



# FIVE STRATEGIES: INTRODUCTION

The scientific and economic analysis commissioned by the Task Force makes one thing clear: there is no time to lose. If Chicago continues on its current path, just like many other cities, its greenhouse gas emissions could increase 35 percent by the year 2050. If the world continues on its present path, Chicago could experience extreme heat in summer, many more heavy rain storms, growing flood risks, stresses on our public health and threats to the city's economy.

### What level of action is required?

As part of its research, the Task Force looked at outcomes from several possible future greenhouse gas (GHG) emission levels. Continued global dependence at current levels on coal, gas and oil would radically alter the city's climate so that a Chicago summer late in this century could feel like that of Mobile, Alabama, today. By the end of the century, the number of extremely hot days (over 100°F) could increase from the current two days per year to as many as 31 days per year. There may be fewer extremely cold days in winter—but more heavy rains and snow storms. A lower emissions scenario, with emissions cut to 60 percent below their 1990 level by 2050, could produce a less dramatic change but would still not prevent troubling impacts.

The Task Force agreed that Chicago needs to achieve an 80 percent reduction below its 1990 GHG emissions level by the year 2050 in order to do its part

to avoid the worst global impacts of climate change. To achieve the desired 80 percent reduction, the Task Force proposed an initial goal of a 25 percent reduction below 1990 levels by 2020, a midterm goal that was far enough in the future to allow time for major infrastructure and behavioral changes, but soon enough to ensure we are on the right course.

### PICKING TARGETS

In 2005, 36.2 million metric tons (MMT) of greenhouse gases in carbon dioxide equivalent units (MMT<sub>CO<sub>2</sub>e</sub>) were emitted in Chicago, averaging 12.7 tons per year for each of Chicago's 2.8 million residents. The 1990 baseline level of emissions is 32.3 MMT (1990 is specified by the Kyoto Protocol). If Chicago continues on its current path, which assumes continued population growth, its emissions would grow to 39.3 MMT<sub>CO<sub>2</sub>e</sub> by 2020. To achieve the Task Force's targeted 2020 goal of 24.2 MMT<sub>CO<sub>2</sub>e</sub>, projected emissions will need to be cut by 15.1 MMT<sub>CO<sub>2</sub>e</sub> by 2020.

### What kind of action is required?

A team of researchers analyzed Chicago's building stock, transportation systems and energy infrastructure to identify emissions reduction actions. The Task Force and several hundred stakeholders then reviewed all the research findings on climate impacts, greenhouse gas emissions, and mitigation and adaptation strategies.

After extensive analysis, the Chicago Climate Task Force settled on 26 "mitigation" or emissions reduction actions that, together, could provide a road

### KEY FACTS:

#### AN ILLUSTRATION OF EMISSIONS REDUCTIONS

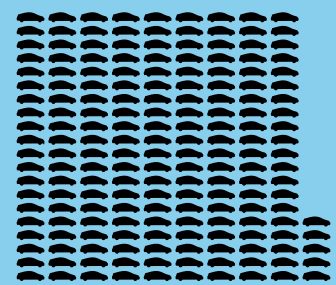
A reduction of one metric ton (one MT) of greenhouse gas emissions is equivalent to driving 2,500 fewer miles or removing almost 1/5 of a car from the road.

**1 MTCO<sub>2</sub>e reduction =**



A reduction of one million metric tons (one MMT) of greenhouse gas is equivalent to removing nearly 185,000 cars from the road.

**1 MMTCO<sub>2</sub>e reduction =**



**-185,000 cars**  
Each icon in the above graphic represents 1,000 cars.

### KEY FACTS:

#### THE ANATOMY OF MMTCO<sub>2</sub>e

MMT<sub>CO<sub>2</sub>e</sub>  
**MMT =**  
**million metric tons**

MMT<sub>CO<sub>2</sub>e</sub>  
**CO<sub>2</sub>e =**  
**the term for the quantity of any greenhouse gas, including carbon dioxide, methane and others, translated to CO<sub>2</sub> by weighting it by its relative global warming potential.**

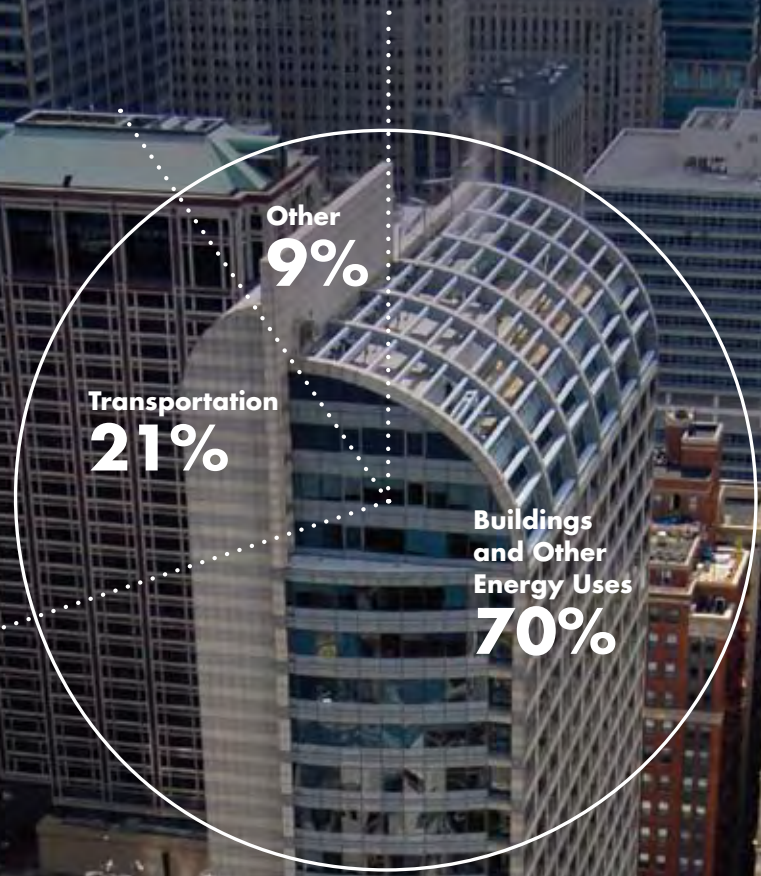
PROJECTED NUMBER OF 100-DEGREE DAYS PER YEAR IN CHICAGO



Fortunately, we can choose our future. We can preserve the quality of life in our city—provided we take action now.

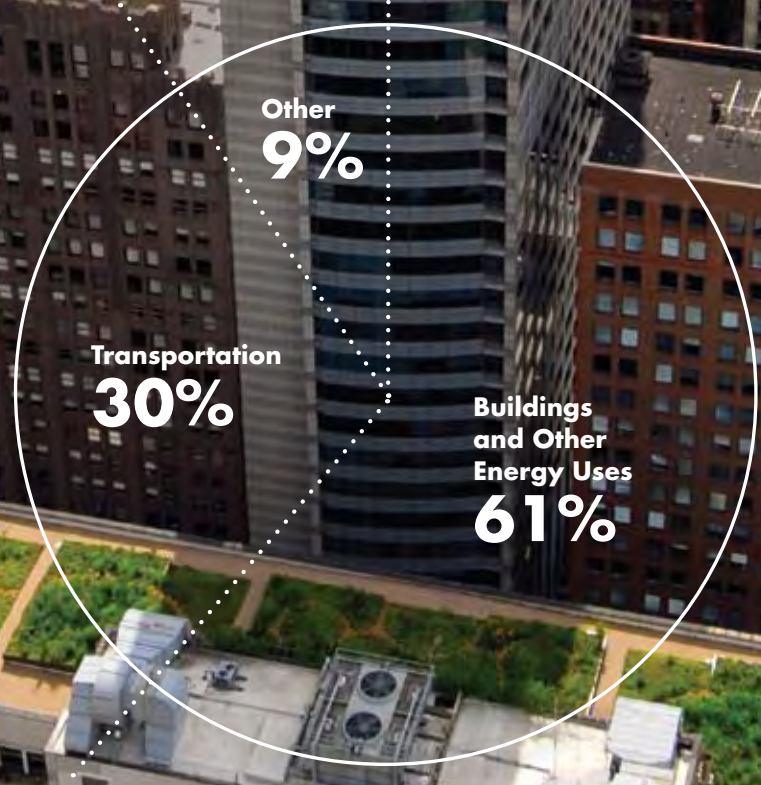
#### 2000 CHICAGO GREENHOUSE GAS EMISSIONS

Buildings are the primary target of reductions, as they account for roughly 70 percent of emissions. Cars, trucks, buses and trains are responsible for 21 percent. The remaining 9 percent comes from industrial emissions and waste.



#### THE SIX-COUNTY METRO AREA—COOK, WILL, DUPAGE, KANE, MCHENRY AND LAKE COUNTIES

As in Chicago, energy and transportation accounts for 91 percent of the regional emissions. However, transportation is a larger share of total emissions in the region—30 percent—than in Chicago—21 percent.



KEY FACTS:

RESEARCH FOR THE CHICAGO CLIMATE ACTION PLAN PRODUCED FIVE KEY FINDINGS.

- Without rapid local and global action, impacts on Chicago’s climate could be adverse.
- Electricity and natural gas consumed by buildings and transportation are the main sources of Chicago’s emissions.
- While we reduce emissions, we must prepare for the changes in climate that are already occurring.
- There is no single remedy, but rather many remedies with many benefits.
- The benefits of early action will improve quality of life and preserve Chicago for future generations.

KEY FACTS:

A COLLABORATION OF MANY RESEARCHERS, SCIENTISTS AND ANALYSTS

Researchers at the University of Illinois and Texas Tech University led a team that produced the climate change research report, supplemented by work on economic costs by Oliver Wyman and on adaptation by the engineering firm MWH. The Center for Neighborhood Technology (CNT) prepared the baseline emissions inventory and the analysis that informed the mitigation strategies. Delta Institute also contributed to research on the mitigation strategies. The Regional Economic Applications Laboratory at the University of Illinois prepared the analysis of job impacts. To read more, go to [www.chicagoclimateaction.org](http://www.chicagoclimateaction.org).



map for Chicago to reach that goal. Each of these actions was carefully evaluated and chosen with the following criteria in mind:

- REDUCTION POTENTIAL: total achievable greenhouse gas emissions reductions
- COST-EFFECTIVENESS: cost of implementation and the potential savings generated
- FEASIBILITY: ease of achievement and potential to overcome barriers
- BENEFITS AND BURDENS: advantages and drawbacks to the action, such as savings to residents, job creation and quality of life improvements
- REGIONAL IMPACT: level of opportunity for the larger six-county area (Cook, Will, DuPage, Kane, McHenry and Lake)
- RAPID DEPLOYMENT: opportunity to effect changes quickly

The findings for each action can be found in the research reports at [www.chicagoclimateaction.org](http://www.chicagoclimateaction.org).

HOW THE PLAN IS BUILT

The actions needed to reach our 2020 goal fall into five strategies:

- BUILDINGS account for approximately 70 percent of all city emissions and are the primary target for our reductions. Key opportunities here are improving the energy efficiency of residential, commercial and industrial buildings.
- CLEAN AND RENEWABLE ENERGY SOURCES include higher standards for fossil fuel plants and replacing energy from fossil fuel plants with renewable energy.
- TRANSPORTATION accounts for 21 percent of all GHG emissions in the city. We need to reduce the amount people drive (measured in vehicle miles traveled or VMT) and improve vehicle fuel efficiency.
- WASTE AND INDUSTRIAL POLLUTION account for a much smaller share of Chicago’s emissions, but we must change our waste and industrial processes to achieve our emissions reduction goal.

- ADAPTATION is crucial to ensure that the City can manage the changes that will come because of the level of GHGs already in the atmosphere. The Plan identifies the steps required—and some already taken.

EXTRA BENEFITS

Beyond averting changes to our climate, these actions have the potential to offer many other important benefits. Thousands of jobs may be created annually once the actions are under way.

The City is working with the Center on Urban Economic Development, Center on Wisconsin Strategy and Green for All to develop a comprehensive green jobs strategy to fully understand the job development potential in each area of mitigation and adaptation.

The benefits of these actions promise tremendous gain to Chicagoans today and to the children who will inherit our city tomorrow.

Most of the strategies in this plan are cost-effective and are improvements that will often pay for themselves. For example, over the past four years, the City has retrofitted 15 million square feet of its office space, saving \$6,000,000 on energy costs. The City worked with F&F Foods to do an energy, waste and water audit of their manufacturing facility. Their \$780,000 investment—which created a closed loop water pumping system and resulted in more efficient energy systems—resulted in \$280,000 in energy savings per year (a 2.6 year payback followed by substantial annual savings). Technology and market changes could make these strategies even more cost-effective—or change the approach identified here altogether. The City will utilize new funding sources that are already becoming available, such as the State’s Energy Efficiency Portfolio Standard and will continue to advocate for additional federal and state funding.

Note: Mitigation actions don’t add up to the 15.1 MMTCO<sub>2</sub>e goal for Chicago because savings from some activities offset potential savings from others. For instance, if someone decides to buy a hybrid car, and then leaves that car at home to use transit three times a week, the full emissions reduction value of both activities cannot be counted together. The reduction number for all the strategies added together, without double-counting, is sufficient to meet our goal.



ADDRESSING THE CHALLENGE  
OF CLIMATE CHANGE

ENERGY EFFICIENT BUILDINGS  
8 ACTIONS

CLEAN & RENEWABLE ENERGY SOURCES  
5 ACTIONS

IMPROVED TRANSPORTATION OPTIONS  
10 ACTIONS

REDUCED WASTE &  
INDUSTRIAL POLLUTION  
3 ACTIONS

ADAPTATION  
9 ACTIONS

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35 WAYS

TO ENSURE A RESILIENT CITY