Renewable Energy Action Plan

Steering Committee Workshop #1

May 9th, 2019

Xcel Energy®

PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

WELCOME AND INTRODUCTIONS

CITY OF Eau Claire

First Energy Edu. Center in WI!

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- Welcome by Dean Wehling

Agenda

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WELCOME AND ORIENTATION	
15 min	Introductions & Project Background
10 min	Partners in Energy Overview
WHY ARE WE HERE?	
20 min	Climate Change and Local Vulnerabilities
BREAK	
COMMUNITY VALUES AND VISION	
10 min	City Sustainability Initiatives
10 min	Xcel Energy Carbon Reduction Goals
5 min	Eau Claire Energy Cooperative
20 min	Community Energy Vision & Discussion Activity
COMMUNITY ENERGY BASELINE AND NEXT STEPS	
15 min	Eau Claire's Baseline Carbon and Energy Footprint
5 min	Next Steps and Wrap Up

CITY OF Eau Claire

Intro Survey Results

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1. Using only one word, why do you think it's important for Eau Claire to develop a Renewable Energy and Climate Action Plan?

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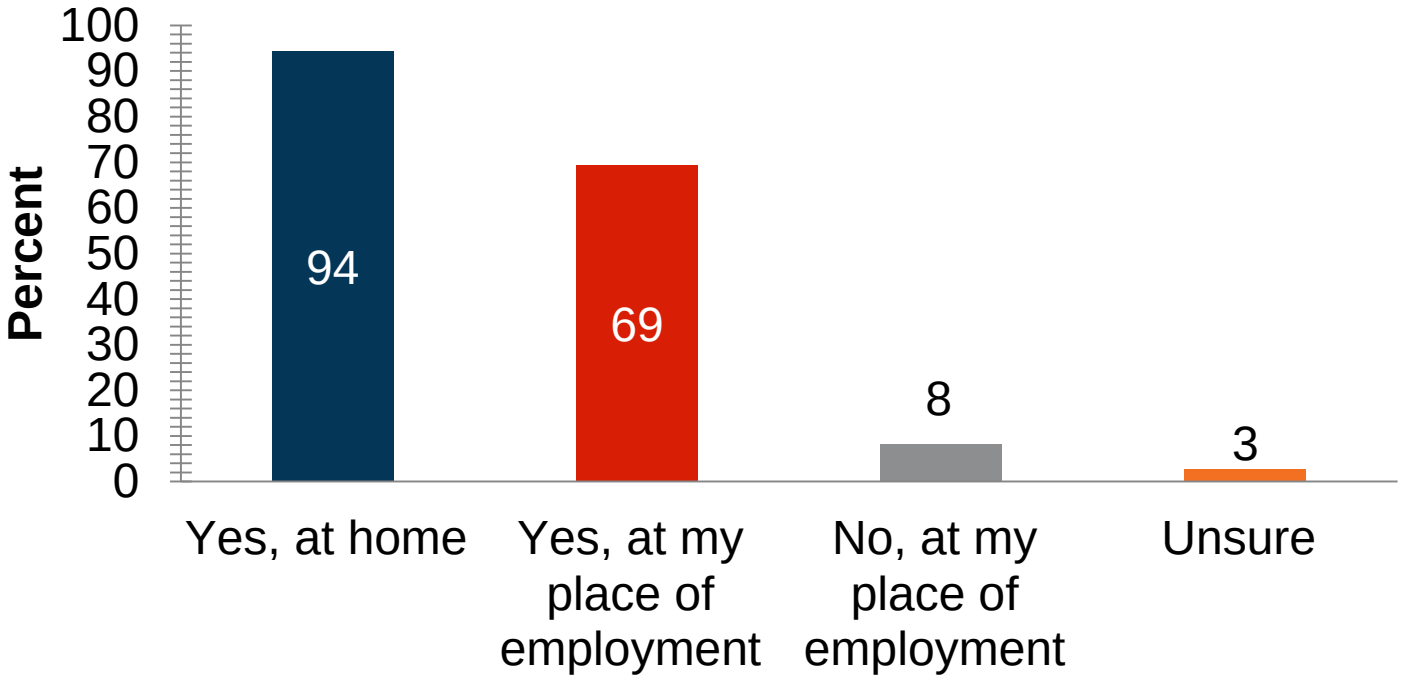
Intro Survey Results (cont.)

2. Have you ever made energy efficiency improvements to your home? Has your place of employment completed energy efficiency projects in the last 10 years?



Intro Survey Results (cont.)

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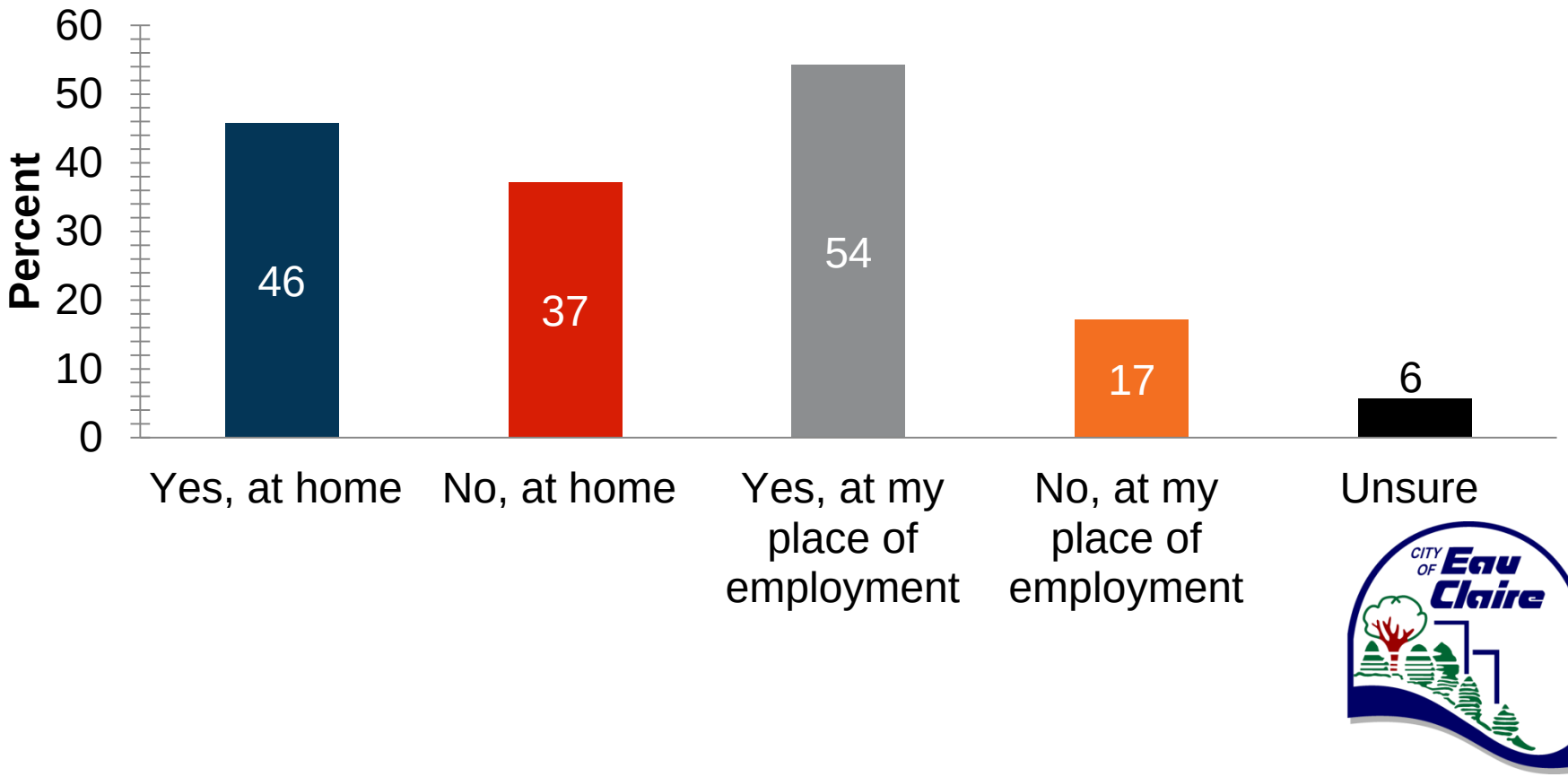
3. Have you ever made renewable energy improvements to your home? Has your place of employment completed renewable energy projects in the last 10 years?



Intro Survey Results (cont.)

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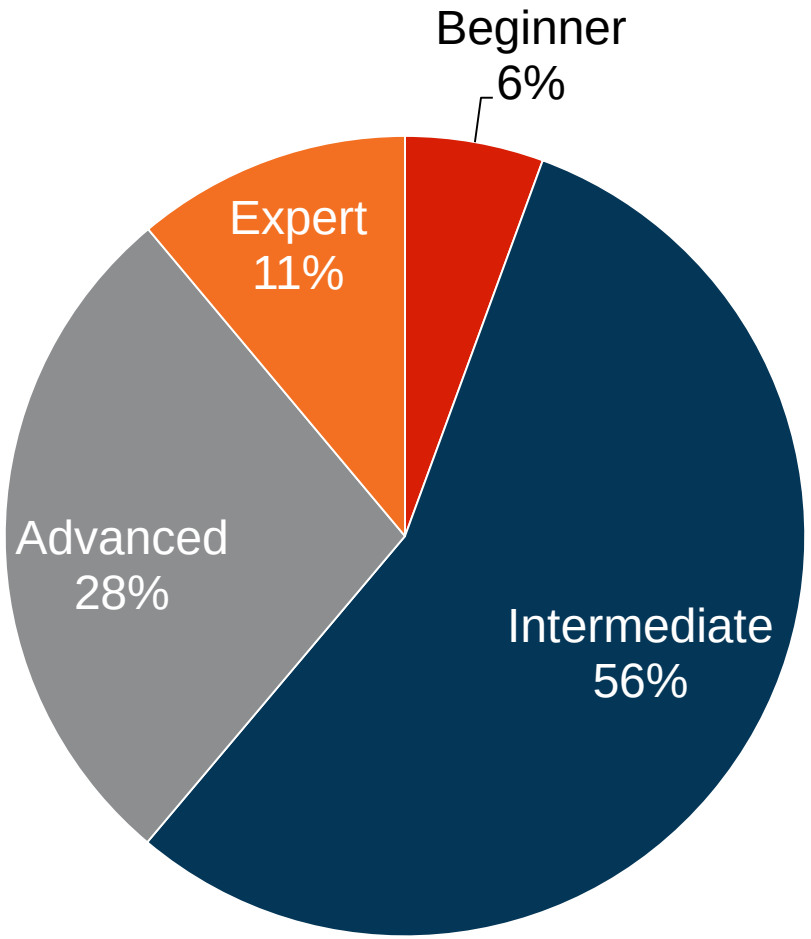
4. How would you define your energy literacy?



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Intro Survey Results (cont.)

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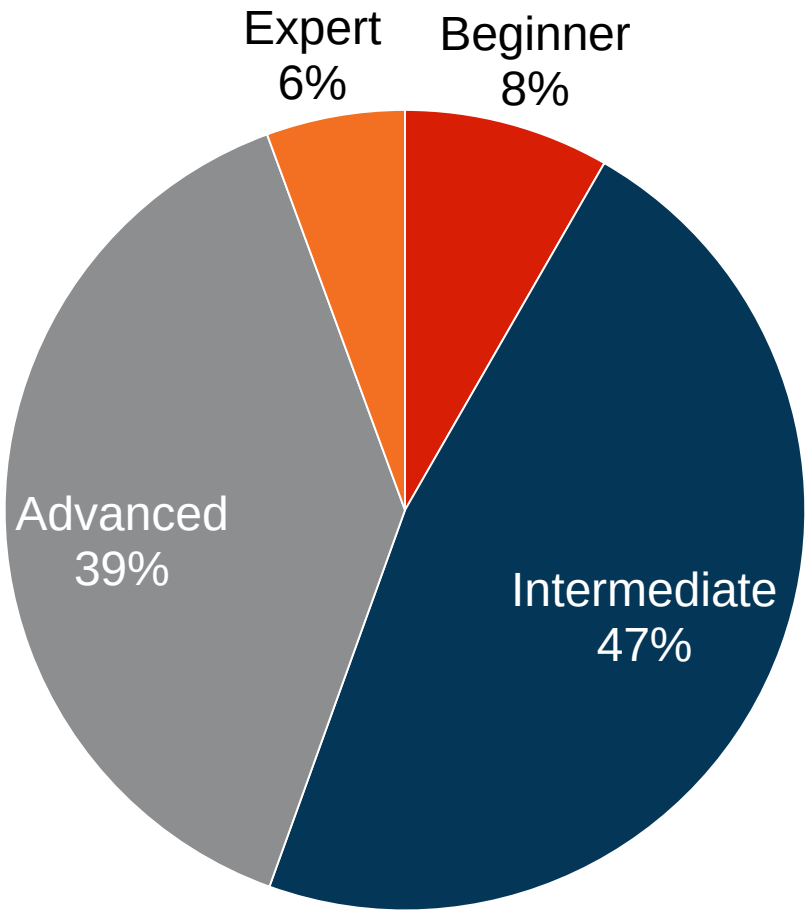
5. How would you define your climate change literacy?



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Intro Survey Results (cont.)

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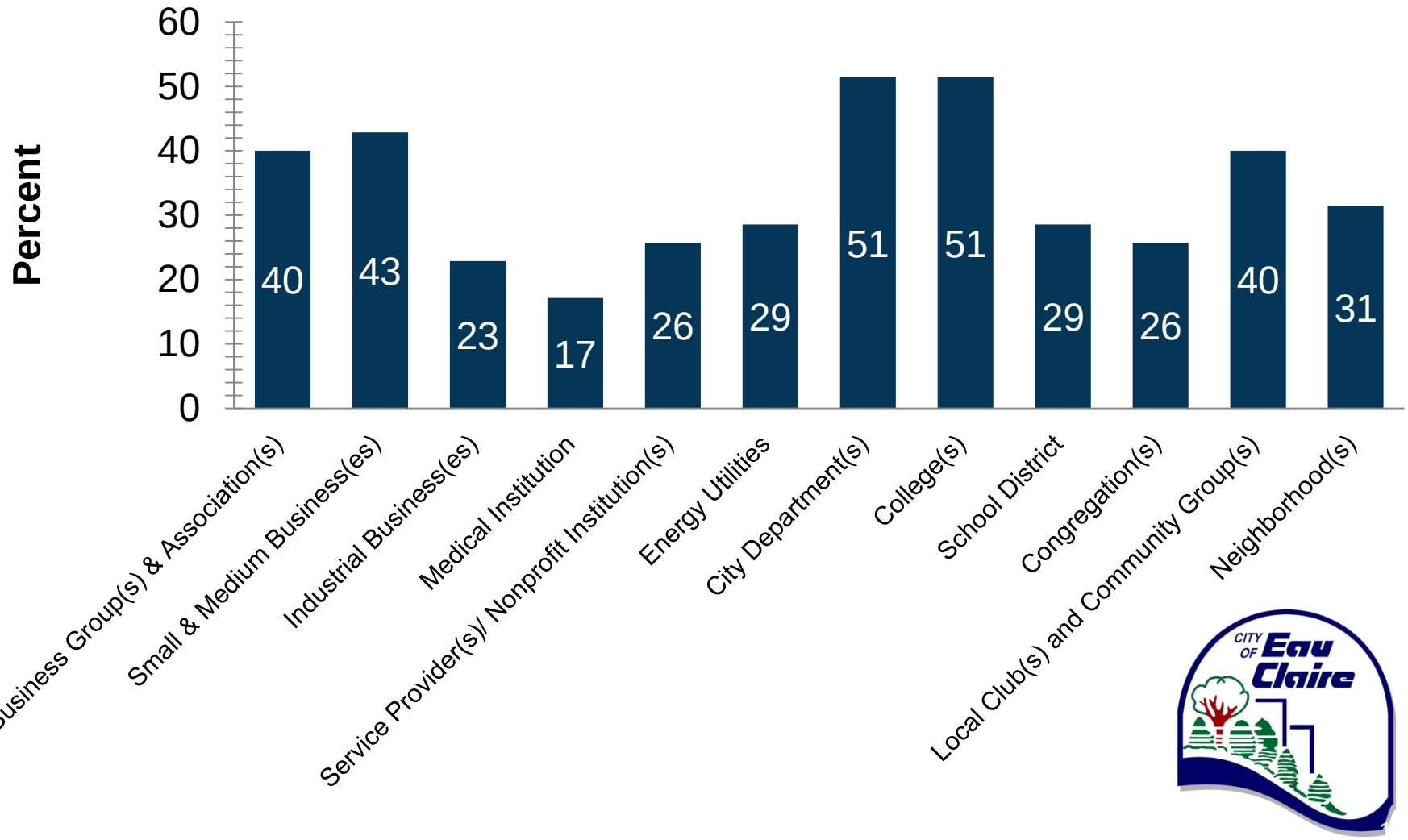
6. Check all the entities that you have connections to in Eau Claire.



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City Project Background

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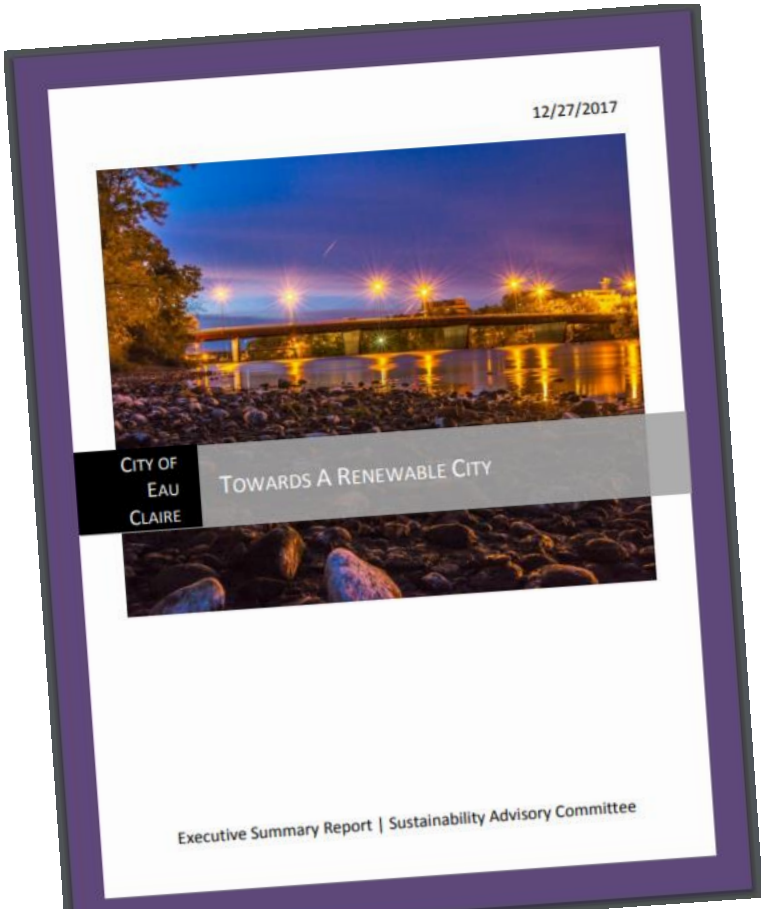
PARIS OBJECTIVE 1: Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels



City of Eau Claire
SUSTAINABILITY
Advisory Committee

City Project Background

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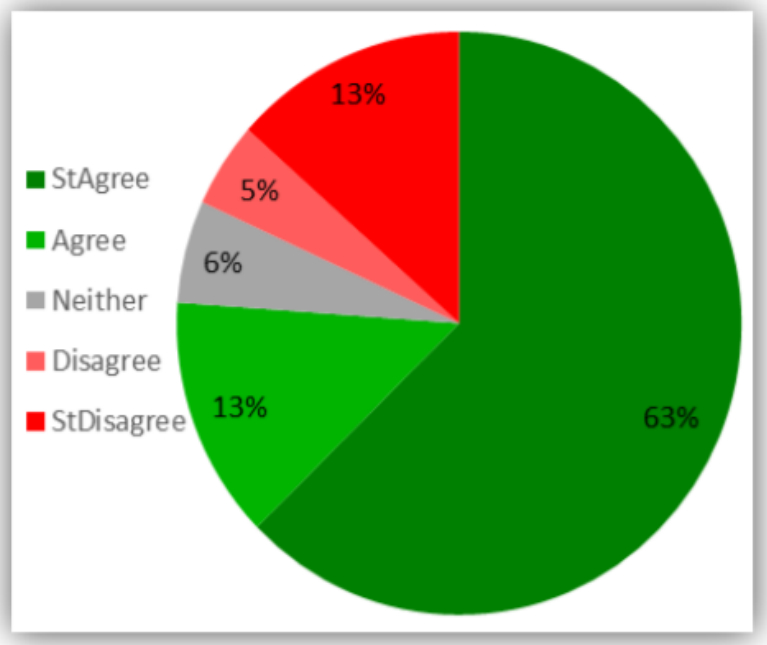
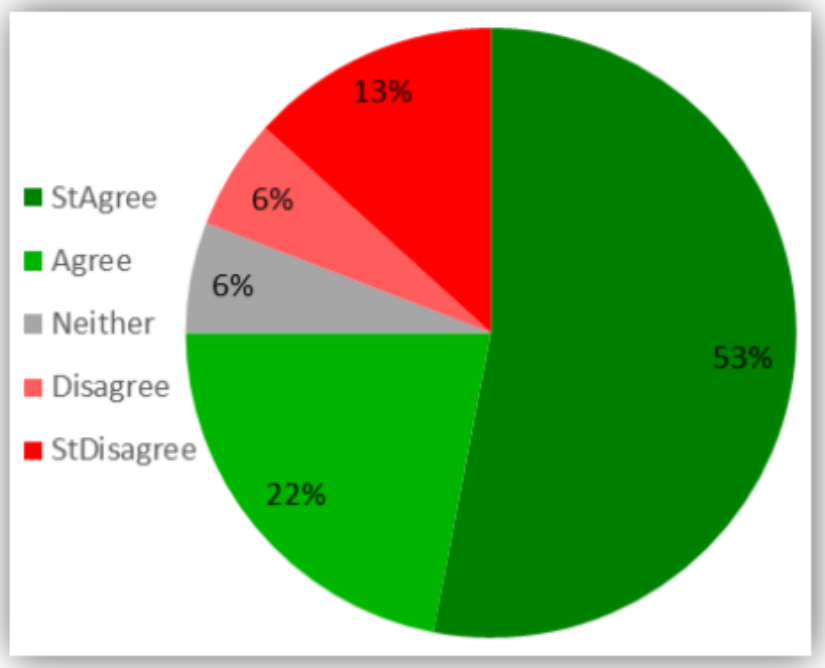
The City of Eau Claire should work with Xcel Energy to provide options for the community to obtain increased amounts of renewable energy faster than Xcel Energy's current plans will provide.



The City of Eau Claire should set a ***community-wide*** goal to reduce greenhouse gases.



2nd in WI to Pass Major Goals

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No. 2018-96

RESOLUTION

RESOLUTION ADOPTING THE MAJOR RECOMMENDATIONS OF THE DECEMBER 27, 2017 EXECUTIVE SUMMARY REPORT FROM THE SUSTAINABILITY ADVISORY COMMITTEE ANALYZING THE LOCAL IMPACTS OF THE PARIS CLIMATE AGREEMENT.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Eau Claire that it adopts the following sustainability goals:

1) Achieve municipality and community carbon neutrality by 2050 with incremental drawdown targets of 5% by 2020, 25% by 2030, 30% by 2040 and 40% by 2050.
2) Obtain 100% renewable energy by 2050 for the municipality and city.

NOW, THEREFORE, BE IT FURTHER RESOLVED by the City Council of the City of Eau Claire that a 2015 greenhouse gas baseline will be used to evaluate progress.

NOW, THEREFORE, BE IT FURTHER RESOLVED by the City Council of the City of Eau Claire that the City will undertake planning and action initiatives to assist the municipality and community in achieving these sustainability goals.

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Drawn downs & Plan

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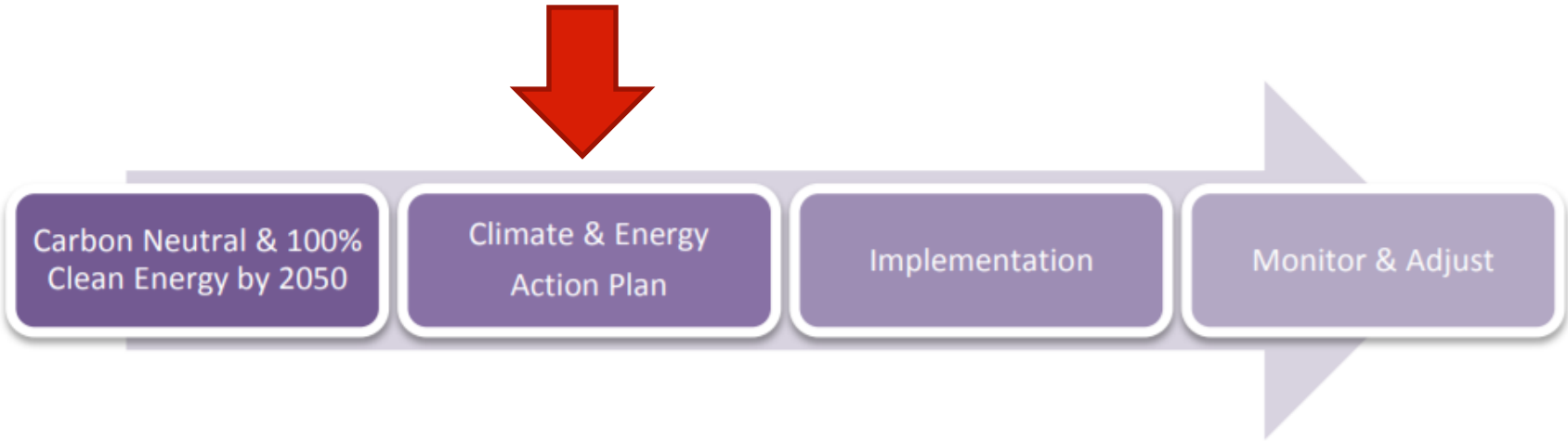
City & Community 100% Carbon Neutral Goal by 2050	
4% annually over 2041 – 2050 (40% drop)	**100% Renewable Energy Goal by 2050**
3% annually over 2031 – 2040 (30% drop)	
2.5% annually over 2021 – 2030 (25% drop)	
1% annually over 2015 – 2020 (5% drop)	
Community/City Emission Baseline 2015	



Plan Structure & Focus Areas

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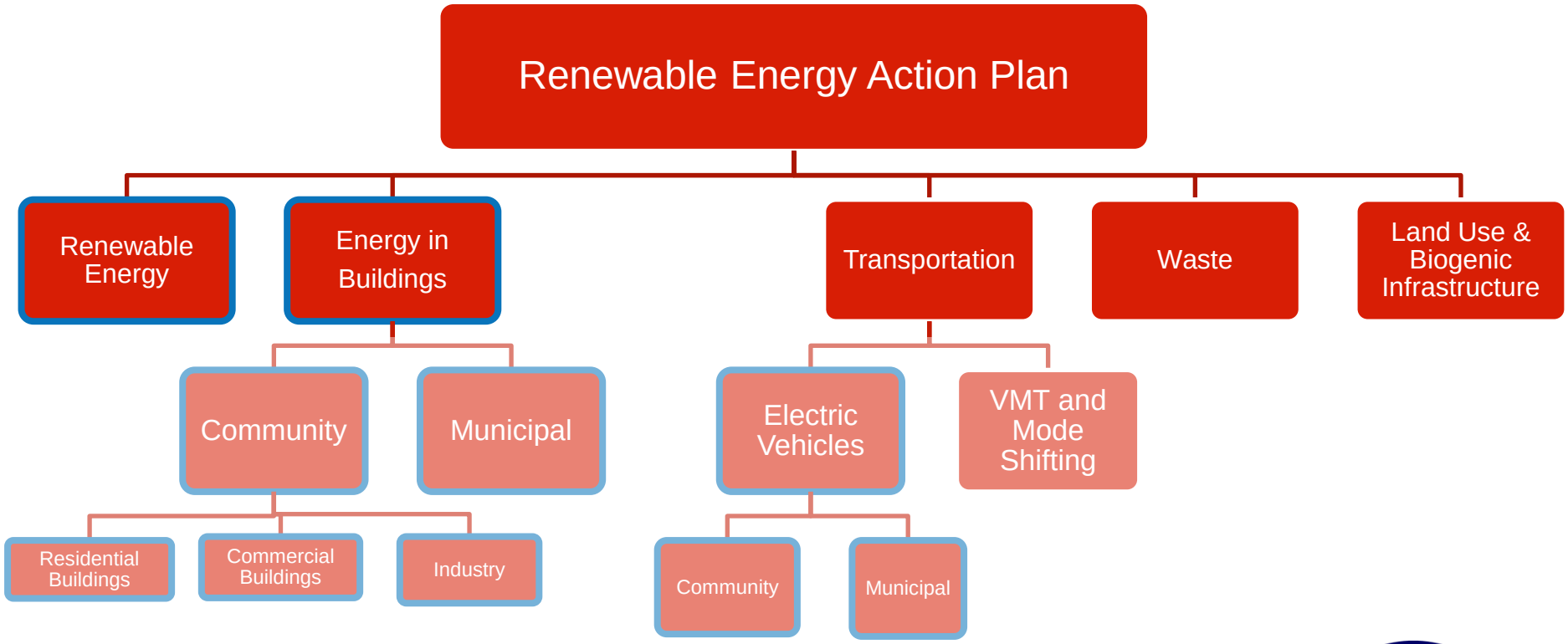

= Supported by Partners in Energy

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Update 2.18.19

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PARTNERS IN ENERGY OVERVIEW

CITY OF Eau Claire

What is Partners in Energy?

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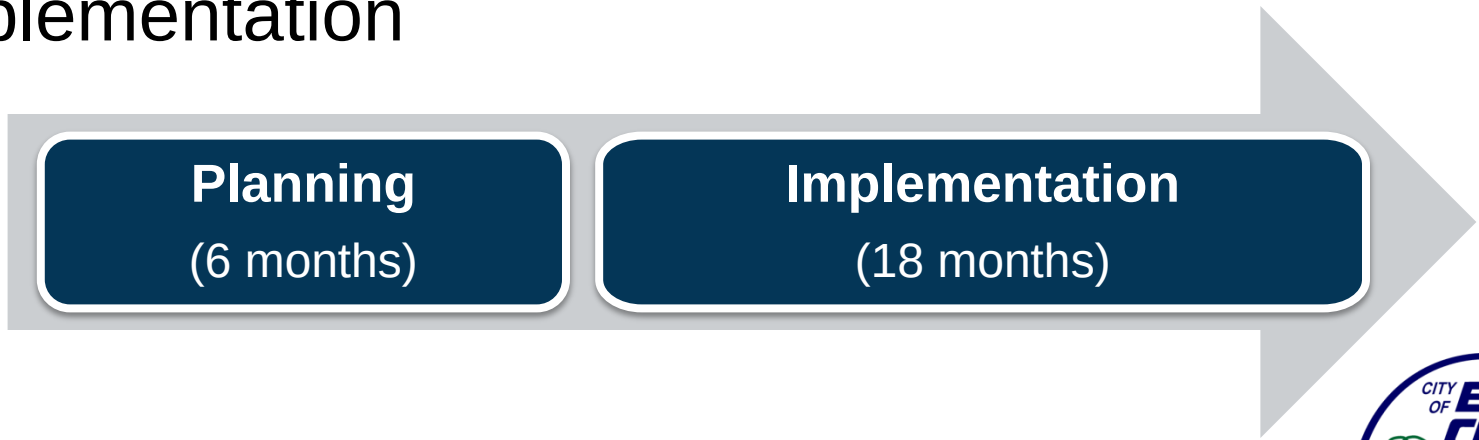
- Partners in Energy is a two-year collaboration with Xcel Energy to develop and implement *your* energy plan goals
- Xcel Energy provides tools and resources to enable *community-driven* energy planning and support implementation



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Partners in Energy Team

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Xcel Energy			Community Facilitators	
				
Tami Gunderzik	**Lori Drilling**	**Julie Thoney**	**Jenny Edwards**	**Jamie Johnson**

Xcel Energy's Goals

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- Develop a better understanding of the energy needs of communities we serve and identify gaps in our offerings
- Better align current Xcel Energy services and programs with the communities needs to increase participation
- Strengthen relationships with the community and support the Xcel Energy philosophy of community engagement

Photo by Meet Minneapolis / CC BY


Photo by Tina Chen / CC BY


Photo by Tanner Ford / CC BY

Renewable Energy Action Plan

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- Ultimate planning phase outcome
- Plan for pursing the community's energy vision
- Guides implementation
- Living document – change as needed

Resources for Planning

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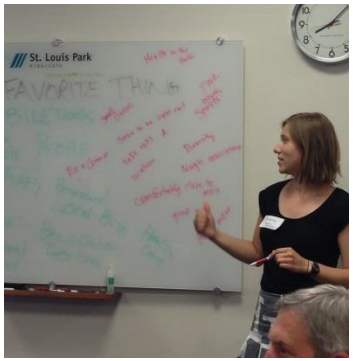
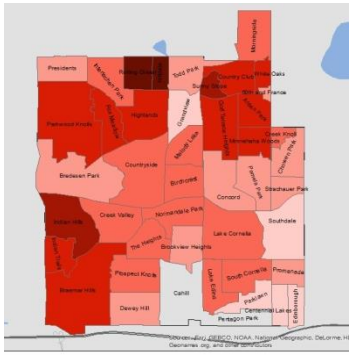
A variety of resources are available to support the planning phase.



Facilitation & Guidance



Data

Project Management

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Resources for Implementation

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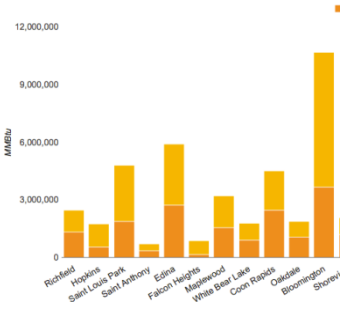
A variety of resources are available to support the implementation phase.

Marketing and Communications



Data Tracking/ Measurement

Program Expertise

Project Management

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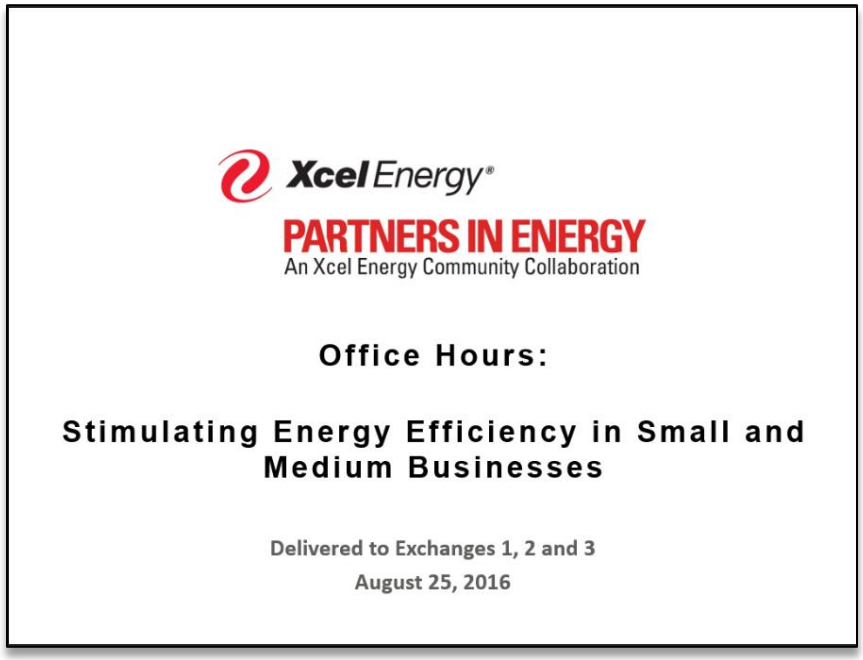
The Exchange

- Webinars and Office Hours
  - Opportunities to share with and learn from other participating communities developing and implementing their own Energy Action Plans
- In-person events to inform and provide networking opportunities



Minnesota Communities

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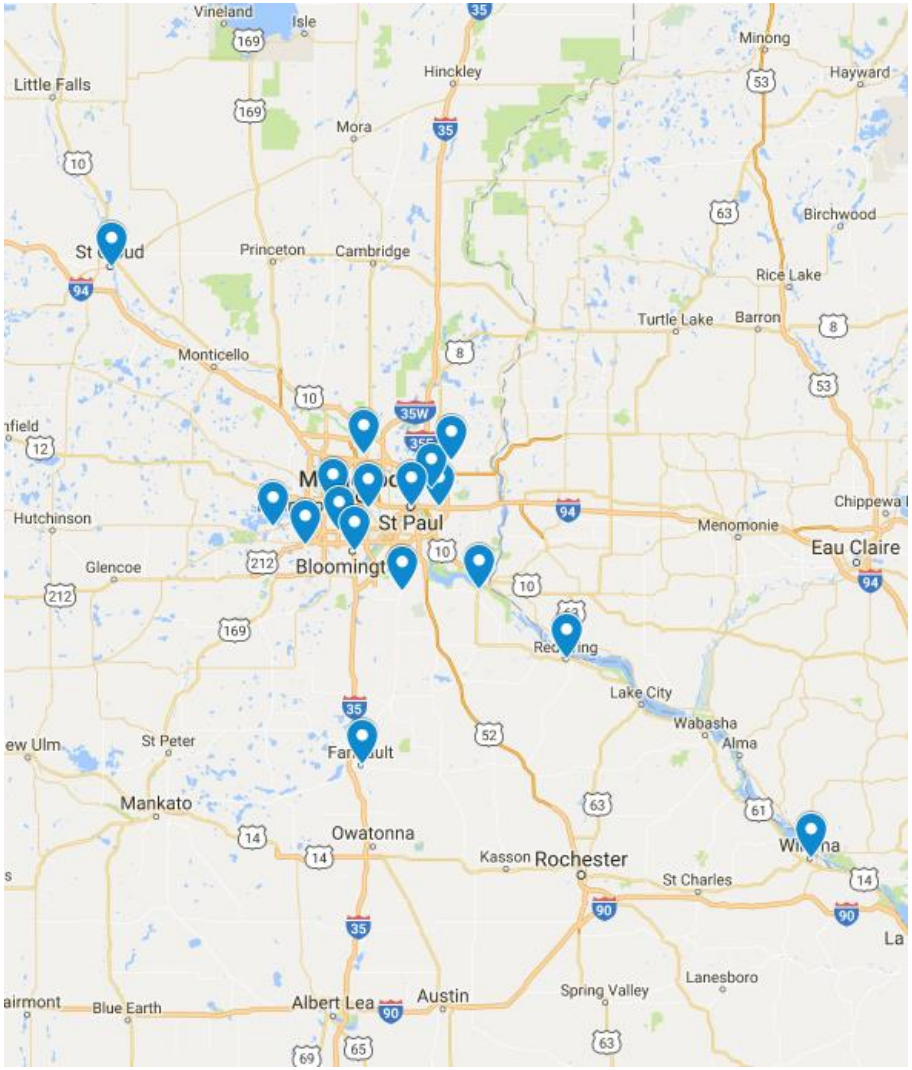

Map Credit: Google Maps 2018

Completed Implementation

- Lake Street Corridor in Minneapolis
- City of Maplewood
- City of Red Wing
- City of Saint Louis Park
- City of Edina
- Ramsey Co. Parks and Recreation Dept.
- Oak Park Heights

Implementing their Plans

- City of Faribault
- City of Saint Cloud
- City of Saint Paul
- City of Shorewood
- City of Winona
- City of Mahtomedi
- City of Eden Prairie
- City of Rosemount
- City of Bloomington
- City of Fridley

Developing their Plans

- City of Northfield
- City of Hastings

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Colorado Communities

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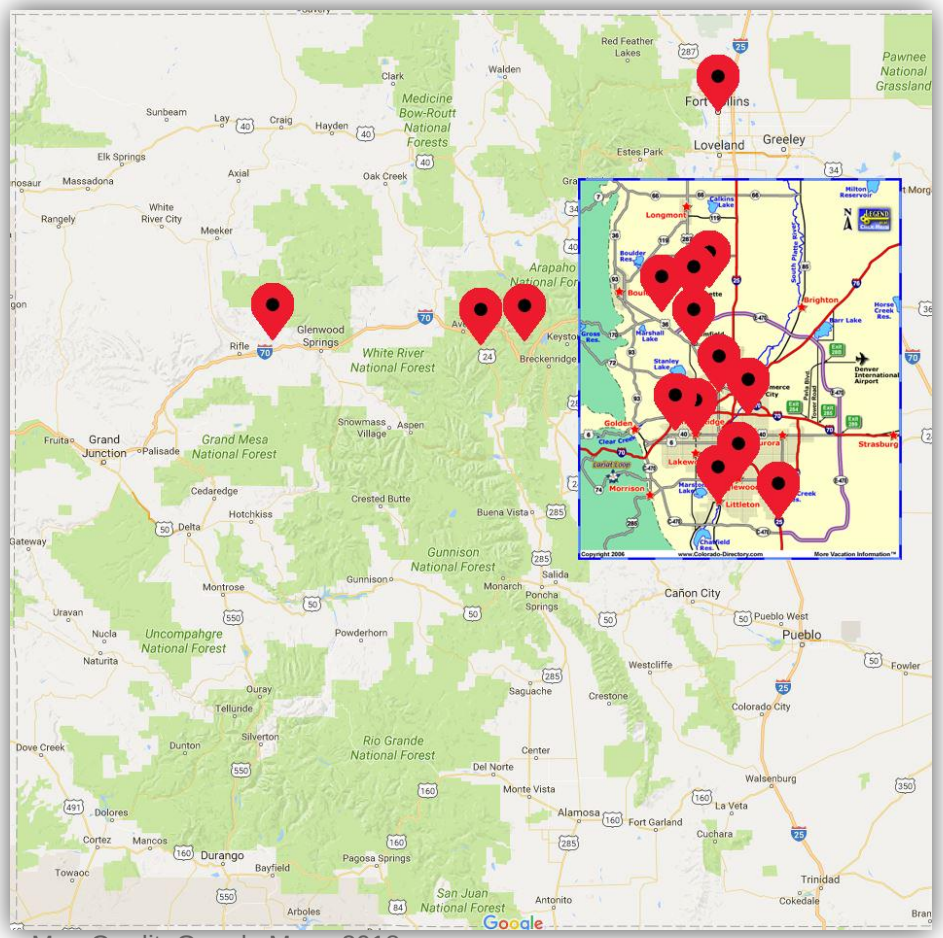

Map Credit: Google Maps 2018

Implementing their plans

- Summit County
- Lafayette
- Jefferson County
- Englewood
- Louisville
- Garfield County
- Broomfield
- Fort Collins
- National Western Center (Denver)

Just getting Started Implementing

- Westminster
- Minturn
- Erie

Developing their plans

- Wheat Ridge
- Centennial

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Plan Development Steps

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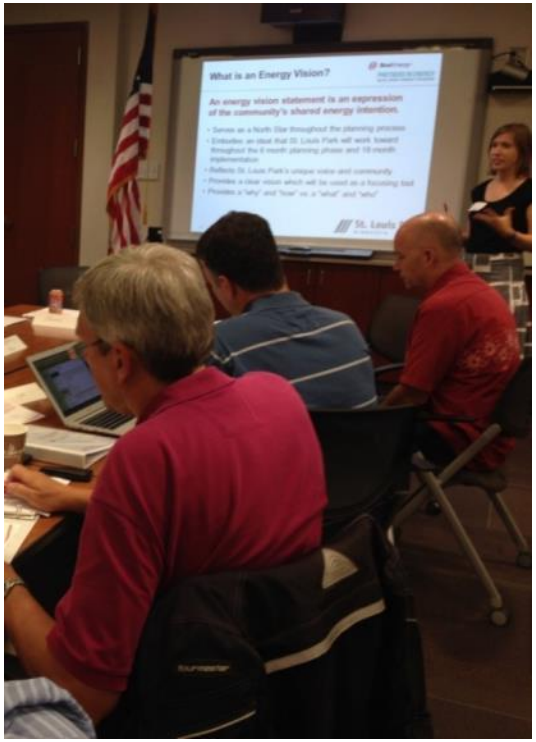
1. Anchoring
2. Baseline
3. Vision
4. Focus Areas
5. Draft Goals
6. Divergent Strategies
7. Convergent Strategies
8. Goal Refinement
9. Action Planning
10. Plan Finalization
11. Launch



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Steering Committee Roles

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- Attend planning workshops
- Contribute to the planning process (**Active Participant**)
- Represent your organization (**Representative**)
- Be a critical eye for credibility, transparency, and accuracy (**Critical Thinking**)
- Advise (**Advisor**)
- Be a conduit to your network (**Ambassador**)

City Staff Roles

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- **Convene** steering committee
- Provide **facilitation** for the Renewable Energy Action Plan development
- **Manage** PSC grant
- Provide **context** on city and community action to date
- Provide input on locally relevant strategies
- Support plan development

Xcel Energy Team Roles

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- Provide **facilitation** for the Renewable Energy Action Plan development
- Gather, process, and **share data**
- **Actively learn** more about community's goals and needs
- Provide **customized access** to Xcel Energy programs & resources
- Provide transition into and **support during implementation**

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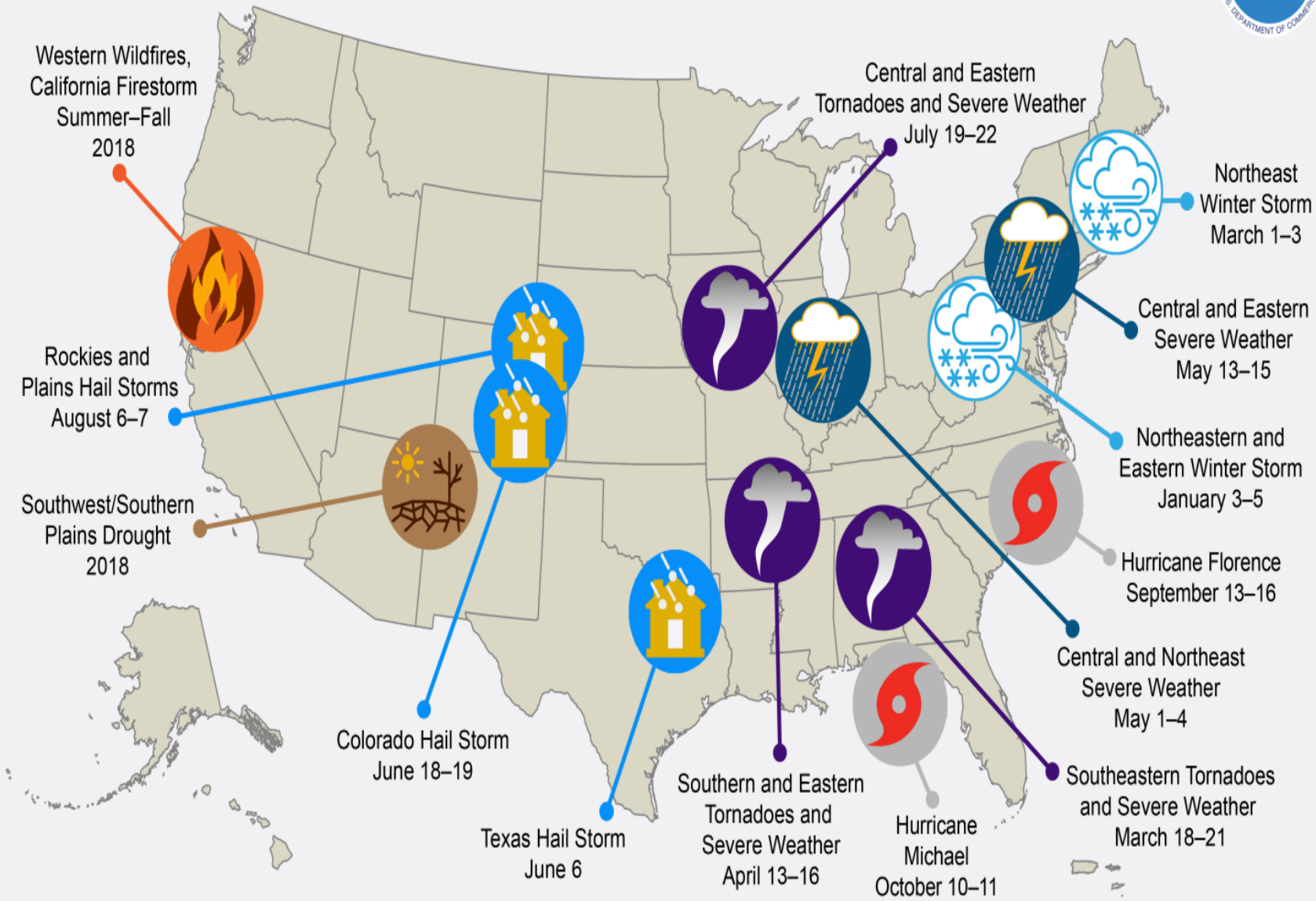
QUESTIONS?

WHY ARE WE HERE?

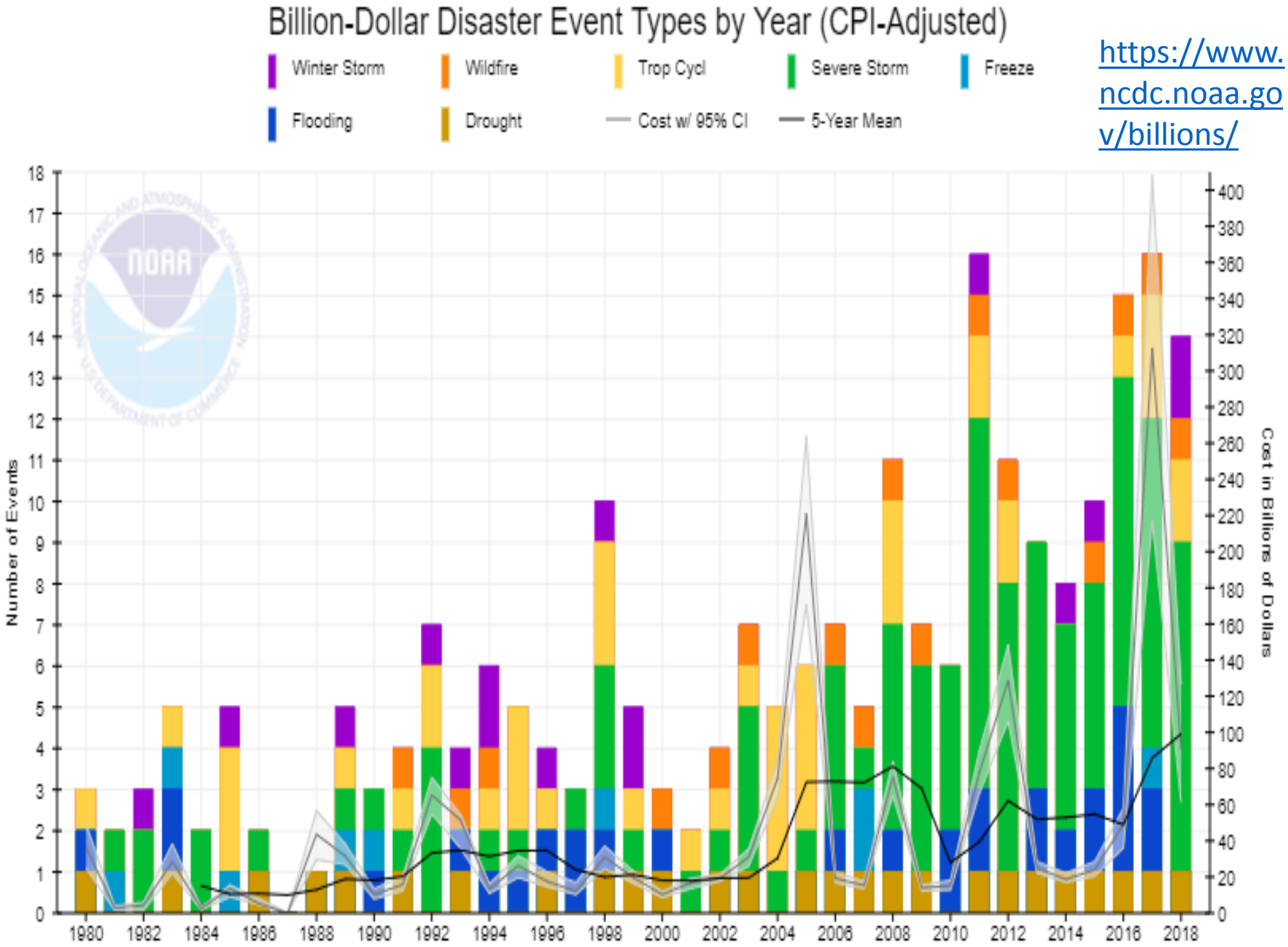
Climate Change Vulnerabilities and Opportunities

Dr. Jim Boulter
University of Wisconsin, Eau Claire

U.S. 2018 Billion-Dollar Weather and Climate Disasters



*This map denotes the approximate location for each of the **14 separate billion-dollar weather and climate disasters** that impacted the United States **during 2018**.*



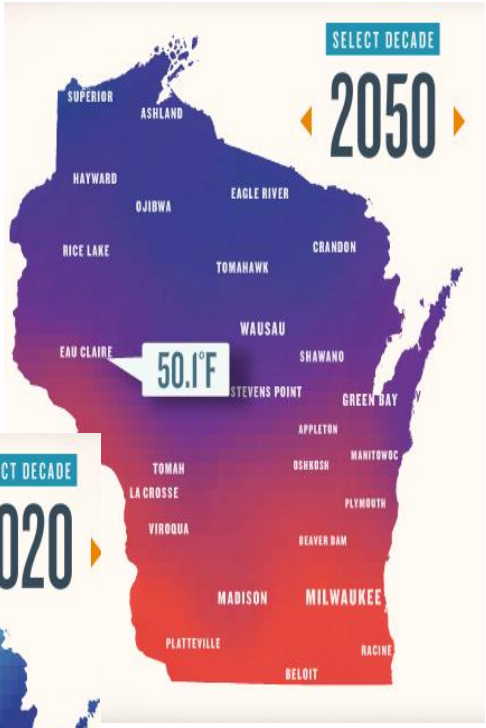
https://www.ncdc.noaa.gov/billions/

What climates today are most similar to the projected future

Climate analog: 2046-2065, mid emission

Climate analog: 2081-2100, mid emission scenario (A1B)

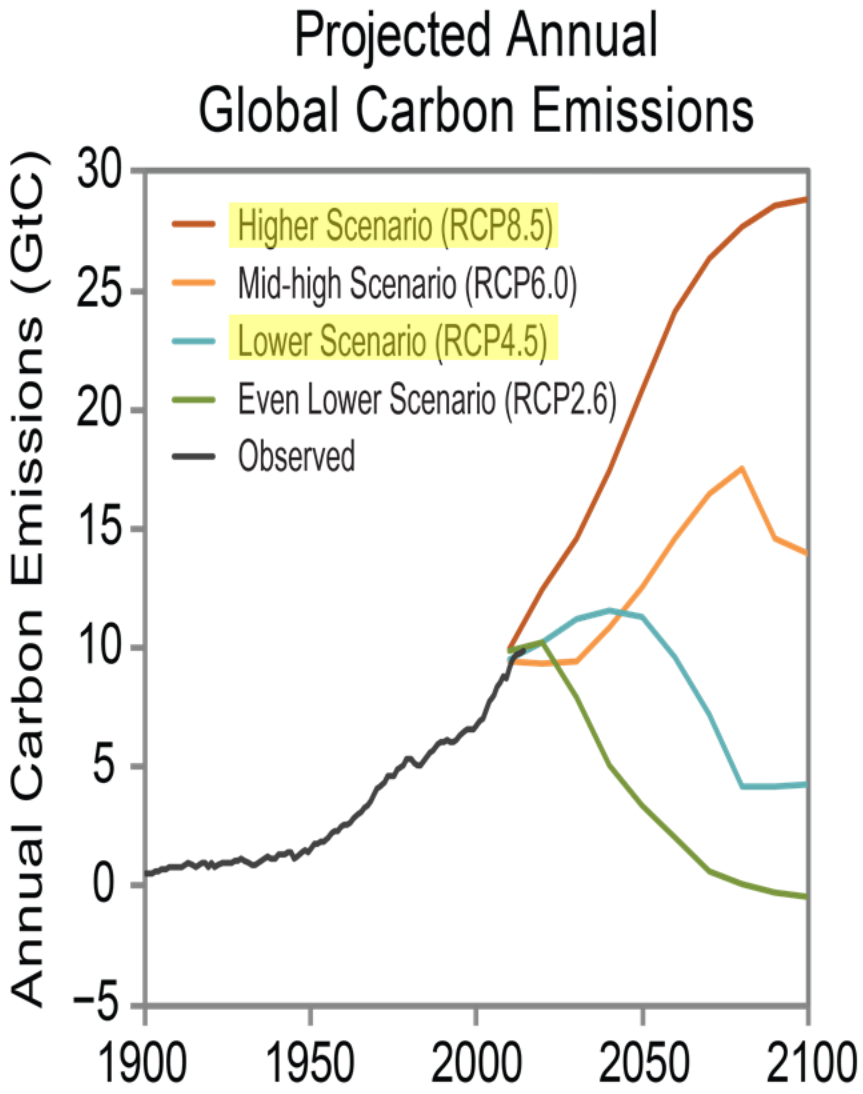
http://www.wicci.wisc.edu/climate-map.php

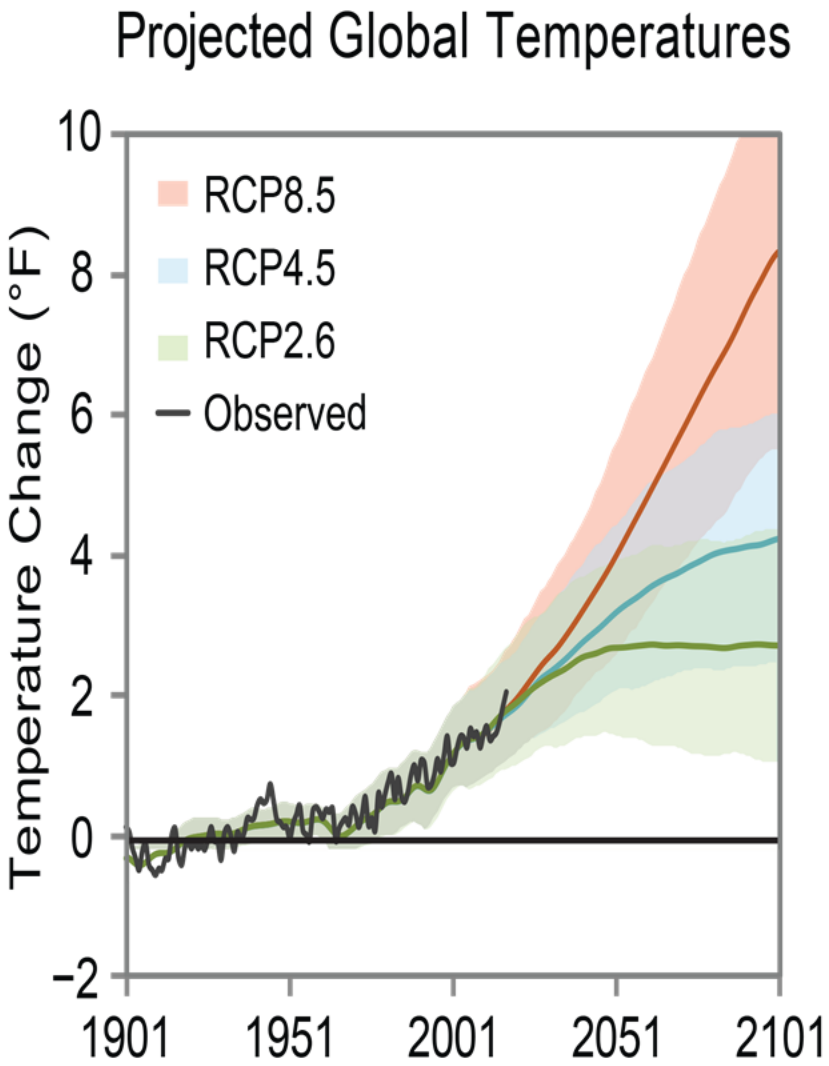


ΔT = 3.6 °F over 60 yrs

ΔT = 2.7 °F over 30 yrs

https://climatewisconsin.org/story/temperature-change

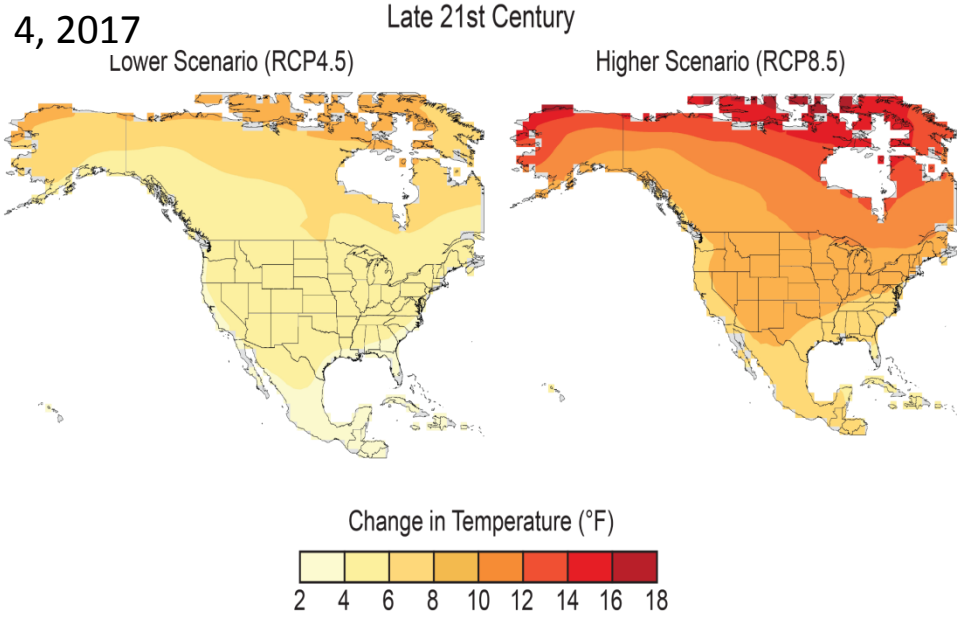




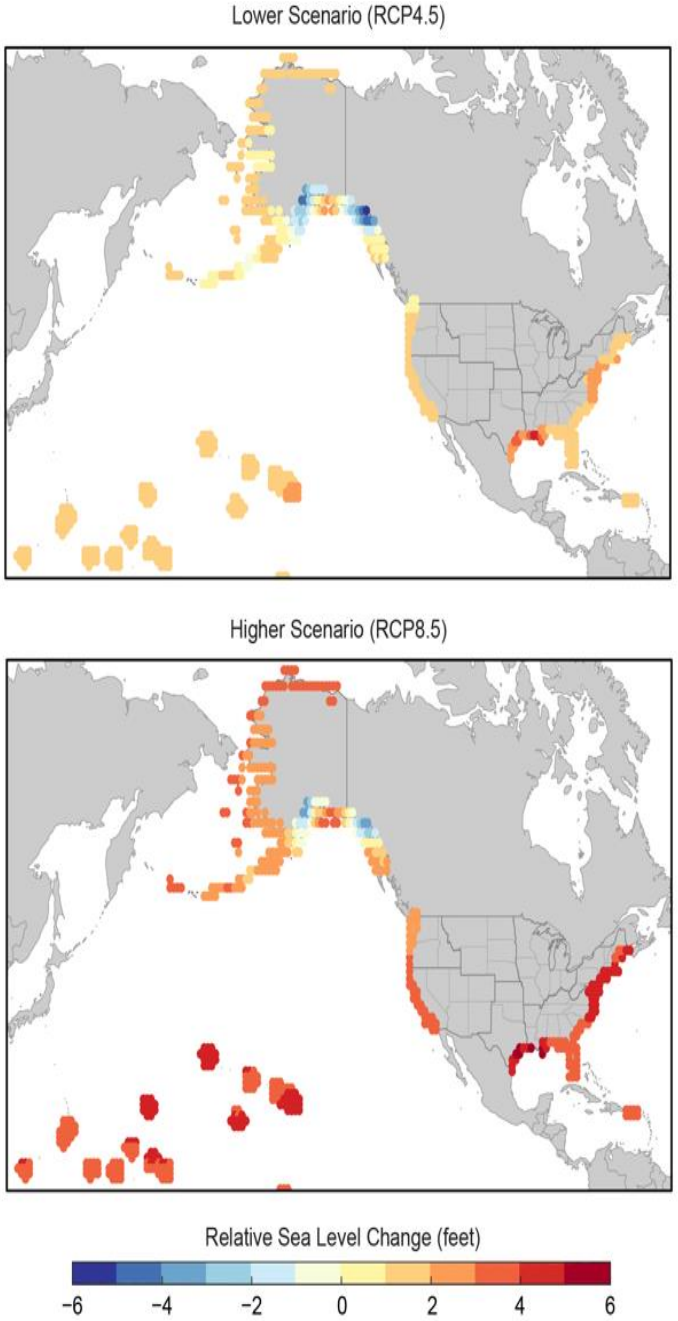
Annual historical and a range of plausible future carbon emissions in units of gigatons of carbon (GtC) per year (left) and the historical observed and future temperature change that would result for a range of future scenarios relative to the 1901–1960 average, based on the central estimate (lines) and a range (shaded areas, two standard deviations) as simulated by the full suite of CMIP5 global climate models (right).

https://www.globalchange.gov/nca4

Projected changes in annual average temperatures for mid- and late-21st century for two future pathways. Changes are the differences between the average projected temperatures for late-century (2070-2099; bottom). Adapted from the National Climate Assessment 4, 2017



The maps show projections of change in relative sea level along the U.S. coast by 2100 (as compared to 2000) under the lower (RCP4.5) and higher (RCP8.5) scenarios. … Sea levels are expected to continue to rise along almost all U.S. coastlines, and by 2100, under the higher scenario, coastal flood heights that today cause major damages to infrastructure would become common during high tides nationwide. *Adapted from CSSR, Figure 12.4.*



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Harmful algal blooms

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Bridges

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Inland flooding

Change in fre

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Water quality

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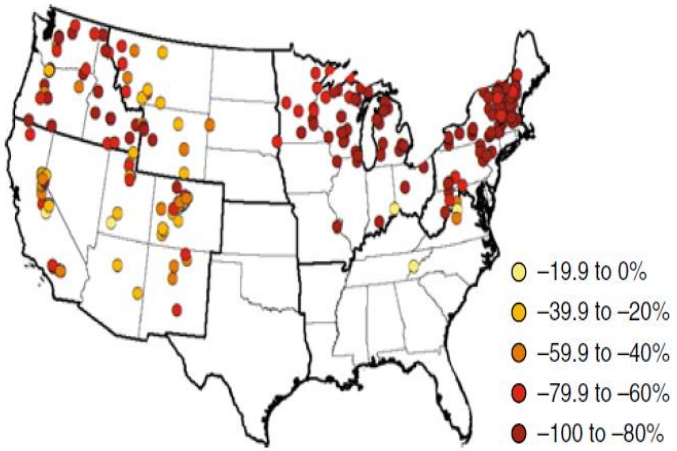
Winter recreation (downhill skiing)
Percentage change in downhill ski season length



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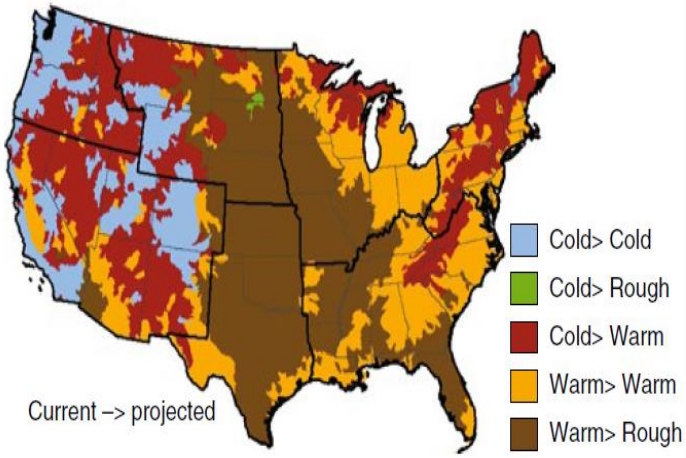
Freshwater fishing recreation
Change in freshwater fish habitat



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- percentage change in downhill ski season length from the 1986–2005 reference period at 247 modelled locations **EC: -60 to -80%**
- change in freshwater fish habitat from the 2011 reference year under only the CCSM4 climate model **EC: cold → warm**

nature climate ch

Climate damages and adaptation potential across diverse sectors of the United States

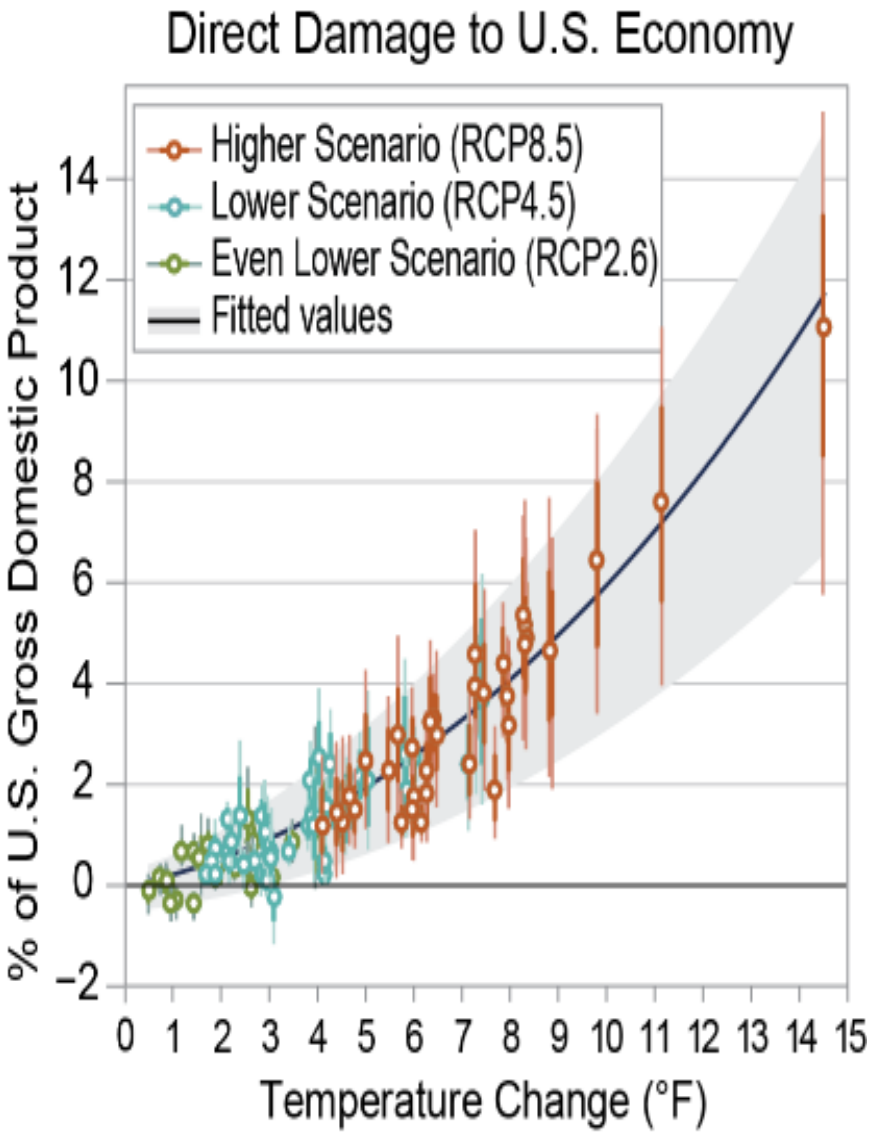
Jeremy Martinich* and Allison Crimmins

Fig. 1 | Geographic distribution of select annual projected climate impacts under RCP8.5 in 2090 (5-GCM average unless otherwise noted) for…

https://www.globalchange.gov/nca4

NCA 4: Estimates of Direct Economic Damage from Temperature Change

The graph shows the observed and projected changes in fossil fuel and industrial emissions of CO_2 from human activities (emissions from land-use change do not appear in the figure; within the RCPs these emissions are less than 1 GtC per year by 2020 and fall thereafter). The graph shows projections of direct damage to the current U.S. economy for six impact sectors (agriculture, crime, coasts, energy, heat mortality, and labor) as a function of global average temperature change (represented as average for 2080–2099 compared to 1980–2010). Compared to RCP8.5, lower temperatures due to mitigation under either of the lower scenarios (RCP2.6 or RCP4.5) substantially reduce median damages (dots) to the U.S. economy while also narrowing the uncertainty in potential adverse impacts. Dot-whiskers indicate the uncertainty in direct damages in 2090 (average of 2080–2099) derived from multiple combinations of climate models and forcing scenarios (dot, median; thick line, inner 66% credible interval; thin line, inner 90%). The gray shaded area represents the 90% confidence interval in the fit (black line) to the damage estimates. Damage estimates only capture adaptation to the extent that populations employed them in the historical period. Ad*apted from Hsiang et al. 2017*[3].



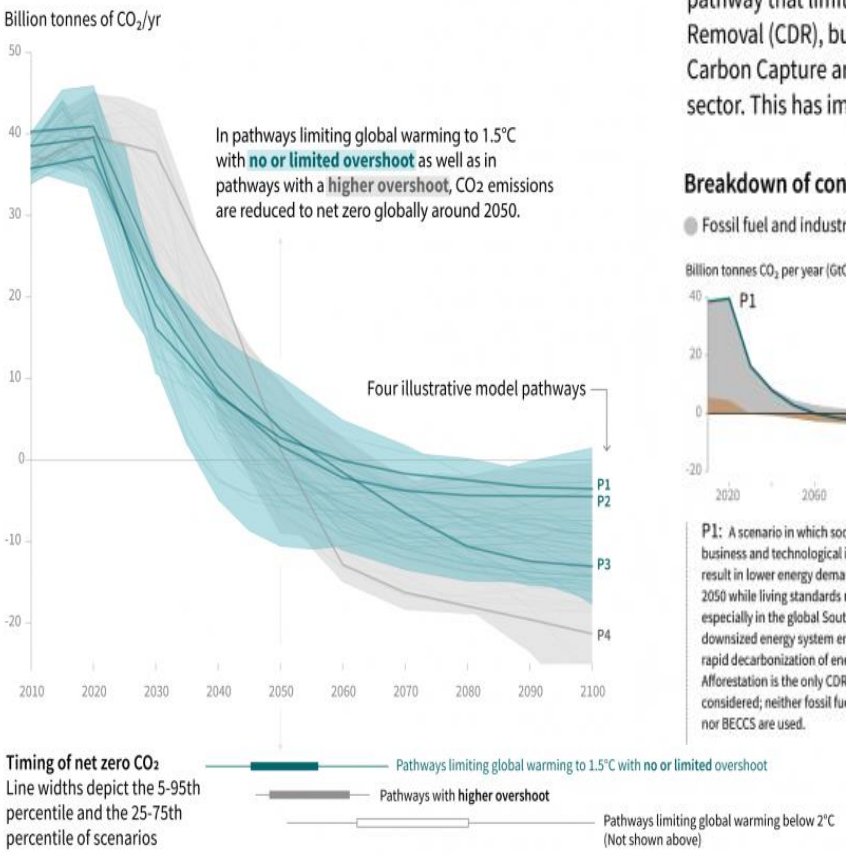
ipcc
INTERGOVERNMENTAL PANEL ON climate change

Global Warming of 1.5°C

Global emissions pathway characteristics

General characteristics of the evolution of anthropogenic net emissions of CO_2, and total emissions of methane, black carbon, and nitrous oxide in model pathways that limit global warming to 1.5°C with no or limited overshoot. Net emissions are defined as anthropogenic emissions reduced by anthropogenic removals. Reductions in net emissions can be achieved through different portfolios of mitigation measures illustrated in Figure SPM.3b.

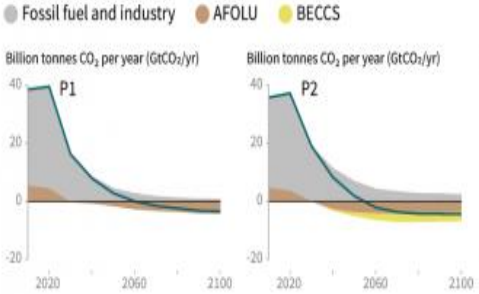
Global total net CO_2 emissions



Characteristics of four illustrative model pathways

Different mitigation strategies can achieve the net emissions reductions that would be required to follow a pathway that limits global warming to 1.5°C with no or limited overshoot. All pathways use Carbon Dioxide Removal (CDR), but the amount varies across pathways, as do the relative contributions of Bioenergy with Carbon Capture and Storage (BECCS) and removals in the Agriculture, Forestry and Other Land Use (AFOLU) sector. This has implications for emissions and several other pathway characteristics.

Breakdown of contributions to global net CO_2 emissions in four illustrative model pathways



P1: A scenario in which social, business and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A downsized energy system enables rapid decarbonization of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

P2: A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

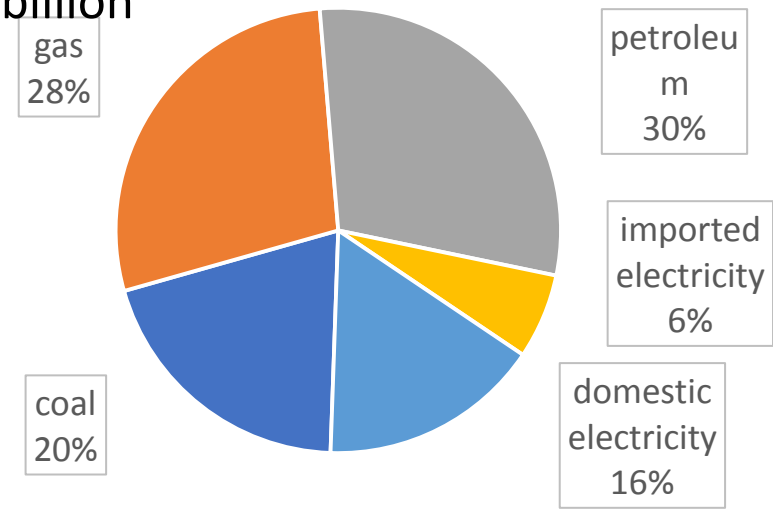
Conclusion: In model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO_2 emissions decline by about 45% from 2010 levels by 2030, reaching net zero around 2050. For limiting global warming to below 2°C, CO_2 emissions are projected to decline by about 25% by 2030 in most pathways and reach net zero around 2070.

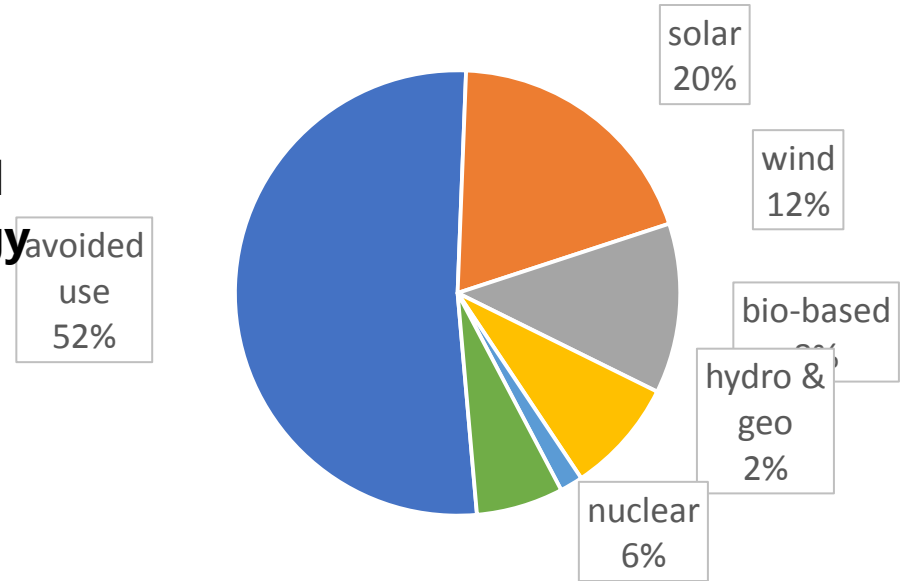
Source: IPCC Special Report on Global Warming of 1.5°C

COWS | BUILDING THE HIGH ROAD

Wisconsin Opportunity in Domestic Energy Production: The Economic and Health Benefits of 100% In-State Energy Production

- Primary energy consumption of 1,781.1 trillion BTUs (EIA, 2016)
- 84% of energy is purchased from out-of-state
- Energy spending deficit of $14.4 billion





- Primary energy consumption decrease to 906.8 trillion BTUs (avoided conversion losses as well as improved efficiency)
- Gain of 162,100 net jobs (estimated)
- 10% increase in energy prices
- Net gain in state GDP of $13.9 billion, plus gross tax revenue
- Savings of $21.1 billion in avoided health costs

https://www.cows.org/building-the-high-road

THE WORLD BANK
IBRD • IDA

https://carbonpricingdashboard.worldbank.org/

What we Do / Data / Carbon Pricing Dashboard

Carbon Pricing Dashboard

KEY STATISTICS ON REGIONAL, NATIONAL AND SUBNATIONAL CARBON PRICING INITIATIVE(S)

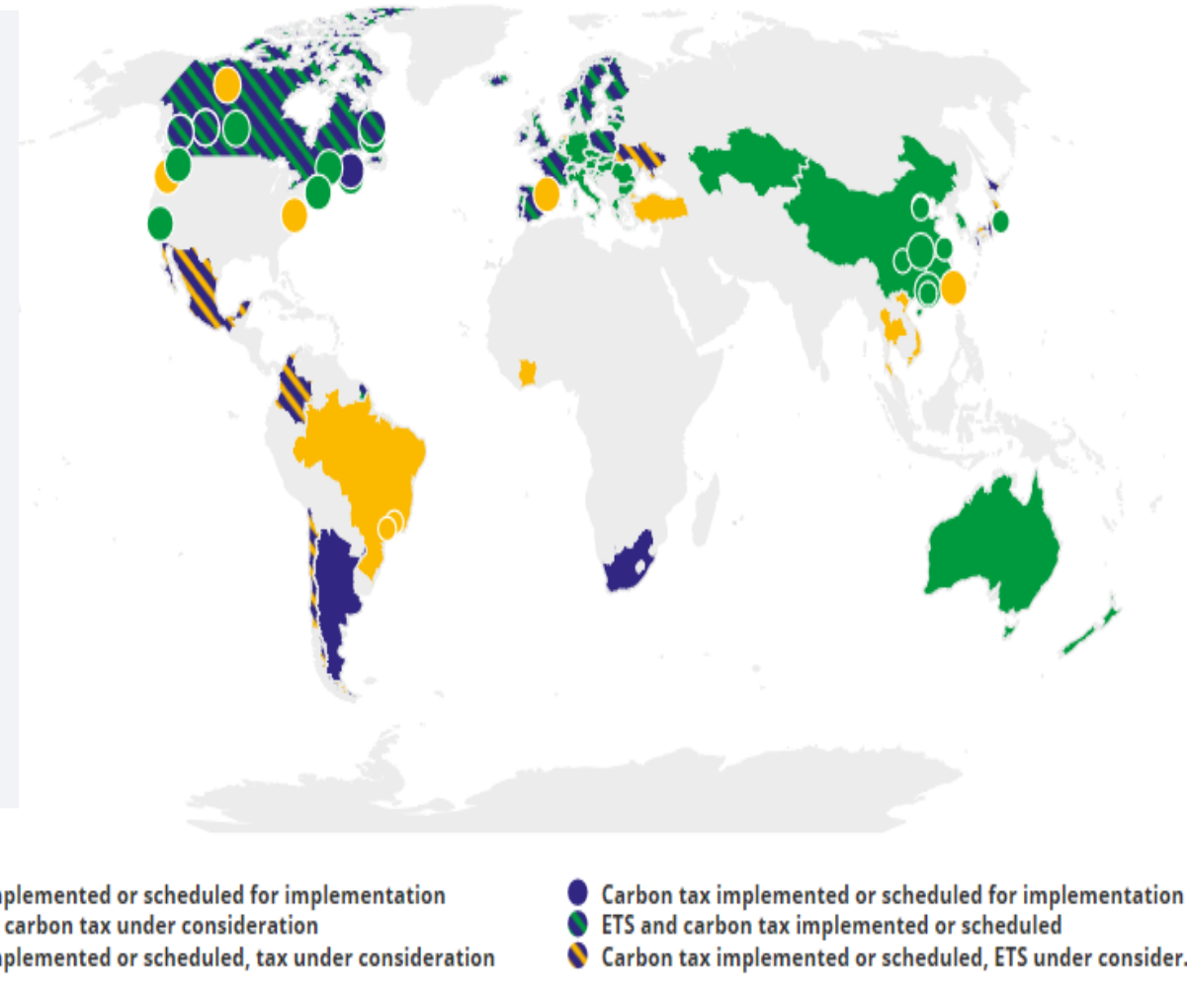
57 Carbon Pricing initiatives implemented or scheduled for implementation

46 National Jurisdictions are covered by the initiatives selected

28 Subnational Jurisdictions are covered by the initiatives selected

In 2019, these initiatives would cover **11 $GtCO_2e$**, representing **19.6%** of global GHG emissions

Summary map of regional, national and subnational carbon pricing initiatives



https://www.nydailynews.com/new-york/education/ny-metro-student-climate-change-protest-20190315-story.html

Discussion

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An Xcel Energy Community Collaboration

What is your personal or professional motivation to address climate change considering the impacts and opportunities?

CITY OF Eau Claire

BREAK

COMMUNITY VALUES AND VISION

Eco-Municipality

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the NATURAL STEP

City Council Resolution Passed 2009

In a sustainable society, nature is not subject to systematically increasing...

...concentrations of substances extracted from the Earth's crust,

...concentrations of substances produced by society,

...degradation by physical means,

and, in that society...

...people are not subject to conditions that systematically undermine their capacity to meet their needs.

CITY OF Eau Claire

Eco-Muni Wisconsin Movement

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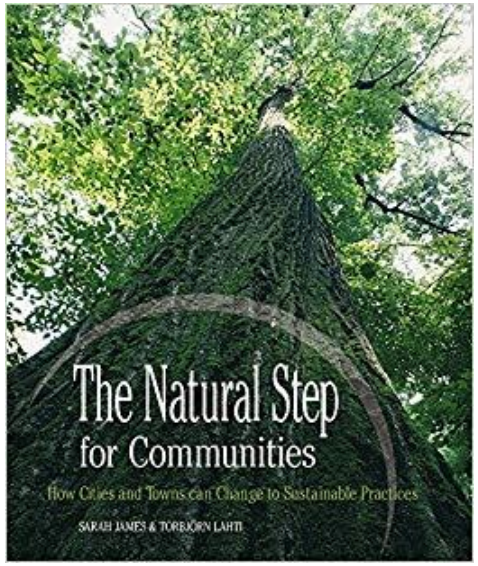
Wisconsin Eco-municipalities

Town of La Pointe
City of Washburn
City of Ashland
City of Madison
City of Bayfield
Town of Bayfield
Douglas County
Village of Johnson Creek
City of Marshfield
City of Manitowoc
City of Neenah
City of Menasha
Town of Menasha
City of Eau Claire
Town of Cottage Grove
City of La Crosse
La Crosse County
City of Stevens Point
City of Wausau
City of Beloit
City of Baraboo
City of Sheboygan
Dunn County
Village of Spring Green
Village of Colfax
Town of Greenville
Village of Shorewood



CITY OF Eau Claire

City's Master Plan

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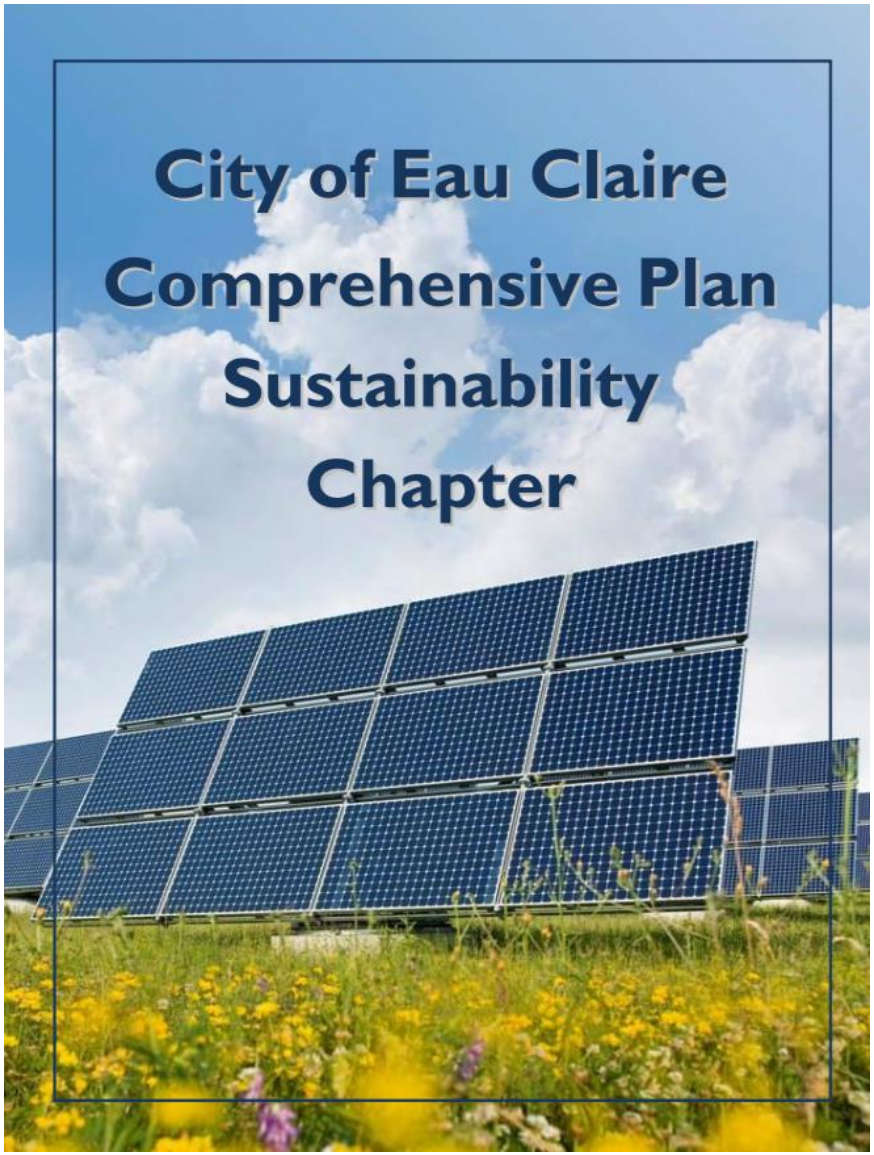

since the late 1950s. The burning of fossil fuels in power plants, buildings, transportation systems, industrial facilities and construction operations are the main contributors.

Policies:

1. **Towards Carbon Neutral:** The ultimate goal of reducing emissions is to become carbon neutral (those who have a carbon footprint equal to zero). Consider setting time targets for greenhouse gas reductions. In order to achieve this, the City would first have to measure the community's greenhouse gas index and then set realistic targets. Targets have been set and are continually being researched by climatologists, governments, and other organizations so they can be used as trustworthy benchmarks. In Wisconsin, most large cities have already signed onto the U.S. Conference of Mayors Climate Protection Agreement, which is a commitment to reduce city emissions to 7% below 1990 levels by 2012 (equivalent of meeting the Kyoto Protocol). However, reaching this level may prove difficult because of time constraints. A more comprehensive approach could be adopting the Governor's Global Warming Task Force 2008 policy recommendations, which says the State should return to 2005 emission levels by 2014, reduce the 2005 level by 22% by 2022 (approximately equaling the 1990 level), and reduce 2005 level by 75% by 2050. Future United Nations or Federal legislation may also require that cities adopt standards. The City's Health Chapter of the Comprehensive Plan states a Climate Action Plan should be developed and these factors could be considered therein.

2. **Mitigation Measures:** If goals and time targets are set, the City should develop a strategy to reduce greenhouse gas emissions and include possible adaptation recommendations. Policies that work towards mitigation include:
   - Purchase and invest in cleaner and renewable forms of energy
   - Enhance energy efficiencies in buildings such as envelope improvements, high performance heating, ventilation, and cooling systems, and lighting retrofits
   - Build more green buildings and remodel existing structures per green building standards
   - Salvage construction debris like concrete, steel, and old buildings materials for new uses
   - Develop land using Smart Growth principles which promote compact urban form, mixed-uses, and transportation choices
   - Increase use of fuel efficient vehicles and alternative transportation forms (e.g. bus routes and bicycle lanes)
   - Reduce the amount of vehicle idling within the City
   - Buy more Energy Star labeled consumer products
   - Grow and buy more local food to reduce food transportation miles
   - Educate corporations and others toward implementing sustainability within their businesses operations
   - Attract green-collar jobs, research and development, and cutting edge technology focused on lowering emissions and
   - Offset carbon emissions by increasing 'carbon-sinks' (e.g. planting more trees, preserving forests, and rural lands).

UW-Eau Claire's Coal-fired Power Plant

First Energy Plan 25x25

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2010
Wisconsin Energy Independent Community Partnership

25 x 25 Plan for Energy Independence

Report completed by:
Chippewa Valley Partnership

City of Altoona

City of Eau Claire

Eau Claire County 1856

Issue Date: **January 31, 2011**

Action Steps – Immediate & Long Term

The following tables/information represents how each jurisdiction will more specifically reach the 25 percent goal by the year 2025. Short and long term projects are noted.

City of Eau Claire Action Steps – Immediate & Long Term

Table 17.

City of Eau Claire Action Plan - Immediate and Long Term			
	Measure Description	**Responsibility**	**Install**
	Administrative Policy and Procedure		
	City Council consideration of 25 by 25 Plan	Green Team	2011
	Green Building Policy	Green Team	2011
	Anti-idling Fleet Policy	Green Team	2011
	Renewable Power Purchase consideration	Green Team	2011
	Track and Monitor Energy Use and 25% Goal	Green Team	2011
	GPS Fleet Tracking software	Public Works	2011
	Reuse of Energy Dollars Saved Fund	Green Team	2011
	Program Energy Efficiencies / Renewable into successive CIPs	Green Team	2011
	Staff Educational Awareness Campaign	Green Team	2011
	Construction Site Waste Recovery Ordinance	Planning	2011
	Computer Shutdown Policy	Green Team	2012
	Green Purchasing & Cleaning Policy	Green Team	Done
	Buildings		
Central Maintenance			
E	Plug Loads/Office Equipment - Computer/Monitor Sleep Mode	Public Works	2011
E	HVAC - Keep All Windows/Doors Closed During Winter	Public Works	2011
E	HVAC - Air Conditioning Tune-up	Public Works	2011
E	Lighting - LED Exit Lighting	Public Works	2013
E	Lighting - Delamping	Public Works	2012
E	Lighting - Occupancy Sensor for Lighting	Public Works	2015
E	Pipe Insulation on Domestic Hot Water Lines	Public Works	2014
E	Plug Loads/Office Equip. Vending Machine, ENERGY STAR	Public Works	2011
E	Low Wattage Fluorescent Replacement of T-8 Lamps	Public Works	2012
E	HVAC - Door Replacement - High Efficiency Units	Public Works	2020
E	Geothermal Upgrade - Office and Shops	Public Works	2016
E	Geothermal Upgrade - Garage	Public Works	2016
R	Solar Hot Water System - 20 sq. ft. of collectors w/1150 gal. storage, Roof / curb-mounted	Public Works	2017
City Hall Complex			
E	HVAC - Overhead Door Seals - Replacement	Public Works	2013
E	HVAC - Weather Stripping/Caulking Around Doors	Public Works	2014
E	Lighting - LED Exit Lighting	Public Works	2010
E	Lighting - High Performance Linear Fluorescent	Public Works	2011
E	HVAC - Energy Management System	Public Works	2013
E	Lighting - Delamping	Public Works	2011
E	Plug Loads/Office Equip. - PC Network Energy Mang. System	Public Works	2011
E	HVAC - Variable Frequency Drive	Public Works	2012
E	HVAC - Ventilation Controls	Public Works	2013
E	Lighting - Occupancy Sensor for Lighting	Public Works	2011

Community Solar

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An Xcel Energy Community Collaboration

Xcel Energy's 1 MW array

Photo credit: PJ Nelson

116kW Subscription at Public Swimming Pool

CITY OF Eau Claire

Growing the Solar Market

Xcel Energy®

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mrea
midwest renewable energy association

Solarize

SOLSMART
GOLD
Designated Community

Xcel Energy®
RESPONSIBLE BY NATURE™

Renewable*Connect

Multiple Award Winners

Recognized in Two Categories
- ✓ Adams County, CO
- ✓ Chicago, IL
- ✓ Jefferson County, CO
- ✓ Kansas City, MO
- ✓ Linn County, IA
- ✓ Pima County, AZ
- ✓ Plano, TX
- ✓ San Carlos, CA
- ✓ Saratoga Springs, NY
- ✓ Somerville, MA
- ✓ Ypsilanti, MI

Recognized in Three Categories
- ✓ Columbia, MO
- ✓ Eau Claire, WI
- ✓ Minneapolis, MN
- ✓ Sacramento, CA
- ✓ Santa Monica, CA
- ✓ Washington, DC

Recognized in Four Categories
- ✓ Lafayette, CO
- ✓ New York City, NY
- ✓ Sonoma County, CA

Five Time Winner
- ✓ San Antonio,TX

Powered by SunShot
U.S. Department of Energy

Green Tier Legacy Communities

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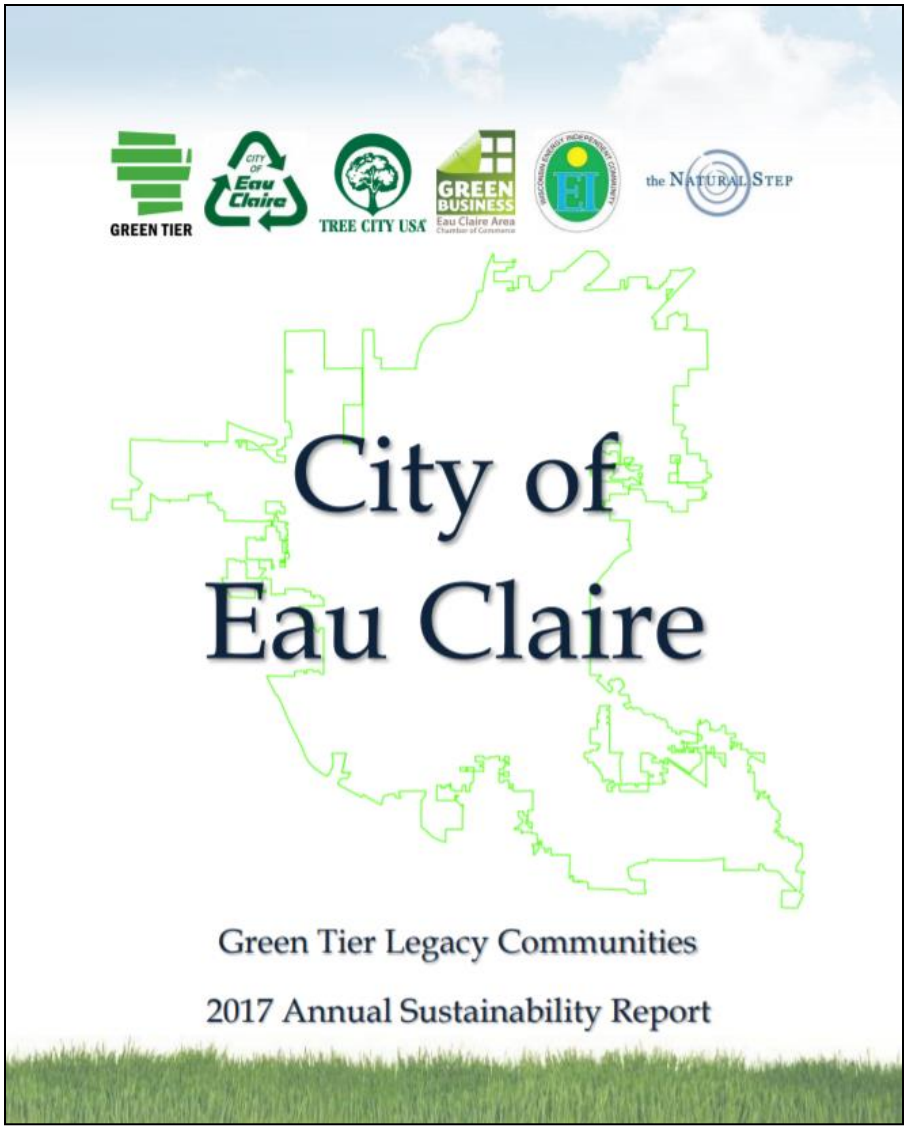
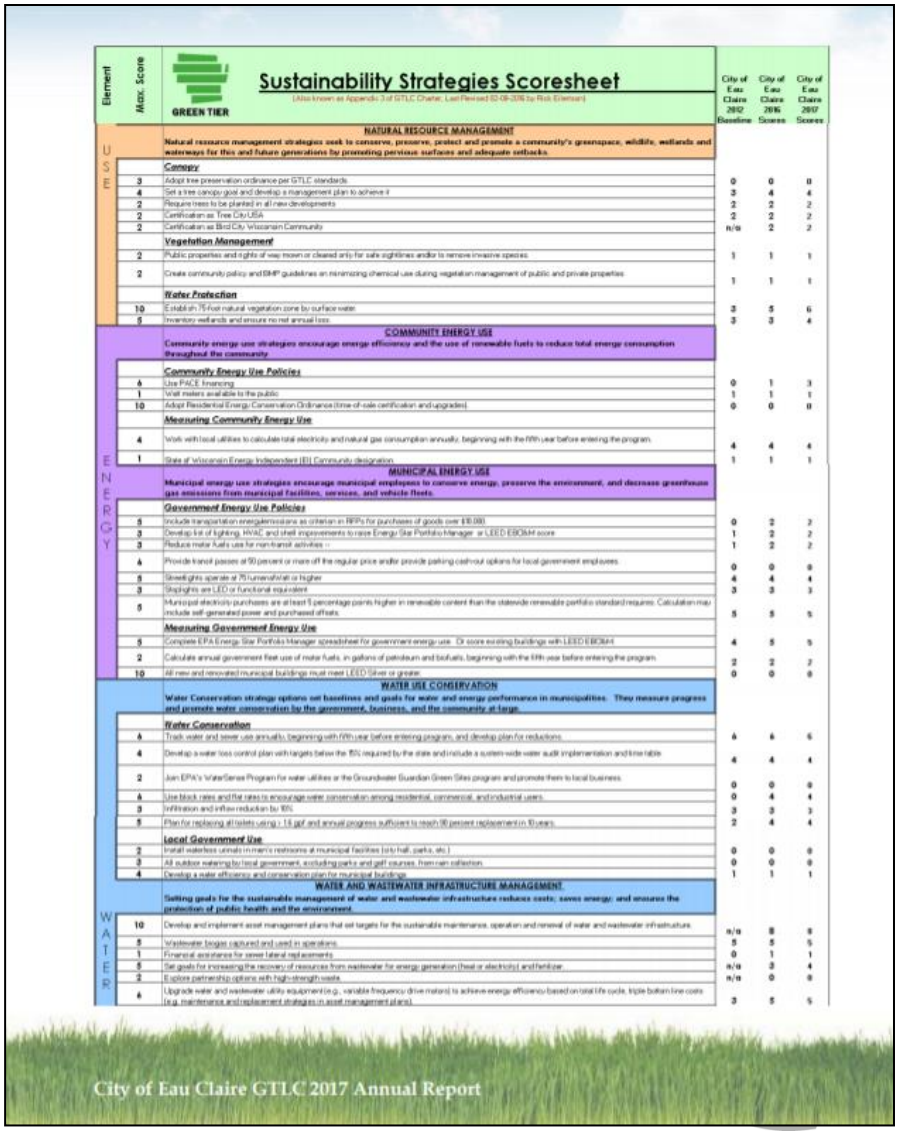




Sustainability Strategies Scoresheet

Element	Max. Score		City of Eau Claire 2012 Baseline	City of Eau Claire 2016 Scores	City of Eau Claire 2017 Scores
LAND USE		**NATURAL RESOURCE MANAGEMENT** Natural resource management strategies seek to conserve, preserve, protect and promote a community's greenspace, wildlife, wetlands and waterways for this and future generations by promoting pervious surfaces and adequate setbacks.			
		Canopy			
	3	Adopt tree preservation ordinance per GTLC standards	0	0	0
	4	Set a tree canopy goal and develop a management plan to achieve it	3	4	4
	2	Require trees to be planted in all new developments	2	2	2
	2	Certification as Tree City USA	2	2	2
	2	Certification as Bird City Wisconsin Community	n/a	2	2
		Vegetation Management			
	2	Public properties and rights of way mown or cleared only for safe sightlines and/or to remove invasive species	1	1	1
	2	Create community policy and BMP guidelines on minimizing chemical use during vegetation management of public and private properties	1	1	1
		Water Protection			
	10	Establish 75-Foot natural vegetation zone by surface water	3	5	6
	5	Inventory wetlands and ensure no net annual loss	3	3	4
ENERGY USE		**COMMUNITY ENERGY USE** Community energy use strategies encourage energy efficiency and the use of renewable fuels to reduce total energy consumption throughout the community			
		Community Energy Use Policies			
	6	Use PACE financing	0	1	3
	1	Visit meters available to the public	1	1	1
	10	Adopt Residential Energy Conservation Ordinance (time-of-sale certification and upgrades)	0	0	0
		Measuring Community Energy Use			
	4	Work with local utilities to calculate total electricity and natural gas consumption annually, beginning with the fifth year before entering the program.	4	4	4
	1	State of Wisconsin Energy Independent (EI) Community designation	1	1	1
		MUNICIPAL ENERGY USE Municipal energy use strategies encourage municipal employees to conserve energy, preserve the environment, and decrease greenhouse gas emissions from municipal facilities, services, and vehicle fleets.			
		Government Energy Use Policies			
	5	Include transportation energy emissions as criterion in RFPs for purchases of goods over $10,000	0	2	2
	3	Develop list of lighting, HVAC and shell improvements to raise Energy Star Portfolio Manager or LEED EBOM score	1	2	2
	3	Reduce motor fuels use for non-transit activities --	1	2	2
	4	Provide transit passes at 50 percent or more off the regular price and/or provide parking cash-out options for local government employees	0	0	0
	5	Streetlights operate at 75 lumens/watt or higher	4	4	4
	3	Stoplights are LED or functional equivalent	3	3	3
	5	Municipal electricity purchases are at least 5 percentage points higher in renewable content than the statewide renewable portfolio standard requires. Calculation may include self-generated power and purchased offsets.	5	5	5
		Measuring Government Energy Use			
	5	Complete EPA Energy Star Portfolio Manager spreadsheet for government energy use. Or score existing buildings with LEED EBOM	4	5	5
	2	Calculate annual government fleet use of motor fuels, in gallons of petroleum and biofuels, beginning with the fifth year before entering the program.	2	2	2
	10	All new and renovated municipal buildings must meet LEED Silver or greater.	0	0	0
WATER		**WATER USE CONSERVATION** Water Conservation strategy options set baselines and goals for water and energy performance in municipalities. They measure progress and promote water conservation by the government, business, and the community at large.			
		Water Conservation			
	6	Track water and sewer use annually, beginning with fifth year before entering program, and develop plan for reductions	6	6	6
	4	Develop a water loss control plan with targets below the 15% required by the state and include a system-wide water audit implementation and time table	4	4	4
	2	Join EPA's WaterSense Program for water utilities or the Groundwater Guardian Green Sites program and promote them to local business.	0	0	0
	4	Use block rates and flat rates to encourage water conservation among residential, commercial, and industrial users.	0	4	4
	3	Infiltration and inflow reduction by 15%	3	3	3
	5	Plan for replacing all toilets using 1.6 gpf and annual progress sufficient to reach 95 percent replacement in 10 years.	2	4	4
		Local Government Use			
	2	Install waterless urinals in men's restrooms at municipal facilities (city hall, parks, etc.)	0	0	0
	3	All outdoor watering by local government, excluding parks and golf courses, from rain collection	0	0	0
	4	Develop a water efficiency and conservation plan for municipal buildings	1	1	1
		WATER AND WASTEWATER INFRASTRUCTURE MANAGEMENT Setting goals for the sustainable management of water and wastewater infrastructure reduces costs; saves energy; and ensures the protection of public health and the environment.			
	10	Develop and implement asset management plans that set targets for the sustainable maintenance, operation and renewal of water and wastewater infrastructure.	n/a	8	8
	5	Wastewater biogas captured and used in operations	5	5	5
	1	Financial assistance for sewer lateral replacements	0	1	1
	5	Set goals for increasing the recovery of resources from wastewater for energy generation (heat or electricity) and fertilizer	n/a	3	4
	2	Explore partnership options with high-strength waste	n/a	0	0
	6	Upgrade water and wastewater utility equipment (e.g., variable frequency drive motors) to achieve energy efficiency based on total life cycle, triple bottom line costs (e.g. maintenance and replacement strategies in asset management plans)	3	5	5

Xcel Energy - Bold Carbon Vision

REAP Steering Committee Meeting

May 9, 2019

Julie Thoney
Xcel Energy Community Service Manager

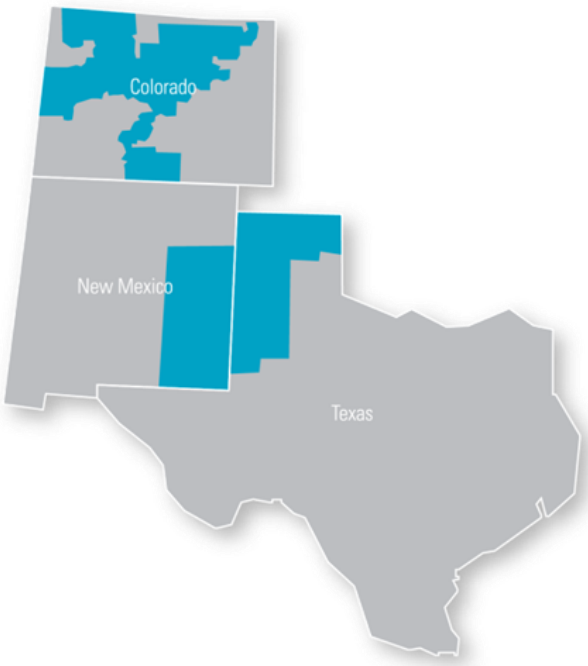
Xcel Energy

Serving eight states

- 3.6 million electricity customers
- 2 million natural gas customers

Nationally recognized leader:

- Wind energy
- Energy efficiency
- Carbon emissions reductions
- Innovative technology
- Storm restoration efforts
- Veteran hiring



Wisconsin Commitment

- Communities served: **213**
- Electric customers: **250,000**
- Natural gas customers: **109,000**
- Electric Reliability: **99.9%**
- Employees & contractors: **1,000+**
- Volunteer hours: **1,100+ annually**
- Community giving: **$1 million annually**
- Annual spending in Wisconsin: **$229 million with local suppliers**
- #1 Renewable energy provider in state

Xcel Energy Priorities

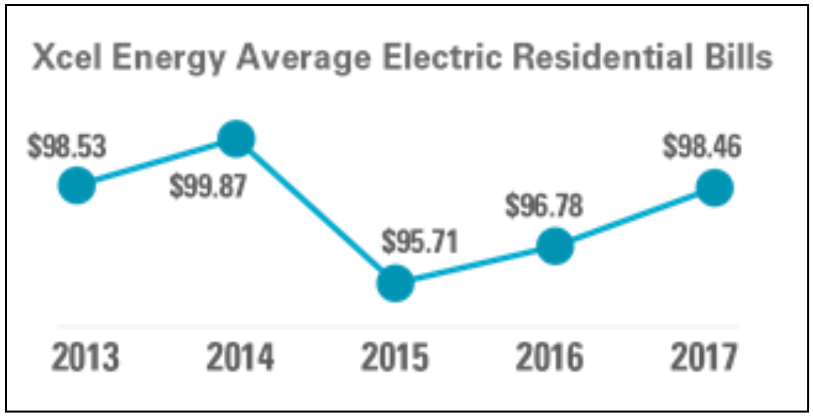
Lead the Clean Energy Transition

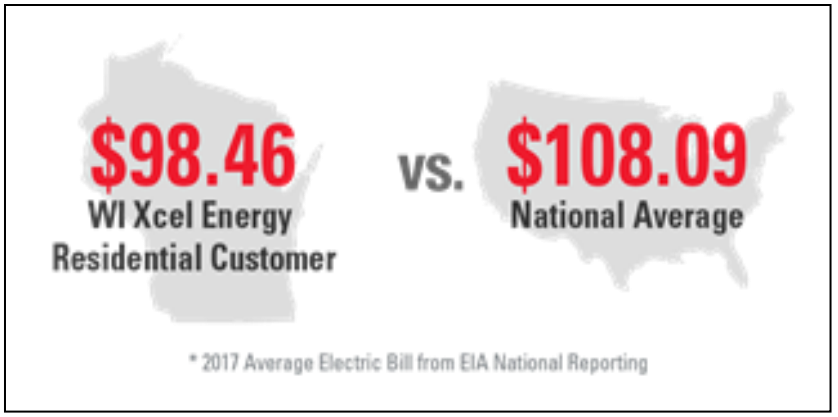
Enhance the Customer Experience

Keep Bills Low

Keep Bills Low

- Electric bill has stayed flat - remaining below national average
- In January 2019, residential bills will be less than January 2018 - and also less than they were six years ago





Leading the Clean Energy Transition

Significant Progress

- Since 2005 reduced carbon emissions ***38%***
  - *Already surpassed EPA Clean Power Plan goal for 2030*

Ambitious Goals

- By 2022, with our full wind portfolio online, we're on track to reduce carbon emissions ***50%*** below 2005
  - *Almost double the U.S. commitment in Paris Accord*
- By 2030, our goal is to reduce carbon emissions ***80%*** below 2005
  - *Aspirations to do more*
- By 2050, our goal is to be 100% carbon-free

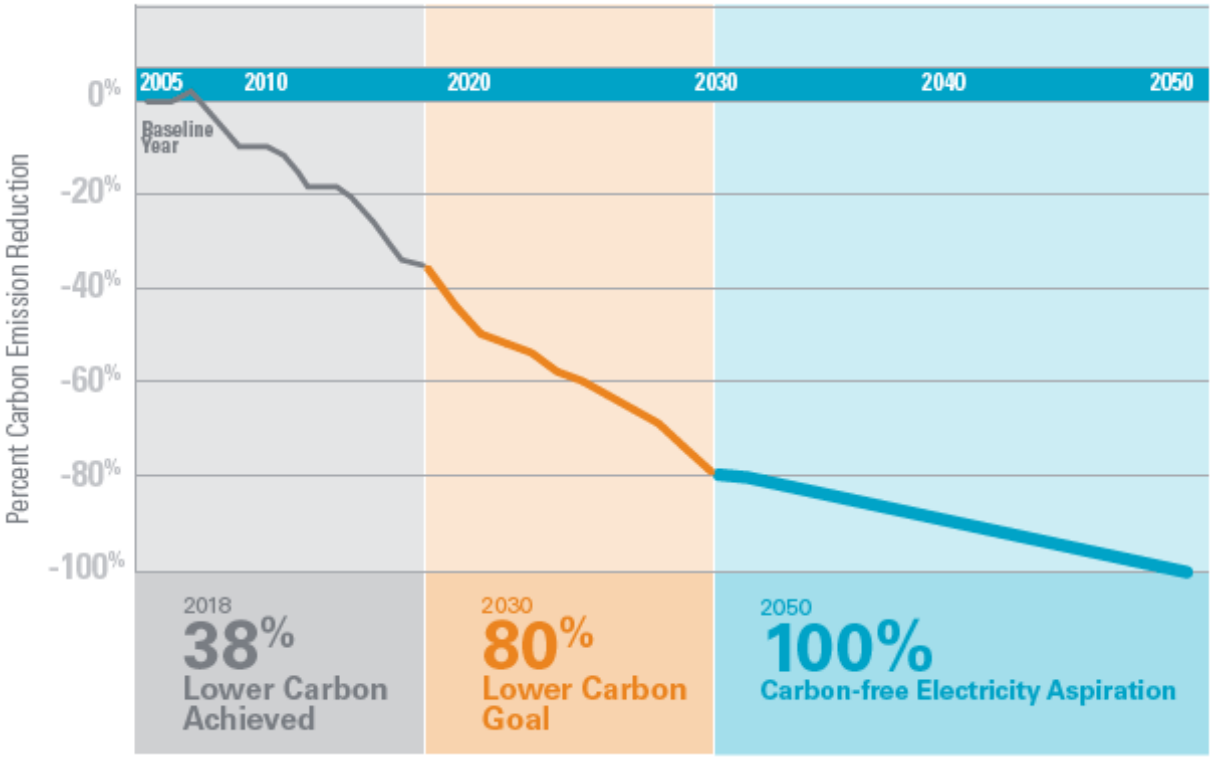
Empowering Customers & Communities to Achieve Their Goals

- Our carbon reductions are their reductions, and we have new options for them to go further faster

Building a Carbon-free Future

A bold vision for 2030 and 2050

Our Goals and Progress to Date

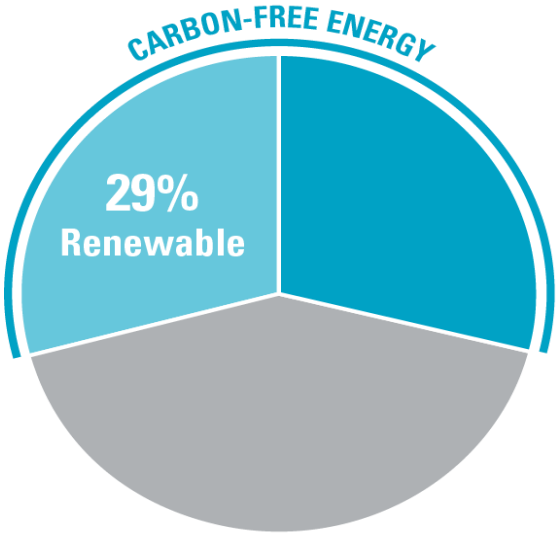


Achieving 80% by 2030

- Adding thousands of megawatts of wind and solar power
- Incorporating both natural gas and storage resources to balance more renewables
- Retiring more coal units or changing their operations to reduce emissions
- Operating our Upper Midwest nuclear plants through their licenses
- Supporting electrification of certain end uses to create flexible demand
- Investing in critical infrastructure, such as transmission

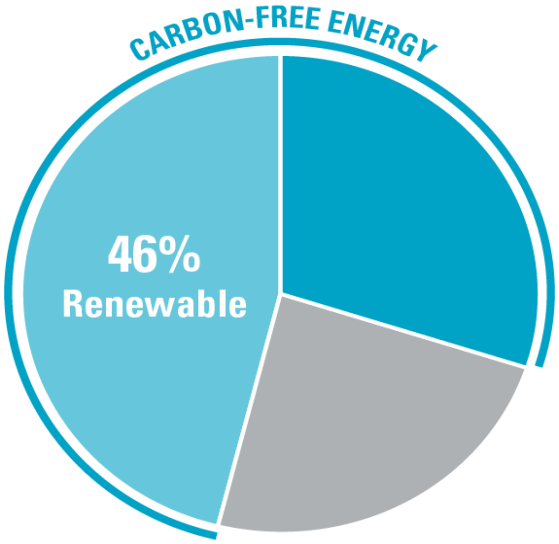
Upper Midwest Clean Energy Vision

Today



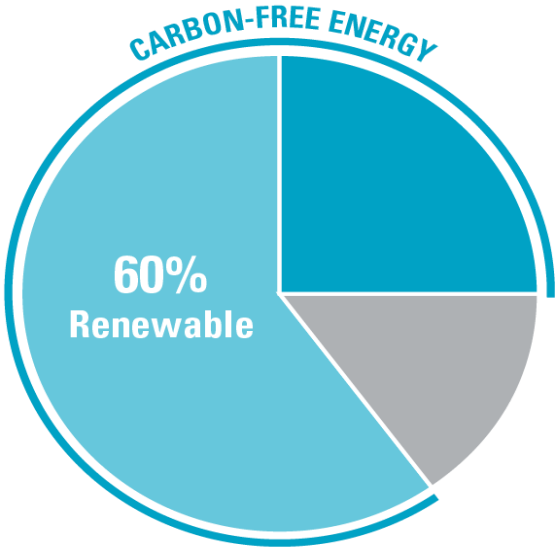
58% carbon-free energy

By 2022



76% carbon-free energy

By 2030

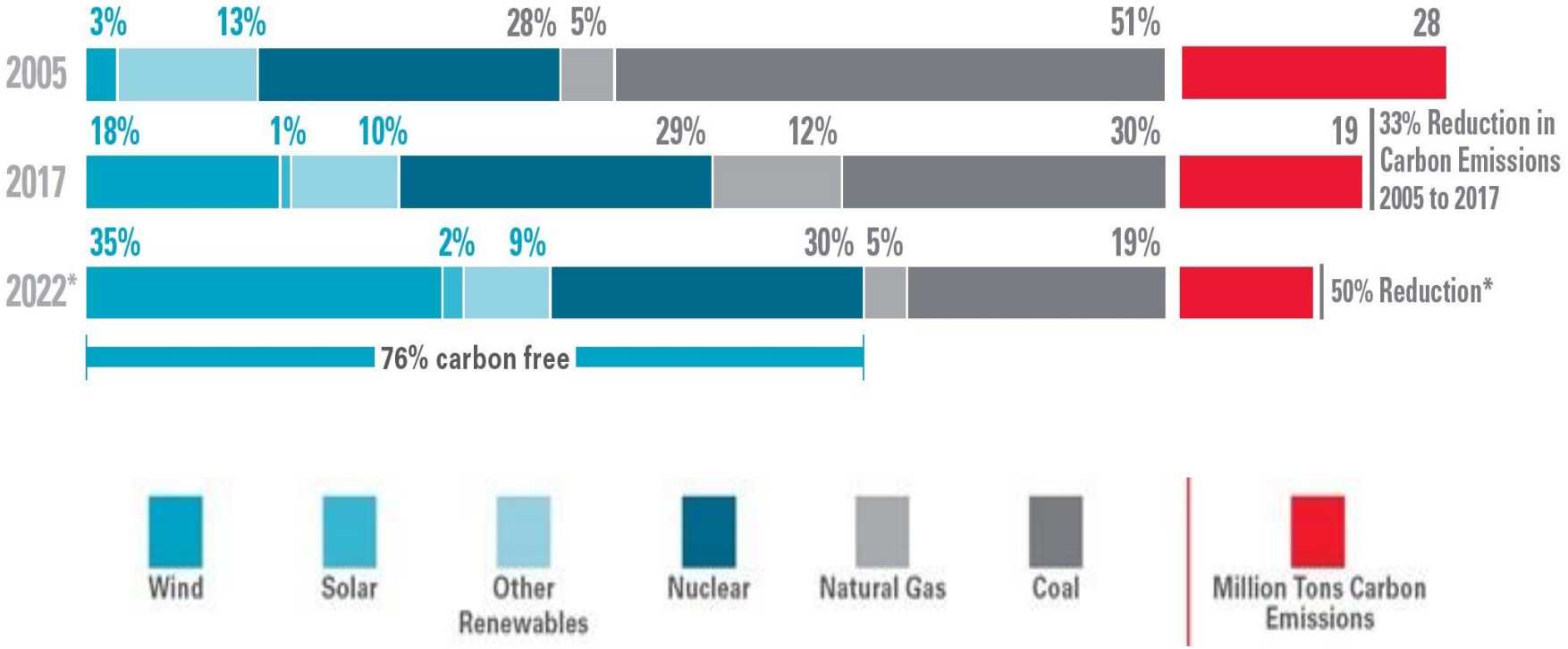


85% carbon-free energy

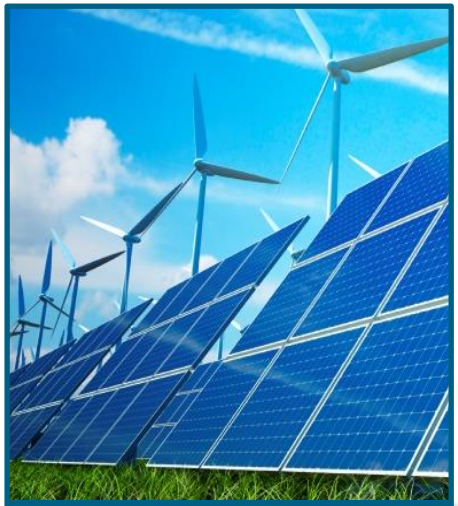
A Cleaner Energy Mix

Increasing renewable and carbon-free energy

Upper Midwest (Michigan, Minnesota, North Dakota, South Dakota, Wisconsin)



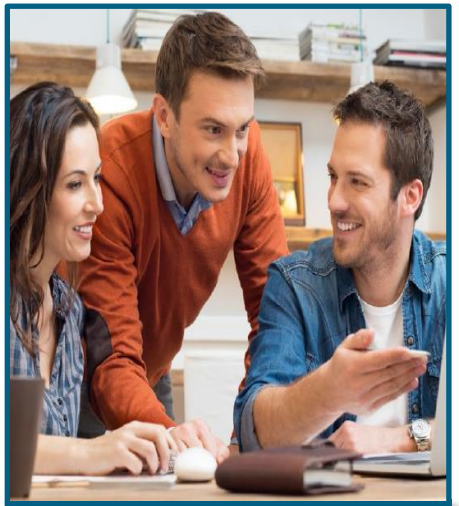
More Choices



Sustainability

Pricing Options

Energy Efficiency



Convenience

Please visit the Xcel Energy website www.xcelenergy.com for more information on any of the topics presented and more!!

Dairyland Power Cooperative Goals & Planning

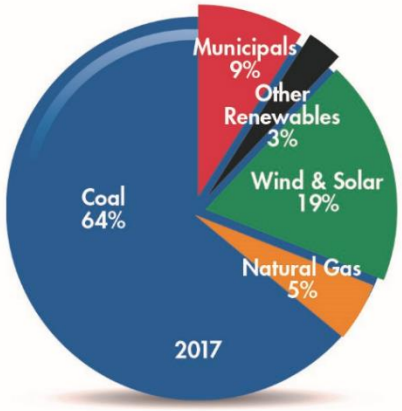
DAIRYLAND POWER COOPERATIVE
A Touchstone Energy® Cooperative

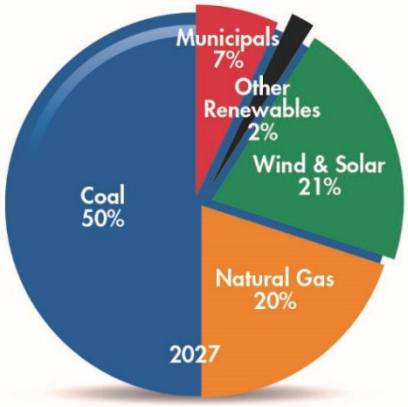
Dairyland Power Cooperative

- Headquartered in La Crosse, Wisconsin
- Provides the wholesale electric requirements for:
  - 25 electric distribution cooperatives (includes Eau Claire Energy Cooperative)
  - 16 municipal utilities
  - Over 570,000 consumers served
- Dairyland's Generation mix
  - 2019: 20% Renewable

Sustainable Generation Plan Goals

- Badger State Solar Project
  - 149 MWs
  - Jefferson County, WI
  - Collaborating with Ranger Power
  - Construction in 2020
  - Operation in 2022
  - Pollinator habitat planned
  - Renewable energy to power over 20,000





CITY OF Eau Claire

Eau Claire Energy Cooperative

Eau Claire Energy Cooperative

Your Touchstone Energy® Partner

- Wholesale power provider is Dairyland Power Cooperative
- Member-owned; not for profit
- Serves more than 11,300 consumers; 200 City of Eau Claire consumers
- kWh sales: 211.1 million; 9.8 million sold to City of Eau Claire consumers
- 1,706 miles of line
- Renewable Energy Programs
  - Community Solar: MemberSolar (cooperative site)
    - 881 kW system
    - 2,816, 310 watt subscriptions
    - Fully subscribed by the membership
  - Evergreen (voluntary program: wind sourced)
  - Geothermal
  - Distributed Generation (member site)
- Various Energy Efficiency Programs
  - Load management (water heating, air conditioning, and heating)
  - *NEW:* Electric Vehicle Program

CITY OF Eau Claire

Eau Claire Energy Cooperative EV Programs

Eau Claire Energy Cooperative

Your Touchstone Energy® Partner

Consumers can choose to participate in one of our two EV program options

Free in Home Charger	
What Is It	Members can receive a $500 rebate towards an in-home Level II charger when allowing ECEC to connect the charger to a load control device.
Program Available	Yes, to members that own an electric vehicle.
Program Details	The charger must be connected to a load control receiver and controlled from 2:00pm - 9:00pm Monday - Friday.

OR

FreEV Pilot Program	
What Is It	A special pilot rate for EV owners that doesn't involve any equipment installed in your home. When charging your EV during off-peak hours the electricity you use will be free (up to 400 kWh).
Program Available	Yes, to members that own an electric vehicle and are not currently utilizing Distributed Generation, including MemberSolar. This program is currently limited to the first 25 participants.
Program Details	Every month up to 400 kWh of electricity used from 10:00pm - 6:00am will be free on your energy bill. Energy used the rest of the day, or in excess of 400 kWh between 10pm-6am, will be charged the on-peak energy rate. See the rate details for more information.

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COMMUNITY ENERGY VISION

CITY OF Eau Claire

The Natural Step Framework

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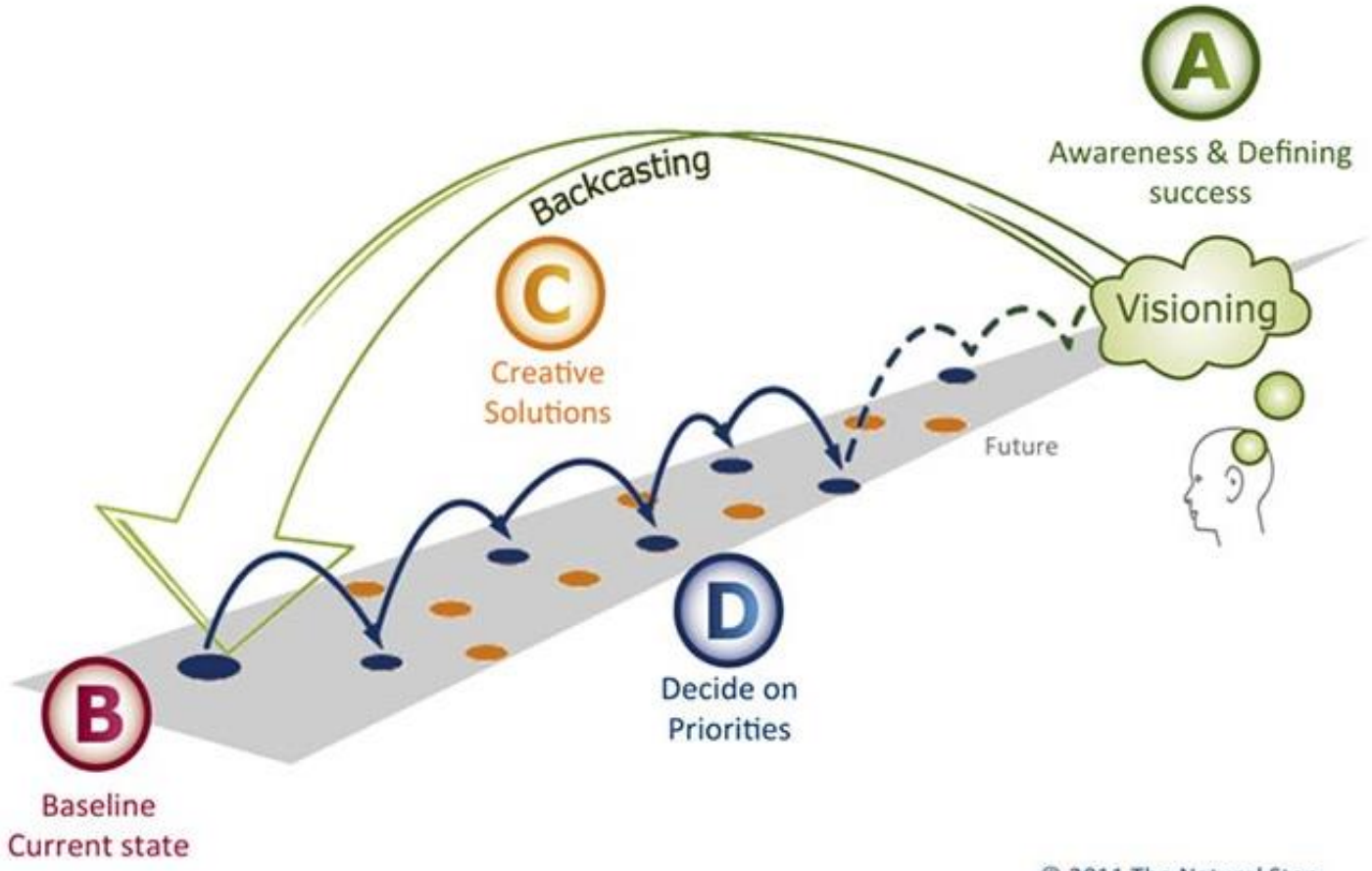

Draft Vision Statement

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The Renewable Energy Action Plan will continue Eau Claire's leadership in sustainability and renewable energy development. These Ongoing efforts will be guided by an evidence-based, transparent, equitable, inclusive and just planning process, aligned with the Natural Step Framework, to meet the goals of 100% renewable energy and carbon neutrality by 2050.

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Guiding Principles

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Guiding principles help prioritize the plan activities and emphasize less tangible values

- What else is important beyond carbon and energy savings?
- What other values should be reflected in the plan?
- How should choices be prioritized?

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COMMUNITY ENERGY BASELINE

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Eau Claire GHG Inventory

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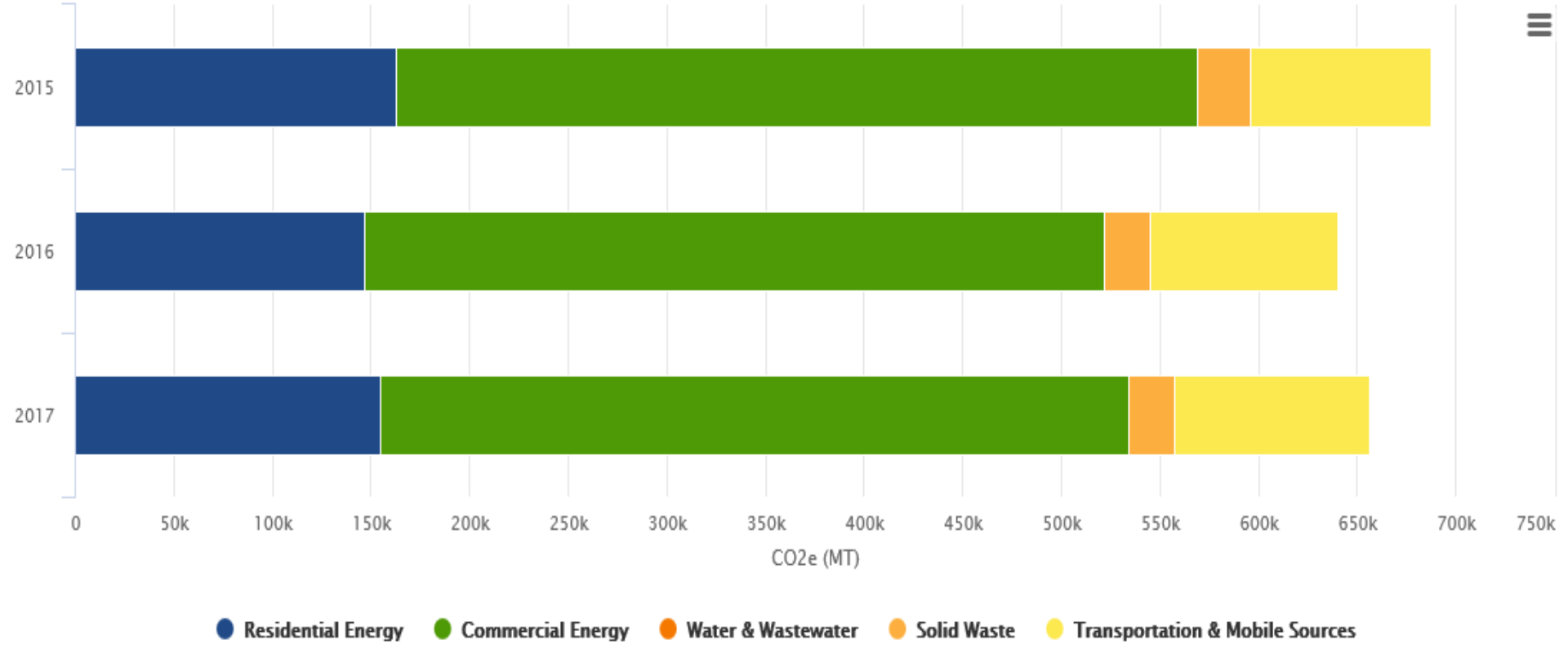

In 2017, **656,378** metric tons of CO2e were emitted community-wide

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Energy Data 101

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- Only Xcel Energy electric and natural gas data included
- 15 x15 Data Privacy Rule
  - Must be greater than 15 entities
  - No single entity can account for more than 15 percent of the usage
- A “Premise” is not necessarily a “Customer”
- Caveats of data processing
  - Customer types
  - Geographic locations vs billing address
- Data are unofficial for planning purposes, and results may change slightly

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Plan Structure & Focus Areas

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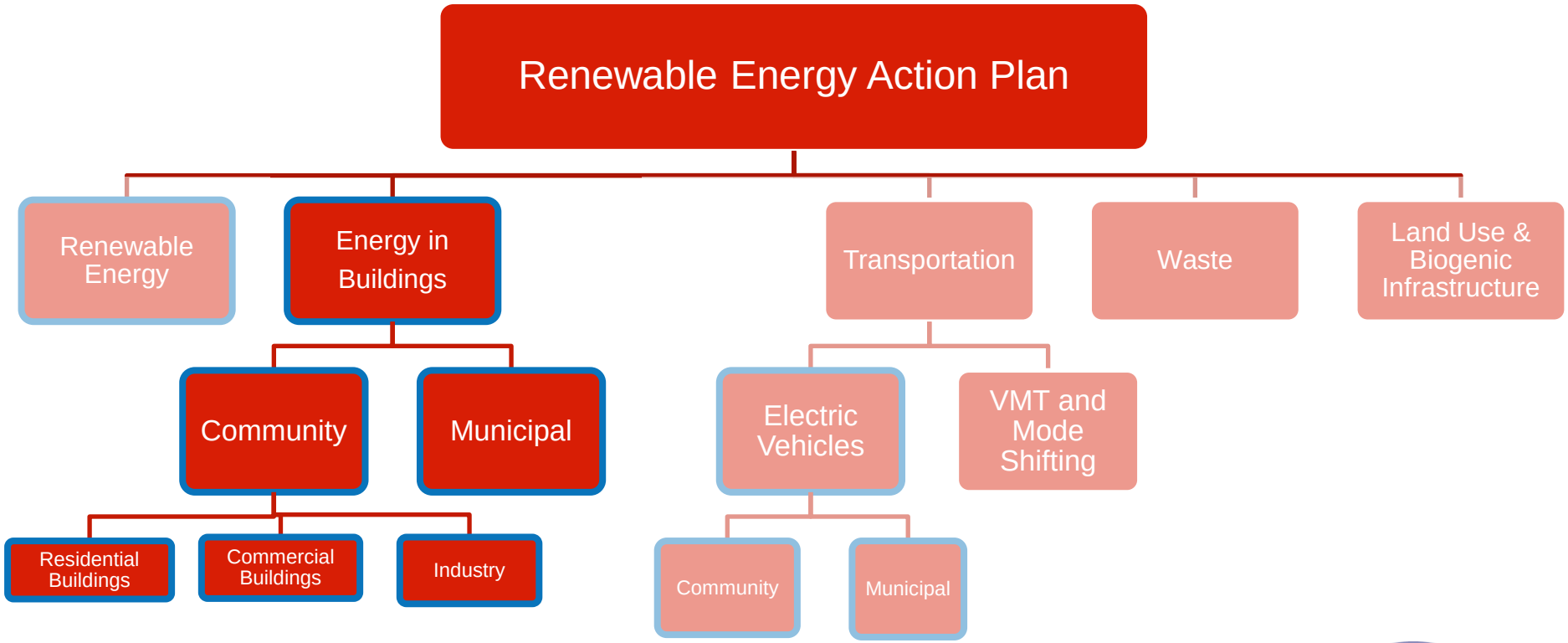

= Supported by Partners in Energy

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Update 2.18.19

Premise Count (2018)

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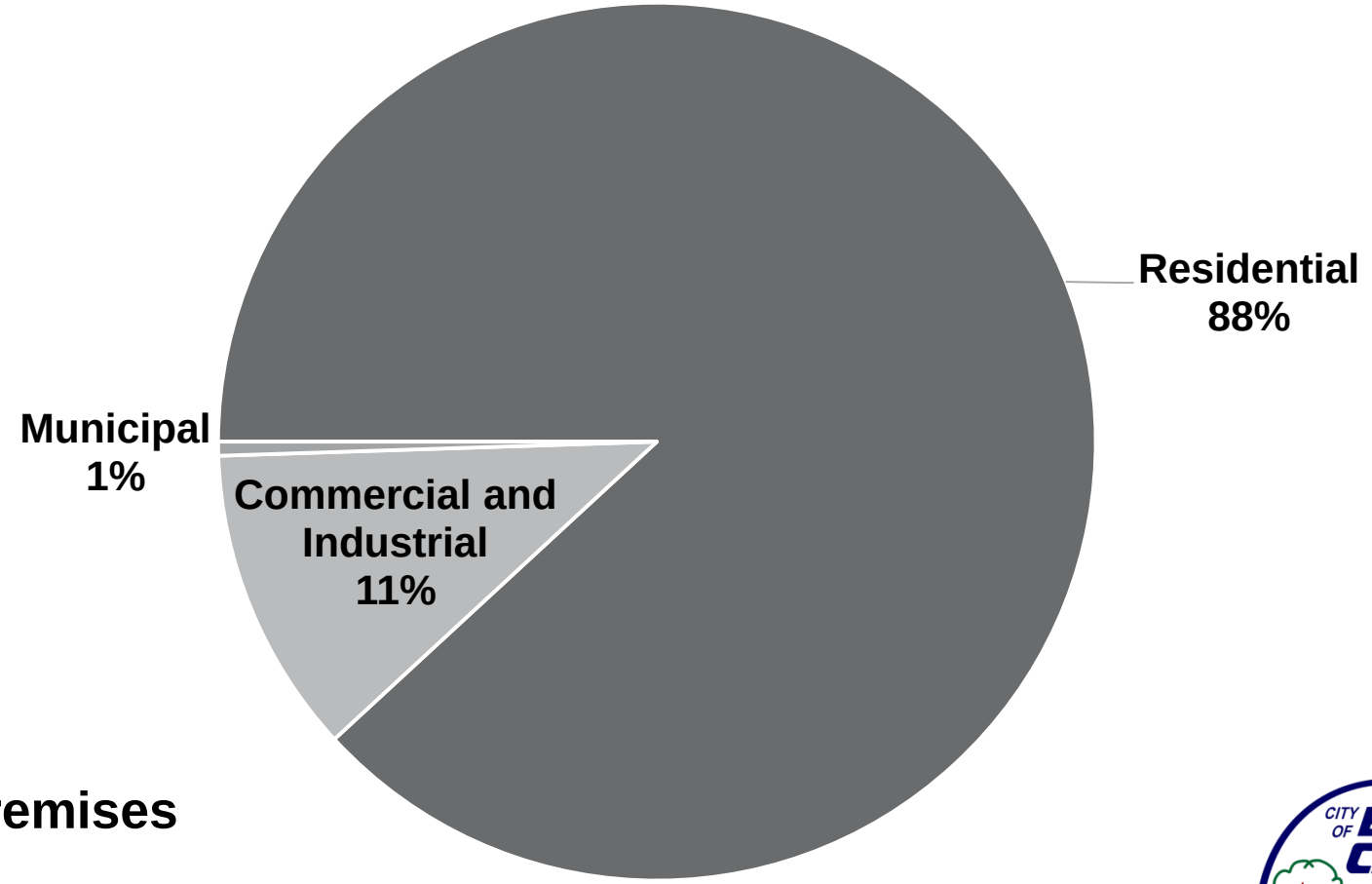

Total Premises

33,346

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Total Energy Consumption (2018)

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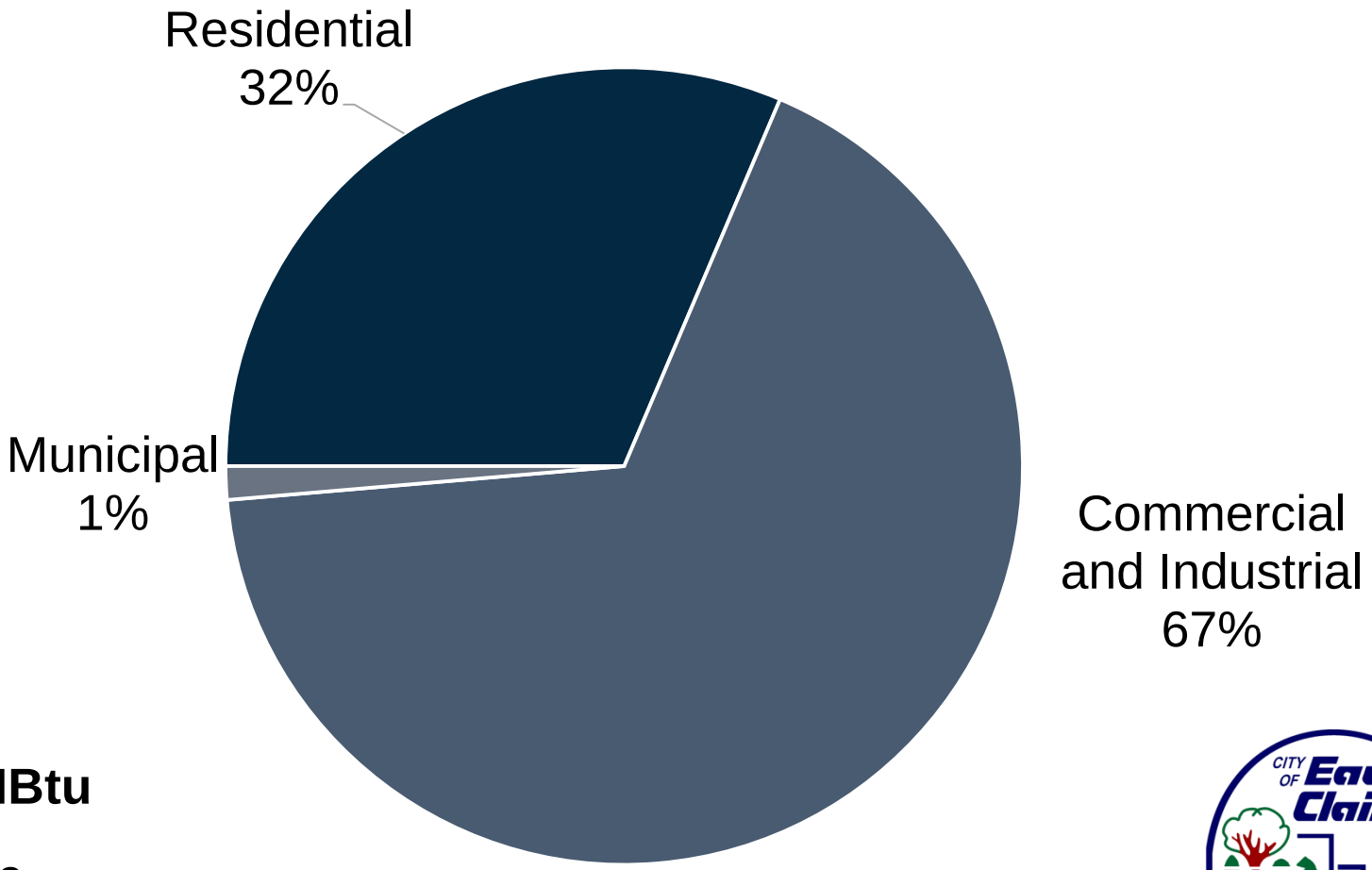

Total MMBtu

7,433,650

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Total Energy Consumption

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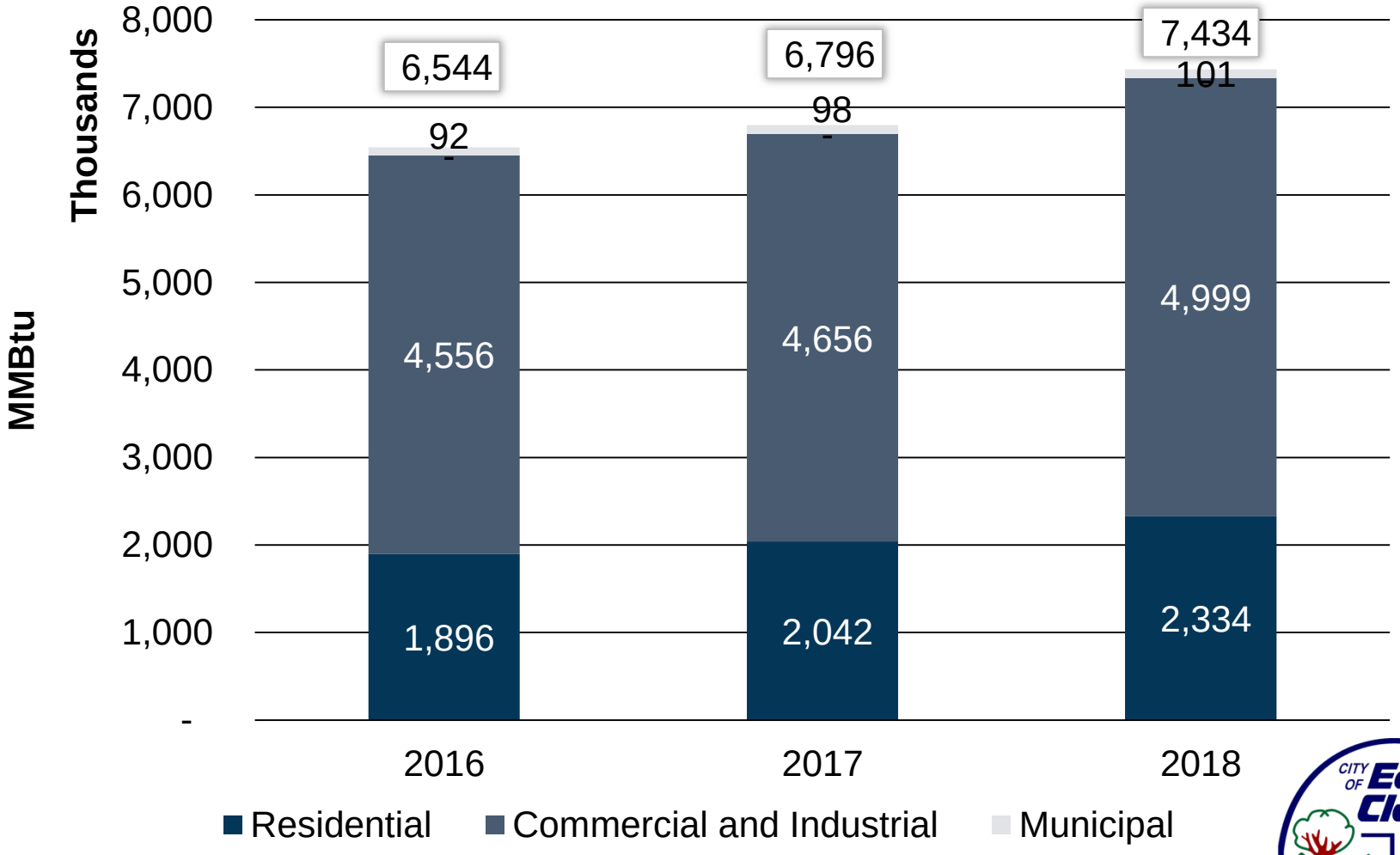

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Total Energy Consumption (2018)

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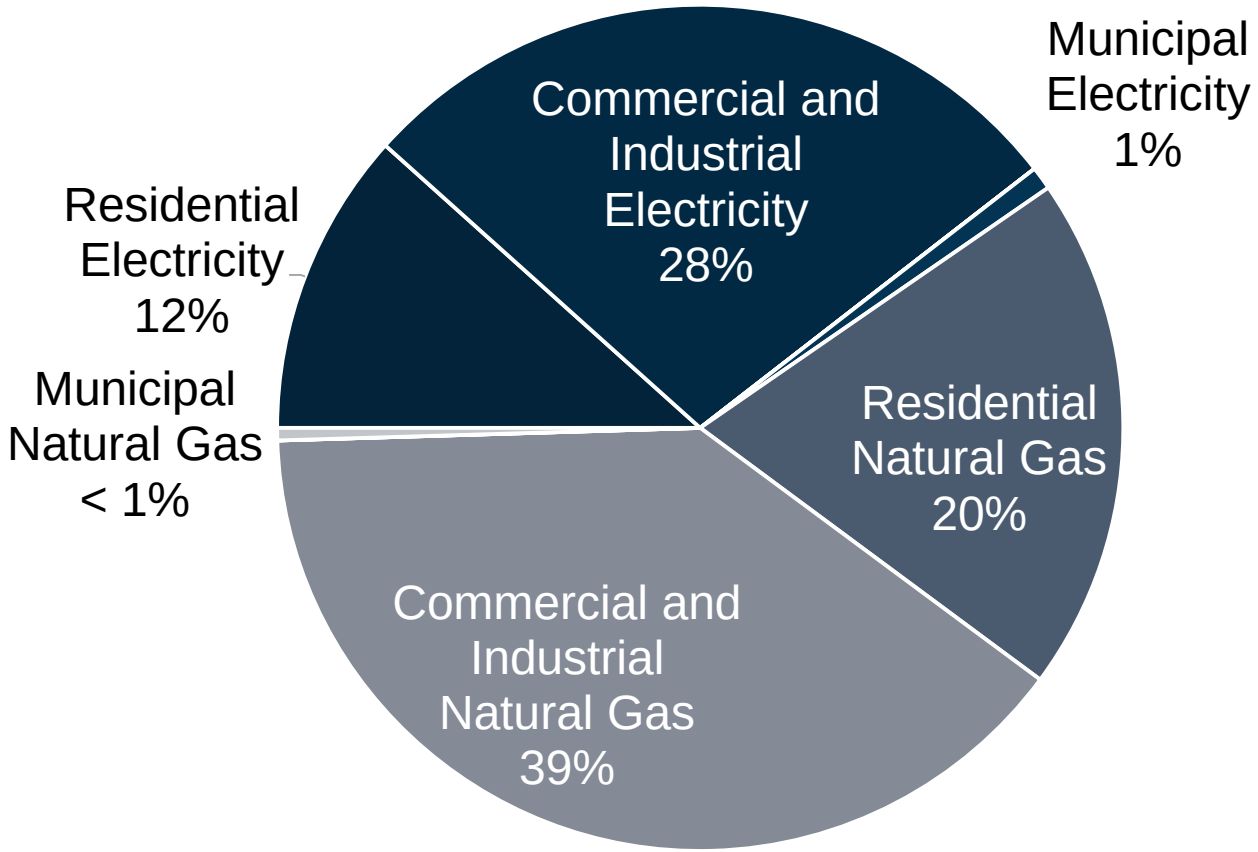

Total MMBtu = 7,433,650

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Total Energy Costs

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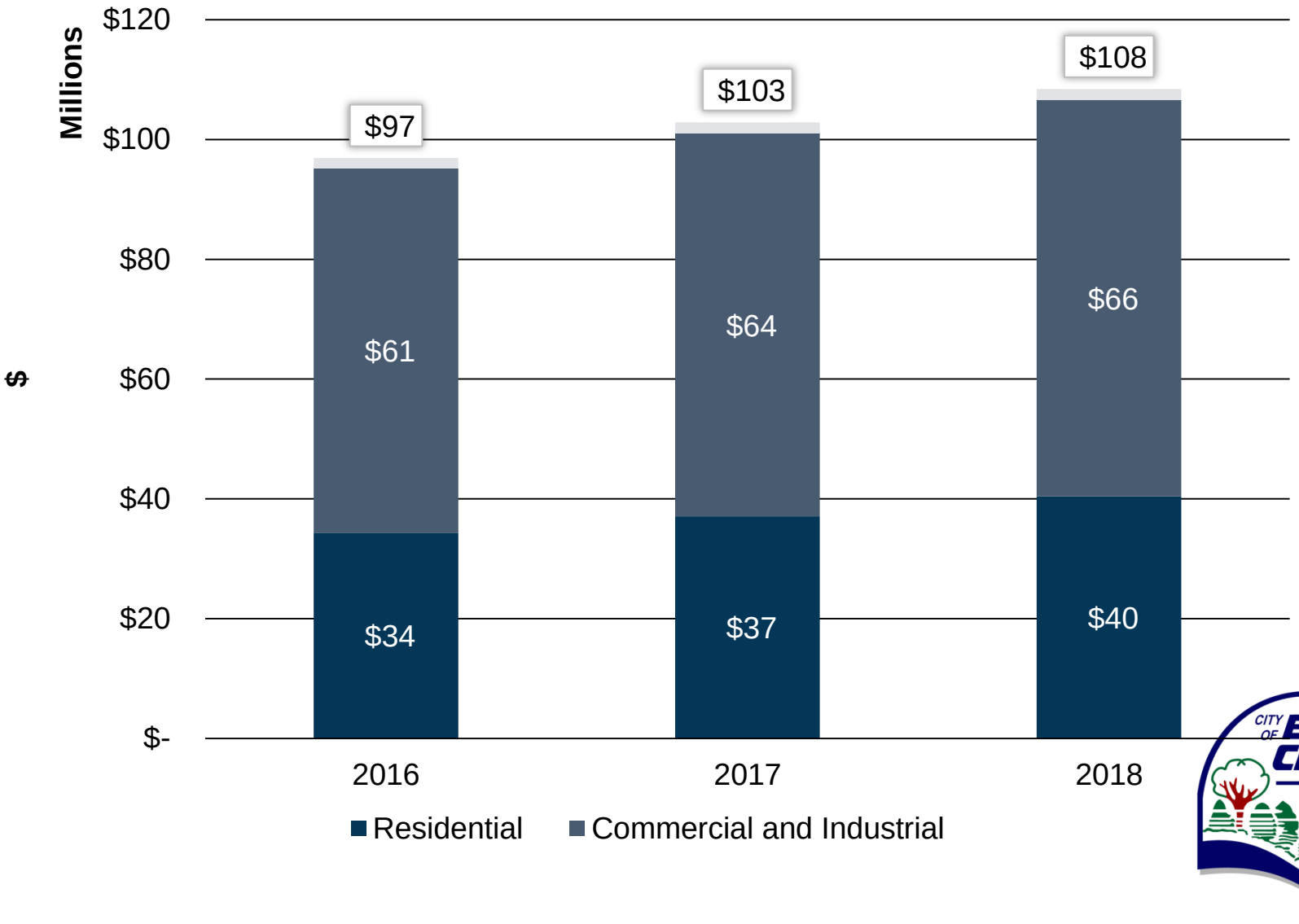

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Average Energy Costs (2018)

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Sector	Average Costs Per Premise
Residential	$1,376
Commercial and Industrial	$17,484
Municipal	$10,719

Total spent on energy: $108 Million

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QUESTIONS?

WRAP UP AND NEXT STEPS

Upcoming Workshops

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All workshops are 6:30 – 8:30 p.m.

Chippewa Valley Technical College

Energy Education Center

UPCOMING DATES

- **June 6th** – Workshop #2
- **July 18th** – Workshop #3
- **September 19th** – Workshop #4

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Homework

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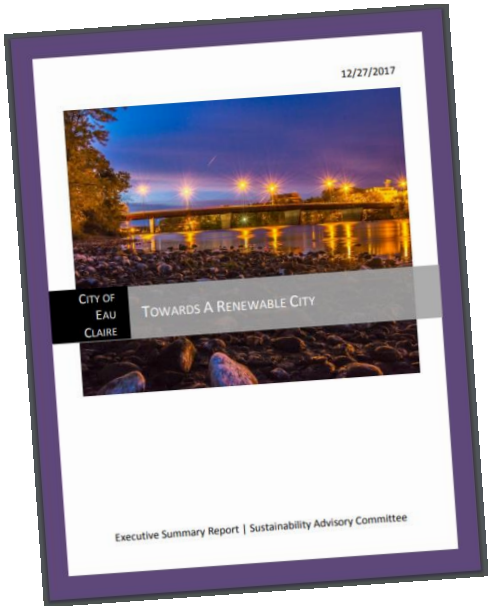
- Review strategies in *Toward Renewable City Report*
- Decide which ones might have merit or new things
- Think about where you might want to focus your efforts
  - transportation, buildings, land use, waste



Land Use & Buildings		
Residential, commercial, industrial and public lands are within city boundaries. The way these lands are built on, arranged, scaled and used can reduce energy demands and promote walking and biking.		
Action Ideas	**Progress**	**Comments**
Infill development	⇧	Downtown/neighborhoods are getting redeveloped.
Mixed use development	⇧	See more downtown and in other higher traffic areas
Transit oriented development (TOD)	⇧	Certain corridors are densifying for more ridership.
Neighborhd. revitalization/preservation	⇔	Lot of focus but more projects needed. Landmarks help.
Compact development	⇔	No metric has been developed to know what this means.
Sprawl in townships	⇩	Large lot homes continue to consume land.
Preserve prime AG lands	⇔	County analysis should be completed to determine areas.
Urban tree canopy reserves	⇔	Net canopy is compromised when development occurs.
Energy efficiency building codes	⇔	Hampered by State to raise the bar.
Net-zero emission/energy buildings	⇩	Not aware of any building.
On-site filtration	⇧	Continue requirements for stormwater capture
Support local foods	⇧	Community gardens, farmers market, food access, etc.
Sustainable Development	💡	Policy/criteria for Low Emission Development (LEDS).
Walkable neighborhoods	💡	Plan land uses so residents can walk under 20 mins.
LEED for neighborhoods	💡	Use the checklist to create green neighborhoods.
LEED rating systems for buildings	💡	"Certifiable" or just use standard for City and private sector
Develop Eco-building design guidelines	💡	Similar to Milwaukee's. TIF incentives for LED projects.
Develop a green business park	💡	SkyPark or Gateway could be rebranded with solar.
Require solar ready buildings	💡	Gold award to enable marketplace (in top 10 in U.S.)
Grey water reuse strategies	💡	Promote reusing water for non-potable needs.
Require more carbon sinks/buffers	💡	Save trees in the city by reserve/ordinance/best practices.
Plant more trees & vegetation in parks	💡	Evaluate public land where trees could hold more carbon.
Explore reduced pesticides/fertilizers	💡	Parks Div. has a policy but city wide action is unclear.

https://www.eauclairewi.gov/home/showdocument?id=23645

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