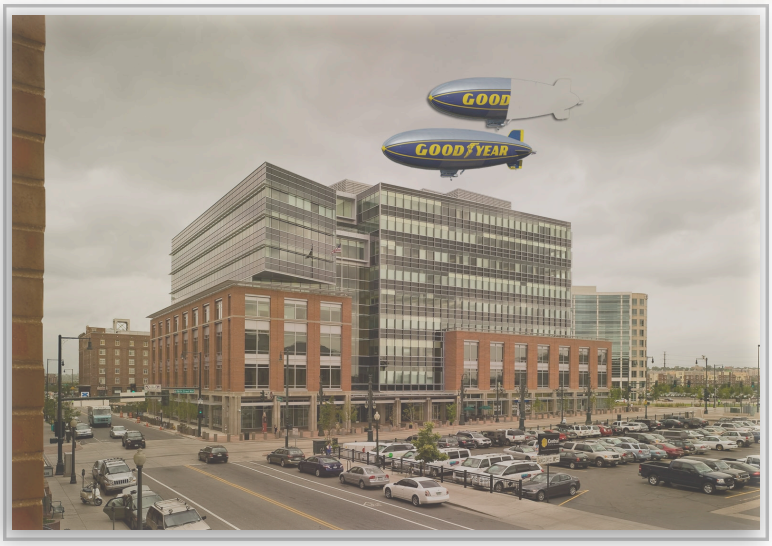
CARBON FOOTPRINT
U.S. EPA REGION 8 OFFICE
1595 WYNKOOP STREET
DENVER, COLORADO
FY09

U.S. EPA REGION 8

Calculate your building÷s carbon footprint, than track efforts to reduce it and report your results.

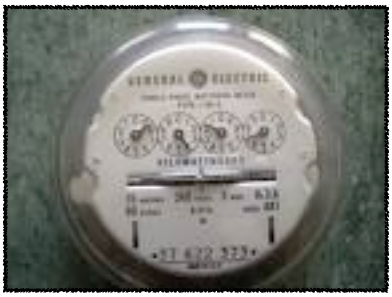


Operation of the EPA office building at 1595 Wynkoop results in enough global warming pollution to fill 1.5 blimps everyday.

Problem:

Human activities such as deforestation and the burning of fossils fuels are changing the chemistry of our atmosphere and ocean, causing our climate to heat up and our oceans to become acidic.

Electricity USE



Calculate the CO2 emissions from electricity use by using following formula:

We multiplied the total annual kilowatt hours by a carbon intensity coefficient. Calculation:

3,891,736 kWh * 1.883 lbs CO2/kWh = 3,324 metric tonnes.

note: 1.883 lbs CO2/kWh is carbon intensity of electricity purchased in the 80202 zip code. Go to EPA power profiler to find correct number for your zip code.

District Steam

If your building uses district steam for heat, contact your utility to determine the carbon intensity of the steam system:

According to our steam provider, Xcel Energy, the CO2 intensity of our steam is 185 lbs CO2/1,000 lbs (mlb) of steam.

Calculation: 8,296 mlb * 185 lbs CO2/mlb = 696.16 metric tonnes.

Commuting

Carbon emissions for commuting were estimated using data from a 2007 employee survey of commuting distances and modes of transport. CO2/mile emission factors were applied to the various forms of transport; e.g. bus, light rail, privately owned vehicle, etc. We calculated 1,653.92 metric tonnes for annual commuting, but this is certainly the weakest part of our carbon footprint. We'll be conducting another employee survey in during summer 2010 in an effort to obtain better data.

GOVERNMENT FLEET VEHICLES

In Fy2009, 31 vehicles in the Region 8 Fleet burned 10,938 gallons of gasoline and 2,883 gallons of E85. Using 19.4 lbs CO2/gallon, the result is 121.62 metric tonnes. The Region is debating whether a different emission factor should be used for E85.

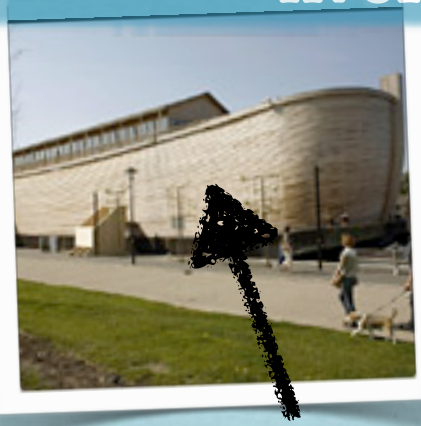
AIR TRAVEL:

This was estimated using a list of flights taken by Region 8 staff in FY2007. The biggest uncertainties with this approach are:

- are the 2007 data representative of 2009? We're in the process of collecting the 2009 data.
- The 2007 list gives no indication of whether a flight was non-stop: an important consideration given that more fuel is used during takeoff and landing.

401.96 metric tonnes

MASSIVE SEA LEVEL RISE IS SOMETHING TO BE AVOIDED



These are not easy to build and they are difficult to steer.

Disturbed by warming trend.

The annual volume of water consumed at EPA÷s Denver Office equates to 5,000 gallons for each of the 750 occupants. That is how much water would fit in this

WATER:

Significant energy is needed to treat the water used in our building, as well as to treat the sewage we generate. We assumed 0.02 kWh/gallon of delivered water. This value is at the upper range of values presented in a recent report by Sandia National Lab.

Annual Emissions Breakdown for EPA Office Building in Denver

ELECTRITICY	3,324 TONNES	53%
commuting	1,654 tonnes	26.4%
steam	696 tonnes	11.1%
air travel	402 tonnes	6.4%
fleet	121 tonnes	1.9%
water	70 tonnnes	1.1%
total	6,267 tonnes	