

Electricity Emissions By Source & Per Capita

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Summary: By relying on electricity generated by fossil fuels, every Cape Cod consumer has an "emissions footprint" reflecting "true costs"—the adverse environmental, social, and social impacts that do not show up on electricity bills but are experienced within local communities.

The electricity infrastructure, most notably the Canal Electric Plant in Sandwich, defines the "physical path" footprint calculated based on average emissions from this predominantly oil-fired facility. In generating the amount of electricity consumed on Cape Cod in 2004, the Canal plant released almost 20 million pounds of sulfur dioxide (SO₂) and more than 5 million pounds of nitrogen oxides (NO_x) into the local environment, degrading air and water quality and contributing to public health problems. It also released more than 1.7 million tons of carbon dioxide (CO₂), contributing to the unprecedented atmospheric accumulation of this greenhouse gas. These data, shown in Figure 1, represent only the fraction of total emissions by this facility in 2004 that can be accounted for by *local* demand.

The Cape Light Compact and NStar define the "contract path" footprint, calculated based on average emissions for "system power"—the New England electricity supply mix. As shown in Figure 1, this footprint is smaller than the "physical path" footprint, reflecting the regional reliance on natural gas, nuclear power, and other sources with lower emissions than oil. However, total emissions on the contract path were still substantial, as illustrated in Figure 2, amounting to more than 30 pounds of SO₂, almost 12 pounds of NO_x, and more than 4 tons of CO₂ per person in Barnstable County during 2004.

Currently, local solar and wind power systems don't produce much electricity, but they also don't have an emissions footprint (Figure 1)—and their emissions won't ever climb above zero, no matter how many installations occur. Owners of these systems are decreasing the true costs associated with their energy consumption.

Green power products available through the Cape Light Compact also offer local consumers opportunities to decrease their emissions footprints. These products, available for a small premium, are based on power produced by bioenergy, small hydro, solar and wind energy systems in New England. By purchasing these products, consumers offset their reliance on conventional system power products while building demand for renewable energy.

Sources: Data from Cape Light Compact, New England Generation Information System, Mirant, and US Census Bureau; analysis by WEEinfo Services.

Figure 1. Cape Cod's Emissions Footprint for Electricity, 2004: The Canal Plant, The Contract Path & Local Renewables

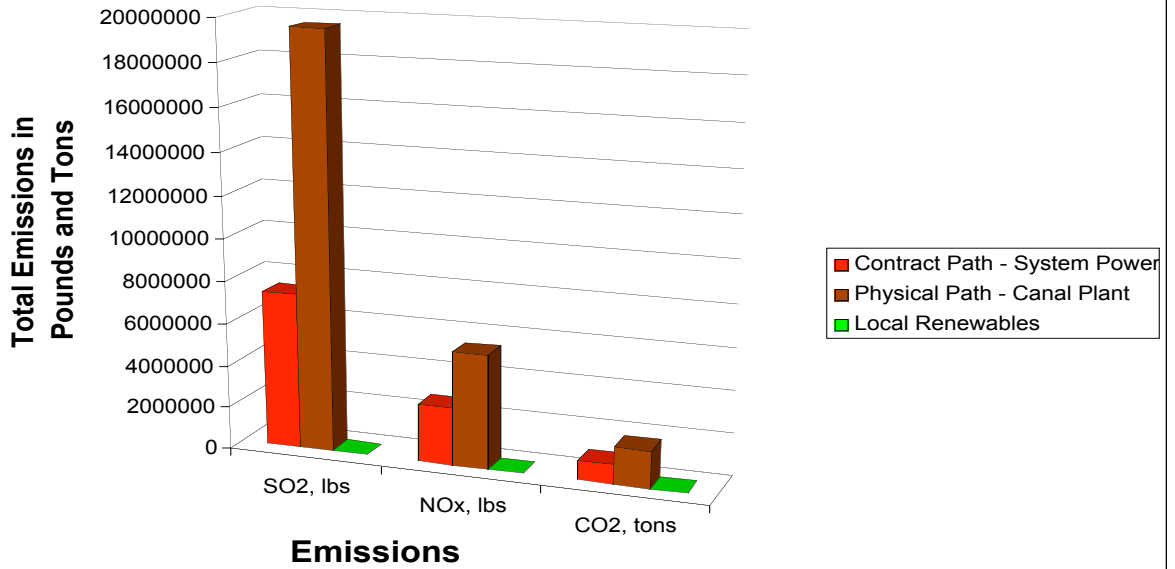


Figure 2. Cape Cod's Per-Capita Emissions Footprint for Electricity, 2004: Contract Path

