



RETHINK ENERGY

SOLUTION OVERVIEW

On January 1, 2007, the Arlington County Board launched the Arlington Initiative to Reduce Emissions (AIRE) as the County's climate action program. This initiative aimed to cut greenhouse gas emissions from County government operations by 10% relative to its 2000 baseline by 2012.

The program was launched as an unfunded Chairman's initiative, driven by incoming Board Chairman Paul Ferguson's commitment to the environment and his conviction to lead by example. Chairman Ferguson wanted Arlington to do its part to curb climate change and felt it was important for the County to lead by example to make a meaningful commitment to pursue greater efficiency. Improving energy efficiency in buildings was one of several cornerstones of Arlington County's climate action plan. County staff recognized strong energy efficiency improvements were feasible in the building stock. In July 2007, a sustainable funding stream was established for AIRE in order to be able to direct staff efforts and investments to modernize equipment for energy savings.

COMMUNITY SIZE

Small urban, Population 221,000

GOAL

To reduce energy intensity in County buildings by 20% and reduce greenhouse gas emissions from County operations by 25% from 2007 levels by 2020

BARRIERS

Energy is not viewed as a core business element and management priority; lack of employee awareness of energy efficiency opportunities; and lack of funding for energy efficiency projects and staffing

SOLUTION

The County launched the Arlington Initiative to Reduce Emissions (AIRE) program building on existing energy management and high performance building efforts to embed consideration of energy use across County activities. As part of the program, the County set and institutionalized a greenhouse gas reduction goal; established a dedicated, sustainable funding stream for energy

projects; created a dedicated staff; integrated energy efficiency projects into the project review process; benchmarked and disclosed public building energy performance; and conducted internal employee education. In 2013, AIRE updated its full name to the Arlington Initiative to Rethink Energy, emphasizing the focus on energy

OUTCOME

Energy use per square foot has been reduced by more than 10% between 2007 and 2012 for the Arlington County portfolio as a whole. Improvements in energy intensity of more than 15% have been achieved in 16 buildings, and the County is saving approximately \$1 million per year in avoided costs through electricity, natural gas, and water upgrades. Additionally, the local Residential Utility Tax is generating approximately \$1.6 million annually for energy efficiency initiatives

POLICIES

Achieving the core AIRE goal (10% reduction in greenhouse gas emissions by 2012) became a fundamental policy objective for the County government because of its origin as a Chairman's initiative and its support by all members of the County Board. The goal was included in the County Manager's Management Plan each year from 2008 through 2013. Improved energy efficiency and use of alternative fuels, where appropriate, were pursued throughout the County government, including vehicles, infrastructure (e.g., streetlights, traffic signals, and the public water utility), and buildings.

Additionally, in the spring of 2007, then-County Manager Ron Carlee issued a directive prohibiting incandescent lights from use in County facilities, with exceptions only for extraordinary and unusual purposes.

PROCESS

The AIRE program was launched in January 2007 without a budget or dedicated staff initially. AIRE provided an institutional goal and outlined broad strategies to achieve the goal. Initially, it functioned as an engagement mechanism for the County's energy manager and green building program manager to coordinate building and infrastructure improvement decision making across staff and departments.

The program's launch was met with strong positive response by the public and the media, which led the County Manager to institutionalize the program with dedicated funding from a modest new tax on residential electricity and gas use. Once the funding mechanism was adopted by the County Board for Fiscal Year 2008, the energy manager and green building program manager created four new positions to help achieve the goals of the program: an energy management specialist, an energy efficiency outreach specialist, a green buildings outreach specialist, and a construction management specialist. Position descriptions are included in the resources section for three of these positions that were instrumental in the efforts highlighted by this implementation model.

Creation of a new construction management specialist position in 2007 aided the implementation of energy efficiency retrofits in County buildings. The new position was created using AIRE funds and is located in the Facilities Management Bureau (where the energy manager was also located at the time). The new construction management specialist acts as a project manager, supervising contractors implementing the lighting, HVAC, weatherization, and other energy efficiency retrofit projects. Typically, the energy manager identifies projects, based on inspection of buildings and equipment and analyses of energy use at each site, and the construction management specialist oversees the implementation. Occasionally other facilities staff identify opportunities based on their familiarity with the buildings and occupant complaints. Comfort complaints can often be resolved by improvements that save energy too.

It is essential that the energy-focused construction management specialist is aware of the facility capital improvement projects in the pipeline throughout the organization. This allows them to remind other project managers that they could take advantage of routine capital investments to improve energy efficiency at the same time. This also allows AIRE to focus additional funds into Facilities Management projects by adding an “efficiency kicker,” which increases the funds available to a maintenance project for premium efficiency installations (when needed) by adding AIRE funds on top of Facilities funds. This arrangement serves as a constant reminder to staff that energy efficiency can be improved in many common maintenance and capital replacement projects, thereby embedding this best practices concept into all work that is done by Facilities Maintenance.

The most common energy efficiency projects completed in County buildings have been lighting retrofits (initially efficient fluorescents and now LEDs), weatherization projects for additional insulation and sealing, more efficient equipment at the time of HVAC replacements, building automation system (BAS) installations or upgrades, and retrocommissioning of buildings and equipment. Recently, the County has been installing BACnet-enabled thermostats to connect to a central monitoring system, similar to BAS, to monitor and control HVAC in smaller buildings where installation of a full BAS is not economical.

As part of the commissioning process for new buildings and the completion of projects with new technology, Facilities Management staff receive on-site training to ensure that staff will understand how to operate the buildings most efficiently. The specific training depends on what equipment is installed in a building. For instance, after a solar thermal system was installed for hot water on a fire station, Facilities Management staff who work on the building were given a tour and system operation guide from the contractor who designed and installed the system.

The County used AIRE funds to hire an additional construction specialist and analyst in 2009 to handle the increased work load associated with implementing \$2.085 million in Energy Efficiency and Conservation Block Grant (EECBG) funds. These positions have become essential to AIRE programming and became permanent after the grant funds were exhausted. The construction specialist serves as project manager for additional projects in Facilities Management and the analyst is responsible for tracking energy use in facilities and analyzing energy savings across the portfolio.

AIRE activities have dedicated staff in a variety of key roles to track and support energy initiatives in the County. The dedicated staff led to decentralized energy efficiency decisions and tracking and helped energy efficiency practices to permeate into different areas of management in the County.

Tools:

- [AIRE Energy Analyst Position Description](#)
- [AIRE Energy Outreach Position Description](#)
- [AIRE Construction Manager Position Description](#)

FINANCING

Strong popular support from the community for AIRE and its goals inspired the elected County Board and County Manager to propose institutionalizing the effort with dedicated funds from a new local tax on residential energy use that took effect in July 2007. Arlington already had a local tax on commercial energy use, and other jurisdictions in Northern Virginia already levied local taxes on both commercial and residential energy use (this residential tax is capped by state law at \$3 per account per month).

Arlington's implementation of this utility tax was unique among neighboring communities in two respects: (1) revenues were dedicated to AIRE, not the General Fund; and (2) for each electricity and natural gas account, the first 400 kWh/month and first 20 therms/month, respectively, were exempt from the tax to reduce the regressive nature of the levy. This dedicated revenue has been maintained by the County Board due to a consistent commitment to reach the goals established in 2007, allowing for continued progress and success for AIRE.

Tax revenues have generated approximately \$1.6 million per year, which is used for:

1. Investments in energy efficiency projects in County facilities such as lighting retrofits, insulation and sealing, HVAC upgrades, BAS installations or upgrades, and retrocommissioning of buildings and equipment;
2. "In-reach" programs to County staff encouraging energy conservation behavior (see Outreach section below);
3. Additional personnel including an energy outreach coordinator, a green buildings outreach coordinator, two energy analysts, and two construction specialists; and
4. Outreach programs to residents and businesses encouraging energy efficiency and use of renewable energy.

Additional funding for projects in County facilities has come from the Capital Improvements fund through a competitive process for infrastructure projects. This process occurs every two to three years and identifies funds for capital projects including facilities maintenance, new construction, parks infrastructure, and road paving. Departments develop potential projects and submit them to be considered for selection. This funding is used to complete certain projects sooner, but funding is never guaranteed, which makes the dedicated utility tax revenue even more important for continued energy management success.

DATA MANAGEMENT

Before the launch of the AIRE program in 2007, the energy manager worked across departments to gather electric and natural gas bills for all buildings in the County's inventory.

Currently, the AIRE analyst accesses energy bills via utility websites and tracks this information in

Portfolio Manager and energy tracking software. Two of the County's buildings have received ENERGY STAR[®] ratings for multiple years after being benchmarked in Portfolio Manager and undergoing energy efficiency upgrades. The energy tracking software allows for more detailed analyses and reports than Portfolio Manager allows, due to its ability to track more bill line items, such as demand and various charges that make up total bill cost. Beyond continuous reporting, the software includes tools for data visualization, weather normalization, and cost avoidance.

In 2008, Arlington began posting annual data on energy use for all County government buildings on its website as Building Energy Report Cards. These individual building pages have evolved to include monthly data and trends over time, along with photos and descriptions of the energy efficiency or renewable energy measures taken at each building. The County did not pass a specific ordinance to require this disclosure; rather the policy of transparency was begun as a straightforward policy-in-practice of leading by example.

Tools:

- [Press Release: Arlington County Justice Center Awarded EPA ENERGY STAR Label](#)
- [Building Energy Report Cards](#)
- [Arlington Makes Public Detailed Energy Report Cards](#)

OUTREACH

The AIRE program conducts “in-reach” programs to encourage County employees toward energy-efficient behaviors. As part of the internal efforts, outreach staff created an AIRE Captain designation for employees who volunteer to set good examples in their offices by turning off lights, encouraging double-sided printing, leading recycling efforts, and generally serving as conduits of information from AIRE staff to all employees. AIRE provides these Captains with materials to post on office bulletin boards and sends them periodic email updates with news to share with their team members. AIRE Captains receive no overt incentives or compensation but reflect voluntary personal interest in helping the County reach its goals.

In 2012, an Earth Day campaign titled the Employee Energy Challenge raffled prizes for employees who pledged to take certain actions. These actions included things like using double-sided printing and turning off computers at night.

AIRE staff is available to do facility walkthroughs with program staff interested in becoming more aware of energy use in their facility and implementing behaviors that can help save energy. All of these in-reach efforts helped spread awareness of AIRE and efforts to make County facilities more energy efficient.

Tools:

- [Arlington County Board Unveils Environmental Initiative: January 2007 Press Release](#)
- [Tips from AIRE Captains](#)
- [Employee Energy Challenge Manual](#)
- [Employee Energy Challenge Pledge](#)

- [Close the Blinds](#)
- [Facility Energy Survey Appendix A – Opportunities](#)
- [Facility Energy Survey Appendix B – Action Items](#)
- [Facility Energy Survey Template](#)
- [Building Energy Report Cards](#)

OUTCOMES

For the County portfolio as a whole, energy per square foot has been reduced by more than 10% between 2007 and 2012. Improvements in energy intensity of more than 15% have been achieved in 16 buildings, and the County is saving approximately \$1 million per year in avoided costs through electricity, natural gas, and water upgrades. The County achieved the AIRE 2012 goal, reducing emissions from government activities by 11.7% from 2000 to 2012. The County now has a 2050 goal of 76% reduction in greenhouse gas emissions from County government activities, adopted into the County's Comprehensive Plan as one component of a Community Energy Plan. In addition to the Better Buildings Challenge 2020 goal of reducing energy intensity in County buildings by 20%, the County is looking to reduce greenhouse gas emissions from County operations by 25% from 2007 levels in the same year as one step towards the 2050 goal.

