

TONGASS NATIONAL FOREST



GHG Inventory Management Plan

March 2010

Partner Information

1. Name
Tongass National Forest
2. Address
648 Mission Street
Federal Building
Ketchikan, AK 99901-6591
3. Inventory Manager
Michele Parker, Environmental Engineer
4. Inventory Manager Contact Information
P.O. Box 309, Petersburg, AK 99833
Phone: 907.772.5850
Fax: 907.772.5895
E-mail: mmarker@fs.fed.us

Boundary Conditions

Organizational

5. Operational Control

The Tongass is following the operational control approach to define the inventory boundaries. This means the inventory includes greenhouse gas (GHG) emissions resulting from operations over which Tongass has authority to introduce and implement its operating policies. Emissions from leased facilities are only reported if fuel and electricity data are available and provided. Emissions from small aircraft flights are reported under the optional emissions sources category.

6. Facilities List

See Appendix I for the list of Tongass' facilities, organized by District, and a map of the Tongass National Forest's Districts. The majority of facility emissions are from in-town offices. Facilities at remote sites are used intermittently. The list is maintained by Ms. Molly Murphy, Tongass Facilities Manager.

Operational

7. GHG List

The Tongass' inventory accounts for carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Due to the cool climate in Alaska, only a very small number of regularly serviced air conditioning units are provided for computer server rooms during the summer months, so fugitive hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) are considered de minimis. There are no sources of sulfur hexafluoride (SF₆).

8. Emissions Source Identification Procedure

The inventory is compiled by an individual familiar with the Climate Leaders program requirements. Referred to as the inventory compiler, he or she may be a Tongass staff member or contractor. The inventory compiler first interviews key personnel (Environmental Engineer, Facilities Manager, Fleet Manager etc.) to identify and document all forest operations and then reviews the operations for possible sources of GHG emissions sources, including stationary, mobile, indirect, process, fugitive and minor sources. The Environmental Engineer and Facilities Manager consider the facilities in each District of the Tongass and determine all stationary combustion and power generation processes. Mobile combustion sources associated with the vehicle fleet and small aircraft travel are determined by interviews with the Fleet Manager and Aviation Manager respectively. The vehicle fleet inventory, which includes off-road vehicles and watercraft, and the small aircraft flight reports are reviewed.

The GHG inventory-related data is maintained in a secure Access database developed for the purpose of capturing all environmental data by District and facility to the extent this is possible.

9. Direct Sources

The Tongass' direct sources of emissions include stationary combustion and mobile sources. There are no process or gas waste emissions, and fugitive emissions from air conditioning are determined to be de minimis. The fuels used for stationary combustion are fuel oil and propane. The Tongass vehicle fleet includes passenger cars, light-duty and heavy-trucks, non-road vehicles (mowers, tractors), off-road vehicles (snowmobiles, all-terrain vehicles) and watercraft. The fleet is powered primarily by gasoline with a small number of vehicles and boats using diesel.

10. Indirect Sources

The Tongass' indirect source of emissions is purchased electricity. Multiple providers supply facilities at the nine Districts with electricity from sources with varying emissions profiles. The 2005 eGRID tool was used to determine the appropriate subregion for each District. All Districts are in eGRID subregion AKMS (ASCC Miscellaneous).

11. Optional Sources

The Tongass' optional source of emissions is small aircraft travel. Due to the locations of some facilities, Tongass staff often travel by small fixed-wing aircraft and infrequently by helicopter. These trips are chartered or contracted.

Emissions Quantification

12. Quantification Method

The emissions are quantified using a tailored version of the Climate Leaders Simplified GHG Emissions Calculator tool. Activity data is gathered and converted according to the methods put forth in the Climate Leaders guidance documents, and entered directly into the tool. The tool's worksheets are replicated for each District as needed. Details on the baseline inventory (FY2007) calculations and conversions are provided in Appendix II, the introduction and technical background worksheet of the tool. Details about specific data entries are included as Comments in the individual Cells.

13. Emissions Factors and Other Constants

Since the Climate Leaders Simplified GHG Emissions Calculator tool is used, all emissions factors and other constants are default factors and are consistent with Climate Leaders requirements. (A list of supporting Climate Leaders guidance documents used to develop the Tongass' GHG inventory and IMP can be found in Appendix III.)

Data Management

14. Activity Data

Fuel oil is purchased based on demand and is not necessarily purchased on a monthly basis. Usage based on gauge readings is recorded in the heating fuel tank inventory, and purchases are recorded in the Transaction Register (TR) under Budget Object Code (BOC) 2618. Fuel oil purchases can also be obtained from the National Financial Center (NFC). The purchase records should be used to validate the use records.

Currently, there are no use records of liquid propane gas in physical units. However, propane purchases are recorded in the TR under BOC 2619 and can be obtained from NFC. For the purposes of the GHG inventory, usage was estimated based on purchase amounts. We recognize this is not the most accurate source of data available and will work to collect usage data in the future.

Vehicle odometer readings are recorded annually for non-project vehicles in the EMIS vehicle inventory and maintained by the Fleet Manager. Gasoline purchases are recorded in the TR under BOC 2614, and diesel purchases are recorded in the TR under BOC 2615. Gasoline and diesel purchases can also be obtained from NFC. However, since fuel use per vehicle was not documented for the FY2007 GHG inventory, fuel efficiency values are obtained via www.fueleconomy.gov. In the instances where a vehicle was listed on www.fueleconomy.gov, the default values for vehicle type presented in the GHG Protocol Guidance to Calculating CO₂ Emissions were used. In the future, we will be able to determine more accurate fuel use rates since each vehicle has now been assigned a unique fuel purchase card, and odometer readings are recorded in trip logs each time a vehicle is refueled. Since no fuel usage records, odometer readings or trip duration records are currently maintained for project vehicles (all-terrain vehicles, snowmobiles), fuel use from these vehicles could not be determined with sufficient accuracy to include in the baseline inventory. We will establish a system to track fuel use by project vehicles in the future.

A list of watercraft is maintained as part of the vehicle inventory. Watercraft trips are recorded by duration in minutes internally. However, fuel economy values for each individual boat and motor are currently unavailable, and the Climate Leaders Calculator tool does not have an option to include emissions from small watercraft. Therefore, watercraft fuel use could not be determined with sufficient accuracy for the baseline inventory. We will establish a system to track watercraft fuel use in the future.

Electricity use data is obtained by requesting monthly purchase and usage reports for each District from the electric utility provider. (See Appendix IV for advice on understanding Forest Service utility bills.) Additionally, electricity purchases are recorded in the TR under BOC 2311 and can be obtained from NFC.

Small aircraft flights are recorded internally and reported in annual air travel reports. Fuel use is estimated based on flight duration and fuel economy values provided by Ken More Air.

15. Data Management

The inventory compiler is responsible for gathering and entering data in the Climate Leaders inventory tool. All environmental data for Tongass National Forest will be maintained in a secure Access database. The inventory compiler will work with management, the EMS representative, Green Team members and District employees to ensure the data in the environmental database is accurate and complete. Reports will be generated in Access for each District or facility by emissions type and sent to District employees for a quality review of the data before it is entered into the Climate Leaders tool. The Environmental Engineer, Facilities Manager, Fleet Manager and Aviation Manager will each ensure that that data from their respective areas is complete and accurate. District Rangers and their staff will be tasked with assisting with data reviews. These reviews are essential to ensuring the quality of the Tongass GHG inventory.

16. Data Collection Process – Quality Assurance

The inventory compiler details quality assurance and quality control actions, and defines and documents possible sources of error during the data collection process. Sources of error include data entry mistakes, unreported data (data “gaps”), and incorrect calculations when converting.

After data is entered into the environmental inventory database, reports are generated to aid with checking the entered data with the original data source. The reports are sent back to the Districts for review. Any discrepancies are corrected.

Where possible, financial data from the TR and National Financial Center (NFC) is used to verify usage data, or at a minimum, ensure usage amounts are reasonably consistent with purchase amounts. For example, calculated fuel usage for vehicles based on fuel logs and odometer readings from the EMIS inventory will be cross-referenced with the vehicle fuel expenditure amounts recorded in the TR. The verifier will take the amount spent (in dollars) on gasoline fuel in the inventory year and divide by the average cost of gasoline in the region to arrive at an estimate of how much was used (in gallons). The verifier will then compare the recorded amount of vehicle fuel used with this estimated amount. Electricity usage values obtained from the utility provider will be similarly cross-referenced with the

electricity expenditure amounts recorded in the TR and NFC database. The verifier will use his/her judgment to discern the significance of any discrepancies this process reveals and will work with the most appropriate employees to address these discrepancies. If discrepancies cannot be resolved (i.e. no additional usage data exists), the inventory compiler will note the situation in the technical background section of the inventory and develop a strategy to address such data gaps in the future.

Data gaps are monitored as the data collection progresses and every effort is made to ensure all the appropriate data is gathered and entered. In addition to assessing the data for accuracy, the Districts and managers also review the data for completeness.

The inventory compiler is responsible for converting the data maintained in the environmental inventory into the appropriate units for the Climate Leaders tool. The inventory compiler carefully follows the guidelines of the Climate Leaders program and confirms calculations and assumptions with the Climate Leaders program technical assistant. All calculations and methodologies are described in detail in the introduction worksheet of the tool.

The inventory compiler is responsible for reviewing the data for inconsistencies and unexpected changes from year to year. After the greenhouse gas inventory has been completed in the Climate Leaders tool, it goes through a final review by an individual with experiences conducting greenhouse gas inventories.

17. Data Collection System Security

The inventory compiler controls who has access to the environmental inventory database.

18. Integrated Tools

Tongass' greenhouse gas inventory is part of the Forest's greater environmental inventory. The Environmental Engineer is responsible for submitting multiple reports on environmental activities and data annually.

19. Frequency

The inventory compiler will request data from each manager and District to fill in data gaps in the Access environmental inventory annually on February 1st. The deadline to submit data will be August 1st. The inventory will be completed by October 31st and reporting will occur annually by November 1st.

Base Year

20. The Tongass will follow Climate Leaders' guidance and recalculate its base year emissions when:

- A structural change in the organizational boundaries or change in status of leased assets triggers a significant cumulative change in their base year emissions (significant is defined as a cumulative percentage of 5% or larger in the total base year emissions, scope 1 and scope 2)

- A change in calculation methodologies or emission factors triggers a significant cumulative change in their base year emissions, or
- A significant error is discovered or a number of cumulative errors that are collectively significant.

21. The Tongass will not change its base year emissions in the following situations:

- Acquisition or divestiture of a facility that did not exist in the base year; or
- Organic growth or decline, which refers to closures and opening of operating units owned or controlled by the Tongass.

Management Tools

22. Roles and Responsibilities

The Environmental Engineer, with assistance provided by the Districts, identifies responsibilities necessary to ensure the environmental database and GHG inventory are completed accurately. The Forest Supervisor, with input from the Environmental Engineer and Districts, reviews and approves all roles and responsibilities.

The Environmental Engineer communicates closely with District Rangers to ensure that all staff are aware of the GHG inventory process and the importance of gathering accurate data in a timely manner.

23. Training

The inventory compiler is responsible for ensuring that he/she has sufficient knowledge and understanding to complete the inventory according to Climate Leaders program requirements. This would include reviewing all Climate Leaders guidance documents. The inventory compiler communicates the basic information on the greenhouse gas inventory to the manager and District staff who will help to gather data.

Information and documentation regarding the GHG inventory will be maintained on the Tongass intranet and therefore available to all staff.

24. Document Retention and Control Policy

All documents associated with the Climate Leaders program will be maintained in electronic form on the secure server. The inventory worksheets are *protected*, meaning the contents of the cells cannot be changed without the user entering a password. To *unprotect* a worksheet, select <Tools> from the Menu Bar, select <Protection>, select <Unprotect Sheet>, and enter the password *TongassFY2007* in the pop-up box.

To minimize duplication of effort, documents will be named using a system that identifies the version (e.g. FY07 GHG Inventory_version1_Dec2009.xls, or FY07 IMP_Final_030310.doc) and datasets will be protected.

Auditing and Verification

25. Internal Auditing

The inventory compiler, assisted by representatives of each District as needed, will audit the GHG Inventory and Inventory Management Plan (IMP) annually. The audit is included as an action item in the Tongass Sustainability Action Plan, and will include a review of the inventory and IMP to ensure that:

- All sources of emissions have been included;
- The most recent version of the Climate Leaders Calculator tool and current emissions factors are used; and
- Current Climate Leaders protocols and guidance documents are being followed.

26. External Auditing and/or Verification

The Tongass currently has no plans for external auditing or verification of the inventory.

27. Management Review

District Rangers will review and approve the GHG inventory and IMP annually. This review is essential as it will ensure an understanding of Tongass' GHG emissions and progress towards emissions reduction goals at the leadership level.

28. Corrective Action

The inventory compiler is responsible for amending findings and making corrections. Any findings identified through reviews and the internal audit will be recorded by the inventory compiler in a separate document. This electronic document will be maintained in the same folder as the IMP and GHG inventory, and updated to indicate which changes have been made.

The IMP and GHG inventory documents will not be considered "final" until after all corrections have been made. The inventory compiler will use a file naming system to clearly indicate the version of each document (e.g. FY07 GHG Inventory_version1_Dec2009.xls, or FY07 IMP_Final_030310.doc).

Appendices

Appendix I

In-Town Facilities

District	Facility	Size	
Craig	FLEXIBLE HOUSING	12,432	
	BUNKHOUSE	1,680	
	GAS HOUSE	120	
	OFFICE	7,644	
	WAREHOUSE	1,800	
	FIRE CACHE	528	
Hoonah	CREW QUARTERS	4,296	
	DUPLEX, BLUE	3,400	
	DUPLEX, CEDAR	3,400	
	DUPLEX, GREEN	3,400	
	DUPLEX, RED	3,400	
	FUEL/PAINT SHED	300	
	SIX-PLEX	4,210	
	WAREHOUSE COVERED PARKING	1,500	
	OFFICE, HRD ADMIN	7,205	
	TREE COOLER	486	
	WAREHOUSE	5,024	
Juneau	ANM/JRD COLLOCATED ADMIN DRY STORAGE	11,700	
	ANM/JRD COLLOCATED ADMIN WAREHOUSE	4,400	
	ANM/JRD COLLOCATED OFFICE	17,400	
	CREW QUARTERS, JRD/ANM	1,586	
	FUEL AND PAINT SHED	335	
	FUEL SHED, SAGA	32	
	JUNEAU ADMINISTRATIVE HOUSING #1	8,064	
	JUNEAU ADMINISTRATIVE HOUSING #2	7,056	
	MENDENHALL GLACIER VISITOR CENTR	10,617	
	OFFICE, JRD ADMIN	8,000	
	QUONSET, METAL	2,160	
	QUONSET, WOOD	629	
	WAREHOUSE AND MAINT SHOPS	10,479	
	CREW QUARTERS, ANGOON	1,209	
	FUEL STORAGE, ANGOON	64	
	GENERATOR BUILDING, ANGOON	396	
	OFFICE, ANM ADMIN	2,056	
	Ketchikan	KETCHIKAN-MISTY RD GAS & OIL HOUSE	120
		DORMITORY	4,896
		OFFICE	8,043
RADIO SHOP		924	
WAREHOUSE		9,514	
Petersburg	SE DISCOVERY CENTER	21,101	
	HARRIS BUILDING	11,760	
	SO COVERED BIKE RACK	80	

	402 B FRAM ST., PETERSBURG	1,582
	402 C FRAM ST., PETERSBURG	1,468
	402 D & E FRAM ST., PETERSBURG	3,072
	402A FRAM, PETERSBURG BARRACKS	8,352
	406 FRAM ST., PETERSBURG	1,969
	600 A & B FRAM ST., PETERSBURG	3,072
	604 FRAM ST., PETERSBURG	1,734
	SCOW BAY WAREHOUSE	4,224
	SCOWBAY HAZMAT BLDG.-PREFAB	58
	STORAGE BLDG.(MARINE FAC.)	336
	MARINE FACILITY FLOATS	4,400
	WORK CTR. WAREHOUSE & CORRI.	5,992
	WORK CTR.HAZMAT BLDG.-PREFAB	169
	SO FLAMMABLE STRG BLDG - PREFAB	160
Sitka	CREW QUARTERS, CASCADE CREEK	1,440
	DUPLEX, 416 GEODETIC WAY	3,168
	DUPLEX, 418 GEODETIC WAY	3,168
	FUEL/PAINT SHED, SRD	189
	POLE BUILDING	1,440
	RESIDENCE, 402 MONASTERY	1,444
	RESIDENCE, 501 SAWMILL CREEK	1,444
	RESIDENCE, HPR	1,444
	SHOP, AUTO AND WOOD	3,160
	SOILS LAB	308
	TREE COOLER, SRD	200
	WAREHOUSE, CASCADE CREEK	10,000
	WHITE HOUSE	2,872
Thorne Bay	DORMITORY	7,666
	DUPLEX I	5,164
	DUPLEX II	5,164
	DUPLEX III	5,164
	DUPLEX IV	5,164
	DUPLEX V	5,164
	GAS & OIL	505
	OFFICE	7,193
	QUAD I	5,456
	QUAD II	5,456
	QUAD III	5,456
	TRAILER #2	967
	TRAILER #5	967
	TRAILER #6	967
	WAREHOUSE	14,800
Wrangell	316 FIRST AVE.	1,594
	808 & 810 ZIMOVIA HWY.	2,592
	COVERED BIKE RACK	80
	FROSTY BAY ANNEX CABIN - OFFICE ANNEX	224
	BARRACKS	3,025
	DISTRICT OFFICE	9,394
	FLAMABLE STOR.BLDG.	320
	GARAGE	3,360

	MARINE FACILITY	5,440
	WAREHOUSE	4,200
	WOOD SHED .	1,200
	TRAILER SPACE 38	880
	TRAILER SPACE 39	880
Yakutat	HAZMAT STORAGE SHED	160
	PUMPHOUSE	84
	RESIDENCE, RANGER	1,444
	MOBILE HOME #1	1,087
	MOBILE HOME #2	1,030
	MOBILE HOME #3	1,140
	MODULAR #4	1,113
	MODULAR #5	1,117
	WAREHOUSE	3,420

Remote Facilities

Craig	POLK COOKHOUSE	1,350
	POLK GENERATOR SHED	264
Hoonah	CREW QUARTERS, 8 FATHOM	910
	GENERATOR BUILDING, 8 FATHOM	100
	CREW QUARTERS, KENNEL CREEK	1,224
	GENERATOR BUILDING, KENNEL CREEK	288
	PT HOUGHTON CABIN	660
	PT HOUGHTON TOILET	13
Ketchikan	MARG BAY GENERATOR BLDG	600
	SHOAL COVE CREW QUARTERS	480
	SHOAL COVE DWELLING	1,086
	SHOAL COVE GENERATOR BLDG	300
	CHICKAMIN BARGE	4,368
	MISTY BARGE	3,160
Petersburg	KAKE ADMIN CORE BUILDING	1,064
	KAKE ADMIN SLEEPING MODULE #1	350
	PORTAGE BAY CREW QUARTERS	4,854
	PORTAGE GENERATOR/STOR.BLDG.	528
	ROWAN BAY NEW PUMPHOUSE	864
	ROWAN BAY OLD PUMPHOUSE/STOR.BLDG.	80
	ROWAN BAY STORAGE GARAGE	1,400
	ROWAN BAY WAREHOUSE	2,544
	ROWAN FLAM.STORAGE BLDG.	80
	ROWAN TRAILER, ONLY ON LEFT	1,024
	STRESS-SKIN CLOSEST TO WRHSE	480
	STRESS-SKIN FARTHEST FROM WRHSE	480
	ROWAN TRAILER, FIRST ON RIGHT	1,288
	NAKWASINA BARGE	4,368
Sitka	CREW HOUSING, CORNER BAY	4,838
	GARAGE AND FUEL STORAGE	768
	GENERATOR BUILDING	246
	FALSE ISLAND CREW #1	1,728
	FALSE ISLAND CREW #3	1,600

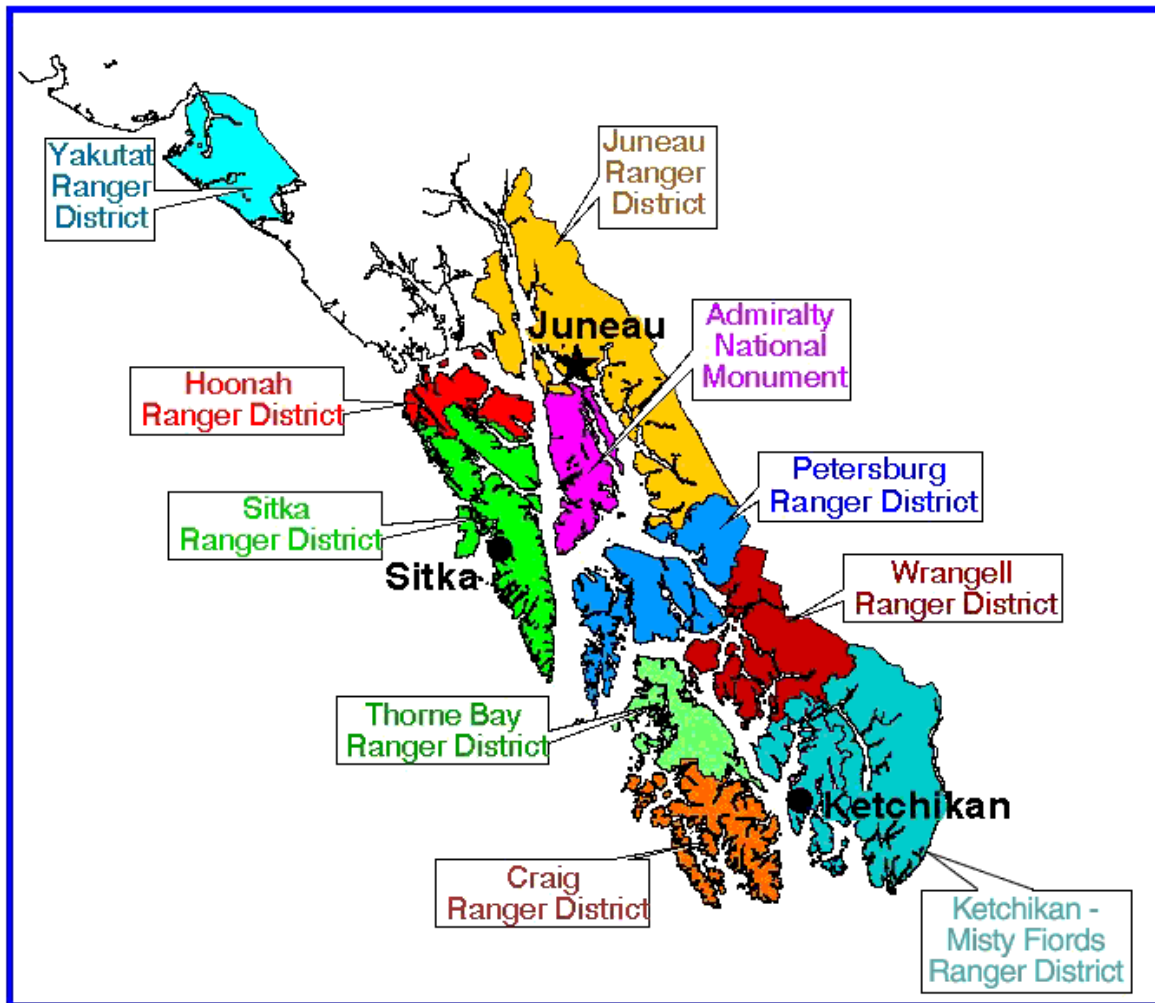
	FALSE ISLAND CREW MESSHALL	1,933
	FIELD CAMP OFFICE	560
	BATTERY BUILDING	99
	GARAGE/STORAGE	3,280
	GENERATOR SHELTER	144
	STP SHELTER	361
	WATER SYSTEM SHELTER	96
	WOODSHED	600
	WORKSHOP	560
Thorne Bay	COFFMAN COVE GEN BLDG	240
	EL CAP GENERATOR BLDG	320
	EL CAP STORAGE SHED	560
	NAUKATI PAN ABODE	500
	PORT ALICE CABIN	600
	PORT ALICE STORAGE	240
Wrangell	BRADFIELD CANAL CREW CABIN #1 (EAST)	480
	BRADFIELD CANAL CREW CABIN #2 (MIDDLE)	320
	BRADFIELD CANAL CREW CABIN #3 (WEST)	320
	BRADFIELD CANAL GARAGE	480
	CAMP CARL CREW QUARTERS	3,076
	DEEP BAY BARRACKS 1 (16X24)	384
	DEEP BAY BARRACKS 2 (20X24)	480
	DEEP BAY BATHHOUSE	112
	DEEP BAY FLAMABLE STOR.BLDG.	112
	ST. JOHN'S BATH HOUSE	154
	ST.JOHNS ADMIN.CABIN 1 LEFT	232
	ST.JOHNS ADMIN.CABIN 2 RIGHT	421
	ST.JOHNS FLAMABLE STOR.BLDG.	112
	FLOATING ADMIN. BLDG.#2	600

Tongass Offices

Petersburg Ranger District
 Wrangell Ranger District
 Yakutat Ranger District
 Sitka Ranger District
 Hoonah Ranger District
 Juneau Ranger District/Admiralty National Monument
 Ketchikan-Misty Fiords Ranger District
 Thorne Bay Ranger District
 Craig Ranger District

Sitka Supervisor's Office
 Petersburg Supervisor's Office
 Ketchikan Supervisor's Office

Map of the Tongass National Forest Ranger Districts



Source: Tongass National Forest website at www.fs.fed.us/r10/tongass/maps/districtsmap.html

Appendix II

Tongass FY2007 Greenhouse Gas Inventory – Introduction and Technical Background

The inventory was developed using the *Environmental Protection Agency (EPA) Climate Leaders Program* Inventory Guidance documents and technical assistance, and follows the example inventory developed for the National Forests of the Greater Yellowstone Area. It covers emissions from all activities over which the Forest Service has operational control within the Forest's geographical boundaries (with the exception of wildfire suppression). These are referred to as direct emissions or Scope 1 emissions. Indirect emissions or Scope 2 emissions, from purchased electricity, are also included in the inventory. Additionally, optional emissions (Scope 3) from small aircraft business travel are included. Detailed information on each source category is provided below.

Data was collected from key personnel such as the Facilities Manager (Molly Murphy), Fleet Manager (Roy Mitchell) and Aviation Manager (John Krosse). Each District was sent a questionnaire and environmental inventory database and asked to verify the data already received and to fill in missing data. In order to avoid underestimating emissions when usage data was not available, purchase data from the Tongass Transaction Register was converted into estimate usage amounts (e.g. propane) using average FY2007 cost data from the Energy Information Administration.

For questions regarding the inventory or to comment on possible inconsistencies or errors you notice in the data, please contact Michele Parker, Tongass Environmental Engineer, at mmparker@fs.fed.us. Details regarding management of the inventory are in the Inventory Management Plan.

Stationary

- Stationary combustion sources on the Tongass include boilers and water heaters fueled by propane and diesel fuel (fuel oil #2).
- The Facilities Manager provided fuel oil usage data in the form of monthly refill amounts in gallons.
- Fuel oil data can be viewed for each District on separate worksheets, as well as for the Forest as whole.
- Propane usage data was not available, so usage was estimated based on the amount spent on propane recorded in the Transaction Register (\$22,325.64), which was converted based on average FY2007 cost of propane for the region (\$2.01/gal) according to Energy Information Administration data. (<http://tonto.eia.doe.gov/dnav/pet/hist/d900650002m.htm>)

Mobile

- This category includes emissions from all road vehicles in the EMIS inventory provided by Tongass' Fleet Manager.
- Fuel use was not documented for FY2007. For vehicles, this was estimated using odometer readings to determine miles traveled and fuel economy values in miles per gallon (MPG) obtained from www.fueleconomy.gov.
- Vehicle miles traveled (VMT) for the year were calculated by subtracting the odometer reading from end of the previous fiscal year from the odometer readings from the end of the baseline fiscal year.
- Combined MPG was calculated using the following formula: $1 / [(0.55/\text{city mpg}) + (0.45/\text{highway mpg})]$

- Where fuel economy values were not available for particular vehicles, values were obtained from the manufacturer or from the GHG Protocol's guidance for calculating emissions from mobile sources (e.g. tractor).
- The vast majority of the vehicles and watercraft are fueled by gasoline; a minority are fueled by diesel.
- Most vehicles are light duty trucks or heavy duty trucks. Vehicles are classified as heavy duty trucks according to their exemption from testing based on a gross vehicle weight rating (GVWR) over 8,500 pounds. (The list of these vehicles is available from www.fueleconomy.gov/feg/which_tested.shtml.)
- Note that the Tongass has very few passenger cars and tractors.
- Emissions from watercraft and project vehicles (e.g. snowmobiles, trail bikes and all-terrain vehicles) are not included in this baseline inventory since fuel use was not available, could not be estimate with sufficient accuracy, and this tool does not currently include calculation methodology. It is recommended that these sources are included in the future.
- Data can be viewed for each District on separate worksheets, as well as for the Forest as a whole.

Electricity

- Electricity usage data in kilowatt-hours (kWh) per month was obtained directly from the utility provider.
- The EPA Climate Leaders Program provided the inventory team with the 2005 eGRID tool, which was used to determine the appropriate eGRID subregion to input for each District. All Districts fall into the AKMS (ASCC Miscellaneous) subregion. (Note: Juneau, Ketchikan, Petersburg, Sitka and Wrangell's utility providers are hydroelectric power plants. AKMS (ASCC Miscellaneous) provides regional emissions factors.)
- Craig and Thorne Bay did not have electricity data available for FY2007. Therefore, FY2008 values were used.
- Sitka did not have electricity data available for October through January of FY2007. Therefore, FY2008 values were used.
- Data was not available for the following leased facilities: Juneau Regional Office, Ketchikan Supervisors Office, and Yakutat Ranger District. (According to EPA Climate Leaders protocol, these would be Scope 3 emissions.)
- Data can be viewed for each District on separate worksheets, as well as for the Forest as a whole.

Refrigeration and Air Conditioning

- Emissions from refrigeration and air conditioning are at most de minimis and not worth pursuing at this time. Refrigeration equipment is minimal and regularly maintained on the Tongass, so leakage is extremely unlikely. Air conditioning is used only to cool the computer server during the summer months, and is also regularly maintained, so leakage is extremely unlikely.

Fire Extinguishers

- Emissions from fire extinguishers are at most de minimis and not worth pursuing at this time. Fire extinguishers are regularly maintained on the Tongass, so leakage is extremely unlikely.

Business Travel on Small Aircraft

- Business air travel is an optional source category for the inventory. Tongass staff decided to include this category because their unique geography requires that staff travel between islands and remote locations on small aircraft frequently.

- Small aircraft trips are either chartered or contracted flights on fixed wing aircraft and helicopters.
- The aviation manager provided data on the duration (in minutes) of each trip by aircraft type (Cessna, Beaver, Otter or Helicopter) and by District.
- Fuel usage data was estimated based on trip durations and fuel economy factors. Fuel economy factors (in gallons per hour) for each aircraft type were provided by Ken More Air, which services the aircraft. (Beaver: 23 gal/hr. Cessna: 14 gal/hr. Otter: 42 gal/hr. Helicopter: 32 gal/hr.)
- Flights on large commercial aircraft are not included in the inventory at this time since data was not available. The inventory team assume this would be a significant source of Scope 3 emissions, however, and recommend that this category be included in future inventories.
- Data can be viewed for the Forest as a whole with each District identified on a single worksheet.

Employee Commuting

- Employee commuting is an optional category that is not included in the inventory at this time.

Appendix III

Climate Leaders Guidance Documents (www.epa.gov/climateleaders)

Design Principles Guidance. May 2005. EPA 430-K-05-005. Available at:
www.epa.gov/stateply/documents/resources/design-principles.pdf

Direct Emissions from Mobile Combustion Sources. May 2008. EPA 430-K-08-004. Available at:
www.epa.gov/stateply/documents/resources/mobilesource_guidance.pdf

Direct Emissions from Stationary Combustion Sources. May 2008. EPA 430-K-08-003.
Available at:
www.epa.gov/stateply/documents/resources/stationarycombustionguidance.pdf

Guide to Greenhouse Gas Management for Small Business and Low Emitters. August 2008. EPA 43-R-08-007. Available at:
www.epa.gov/climateleaders/documents/resources/lowemitter_guidance.pdf

Indirect Emissions from Purchases/Sales of Electricity and Steam. June 2008. EPA 430-K-08-006.
Available at:
www.epa.gov/stateply/documents/resources/indirect_electricity_guidance.pdf

Appendix IV

What your utility bills are not telling you! How to figure out the quirks in Forest Service utility bills.

Source: USFS Sustainable Operations, Energy Footprint Focus Area, Tools. Available at:
www.fs.fed.us/sustainableoperations/documents/HowtoFigureOuttheQuirksinFSUtilityBills.rtf

Several Region 2 forests have recently reviewed their utility bills and have discovered that the forest has been needlessly paying hundreds if not thousands of dollars to the Utility Companies. With tight budgets and an emphasis on reducing energy consumption, now is an excellent time to review utility bills and ensure that federal dollars are used appropriately for energy purchases. Obtaining and reviewing past utility bills is not an easy task. The majority of the energy bills are sent directly to the National Finance Center (NFC) without the forest ever knowing how much energy is used, where the energy is used, what rate structure the use is based upon, and whether the forest still owns the property. The intent of this memo is to provide some guidance based upon the experiences of others during their utility review process. Below is a list of steps that should help in this process:

1. Obtain a list of all the utility providers, the accounts, site address or building address, associated meters, and rate structures. This can be done by a variety of methods. Support Services Supervisors (SSS) on Districts usually have the account numbers and addresses. If the District no longer has an SSS try a Forest Budget person, who should be able to tell you which accounts are associated with which districts. District maintenance people, as well as most Forest facility engineers, should be familiar with where the meters are. If you obtain account information and meter numbers but are unsure which exact building on a site with which they are associated, you may have to go to each site and find the meter. Existing site plans can also help with this.

Armed with the account numbers, addresses, and meter numbers, you should be able to obtain rate structures for each account by contacting the local utility company.

2. Verify that the Forest Service still owns the property. In many cases, the property has been sold or transferred to another owner (private or government) and the forest is still paying the utility bills. In this case, inform the appropriate owner of the problem and their responsibility for paying the utilities, and work with the utility company and NFS to remove the forest service from being responsible for payment.

3. Verify that power is still required or used at each site. At many locations the power has been disabled or removed but the Forest Service is still paying a monthly charge for the meter.
 - If power is no longer required, work with the utility company to disconnect the meter and stop the associated monthly charges. In some cases, the utility transformers can also be removed resulting in payment back to the government.

- If power maybe needed in the future, work with the utility company to determine if it would be cost effective to disconnect the service now and reconnect the power at a later date for a small fee.

3. For utilities provided to concessionaire operated facilities, review concessionaire contracts to verify who is responsible for paying utilities. Many times the Forest Service will pay for utilities during construction with the concessionaire responsible for paying the utilities after construction is complete; however, the paper work transferring payment responsibility was never completed.

4. Review the utility bills for invoice accuracy, billing structure, rates redundant billing charges, tariffs and surcharges. Mistakes do happen resulting in overpayment to utility companies.

- Make sure that the rate is appropriate for the amount of power being used, both total amount and peak amount. This will require that you look at billing records for an entire year for each account (or a several month period for seasonal use)
- Rate Structure: Review the rate structure and type of facility with the utility company to determine the best rate structure. Don't pay commercial rates on trailer pads, bunkhouses or guard stations. Host sites in campgrounds may qualify for residential rates. In many cases the rate is determined by the service size.
- Watch for demand charges. Some sites that used to be larger required that we pay demand charges. With reductions in personnel, numbers of buildings, and use, we not be required to pay these anymore.
- Check for 3-phase power charges. Some utilities charge more for 3-phase than single phase. At some sites, 3-phase could easily be converted to single phase.
- Tax Exempt: Verify that the bill shows tax exempt status. This also applies to government leases.
- If you have done any upgrades such as fixture replacements, check with the utility provider to see if they offer rebates. Go to www.dsireusa.org for more incentives by state for renewable energy and energy efficiency.