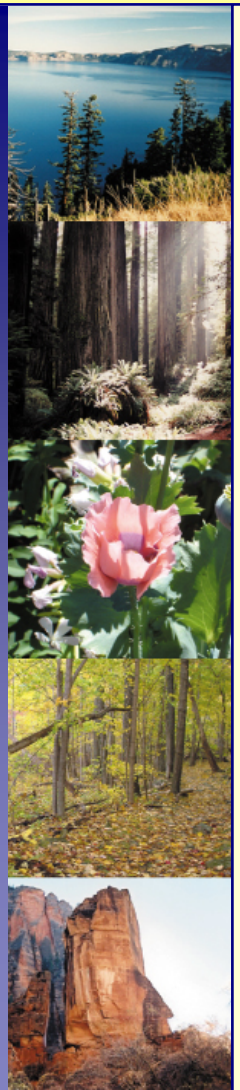
Note: If you investigated reducing energy use through energy efficient lighting in a previous step, please do not count that electricity reduction here.

_____ percent

GHG Reductions: 0.00 **MTCE**

Energy GHG Emission Reduction Summary

Tool Overview



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Section 3: Action Plan for Reducing Glacier National Park's GHG and CAP Emissions

Climate Friendly Parks Pledge for Glacier National Park

Return to Control

Go to Previous Sheet

Glacier National Park is committed to reducing emissions of greenhouse gases (GHGs) and criteria air pollutants (CAPs). Through our actions, we hope to reduce the impact that park activities have on the environment. In addition we hope to serve as a role model to park employees, visitors, park partners, and surrounding communities so that they too can reduce the impact their actions have on the environment.

Our commitment to being a Climate Friendly Park will take part in several stages. We have successfully completed the first stage by taking an inventory of our emissions from activities directly related to: Park Operations, Visitors, Glacier Park Inc., Other Concessionaires, and Other Permitted Activities.

Using the Environmental Protection Agency/National Park Service Tool, we estimated emissions for 2002. These estimates will serve as our 'baseline' against which we can measure our progress as we begin to implement actions to reduce GHG and CAP emissions.

The results of our baseline GHG inventory are provided below in Exhibit 1 and 2. Note that these estimates are calculated by park unit and sector.

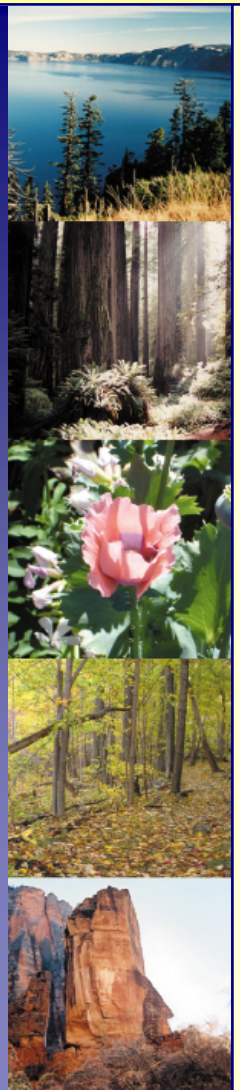
The results of our baseline CAP inventory are provided in Exhibits 3 and 4. Note that these estimates are calculated by park unit and CAP emission.

Exhibit 1: GHG Emissions by Park Unit and Sector (Metric Tons of Carbon Equivalent (MTCE))

Park Unit	Stationary Combustion	Purchased Electricity	Mobile Combustion	Fertilizer Application	Wastewater Treatment	Refrigeration	Waste
Park Operations							
Gross	0.0	0.0	348.4	17.6	0.0	8.7	0.0
Net	0.0	0.0	348.4	17.6	0.0	8.7	0.0
Visitors	1.9		628.5				
Glacier Park Inc.	16.2	45.6	0.0	14.9	0.0	108.5	15.7
Other Concessions	3.4	464.9	5.2	0.0	0.0	0.0	0.0
Other Permitted Activ	8.9	5.1	30.0	0.0	0.0	0.0	0.0
Total							
Gross	**30.4**	**515.7**	**1,012.1**	**32.5**	**0.0**	**117.2**	**15.7**
Net	**30.4**	**515.7**	**1,012.1**	**32.5**	**0.0**	**117.2**	**15.7**

Emissions were not calculated for the following sources: Forestry, Pet. & Nat. Gas Activities.

Tool Overview



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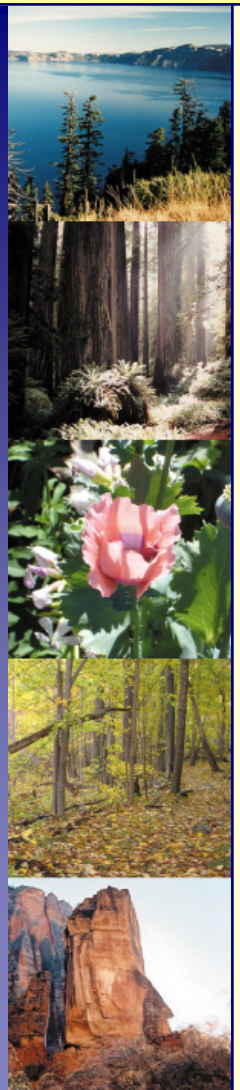
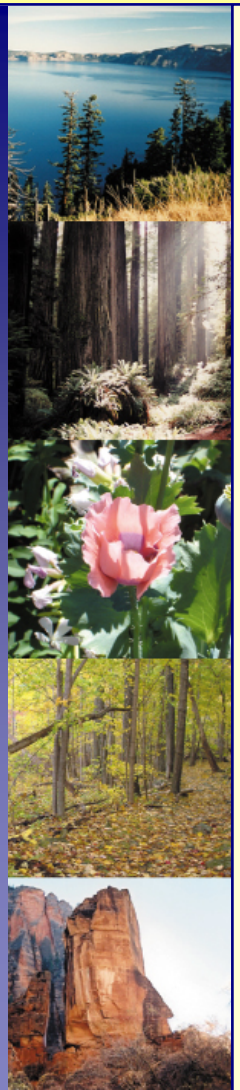
  - **Inventory methods and references**
  - **Emission factors**
  - **Contact information**

Moving Forward



- Revised to reflect internal comments
- Pilot tested this summer/fall at Everglades, Biscayne Bay, and Glacier Bay Nat'l Parks
- Revised to reflect lessons learned
- Emissions factors, default data, etc. updated as needed

Contact Information



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