# 2012 EDF Greenhouse Gas Emissions Inventory

October 2013

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# Emissions Summary

In our fifth comprehensive greenhouse gas (GHG) inventory, we look across our operations and find that EDF emitted 3,700 metric tons of carbon dioxide (equivalents) in calendar year 2012.[1] This is a 3% reduction in gross emissions over our first comprehensive inventory in 2008.[2] The reductions in paper use from the baseline year compensate for the increase in travel emissions. The overall emission profile of our inventory this year is similar to 2009 and 2010, where travel emissions are the largest source at 40%, followed by office energy then paper, accounting for approximately one third and one quarter of the emissions, respectively.

**2008 - 2012 EDF Greenhouse Gas Emissions**

| Source | Metric Tons CO2(e) | | | | |
|---|---|---|---|---|---|
| | 2008* | 2009 | 2010 | 2011 | 2012 |
| **Travel** | **1,300** | **1,800** | **1,800** | **1,600** | **1,500** |
| Air | | 1,500 | 1,400 | 1,200 | 1,200 |
| Rail | | 34 | 38 | 33 | 7 |
| Rental Cars | | -- | 19 | 19 | 29 |
| Employee Commutes | | 280 | 330 | 220 | 260 |
| Hotel Stays | | -- | -- | 70 | 68 |
| | | | | | |
| **Office Energy** | **1,200** | **920** | **1,200** | **870** | **1,200** |
| Electricity | | 750 | 980 | 750 | 900 |
| Natural Gas | | 45 | 55 | 55 | 180 |
| Oil | | 120 | 140 | 66 | 110 |
| District Steam | | 2 | 2 | 3 | 3 |
| | | | | | |
| **Paper** | **1,300** | **870** | **1,000** | **1,100** | **1,000** |
| Office Copy Paper | | 5 | 9 | 9 | 10 |
| Membership Department Mailings | | 720 | 860 | 1,000 | 900 |
| Contracted Projects | | 140 | 140 | 120 | 110 |
| | | | | | |
| **Totals** | **3,800** | **3,600** | **4,000** | **3,600** | **3,700** |

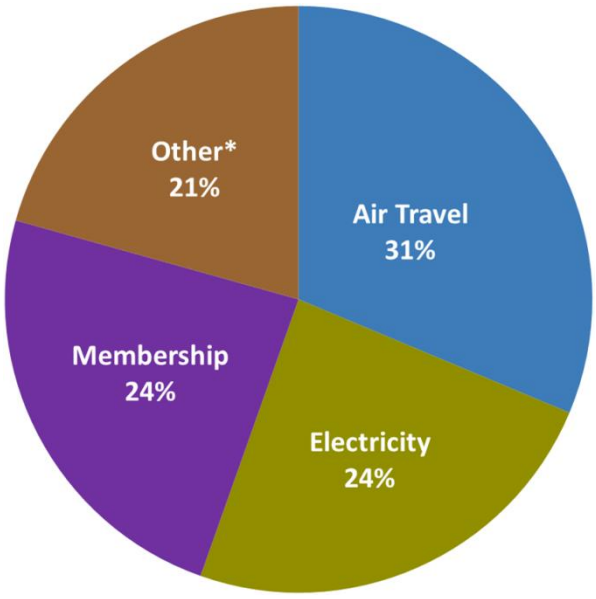
*Due to differences in data collection, only aggregate totals are available for 2008.

This report is based on both empirical and estimated data using our internal greenhouse gas emissions model, and includes scopes 1, 2, and 3 emission sources.[3] Each year, we improve our methodology, in terms of both data collection and analysis, bringing increased integrity to the data and understanding more holistically our carbon footprint. This year, we made several material changes. Key improvements include systematizing office energy data collection, refining air travel data and analysis, and updating paper emission factors with the most current figures. We provide more information about our methodology in Appendix 1.

Three emission sources account for nearly 80% of our 2012 greenhouse gas profile: air travel (31%), office electricity use (24%), and the Membership Department's mailings (24%). The remaining sources together account for 21% of the profile. Armed with this information, we can focus resources on the biggest opportunities for emissions reduction when designing strategies to meet our GHG goal. We are committed to reducing our carbon footprint by more than 20% over our baseline.[4]

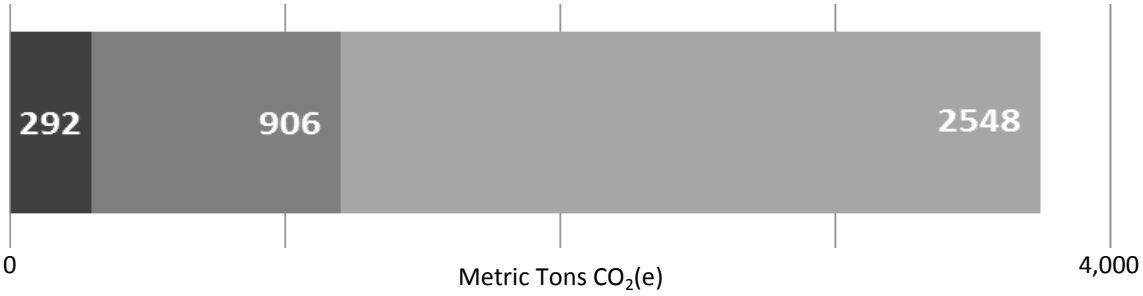
An analysis of our 2012 GHG inventory by scope reinforces the importance of including indirect sources. Scope 3 indirect emissions account for 70% of the profile, followed by scope 2 purchased electricity and purchased steam[5] at 25%. Scope 1 direct emissions from heating our offices with natural gas and fuel oil account for the remainder. Only scopes 1 and 2 are typically required by most GHG accounting standards.[6] Our inventory, however, is consistent with best practices by investigating deep into our upstream and downstream resource uses.

## 2012 GHG Emissions Profile




*Other includes Natural Gas, Oil, District Steam, Employee Commutes, Rail, Rental Cars, Hotel Stays, Office Copy Paper, and Contracted Print Projects.

## 2012 Total GHG Emissions by Scope




| Scope 1 | Scope 2 | Scope 3 | |
|---|---|---|---|
| Natural Gas | Electricity | Air Travel | Office Copy Paper |
| Fuel Oil | Purchased Steam | Rail Travel | Membership Department Mailings |
| | | Rental Cars | Contracted Print Projects |
| | | Hotel Stays | |
| | | Commutes | |

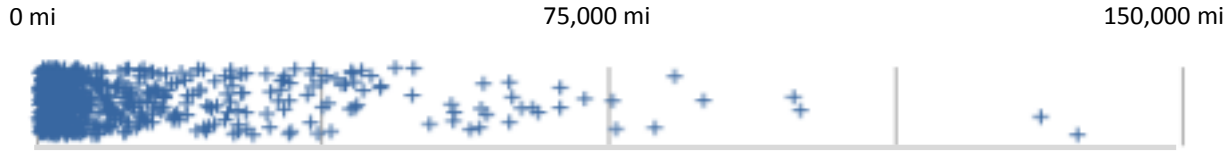
## Travel: Air

Business travel by air is consistently the single biggest contributor to our GHG footprint. In 2012, our 417 employees traveled just under 7.4 million miles by plane. Over 80% of miles traveled are on long-haul flight segments (688.5 miles or longer). Although regional flights (less than 287.7 miles) have higher emissions rates, these segments account for only 6% of our emissions from air travel. Knowing this helps us to focus our efforts on which types of flights to reduce in order to most effectively impact our air travel emissions.

| Total Airline Emissions by Flight Type | | | | |
|---|---|---|---|---|
| Flight Type | | Miles Traveled | Metric Tons CO2(e) | % Metric Tons CO2(e) |
| Regional: | < 287.7 mi | 271,418 | 72 | 6% |
| Short: | ≥ 287.7 and < 688.5 mi | 1,039,575 | 155 | 13% |
| Long: | ≥ 688.5 mi | 6,072,902 | 947 | 81% |
| | | | | |
| **Totals from Air Travel** | | **7,383,895** | **1,174** | |

We gain additional insight into our 2012 US air travel by looking at changes in gross miles flown as well as the distribution of total miles flown per individual. First, we note that although our gross miles increased in 2012, our rate of increased employee air travel is only half the rate of our employee growth. Specifically in the US, we increased travel 6% while our FTEs increased 14%.[7] Further, by looking at the distribution of total miles flown in 2012 per individual in US offices, we find that a small number of individuals account for most of the miles flown and corresponding emissions. Of the 607 distinct passengers[8], the twenty two individuals (or 4% of travelers) who clocked the most miles account for 25% of air emissions. The next most traveled 45 individuals account for another 25%, followed by the next most traveled 90 individuals accounting for another 25%, meaning that 75% of air travel emissions derive from 157 individuals (or 25% of travelers). The final 25% of air emissions source from 450 distinct passengers. The chart below illustrates this distribution, showing the total miles traveled in 2012 by each of the 607 individuals.

**Distribution of Miles Flown Per Individual (US Offices)**




Employee air travel by department also helps us better understand our air travel emissions. The Oceans and Climate programs together account for 40% of our 2012 air travel emissions, down from 50% in 2011. These two programs, then, account for nearly 15% of our total 2012 GHG footprint.

| Total Airline Emissions by Department | | |
|---|---|---|
| Program | Metric Tons CO2(e) | % Air Travel Emissions |
| Oceans | 320 | 27% |
| Climate | 152 | 13% |
| Land, Water, and Wildlife | 116 | 10% |
| China | 107 | 9% |
| Energy | 101 | 9% |
| Corporate Partnerships | 92 | 8% |
| Development | 74 | 6% |
| Executive Office | 61 | 5% |
| Operations | 58 | 5% |
| Office of the Chief Scientist | 37 | 3% |
| Marketing and Communications | 31 | 3% |
| Economics | 8 | 1% |
| Strategic Partners | 8 | 1% |
| Unknown | 5 | 0% |
| Environmental Health | 4 | 0% |
| | | |
| **Total Airline Emissions** | **1,174** | |

## Travel: Employee Commutes

In 2012, EDF employees commuted to and from work 1.3 million miles, accounting for 7% of the overall 2012 emission inventory. Emission-free modes of transport, walking and biking, account for 10% of all miles traveled. Public transit (bus, subway, commuter rail) accounts for nearly 60% of the total annual miles commuted by our staff. The 259 metric tons emitted as a result are roughly an 18% increase over 2011. This aligns with the 2012 14% increase in US FTEs, likely explaining the gross change in emissions.

**Emissions from Employee Commutes by Mode of Transportation**

| Mode of Transportation | Annual Employee Commute (miles) | Annual Emissions from Employee Commutes (metric tons CO2e) | % of Commuting Emissions |
|---|---|---|---|
| Drive: Alone | 335,975 | 132 | 51% |
| Commuter rail | 339,205 | 55 | 21% |
| Subway | 282,622 | 46 | 18% |
| Bus | 148,679 | 16 | 6% |
| Drive: Carpool | 49,484 | 10 | 4% |
| Bike | 70,040 | - | - |
| Walk | 58,913 | - | - |
| **Total** | **1,284,918** | **259** | |

## Office Energy

In 2012, EDF emitted 1,198 metric tons (MT) of carbon dioxide equivalents from lighting, heating, and cooling its eleven offices. This accounts for nearly one third of the 2012 GHG inventory. Boston, Boulder, and Washington DC are the most efficient offices, while Sacramento, San Francisco, and Raleigh are the least efficient.

**Energy Emissions by Office**

| Office | Emissions Per Square Foot (kg CO2e) | Emissions Per Capita (metric tons CO2e) | Total GHG Emissions (metric tons CO2e) |
|---|---|---|---|
| Sacramento | 59 | 25 | 152 |
| San Francisco | 14 | 4 | 199 |
| Raleigh | 14 | 5 | 125 |
| Austin | 13 | 4 | 158 |
| Bentonville | 11 | 4 | 7 |
| New York City | 7 | 3 | 296 |
| Washington DC | 6 | 2 | 201 |
| Boulder | 5 | 2 | 28 |
| Mexico | 4 | 1 | 8 |
| China | 2 | <0 | 4 |
| Boston | 2 | 1 | 20 |
| **Total** | **9** | **3** | **1198** |

## Paper Use

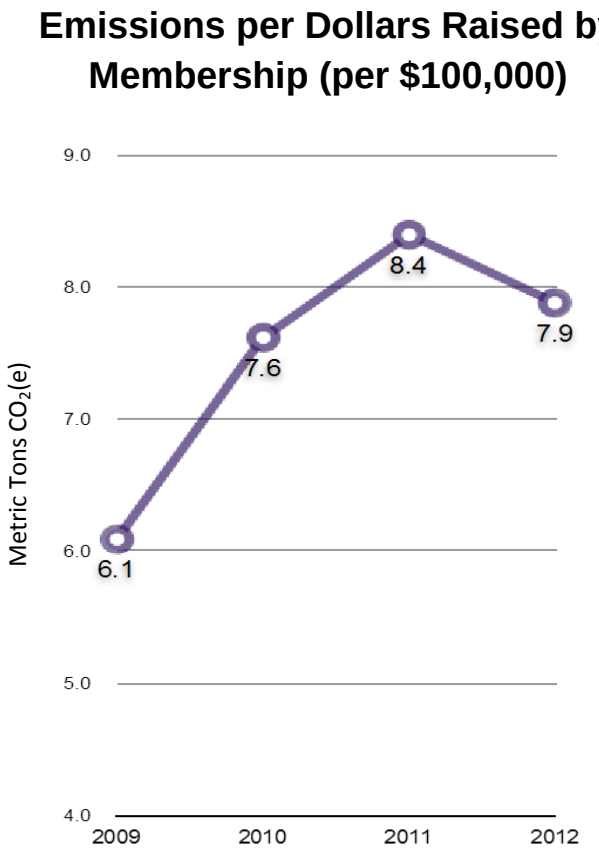
Paper use accounts for over one quarter (27%) of the 2012 GHG inventory, down from one third in 2011. The Membership Department's paper use, in the form of mailings to existing, former, and prospective members, accounts for nearly 90% of these paper use emissions.

**Emissions from Membership Department Mailings**

| Mailing Category | Total Weight of Mailing (metric tons) | Total GHG Emissions (metric tons CO2e) | % Membership Emissions |
|---|---|---|---|
| Acquisition | 230 | 520 | 58% |
| Reinstatements | 49 | 110 | 12% |
| Appeals | 46 | 103 | 11% |
| Solutions | 41 | 92 | 10% |
| Renewals | 27 | 61 | 7% |
| Cultivation | 4 | 10 | 1% |
| | | | |
| **Total** | **397** | **896** | |

The Membership Department categorizes its mailings into six primary groups: Acquisition, Appeals, Reinstatements, Solutions Newsletters, Renewals, and Cultivation. More than half of the paper used is for Acquisitions, and as a result, more than half of the emissions. Reinstatements and Appeals together account for another quarter, while Solutions, Renewals, and Cultivation account for under one fifth.

Membership mailings, a core funding mechanism that makes our global operations possible, are also a big and growing piece of our footprint. For this reason, it's important that we track as best we can how these emissions change over time. Using data from 2009 to 2012, emissions per dollar raised steadily increase, +1.5 MT per $100,000 between 2009 and 2010, and +0.8 MT per $100,000 raised between 2010 and 2011. However, we see this trend breaking in 2012, with fewer emissions per dollar raised, an increase in efficiency by the Membership Department in 2012.

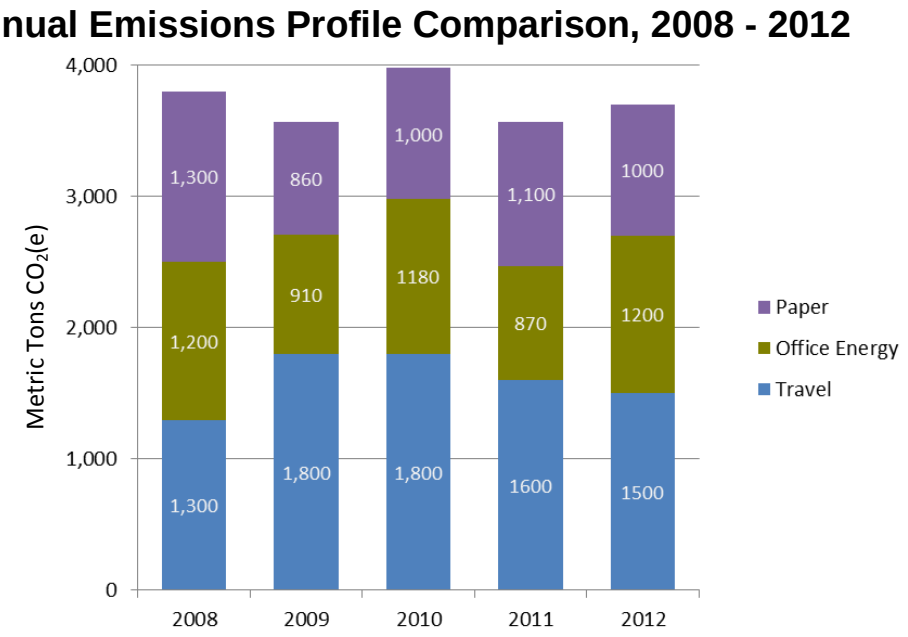


# 2008 - 12 Emissions Comparison

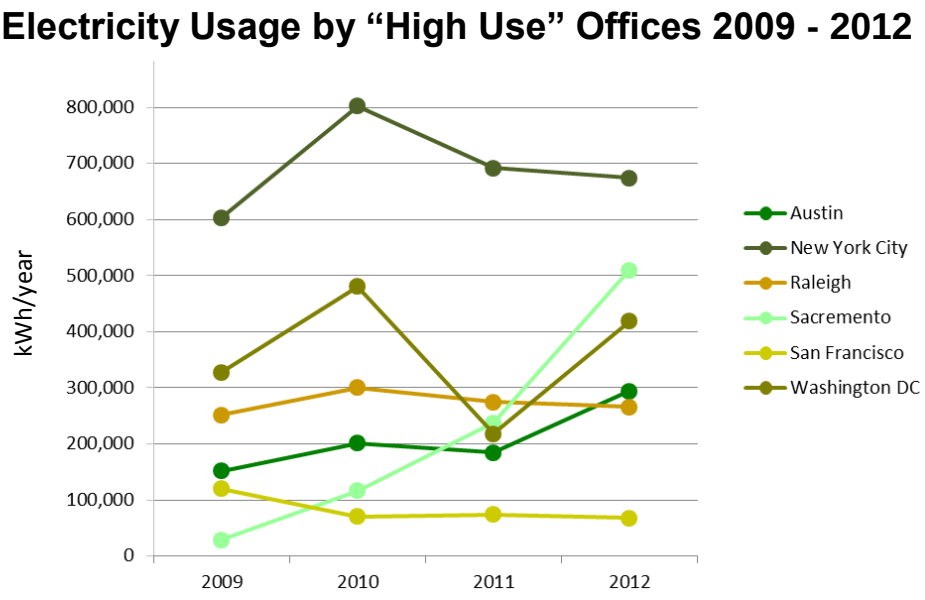
Across our domestic operations, EDF emitted 3,700 metric tons of carbon dioxide equivalents in 2012, down 3% from 2008. Per capita emissions decreased 10% compared with 2008.

| **Total Annual Greenhouse Gas Emissions** | | | | **(metric tons CO2e)** | |
|---|---|---|---|---|---|
| 2008 | 2009 | 2010 | 2011 | 2012 | Change 2008 to 2011 |
| 3,800 | 3,600 | 4,000 | 3,600 | 3,700 | -3% |
| 10 / FTE | 11/ FTE | 12 / FTE | 10 / FTE | 9 / FTE | -10% |

The relative composition from 2008 to 2012, based on the three primary emission categories, yields no clear pattern over the five year period. Travel increased in 2009, but has since decreased. Energy fluctuates dramatically each year, as does paper.




Because office energy is a key source of our emissions each year and because it has varied materially, we examined in greater depth the changes in electricity usage among the biggest users within our property portfolio. Of the six “high use” offices, five increased electricity use in 2010, then five decreased (or maintained) use in 2011. In 2012, the pattern splits, with three having increased substantially while the remaining three decreased but only slightly. Understanding use patterns among these emission hotspots will help us focus our efforts most efficiently.




# Conclusions

In 2012, our emissions increased 3% over 2011, but decreased 3% over our baseline year, 2008. This up and down matches the changes we saw in our emission profile, where four sources decreased, six increased, and two remained constant. Of those, most notable are decreases in travel and paper, countered by an increase from office energy. Electricity and natural gas increases (+150 MT and +125 MT respectively) are the two largest gross emission changes from any single source. An increase of 14% in our US staff (FTE) is a force that we can reasonably conclude impacted our office energy demand.

Gradual and continual improvement is a common thread to all our inventories since the first one completed in 2007. This year is no exception, with major process and model improvements in the biggest areas of our carbon inventory. First, we focused on air travel, easily the single largest contributing source. Our data analysis this year includes the most up-to-date emission factors, which notably discerns between passenger seat classes. Our 2012 air travel analysis went further to design a more thorough catch for refunded, returned, or re-booked tickets to ensure only travel actually completed was counted. We retroactively applied this improved model to 2011 and updated our air travel emissions from that year accordingly.

After air travel, we tackled office energy with a fresh effort to bring a more systematic approach to the process. Rather than relying on various individuals in various positions to provide critical square footage data, we developed a process and designed a tool to collect information directly from our property leases. This increases our data consistency and ultimately reduces the possibility for human error. See Appendix 1 for more details on methodology changes.

As with previous inventories, these improvements in our methodology translate into figures that more accurately reflect our true impact. While we can attribute some of our year on year changes to this better representation, it is clear that there are other real and changing factors (FTE, consumption patterns, internal policies) affecting gross emissions. This is important to consider when evaluating our

2012 and future inventories. Nonetheless, the numbers in 2012 are the strongest to date, and they are the best reflection of our carbon footprint.

## Sustainability Beyond GHG Accounting

Tracking and reporting our GHG footprint is core to our sustainability strategy at EDF. But our sustainability efforts are much more than this report. Below is a summary of some additional key activities across our operations.

In October of 2012, the Sustainability Council launched the EDF Sustainability Handbook - available to all staff and to the public - to help staff implement best practices in our offices and throughout our operations. The idea for the handbook came from the Office Practices committee of the Council, whose task was to improve EDF offices' impacts through emissions, energy, waste, etc. The handbook provides specific guidance regarding workplace commuting, energy use, purchasing decisions, paper reduction, water savings, food and dining best practices, and waste and recycling choices. The entire handbook is available for download from EDF's "Sustainability at EDF" webpage.

In order to help staff internalize the lessons of the Sustainability Handbook, Council members hosted brown bag lunches, discussions, presentations and competitions. Competition winners were rewarded with bicycles (for emissions-free commuting, of course) and solar-powered Kindles. The Office Practices subcommittee of the Sustainability Council will continue to work on refining and expanding the handbook as needed, sharing its lessons with new staff and reinforcing best practices through ongoing educational opportunities and eco-competitions.

## Looking Forward

At this stage in our carbon accounting practices, we now have confidence in the scale and profile of our emissions. We have the information we need to identify reduction opportunities big and small across EDF to help us meet our goal. We can now consider specific reductions like the following:

- If the top 22 travelers teleconferenced 10% of the time, that would reduce approximately 30 MT (1% of our total). If the top 75 travelers teleconferenced 20% of the time, that would reduce roughly 120 MT (3% of our total).
- If Membership replaced 10% of its mailings with electronic communication, we would eliminate 90 MT (2% of our total).
- If half the time, employees in Raleigh carpooled instead of drove alone, that would save roughly 15 MT (0.5% of our total).

This report continues to be in line with industry best practices, as we expect to lead by example and continue innovating as a model for our stakeholders. With that in mind, we've already developed new processes that will be implemented next year for Membership paper and office energy data collection. With a solid understanding of our inventory and material improvements to our methodology, we are better positioned than ever before to achieve our strategic GHG goals.

# Appendix 1

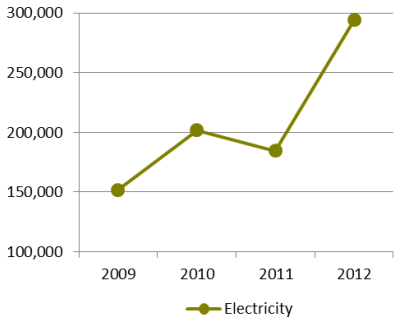
The table below outlines important notes about various aspects of the 2012 methodology. These details inform our understanding of the 2012 inventory and prepare us to improve our accounting practices moving forward.

| **Select Notes on 2012 Methodology: Data Collection, Calculation, and Analysis** | |
|---|---|
| Emission Source | Notes |
| Total | 2010 measures domestic emissions only. All other years include energy use from international offices.<br><br>We developed a systematic approach to collect Full-Time-Equivalent (FTE) figures. Previously, this information was provided by Human Resources Staff. With our new system, the Director of Business Affairs is responsible for collecting this information and inputting it into a specifically-designed tool. This brings consistency to a core statistic that affects our commuting, office energy, and per capita emissions. We applied the process designed in 2012 retroactively back to 2009 for per capita total emissions and office energy, and back to 2011 for employee commutes. |
| Travel - Air | Focused on producing the cleanest data sets possible, two key improvements were made:<br>1) With thousands of flights booked each year, we expect a portion of those tickets to be refunded, cancelled, or exchanged. Having accounted for this in previous years, we improved our model to more rigorously correct for these changes. As a result, we are more confident that only the travel taken in each calendar year is reflected in this year's carbon footprint. We also applied these changes retroactively to the 2011 data set and updated the emission figures in this report accordingly.<br>2) With hundreds of passengers, flights can be assigned to the same person but with deviations in name. Although we accounted for this in the past, we built a new model that greatly improves the ability to assign flights and programs to the correct individual passengers.<br><br>Another material improvement is the application of the most current emission factors. Previous inventories, 2011 and earlier, were based on emissions factors from World Resources Institute, which are now out of date. WRI relies on emissions factors from the UK Department for Environment, Food & Rural Affairs (Defra), and this agency made recent updates not acknowledged by WRI in its June 2013 update. We believe these are the best emissions factors available and therefore applied them to our 2012 air travel calculations, and retroactively to 2011. The updated 2011 figures are reflected in this report. Perhaps the most influential change with the UK Defra emissions factors is the discerning between seat class and associated emissions, where business, upgrade, and first classes can have higher emission rates than coach class depending on the flight distance. Our 2011 and 2012 air travel emissions now consider the class passengers travel on each segment. |
| Office Energy | This year we made it a priority to standardize the collection of office square footage, bringing increased consistency and integrity to our office energy calculations. We define square footage as rentable square feet (RSF). Rather than relying on various property managers or office managers, we centralized the collections of this information. Our new process identifies one key individual to review original leases. We will use this method going forward, and applied the new process retroactively back to 2009. |
| Paper | Emission factors were updated in 2012, which had a downward affect.<br><br>Two offices reported various paper sizes (11 x 17 and 11 x 14). We adjusted our calculations to account for these various sizes of paper. |

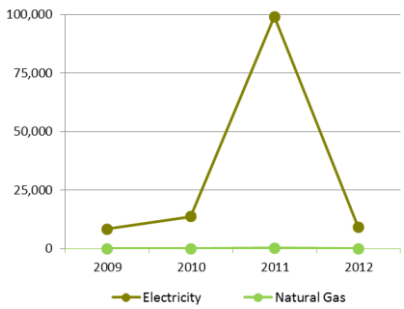
# Appendix 2

Below are nine line graphs illustrating the changes in energy use in our US offices by year.

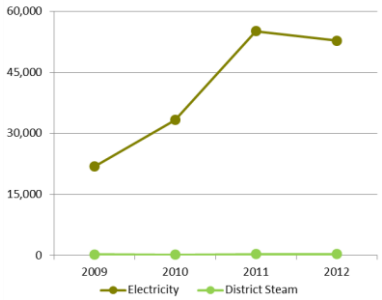
## Austin



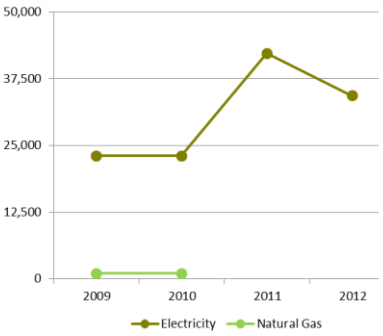

## Bentonville



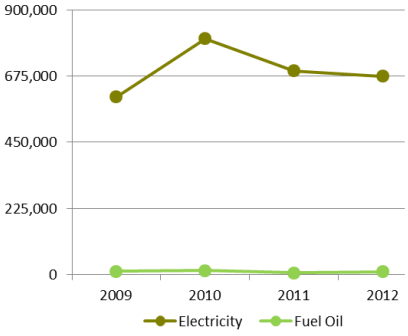

## Boston



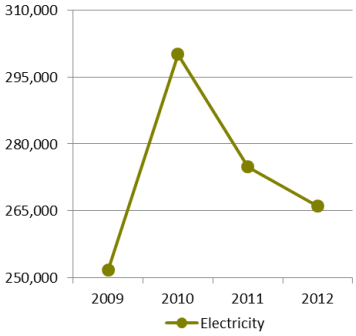

## Boulder



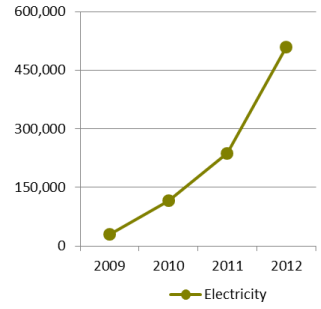

## New York City



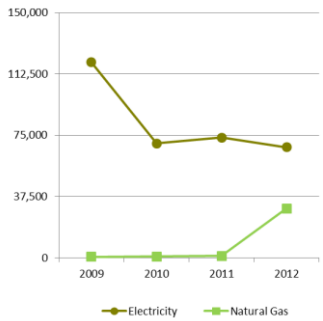

## Raleigh



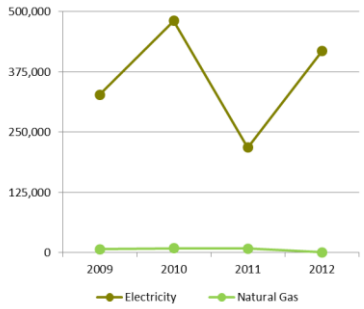

## Sacramento




## San Francisco




## Washington DC



# Endnotes

[1] On page 2 in the summary table, "2008-2012 EDF Greenhouse Gas Emissions" we use two significant figures, while other figures referenced in the report use actual calculated numbers. We acknowledge that our greenhouse gas calculations, like all GHG inventories, are imperfect, and therefore take a conservative approach and use only two significant digits when summarizing our greenhouse emissions on page 2. As the subsequent sections of the report are intended to provide more granular insight, we chose to use the actual calculated figures which provide additional specificity. For reference, actual 2012 GHG Emissions are below:

| 2012 EDF Actual GHG Emissions | |
|---|---|
| Source | Metric Tons CO2(e) |
| **Travel** | **1536** |
| Air | 1173 |
| Rail | 7 |
| Rental Cars | 29 |
| Employee Commutes | 259 |
| Hotel Stays | 68 |
| | |
| **Office Energy** | **1198** |
| Electricity | 903 |
| Natural Gas | 183 |
| Oil | 109 |
| District Steam | 3 |
| | |
| **Paper** | **1012** |
| Office Copy Paper | 10 |
| Membership Department Mailing | 896 |
| Contracted Projects | 106 |
| | |
| **Totals** | **3746** |

[2] Although our first GHG inventory was conducted in 2007, 2008 was the first comprehensive report.

[3] As defined the by US Environmental Protection Agency, GHG emission scopes can be defined as follows: Scope 1 emissions are direct GHG emissions from sources that are owned or controlled by the reporting entity, such as emissions from fossil fuels burned on site, or an owned fleet. Scope 2 emissions are indirect GHG emissions resulting from the generation of electricity, heat, or steam off-site but purchased by the reporting entity. And Scope 3 emissions are indirect GHG emissions from sources not owned or directly controlled by the reporting entity, but related to its activities such as outsourced projects, employee travel and commuting. Source: www.epa.gov/oaintrnt/glossary.htm.

[4] As established in our strategic plan, *Leading Transformational Change: Strategic Plan 2010-2014*, available here: www.edf.org/content/leading-transformational-change.

[5] Purchased steam is a source of heating and cooling, generated in a central location and delivered to disperse units across a wide geographic area, much like electricity.

[6] The following GHG accounting standards represent the industry leaders, and only require scopes 1 and 2. These include the California Climate Action Registry, World Resource Institute's Greenhouse Gas Protocol Corporate Standard, the now-dismantled US EPA Climate Leaders, The Climate Registry, WWF Climate Savers, World Economic Forum Global GHG Register, and EU GHG Emissions Allowance Trading Scheme.

[7] Our US employees traveled nearly 7.1 million miles in 2012, a 6% increase over the 6.7 million miles traveled in 2011. At the same time, our US FTEs increased from 344 to 393, or 14%.

[8] Full-time equivalent, or FTE, is the total number of hours worked divided by the number of hours that constitute full-time. If we have one employee who works 40 hours per week for the entire year, and we have two additional employees who each work 40 hours per week but only for 6 months, that would result in two FTEs. In 2012, we have 417 FTEs but we account for 607 passengers' flights. That is because of the way FTE is calculated as well as the fact that we include consultants', board members, and other persons' travel booked with our travel agent.