

# Arlington, Virginia

## Reductions in Greenhouse Gas Emissions, 2000-2005

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Since 2000, Arlington County, Virginia has made a concerted effort to improve energy efficiency throughout its government buildings and operations. The county's commitment to fiscal and environmental sustainability included hiring an energy manager in 2000 to track energy use and identify opportunities for savings. Reducing energy use through efficiency also reduces emissions from carbon dioxide (CO<sub>2</sub>), a significant greenhouse gas. From 2000-2005, Arlington has achieved a **2.6% reduction of greenhouse gas emissions** – a significant achievement in a time of growth in government facilities and amenities to residents.

### How did we do it?

In 2000, Arlington County operations generated 74,000 tons of greenhouse gas emissions (not including Arlington Public Schools); this is our baseline figure. In 2005, this emissions total was reduced by 1,925 tons CO<sub>2</sub> to a total of 72,075 tons CO<sub>2</sub>.

To put it simply, we achieved this reduction by:

- **improving energy efficiency** in buildings and infrastructure (e.g., traffic lights);
- purchasing **wind energy** credits to offset some of our electricity use;
- using **bio-diesel fuel** in all diesel trucks
- purchasing energy-efficient **hybrid vehicles** for the County fleet; and
- planting **trees throughout the County**.

The details:

<b>Change in emissions</b>	<b>Item/explanation</b>
Minus 1400 tons	Decrease in emissions from purchase of 2,340,000 kilowatt-hours of <b>wind energy</b>
Minus 960 tons	Decrease in emissions from energy use in traffic signals, due to retrofit to <b>energy-efficient LED signals</b>
Minus 840 tons	Decrease in emissions from energy use in buildings existing before 2000, due to improvements in <b>energy efficiency</b>
Minus 520 tons	Decrease in emissions from use of <b>B20 biodiesel fuel</b>
Minus 100 tons	Decrease in emissions from gasoline by use of more efficient <b>hybrid sedans</b> in place of older sedans that have been retired
Minus 90 tons	Capture and storage of CO <sub>2</sub> from <b>trees planted</b> 2000-2005
Plus 1,985 tons	Increase in emissions from energy use in <b>new facilities and infrastructure</b> added during 2000-2005
<b>Net change</b>	<b>Net reduction of 1,925 tons -- a 2.6% reduction</b>

## Emissions measurements

The measurement of emissions is, by its nature, an inexact science. For example, we use standard data to calculate the emissions savings from switching from our older combustion engine sedans to our hybrid cars, and typical mileage put on county vehicles.

## Lessons learned

No “**silver bullet.**” A combination of a broad suite of actions and policies is necessary to make contributions to emissions reductions.

**Cost savings pay for investments.** Short-term investments in efficiency measures, such as LED traffic signals and energy efficiency in buildings, pay for themselves in reduced operating costs.

- For example, we retrofitted the lighting in Argus House several years ago for \$6,000 and are now enjoying **\$5,000 annual cost savings** from lower electricity bills.
- Another example: we **recoup our cost to retrofit traffic signals in six years** or less.  

Explanation: a typical 16-signal intersection (8 signal heads and 8 pedestrian crossing signals) from incandescent bulb fixtures to long-lasting, energy-efficient light emitting diode (LED) fixtures costs the County \$8,000. The **electricity cost savings (\$864 per year)** and **maintenance cost savings (\$500 per year**, thanks to far less labor and material costs of replacing bulbs annually) total \$1,364 annually. Therefore, the cost for each LED retrofit **pays for itself in less than six years** while sharply reducing electricity consumption and greenhouse gas emissions. To date, we have retrofitted about two-thirds of our 260 signalized intersections, **saving \$225,000+ in operating costs**. We plan to be all-LED by 2010.
- Over time, these cost savings will also help pay for use of innovative approaches such as purchase of wind or other alternative power.

**It is possible.** Reducing greenhouse gas emissions is feasible, even in the face of economic growth and increased services (e.g., increased square footage of buildings) to residents.