

COOK COUNTY



2015 SUSTAINABILITY REPORT

September 2015

PREPARED BY THE COOK COUNTY GREEN LEADERSHIP TEAM



Since March 2012, when I appointed a Sustainability Advisory Council, the County has made significant progress in reducing our greenhouse gas emissions. We currently remain ahead of our goal of reducing energy emissions by 80% by 2050. Through the efforts of the Green Leadership Team we are making progress in institutionalizing sustainability into everything we do at the County.

This report is a guide to the work we've done at the County in the past year and lays out the goals we've set for ourselves moving forward.

Toni Preckwinkle,
Cook County Board President





LEADING SUSTAINABILITY IN THE COMMUNITY



COMMUNITY SOLAR

The Cook County Department of Environmental Control is working to make the benefits of solar electric energy available to renters, businesses, and those who cannot afford the up-front investment in a whole solar array.

The \$1.2 million Solar Market Pathways project cooperative agreement is one of 15 awarded nationally as part of the U.S. Department of Energy SunShot Initiative. Partners include the City of Chicago, ComEd, nonprofits Elevate Energy and the Environmental Law and Policy Center, and West Monroe Partners.



WESTERN COOK COUNTY COALITION BROWNFIELD ASSESSMENT GRANT



The Cook County Department of Environmental Control received a grant from the U.S. Environmental Protection Agency to assess vacant, abandoned, and underutilized brownfields in seven western suburbs. These assessment activities are the first step leading to the cleanup and redevelopment of brownfields. Coalition partners:

- Bellwood
- Forest Park
- Franklin Park
- Maywood
- Melrose Park
- Northlake
- Schiller Park

PLANNING FOR PROGRESS

Since Cook County drives economic development for our region, the Cook County Bureau of Economic Development launched an important strategic planning process called Planning for Progress.

The Chicago Metropolitan Agency for Planning (CMAP) provided technical assistance to this initiative. The resulting strategic plan will guide investments and partnerships related to economic development, affordable housing, and community development over the next five years. This planning process will lead to the development of a new Consolidated Plan and Comprehensive Economic Development Strategy. Through partnership with CMAP, the County will be able to capitalize on these planning efforts, achieving countywide and sub-regional goals that will provide a higher quality of life for its residents, workers, and visitors.



NATIONAL DISASTER RESILIENCE COMPETITION

The County is currently preparing a submission under the National Disaster Resiliency Competition (NDRC) being administered by the Department of Housing and Economic Development (HUD) for the purpose of funding County-led efforts to implement projects and programs to address sustainable measures in alleviating flooding in 6 south suburban communities. Communities competing for

funding through the NDRC are eligible for up to \$500 million. If successful, projects and programs will be designed and implemented in ways to ensure long-term and environmentally sustainable ways of addressing flooding. These projects and programs will provide methods that over time should be replicable throughout the County and nationwide.



CONNECTING



COOK COUNTY

LONG RANGE TRANSPORTATION PLAN

Throughout 2014, Long Range Transportation Plan (LRTP) Advisory and Program Committee members have worked with the Cook County Department of Transportation and Highways and the project team to develop goals and objectives for the 2040 Connecting Cook County LRTP.

Committee members lent their expertise to establish well defined goals and objectives for the 2040 LRTP, knowing they will serve as a benchmark for all potential improvements and strategies.

- 1. ECONOMIC OPPORTUNITY** Invest in transportation improvements that support the economic vitality of the County by fostering local and regional competitiveness, sustained productivity, and increased access to economic productivity for all of the County's residents and businesses.
- 2. ACCESSIBILITY AND RELIABILITY** Increase the integration, connectivity, reliability, and physical accessibility of the transportation system by developing a comprehensive multimodal system that expands mobility options for all transportation users.
- 3. SAFETY** Provide a safer transportation system that balances the travel needs of all users, including the general public and area businesses and industries.
- 4. LAND USE** Create a built environment that promotes healthy, sustainable communities through coordinated land use and transportation policies.
- 5. ENVIRONMENTAL STEWARDSHIP** Promote a sustainable future through a transportation system that protects, enhances and provides connections to natural, cultural, and historic resources in addition to more traditional destinations.
- 6. IMPLEMENTATION** Advance a plan that preserves, maintains, and strategically operates existing transportation assets while investing in the expansion and diversification of critical transportation services and infrastructure.



SOLID WASTE AND RECYCLING ORDINANCE

In January of 2014, the Cook County Board of Commissioners approved the Solid Waste and Recycling Ordinance. This ordinance requires waste hauler reporting of municipal waste and recycling. Residential reporting began in the third quarter of 2014 and non-residential reporting begins in 2015. With this information that County will be better able to coordinate solid waste activities, addressing areas where recycling rates are lower and providing programming to improve collection rates and offer disposal of hazardous materials.



MORE THAN 500,000 TONS OF BUILDING MATERIALS RECYCLED

Cook County's Demolition Debris Diversion (3D) Ordinance has resulted in more than 500,000 tons of building material being recycled since its passage in 2012. Another 100,000 tons of material have been reused or salvaged as a result of the ordinance, meaning that more than 600,000 tons of material resulting from building demolition has been diverted from landfills.

Recycling and reuse of construction and demolition debris has positive environmental impacts. Reuse also creates jobs, stabilizes local economies and creates a supply stream for manufacturing, construction, renovation and infrastructure building.

The 3D ordinance is the first of its kind in the Midwest to incorporate reuse. Reuse is even more environmentally beneficial than recycling, because it saves more material, uses less energy and produces fewer pollutants in the process.

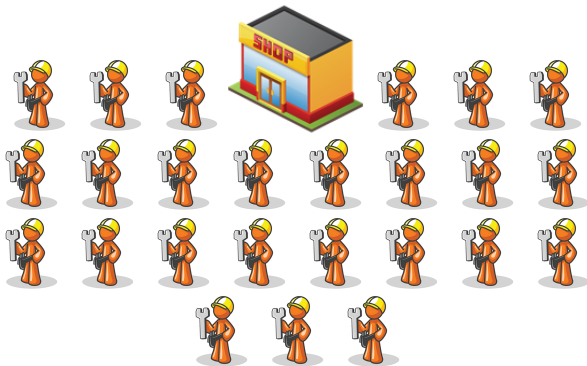


Photos courtesy of The Rebuilding Exchange.

CREATING JOBS

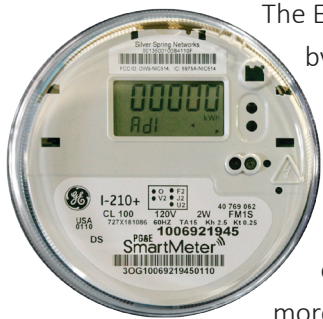
A study by The Delta Institute has shown that diverting 5 percent of demolition material for reuse from about 30 houses could produce revenue that supports at least one new reuse retail center and related jobs, and pay for 25-30 full-time deconstruction workers.

Since the 3D Ordinance has been in effect, the number of these retailers in Cook County has increased from one to three, employing an additional 14 full-time people. In addition all three reuse retailers have job training programs and have trained a total of 82 people on building deconstruction or material reuse.





SMART GRID, SMART METER, SMART SAVING FOR COOK COUNTY RESIDENTS



The Energy Infrastructure Modernization Act, also known as the “Smart Grid bill,” was passed by Illinois legislature in 2011 to enable electric utilities ComEd and Ameren to modernize the electric grid. Smart Grid holds great promise for residents to save money on their electric bills, and Cook County is helping them realize that promise.

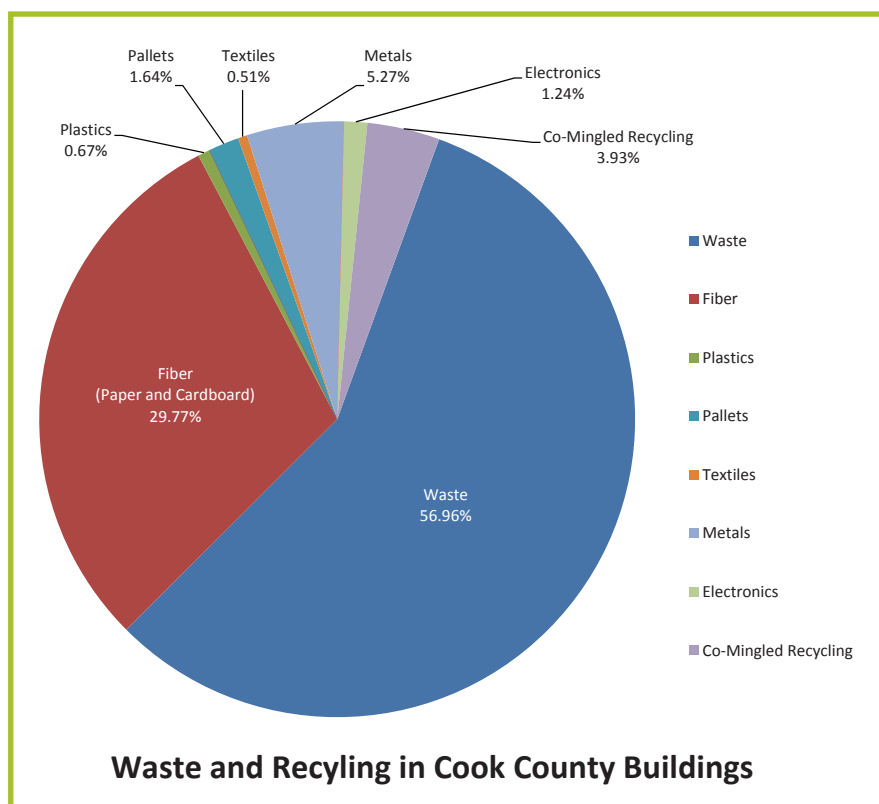
The new Smart Grid is an important part of infrastructure modernization, and will provide high-tech electricity distribution while helping reduce our carbon footprint. It is a more efficient delivery system that will reduce the length and amount of power outages, provide more detailed information on individual energy usage to customers, enable new pricing programs for customers interested in saving money by using energy smarter, and increase the availability of renewable energy.

To help residents maximize benefits, the Department of Environmental Control is using grant funding from the Illinois Science and Energy Innovation Foundation to ensure that information on the Smart Grid is readily available in the community by integrating energy efficiency messaging throughout the County’s outreach efforts; including Veterans’ Affairs, Housing Authority of Cook County, Department of Animal Control, Law Library, and many others.

SUSTAINABILITY IN COOK COUNTY GOVERNMENT

WASTE

GOAL: DIVERT 50% OF WASTE FROM LANDFILLS BY 2025



ESTABLISHING A BASELINE

Over the past year representatives from the Department of Environmental Control, the Sheriff, Facilities Management, and private building management companies have come together to analyze the county’s waste and recycling. For the first time this group has established a baseline recycling rate for county facilities excepting the Health and Hospital System, which has unique waste hauling and recycling needs.

Approximately 43% of the County’s waste stream was diverted from landfills. Paper and cardboard make up the overwhelming majority of the County’s recycling. While a 43% baseline is a good place to begin efforts relative to

the 2025 diversion goal, the group has identified a number of measures to increase diversion. Facilities Management, in conjunction with the Sheriff’s Department, is implementing two pilot programs at the County Building and the Juvenile Detention Center to reduce contamination of the recycling stream as well as observe recyclable materials improperly entering the waste stream through desk side trash containers.



REDUCING WASTE

The group has also explored grant funding to place additional recycling containers throughout several Cook County facilities. This effort would allow for collection of beverage containers in common areas as well as additional paper recycling bins throughout office areas. The group is also exploring how to increase other recycling programs such as copier toner recycling.

LAMP CRUSHER - Facilities Management and the Bureau of Administration procured a fluorescent lamp crusher, which reduces the county's shipments of spent mercury - containing lamps significantly. Each 55-gallon drum of crushed lamps holds approximately 1,300 spent lamps, about fifteen times more lamps than could be shipped in a similar container were the lamps not crushed on site. This process should also reduce accidental breakage of lamps during storage and shipping.



DOCUMENTS MANAGEMENT

Cook County recycled more than one million pounds of old documents in the last year-and-a-half, confronting a decades-old problem of records storage as well as generating savings and revenue for the County.

Among the documents collected for disposal were old financial spreadsheets, dated legal journals, files from long-ago settled court cases, years-old dog bite incident reports, and documents from expired bond transactions. Some of the paperwork dated back to the 1960s.

Importantly, none of the 1.14 million pounds of paper was sent to a landfill. Instead, the paper was sold for recycling through a contract with a County vendor. In addition, by centralizing the disposal process through the Records Management and Salvage Divisions – formerly, a number of units within the County had their own contracts for document disposal – the County has saved at least \$200,000 from what it would have spent with multiple vendors for the same services.

DOCUMENT MANAGEMENT BY THE NUMBERS

1.4 million pounds
recycled

71,000 cubic feet
of space cleared

\$20,000 in Revenue
generated

COOK COUNTY SHERIFF'S OFFICE RECYCLING AND MORE

- Collected more than 2.3 million pounds of recyclables ranging from paper to computer parts to mattresses.
- Provided job training to 550 offenders who performed community service through the recycling program.
- Processed, sorted and sold more than 1 million pounds of recyclable paper provided by the Cook County Clerk's Office.
- Handled more than 1,500 pounds of outdated, unused pharmaceutical collected through community events and permanent collection sites.



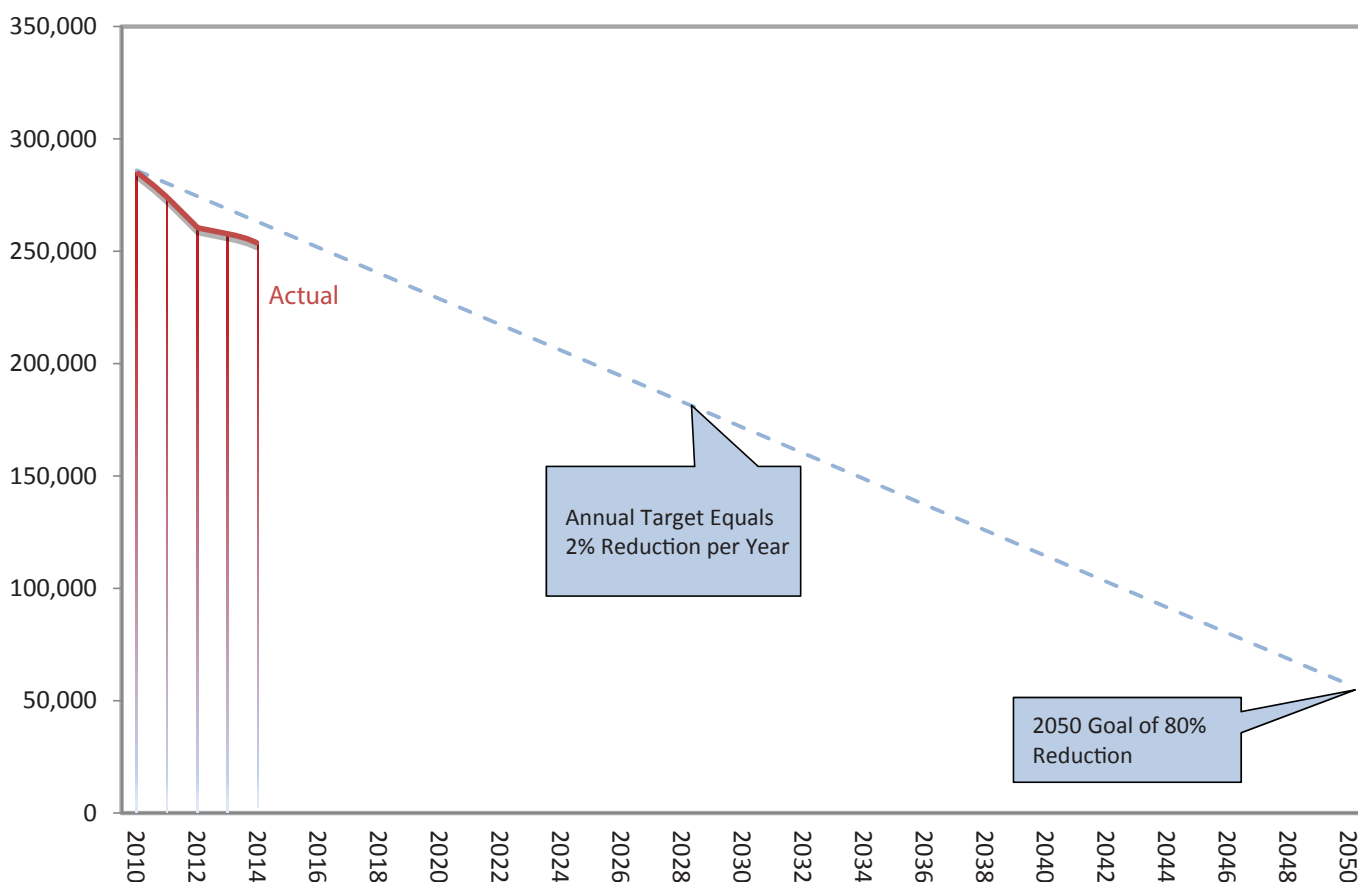
ENERGY

GOAL: REDUCE GREENHOUSE GAS EMISSIONS BY 80% BY 2050

The County remains on track toward the 2050 goal and once again surpassed the annual target. Through energy efficiency measures, the County decreased emissions by 11%, staying well ahead of the 8% decrease target for this year. Since 2010, we have reduced emissions equivalent to taking over 20,000 passenger vehicles off the road for a year. The County closed out construction on the Energy Performance contract at the hospital in the first half of 2015 and is scheduled to close out the jail campus project in November 2015. These two campuses represent the two largest energy consumers in the County. The energy performance measures put in place through these contracts will generate savings for the next 20 years.

metric tons CO₂e

Cook County Building GHG Emissions



2014 COOK COUNTY GHG EMISSIONS FROM BUILDINGS

Target: 8% decrease from 2010

Actual: 11% decrease from 2010

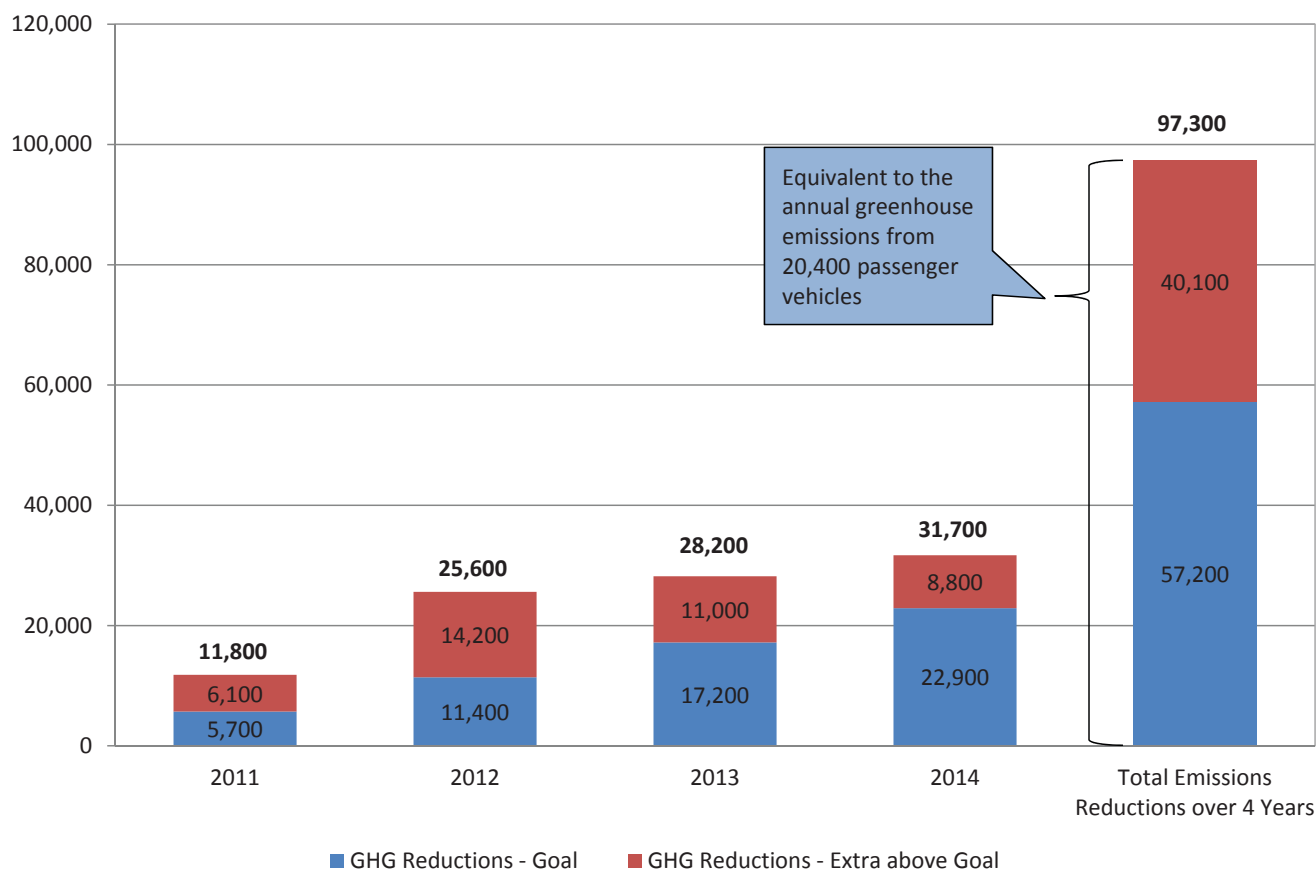


Year	Target GHG Emissions	Actual GHG Emissions	Target Reduction From Baseline (%)	Actual Reduction from Baseline (%)
2010 (Baseline)	286,000	286,000	0%	0%
2011	280,200	274,100	2%	4%
2012	274,500	260,400	4%	9%
2013	268,800	257,800	6%	10%
2014	263,100	254,300	8%	11%

GHG Emissions are cumulative, staying in the atmosphere for hundreds of years. Since 2010, the County's reduction in emissions is equal to the annual greenhouse emissions from 20,500 passenger vehicles.

Total GHG Emissions Reductions from 2010 Baseline

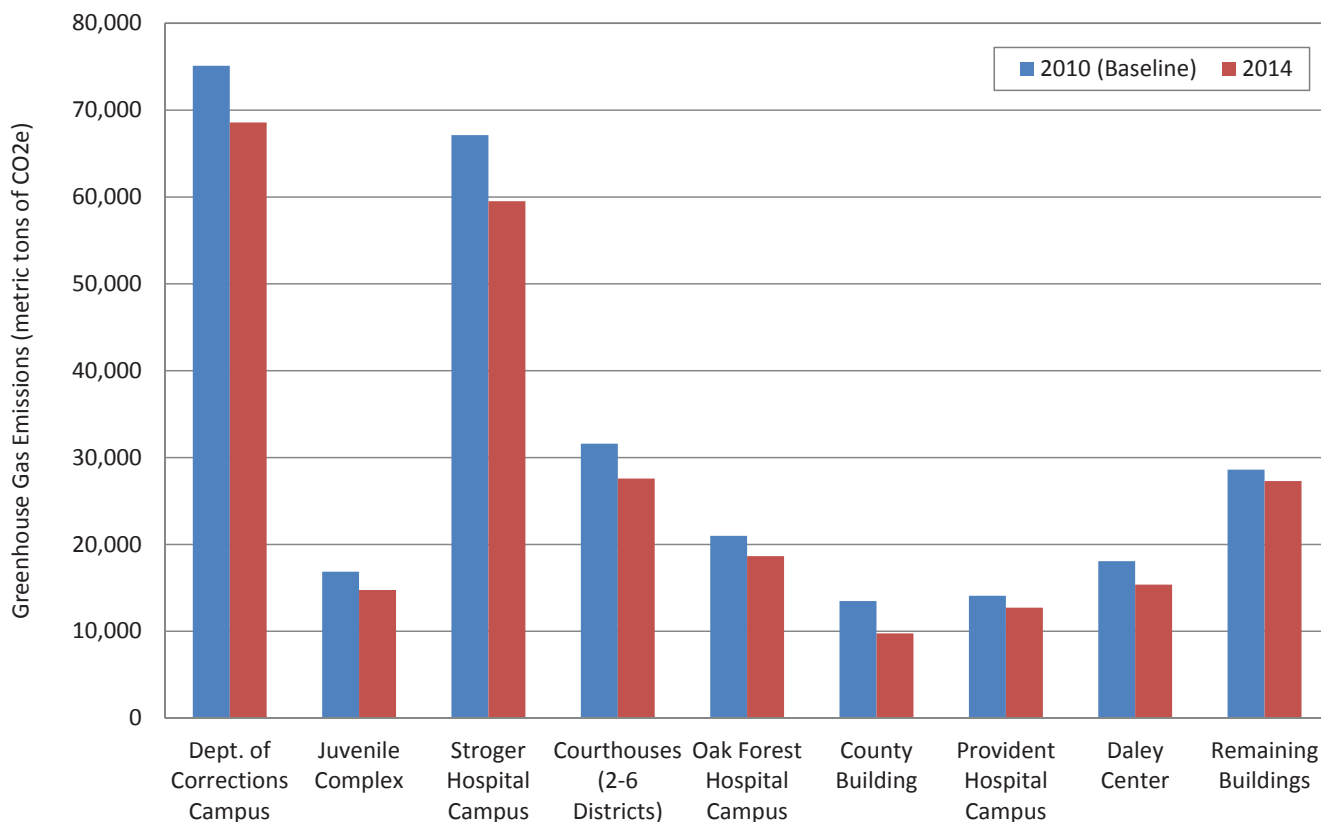
GHG Emissions
metric tons of CO₂e





Gross square footage and Energy Use Intensity have an impact on total energy use for each building. The Department of Corrections campus is over 4 Million square feet and the Stroger Hospital Campus is over 2 Million square feet.

Greenhouse Gas Emissions by Facility or Campus



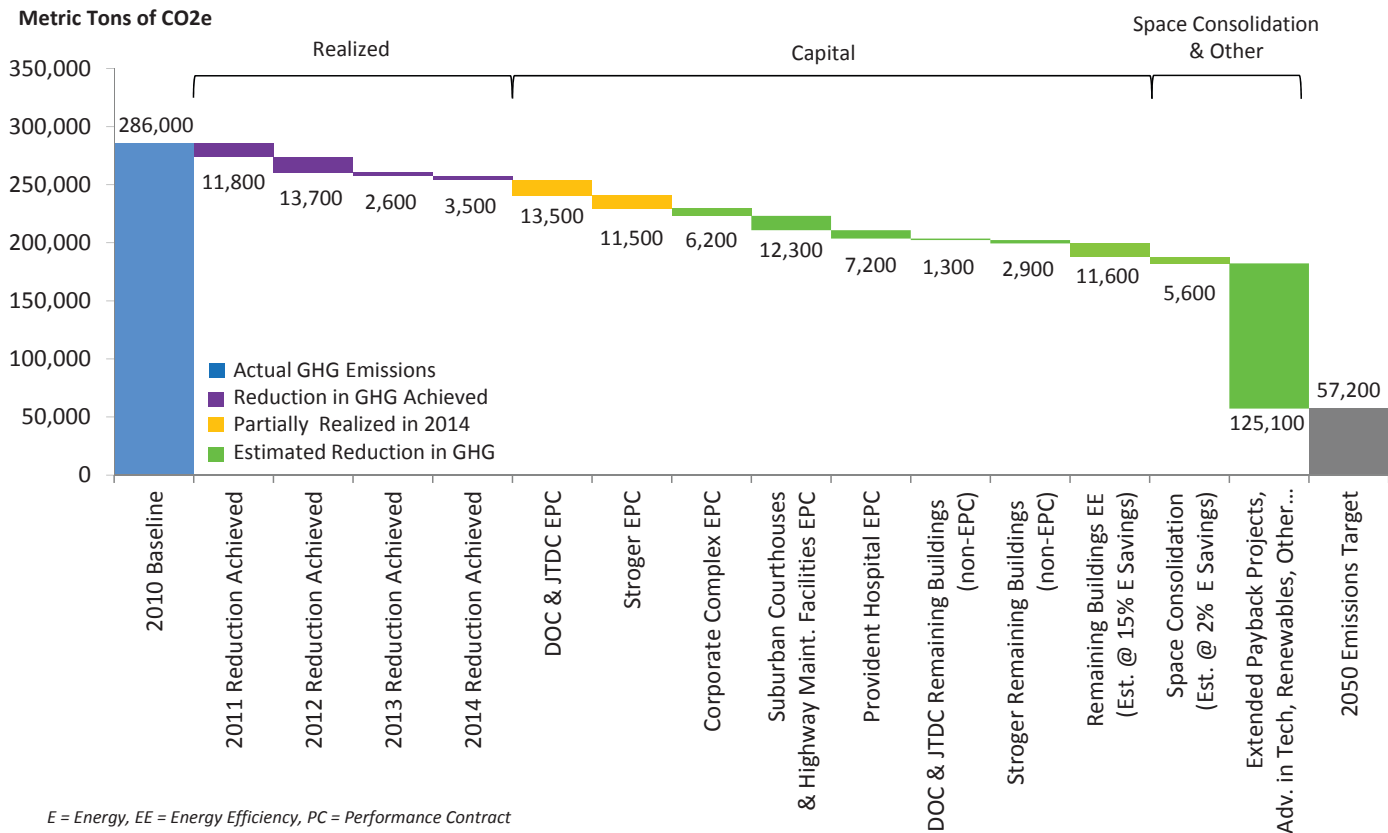
ENERGY EFFICIENCY GRANTS

Cook County and the Energy Service Companies (ESCOs) are working closely with the Illinois Department of Commerce and Economic Opportunity (DCEO) to maximize the energy grant money available to the County through the Illinois Energy Now Public Sector Energy Efficiency Program. The Program offers public entities rebated incentives for completing natural gas and electric efficiency projects. From June 2013 through May 2014, Cook County has received over \$2.8 million in rebates or grants for completed energy conservation measures. An additional \$956,000 was received for work completed between June 2014 and May 2015.



Cook County Facilities 2050 GHG Reduction Strategy

- Estimated Reductions of Different Initiatives -

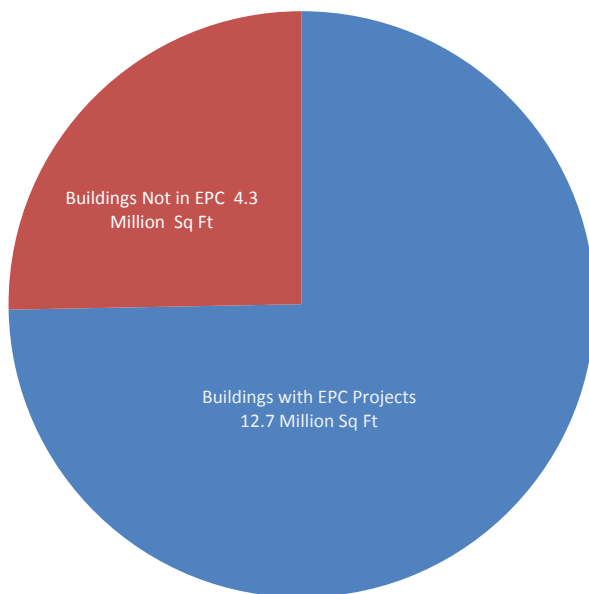


This graph shows the reduction strategy to reach the 2050 GHG emissions goal. The County has intentionally gone after savings at the buildings and campuses that consume the most energy first by implementing Energy Performance Contracts. Efficiency savings will only take us part way to the goal however; renewable energy sources and new technologies will also need to be considered to successfully meet the goal.



ENERGY PERFORMANCE CONTRACTING

Cook County Buildings Portfolio Square Footage



BY THE NUMBERS

75% of the Square Footage in Cook County is under Guaranteed Energy Performance Contracting Project.

80% of Cook County's total energy consumption occurs in these buildings.

ENERGY PERFORMANCE CONTRACTING (EPC) PHASE I PROGRAM UPDATE

- Stroger EPC was substantially complete in June 2015.
- Corrections campus was substantially complete in August 2015.
- Energy efficiency upgrades at 28 buildings over 6M sq ft; our largest energy intensive and greenhouse gas emitting facilities in portfolio.
- Annual savings:
 - 31,276,973 kwh
 - 2,038,875 therms
 - 20% energy reduction
 - 20% reduced greenhouse gas emissions



PHASE II ENERGY PERFORMANCE CONTRACTING PROGRAM BEGINNING IN 2015

- Completed Investment Grade Audits at 12 facilities in December 2014.
- In July 2015, 11 County Facilities (4 Courthouses, 5 Highway Maintenance Facilities, & Corporate Complex) started construction and implementation of 38 Energy Conservation Measures.
- Projected Savings:
 - Courthouses and Highway facilities:
 - ➡ Energy – 58%
 - ➡ Water – 27%
 - ➡ GHG – 56%
 - Corporate Buildings:
 - ➡ Energy – 32%
 - ➡ GHG – 31%

The County received a \$295,000 grant from the Illinois Clean Energy Community Foundation which will contribute to the County's continuing sustainability efforts by reducing reliance on gas-fired units that heat the facilities where trucks and road equipment are stored. The County will install solar walls at the Cook County Department of Transportation and Highway (CCDoTH) maintenance facilities in Des Plaines, Orland Park, Schaumburg and Riverdale. The solar thermal wall will directly convert the sun's rays into thermal energy, heating air and delivering it to indoor spaces. The project is expected to save the County \$47,000 annually and reduce carbon dioxide emissions by 457 tons per year.

THE ENERGY BENCHMARKING ORDINANCE

In 2014, the Cook County Board of Commissioners passed its first-ever energy benchmarking ordinance. The Benchmarking Ordinance requires the County to track annual energy and water use of its buildings larger than 35,000 square feet which accounts for 98.5% of the County portfolio. The Ordinance also requires that an annual report be issued, to show the benefits of benchmarking to the private sector and local governments in Cook County.

Tracking a building's energy use helps to understand its energy efficiency, and is necessary for effective energy management by identifying opportunities to improve performance and achieve financial benefits. The County employs the U.S. EPA free web-based benchmarking tool, Portfolio Manager, to track and assess energy and water consumption across the entire portfolio of buildings. Benchmarking supports the President's sustainability efforts by allowing prioritization of investments and ability to track and disclose impacts.



GREENING INFORMATION TECHNOLOGY

The Cook County Bureau of Technology uses the technologies of green IT to reduce the environmental footprint and the operational cost of systems, architectures and processes as upgrades are made throughout the County's IT infrastructure.

A MODERN DATA CENTER. Power and air conditioning are the lifeblood of a data center. Computers transform power to heat dissipation, so reducing the power consumed by the computers, then efficiently cooling the rooms are key elements of a green strategy. The modernized data center under construction on the 7th floor of the County building improves efficiency by increasing the equipment input voltages from 125 to 208 volts. As voltage increases, less current is required, so power consumption is reduced by 3%, and less heat is generated by the equipment. All enterprise server rooms are being fitted with 208 volt circuits for new equipment. The corresponding reduction in equipment heat dissipation means the air condition systems use less power. Furthermore, the modernized data center is designed with hot and cold aisles to improve air flow and cooling efficiency, and will feature new air conditioning units that use less power. Finally, the improved data center will have energy efficient lighting that consumes half the amount of power of old florescent fixtures.

DECREASING THE FOOTPRINT OF PHYSICAL SERVERS. The Bureau of Technology is decreasing the footprint of physical servers through server virtualization and provisioning the space in a dynamic way. In the past an individual physical server ran a single operating system and provided a platform for a limited number of applications, data storage and administration space; while this worked it left the physical server using a limited amount of its processing power the majority of the time. The development of virtualizing technology allowed for a change of strategy. Now a single physical server can provide a platform for multiple "virtual" servers, using the majority of the processing capacity at any time. This allows the County to lower the number of physical servers it needs to provide the same level of service to the business while lowering energy use through fewer physical servers, and effectively shrinks the footprint needed within the datacenter. This strategy requires fewer servers, reduces electronic salvage in the long term, lowers the amount of space required in datacenters and reduces cooling energy consumption. The Sheriff's office has already completed 80% of its virtualization efforts through August of 2015. Through server consolidation, the County has reduced the space dedicated to servers by 3200 square feet.

COUNTY-WIDE NETWORK SWITCH REPLACEMENT PROJECT. Cook County is refreshing all network switches throughout Cook County and data centers. These network switches are certified green with respects to power consumption and power efficiency. These switches have a number of energy benefits:

1. They will only consume power that is required at that time, thus providing a savings on overall consumption from energy providers.
2. The switches will shut down ports that are inactive thus reducing power consumption.
3. If switches have wireless products attached, they will only transmit the signal when there is traffic. This provides overall cost savings.

IN 2014, in addition to replacing switches the Bureau also reduced the number of switches in the downtown campus further decreasing energy demand.



WATER

GOAL: REDUCE WATER USE 30% BY 2025

Under the Green Leadership Team, an Energy and Water Subcommittee was formed and in 2014 began a labor intensive task of establishing a system wide water use baseline. The County has a complex facility structure. With over 200 buildings in the County Portfolio and a number of agencies responsible for facilities and billing across the County, there was no centralized information about water cost or use. Establishing a baseline and analyzing costs is particularly important because the County maintains two large 24 hour 365 day a year campuses, Corrections and Stroger Hospital, that have high water use intensity. A centralized system and analysis will allow the County to identify opportunities for efficiencies at these and other buildings.

The process of establishing a baseline included identifying where bills were being sent for each building, the number of meters at each building and whether bills were reporting estimated or actual usage.

The County is working with the City of Chicago, our largest water provider, to install new meters which will provide more accurate and timely usage data. 36 of our 76 City of Chicago water meters are being replaced. Although establishing a true water baseline is still a work in progress, the County has been able to identify a usage baseline for approximately 85% of our square footage. Even before completing the baseline analysis, attention to the issue of water usage brought about the inclusion of water efficiency projects in the next round of energy efficiency capital improvement projects.

HEALTH AND HOSPITALS SYSTEM SUSTAINABILITY ACCOMPLISHMENTS

1. Increased lighting efficiency by upgrading lighting in the parking lots at clinics to LED bulbs and installing timers at Oak Forest Health Center.
2. Reduced copy paper use by 15% through default printing to 2 sided multi-functional devices and centralizing paper distribution to manage, monitor and control usage.
3. Increased recycling by 17 tons (through incorporating cardboard and construction debris into the recycling stream).
4. Decreased volume of regulated Medical waste by 20,000 lbs per month through audits and education.



FLEET

GOAL: REDUCE EMISSIONS FROM FUEL USE 80% BY 2050

After a 2013 review revealed increasing costs, little centralized data, and unnecessary emissions due to an aging fleet, the County commissioned a comprehensive fleet assessment. The assessment led to the following recommendations and actions.

- ➔ **CENTRALIZE FLEET MANAGEMENT UNDER A FLEET MANAGER.** A fleet manager is in place and an updated fleet inventory has been completed.
- ➔ **SELECT AND IMPLEMENT AN ASSET MANAGEMENT SYSTEM ACROSS ALL COUNTY FLEETS.** An asset management system is planned for purchase in 2016.
- ➔ **RIGHT-SIZE THE FLEET WITH A STUDY AT THE ASSET LEVEL AND COMBINE THE RESIDUAL VEHICLES WITH A PRECISION CAPITAL PLAN FOR THE COUNTY.** The goal of the Fleet Reduction Project is to reallocate vehicles that are underutilized (10,000 miles or less) and place them in pool sharing programs or distribute them to other departments as necessary. Vehicles 2007 or older would be eliminated and salvaged. The fleet inventory showed that there are currently 1880 active vehicles in the County Fleet, down from 2009 in 2014. The Shared Fleet Program has 3 Ford Fusion Hybrid vehicles and 1 Ford Focus Electric vehicle. 5 new Ford Fusion Hybrid vehicles have been ordered to replace 4 cars which are all over 10 years old.

The Vehicle Steering Committee is currently working with the Bureau of Finance to analyze vehicle usage data and determine the right size of the fleet. Once established an ongoing steady state replacement cycle will be established, with a steady budget and be part of the annual County Buying plan. This would allow the County to strategically source vehicles with the goal of standardizing the types of vehicles procured and an emphasis on increasing hybrid and electric vehicles as part of the overall fleet. Limiting the type of vehicles individual Departments purchase will also assist the Vehicle Services Department by allowing for the purchase of parts in bulk quantity and keeping preventative maintenance costs low.

The Vehicle Steering Committee has set a goal of reducing the vehicle inventory by 20%, or approximately 200 vehicles. Realizing this goal will result in a conservative estimate of approximately 71,420 gallons of less fuel used per year, equaling 857 tons less of CO₂. The County's shared fleets as well as, an additional agreement with Zipcar have both been in place since 2013. Based on the success of the shared fleet and Zip Car programs implemented in the offices under the President, the Sheriff's office will also be starting a shared fleet and Zip Car program by the first quarter of 2015.

- ➔ **CONSOLIDATE THE EXISTING MAINTENANCE FACILITIES INTO A NEW PROFILE OF 2 PRIMARY COUNTY VEHICLE REPAIR SHOPS.** Late this year all County vehicle maintenance will be consolidated under the Sheriff's office, who will be utilizing a revitalized building in La Grange Park. The Sheriff's Department will handle all light duty preventative maintenance on County vehicles and serve as a go-to center before any major repairs are sent out to 3rd party contractors. All vehicles will be uploaded on central fleet maintenance database to track maintenance, fuel, utilization, and costs.

COOK COUNTY GREEN LEADERSHIP TEAM

APPOINTED BY COOK COUNTY BOARD PRESIDENT TONI PRECKWINKLE

MEMBERS

TASHA CRUZAT

Deputy Chief of Staff, Chair

PETER DANIELS

Chief Operating Officer, Cook County Health and Hospitals System

MICHAEL JASSO

Chief, Bureau of Economic Development

ROBERT MCINERNEY

Chief Administrative Officer/Chief Information Officer, Cook County Sheriff's Office

MARTHA MARTINEZ

Chief Administrative Officer, Bureau of Administration

IVAN SAMSTEIN

Chief Financial Officer, Bureau of Finance

DR. JOHN JAY SHANNON

Chief Executive Officer, Cook County Health and Hospitals System

DEBORAH STONE

Chief Sustainability Officer

ELAINE LOCKWOOD BEAN

Chief, Bureau of Asset Management

SUBCOMMITTEE PRIMARY STAFF

TONY DOVER

Energy Manager, Capital Planning: Energy and Water

CHRISTOPHER LIPMAN

Solid Waste Coordinator, Department of Environmental Control: Waste and Recycling

RADOSLAV STOILOV

Fleet Manager: Fleet



Toni Preckwinkle

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