160105

MEMORANDUM

TO: Public Works & Environmental Concerns Committee

THROUGH: Carl S. Goldsmith, Director of Public Works CS

FROM: David P. Gorman, Asst. Director of Public Works DPG

SUBJECT: **Cool DuPage Program**

DATE: February 10, 2016

The County of DuPage has initiated a program called Cool DuPage. They are seeking municipal partners to help improve regional air quality and reduce energy consumption. Staff is requesting that the Committee provide a recommendation to the Board of Trustees regarding the attached draft resolution.

Background:
This program is similar to prior ones that the Village Board had adopted including the US Mayors Agreement on Climate Change (2009), Cool Cities (2012 & 2015), and CUB's Energy Saver (2010). The Cool DuPage program, like the others, do not obligate the Village financially or otherwise but they do declare policy and have an influence on our projects, programs and facilities. For example, the electric aggregation contract that was awarded in 2012 specified 100% carbon free sources. This option was obtained as a bid alternate that turned out to be at no additional cost over the base bid. Having such policies in place can also aid in the request for grants. More information will be provided to the Committee as the program develops further.

Recommendation:
Staff suggests that the Committee recommend the Cool DuPage program to the Board of Trustees.

attachments: draft resolution, Cool DuPage Fact Sheet, Lombard Energy and Emissions Profile
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RESOLUTION
R ____-16

DRAFT

A RESOLUTION AUTHORIZING PARTICIPATION IN THE 2030 COOL DU PAGE PROGRAM

WHEREAS, the Village of Lombard and the County of DuPage are seeking common goals under the Lombard Climate Action Plan and the DuPage Energy Conservation and Air Quality Improvement Plan; and

WHEREAS, the goal of Cool DuPage is to reduce countywide greenhouse gas emissions ten percent by 2020 and twenty percent by 2030 based on the 2007 levels as calculated in the Lombard Energy and Emissions Profile and the DuPage Energy and Emissions Profile; and

WHEREAS, the Village of Lombard endeavors to reduce energy costs for its residents and businesses while improving air quality and determines that it is in the interest of the Village of Lombard to undertake such activities to improve air quality and reduce energy consumption; and

WHEREAS, the Village of Lombard's Public Works & Environmental Concerns Committee has reviewed the DuPage County Energy Conservation and Air Quality Improvement Plan and recommends approval and adoption of this resolution at the Charter Community level to actively work towards the goals and strategies set forth in the aforementioned plan; and

WHEREAS, the Village of Lombard will strive to achieve the baseline recommendations provided by Cool DuPage within publicly owned buildings and within the community; and

WHEREAS, the County of DuPage, under the auspices of Cool DuPage, will assist the Village of Lombard through technical assistance, when appropriate, to reach baseline recommendations and goals as adopted within the DuPage County Energy Conservation and Air Quality Improvement Plan;

NOW THEREFORE BE IT RESOLVED that the Village of Lombard hereby enters into an active partnership with and adopts the goals of the Cool DuPage initiative, attached as Exhibit A.

Adopted this _____day of _____, 2016.

Ayes:_____

Nayes:_____

Absent:_____

Approved this _____ day of _____, 2016.

FAXED

Keith Giagnorio, Village President

ATTEST:

Sharon Kuderna, Village Clerk

FACT SHEET: Cool DuPage

What is Cool DuPage? A DuPage County-sponsored environmental program effort to improve regional air quality and reduce energy consumption across all sectors -- commercial, industrial, residential, government and transportation.

What are the Goals/Objectives of Cool DuPage? To work cooperatively with officials and leaders across all sectors to reduce county-wide CO2 emissions 10% by 2020 and 20% by 2030.

What are the regional benefits to Cool DuPage? Save the region $100 million annually by advocating participation in energy efficiency grant and rebate programs. If target GHG reductions are met, 2.3 Million Metric tons of CO2 will be removed from the region's air.

What role do municipalities play in this program? DuPage County seeks municipalities as partners in this 15-year program effort. Municipalities that adopt a model partner resolution pledge their leadership and support in their respective communities to promote energy efficiency and improved air quality to its residents, commercial businesses and local governments.

What is required of a Charter Community? Advocate for the goals of Cool DuPage by helping promote the existing energy efficiency resources available to local residents, business/industry and local governments. In addition, report energy-efficiency efforts undertaken by the Village and any energy reduction data that result from Village-planned projects.

What kinds of efforts does the Village have planned that support our participation in this effort? Village activities that are supportive of the Cool DuPage program include LED street light replacements, purchases of fuel efficient trucks and vehicles, planned energy improvements in our water and wastewater utilities including aeration blower motor replacements, construction of pedestrian pathways along local right-of-ways such as the Lies and Kuhn Rd. extensions and the DuPage River Trail.

Does Supporting the Program as a Municipal Partner obligate the Village financially? NO. Cool DuPage municipal partners are simply asked to serve as an advocate to encourage voluntary energy conservation among interested local stakeholders.

What are the Grant & Rebate Programs we are asked to advocate for during this effort?

Residential Sector	Commercial/Industrial Sector	Government
ComEd Smart Ideas for Homeowners	ComEd Smart Ideas for Business	IL. Clean Energy Found.
Conservation @ Home	Conservation @ Work	DCEO for Public Sector
NICOR Incentives for Homeowners	NICOR Incentives for BIZ	Energy Star for Govts.
Energy Star for Homeowners	IL. Manf. Excellence Center	SEDAC
CUB Energy Saver Program	IL. Science & Tech. Coalition	
	SEDAC	

Lombard Energy and Emissions Profile

This profile provides energy consumption and greenhouse gas emissions data analyzed specifically for Lombard. It is designed to give you information about how energy is consumed by your entire community. Use this report to prioritize strategies for energy efficiency and conservation and measure their progress.

The Value of Your Profile

Your profile includes annual citywide electricity and natural gas consumption, vehicle miles traveled, and a greenhouse gas emissions profile. Having this aggregate baseline data at the local level is important because it makes it possible to accurately benchmark energy use. Simply put, you cannot measure energy savings without first knowing your actual energy consumption. Further, pinpointing your community's energy trends will help you target the most effective programs to reduce energy use and costs.

About the Project

Your community's profile is part of a larger project called the Municipal Energy Profile Project (MEPP). The goal of MEPP is to provide all municipalities in the seven-county Chicago metropolitan region[1] with an energy and emissions profile and corresponding tools and resources to help each community best utilize the information presented in the profile.[2]

At the regional level, MEPP helps municipalities obtain a crucial starting point to discuss energy issues within their community. The communities in the Chicago metropolitan region will be better equipped to tap into existing regional and state resources while positioning the region for ongoing funding towards building a sustainable future.

This project is funded by the Illinois Clean Energy Community Foundation and relies on support from ComEd, Nicor, Peoples Gas, North Shore Gas, and Illinois Department of Transportation.

What's in Your Energy and Emissions Profile?

Introduction sections have been included before each dataset to familiarize readers with a few key concepts.

[1] The seven counties in the region include Cook, DuPage, Kane, DuPage, Lake, McHenry and Will.

[2] CNT Energy is providing a MEPP guidebook; workshops and free technical assistance.

Section 1: Using Your Profile

While many municipalities have begun to identify strategies that impact municipal operations, recent funding opportunities provide an unprecedented opportunity to adopt broader community-wide strategies that will help residents and business owners reduce energy use and costs. The aggregate data and information provided in this profile can help in strategy development in the following ways:

1) Baseline Metrics: Serves as a starting point from which to measure the progress of strategies and programs.

2) Accurate Data and Measurements: Provides a more accurate picture of your community's average energy consumption based on actual utility data instead of national or regional averages. This will help you better calculate the potential for strategy savings, both individually and at scale.

3) Data Indicators: May assist in identifying some areas for targeting strategies. For example, a municipality whose average household energy consumption is significantly higher than the county may want to investigate the reasons why and identify potential residential energy saving strategies. (e.g. Is our average higher due to larger houses? Is it because we have an older, less efficient housing stock?)

More detailed examples are provided in the Guidebook for the Municipal Energy Profile Project.

Guidebook for the Municipal Energy Profile Project

To further investigate how you might use this profile, CNT Energy invites you to review the Guidebook for the Municipal Energy Profile Project; available at www.cntenergy.org. The Guidebook includes the following topics:

- Understanding your profile
- Municipal energy strategies
- Community-wide energy strategies
- Funding resources and technical assistance
- Glossary of energy terms and acronyms

Technical Assistance

Through the early part of 2011, CNT Energy will continue to provide free technical assistance to help communities understand their profile and provide information and resources for specific energy-related issues in their communities. For more information, please contact us:

Lindy Wordlaw, Senior Planner
773-269-4012 ▪ lindy@cntenergy.org

Kimberly Loewen, Planner
773-269-4089 ▪ kloewen@cntenergy.org

Section 2: Electricity Consumption in Lombard

Electricity

Electricity consumption in both the residential and commercial/industrial (C & I) sectors is currently increasing nationwide. Growth in consumer electronics and information technology equipment, as well as an increase in home size and air conditioning use are prominent reasons for consumption increases in the residential sector. In the commercial/industrial sector, increasing consumption is driven by telecommunication and network equipment along with specialized technologies such as medical imaging advancements.[3] Electricity is measured in kilowatt (kWh) hours.

Total Consumption

In 2007, the amount of electricity consumed in Lombard was 481 million kWh (Table 1). 31% of the village's electricity consumption occurred in the residential sector; the remaining 69% was consumed in the C & I sector. Figure 1 and Figure 2 compare electricity consumption by sector in Lombard and DuPage County[4].

Table 1. Total Electricity Consumption (kWh), 2007

	Lombard	DuPage County
Residential	150,302,641	3,046,756,030
C & I	331,079,539	8,931,290,066
Total	481,382,180	11,978,046,096

Figure 1. Lombard's Electricity Consumption by Sector, 2007

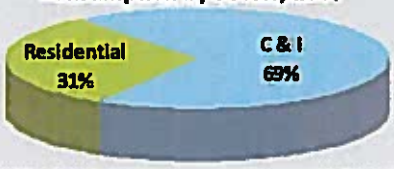


Figure 2. DuPage County's Electricity Consumption by Sector, 2007

Residential Consumption and Costs

In the residential sector, the village's average annual consumption per household is 8,670 kWh. Factors that affect electricity usage include square footage, presence and efficiency of air conditioning, efficiency of lighting, appliances and systems, and occupant behavior. Table 2 compares village's average annual consumption and cost per household to that of the county.

Table 2. Residential Electricity Consumption & Costs, 2007

	Lombard	DuPage County
Number of Households	17,335	338,050
Average kWh per Household	8,670	9,013
Average Annual $ per Household*	$933	$970

*Calculated using average residential sales per kWh (ICC Utility Sales Statistics 2007)

[3] Energy Information Administration: "Miscellaneous Electricity Services in the Buildings Sector", AEO2007 http://www.eia.doe.gov/oiaf/aeo/otheranalysis/mesbs.html

[4] For municipalities located within more than one county, the county that contains the largest area of the municipality was used for comparison purposes for this report.

Section 3: Natural Gas Consumption in Lombard

Natural Gas

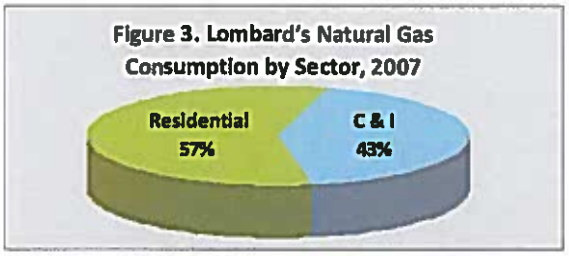
In Northern Illinois, natural gas is the primary space heating fuel. In addition to space heating, natural gas is commonly used for hot water heaters, clothes dryers, and cooking in the residential sector. However, natural gas consumption has been decreasing slightly over time in both the residential and commercial/industrial sectors as homes and buildings become more efficient and de-industrialization occurs. Natural gas is measured in therms.

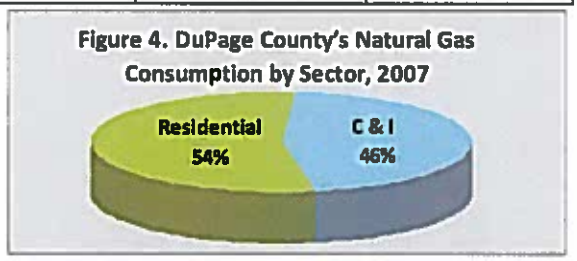
Total Consumption

In 2007, the amount of natural gas consumed in Lombard was 27.9 million therms (Table 3). 57% of the village's natural gas consumption occurred in the residential sector; the remaining 43% was consumed in the C & I sector. Figure 3 and Figure 4 compare natural gas consumption by sector in Lombard and DuPage County.

Table 3. Total Natural Gas Consumption (Therms), 2007

	Lombard	DuPage County
Residential	16,012,125	313,707,381
C & I	11,877,352	268,672,694
Total	27,889,477	582,380,076





Residential Consumption and Costs

In the residential sector, the village's average annual consumption per household is 924 therms. Factors that affect natural gas usage include building size, building age, building envelope efficiency, efficiency of the furnace, boiler and water heater, as well as occupant behavior and building operations and maintenance. Table 4 compares the village's average annual consumption and cost per household to that of the county.

Table 4. Residential Natural Gas Consumption & Costs, 2007

	Lombard	DuPage County
Number of Households	17,335	338,050
Average Therms per Household	924	928
Average Annual $ per Household*	$820	$824

*Calculated using average residential sales per therm (ICC Utility Sales Statistics 2007)

Section 4: Transportation – Vehicle Miles Traveled in Lombard

Typically, transportation accounts for the second largest portion of energy usage after buildings. For this report, Vehicle Miles Traveled (VMT) was tabulated from travel statistics provided by the Illinois Department of Transportation (IDOT) and scaled to your municipality based on Illinois Environmental Protection Agency (IL EPA) odometer and population data.

Total Consumption

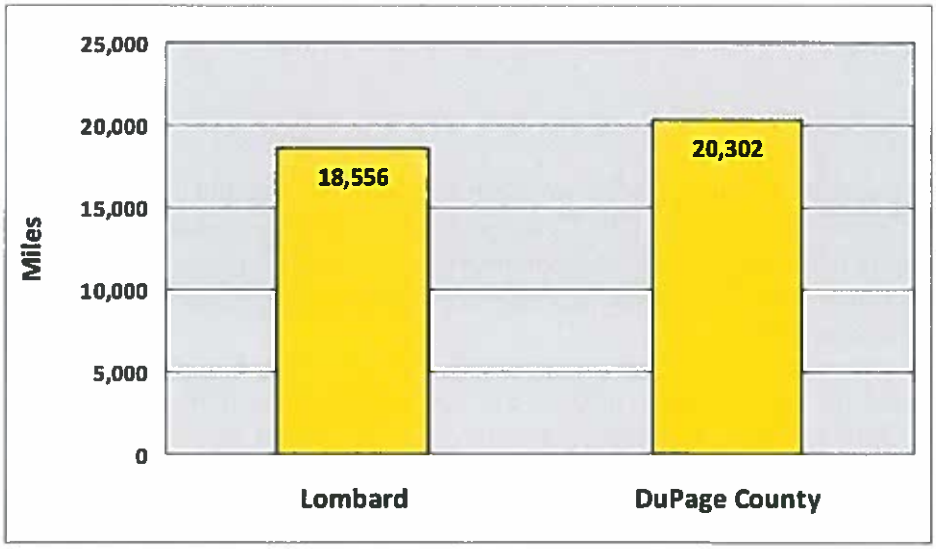
In 2007, total on-road travel on Lombard roads accounted for 405 million miles (Table 5), which captures trips only within municipal boundaries. Further analysis shows that the average household in Lombard drove 18,556 miles (Figure 5), totaling 322 million miles for all Lombard households.

Table 5. Vehicle Miles Traveled (VMT), 2007

	Lombard	DuPage County
Total On-Road VMT	404,659,771	8,633,562,650
Household VMT	321,670,080	6,862,947,547

Factors that affect VMT per household include access to jobs, proximity to businesses and amenities, availability of public transportation, and community walkability. Variations are also influenced by many different demographic factors including income, household size, and workers per household. For example, large households with higher incomes may own multiple cars and drive more. Households situated close to reliable public transit or major employment centers may experience decreased annual VMT because they are not as dependent on cars.

Figure 5. Average Vehicle Miles Traveled per Household, 2007



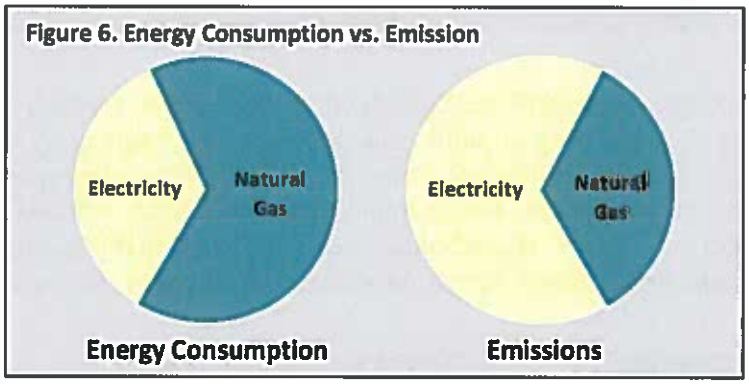
Section 5: Emissions Profile for Lombard

The Connection between Energy and Emissions

In addition to understanding energy consumption, it is important to recognize the relationship between energy and greenhouse gas emissions. Emissions attributed to electricity consumption are different from those attributed to natural gas consumption because of differences in the production of energy from different sources.

Most of the world's energy originates from the burning of fossil fuels including coal, petroleum, and natural gas. Fossil fuels consist of hydrogen and carbon, and when burned, the carbon combines with oxygen to create carbon dioxide.

However, all energy is not created equal. The amount of carbon dioxide produced for a given unit of energy depends on the carbon content of the fuel source. For example, coal (used to produce electricity) emits nearly two times the carbon dioxide per unit of energy compared to natural gas. Understanding this off balanced relationship is important when calculating emissions and identifying strategies to reduce emissions. Figure 6 illustrates this off balanced relationship between energy consumption and emissions, using data from the Chicago metropolitan region. Understanding this off balanced relationship is important when calculating emissions and identifying strategies to reduce emissions.



Emissions Calculations

Your municipal greenhouse gas emissions profile was calculated for 2007 using United Nations Intergovernmental Panel on Climate Change (IPCC) methods and local data sources in combination with modeling of national data to local demographics. All data presented are measured in metric tons (tons) or million metric tons (MMT) CO_2e (carbon dioxide equivalent), to enable comparison internationally.

Emissions were calculated for the six major categories of greenhouse gases regulated under the Kyoto Protocol: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Emissions were converted into CO_2e using global warming potentials from the IPCC Fourth Annual Assessment Report. Activity data were translated into emissions using standard emissions factors and global warming potentials.

Emissions Profile for Lombard

An energy profile in the community serves as the basis for conducting a community greenhouse gas emissions profile. In addition to energy and transportation, which are by far the biggest contributors to greenhouse gas emissions, this emissions profile includes estimates for solid waste, waste water, and product use based on regional totals previously analyzed for a regional profile developed for the Chicago Metropolitan Agency for Planning (CMAP).

Below is the breakdown of Lombard's emissions by sector (Table 6 and Figure 7).

Table 6. Lombard's Emissions by Sector, 2007

Sector	MMT CO_2e
Electricity	0.338
Natural Gas	0.148
Transportation	0.203
Solid Waste	0.005
Waste Water	0.006
Product Use	0.023
TOTAL	0.722

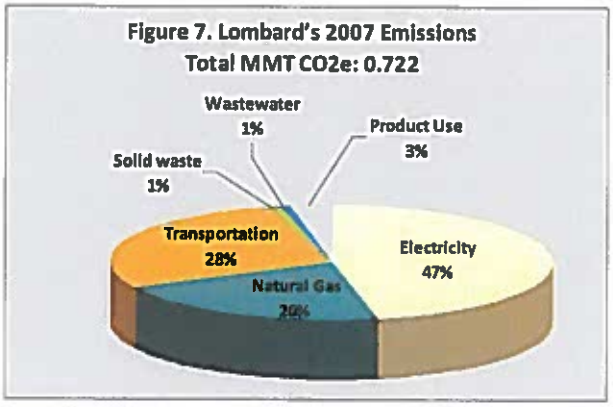


Figure 8 provides another context through comparison of Lombard's and DuPage County's 2007 emissions per capita.

Figure 8. Per Capita Emissions, 2007