



Renewable Energy Action Plan

Steering Committee Workshop #2
June 6, 2019

WELCOME & ORIENTATION



Agenda

WELCOME AND ORIENTATION

5 min	Welcome and Workshop #1 Recap
-------	-------------------------------

VISION AND GUIDING PRINCIPLES

5 min	Steering Committee Feedback from Workshop #1
-------	--

10 min	Questions and Discussion
--------	--------------------------

PATHWAYS TO CARBON NEUTRALITY

15 min	Baseline Energy Use and Carbon Wedges
--------	---------------------------------------

10 min	Towards a Renewable City Survey Results
--------	---

BREAK

FOCUS AREA WORKING GROUPS

50 min	Strategy Prioritization Exercise
--------	----------------------------------

10 min	Report out to Full Group
--------	--------------------------

5 min	Next Steps and Wrap Up
-------	------------------------

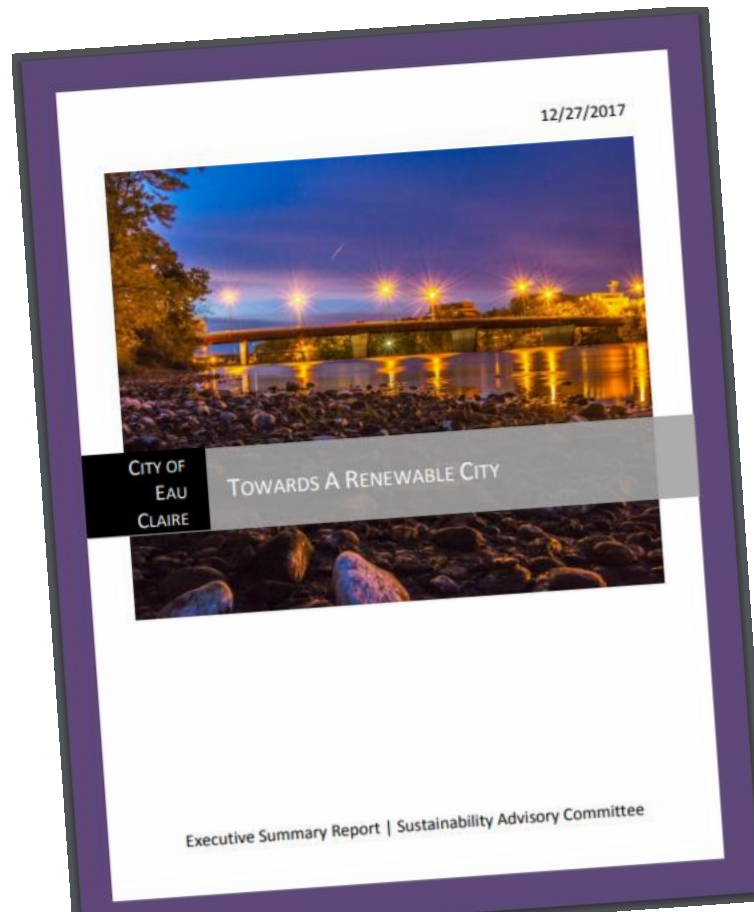


City Project Background



PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

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

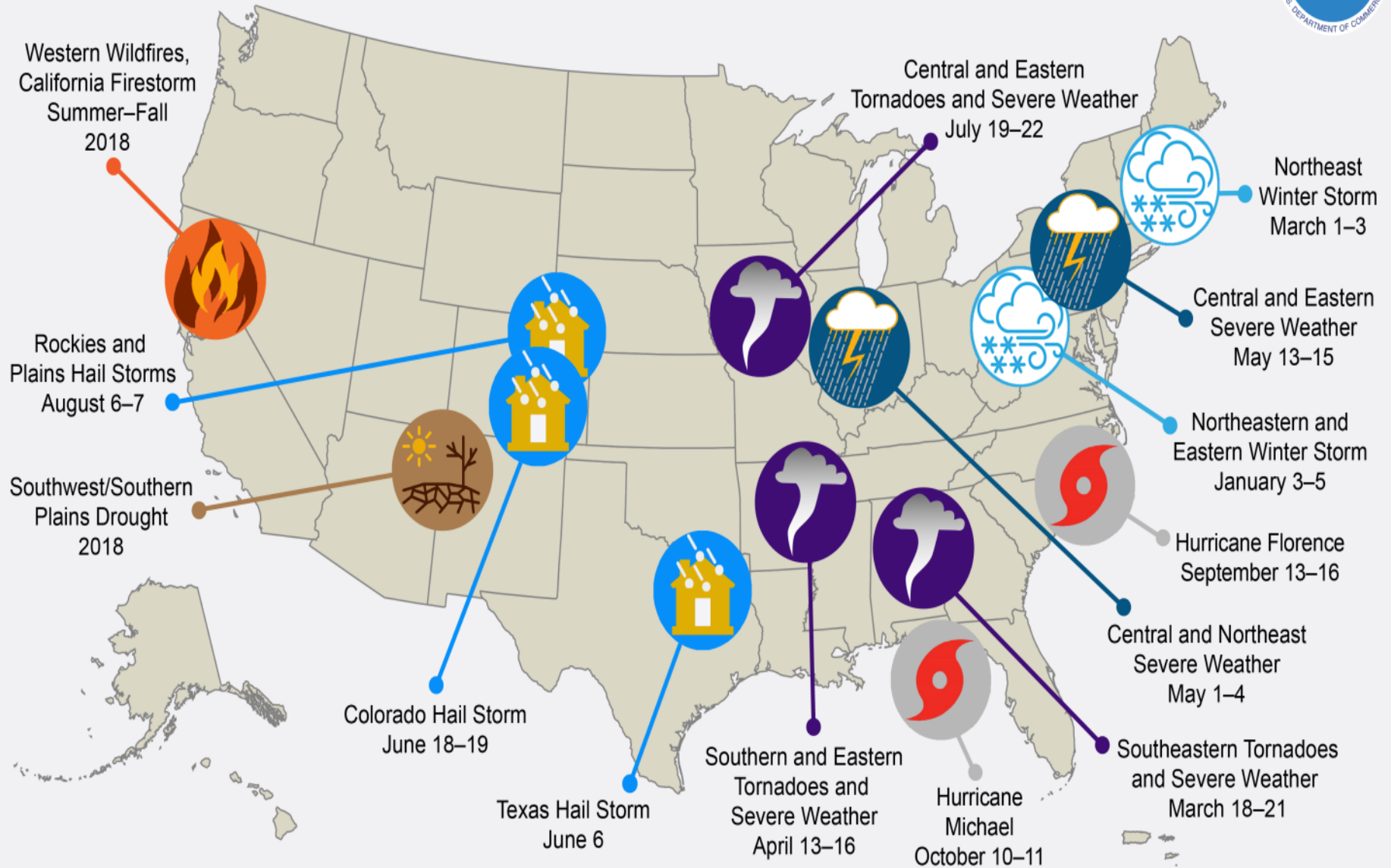


City of Eau Claire

SUSTAINABILITY

Advisory Committee

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

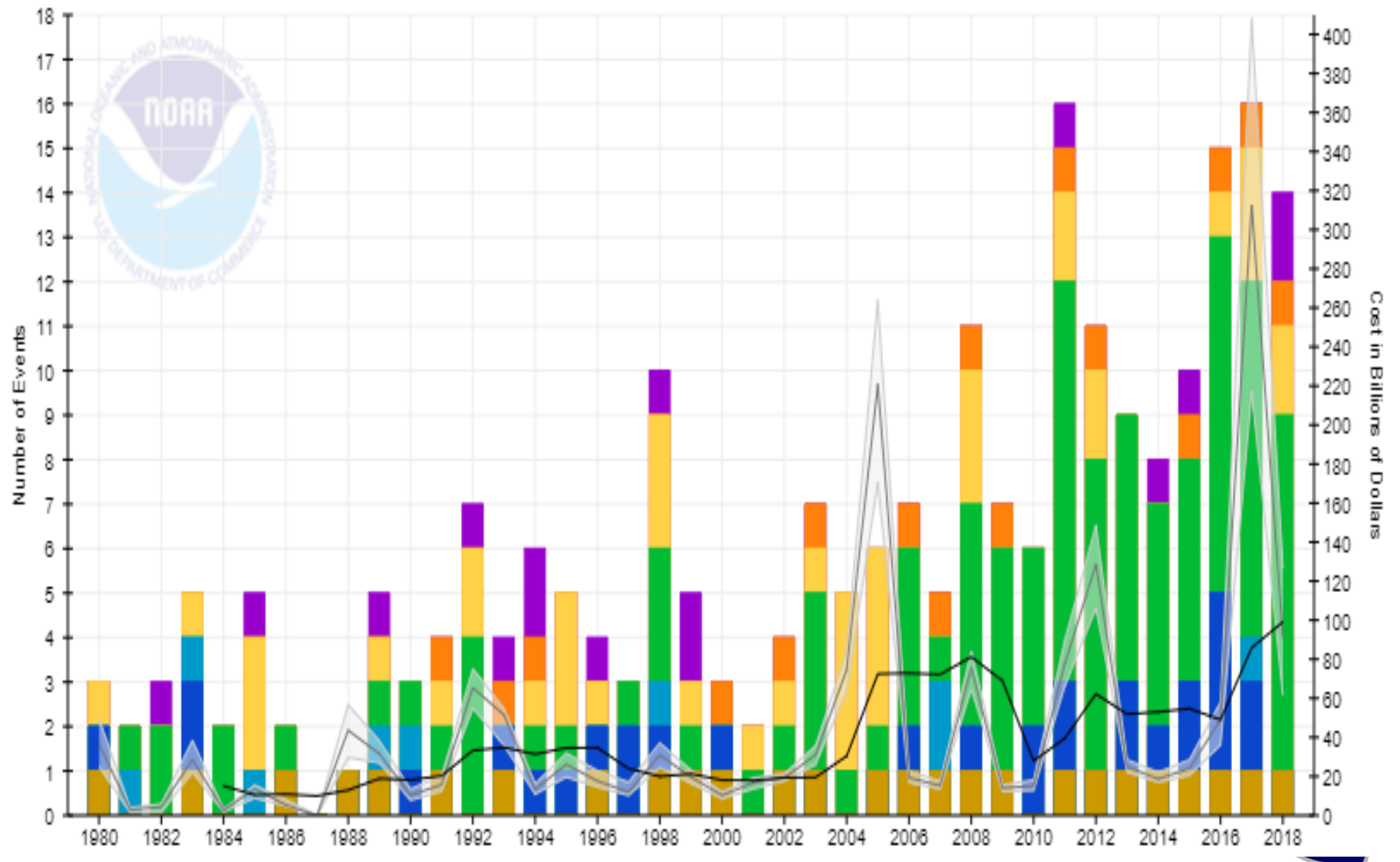


This map denotes the approximate location for each of the 14 separate billion-dollar weather and climate disasters that impacted the United States during 2018.

Billion-Dollar Disaster Event Types by Year (CPI-Adjusted)

- Winter Storm
- Wildfire
- Trop Cycl
- Severe Storm
- Freeze
- Flooding
- Drought
- Cost w/ 95% CI
- 5-Year Mean

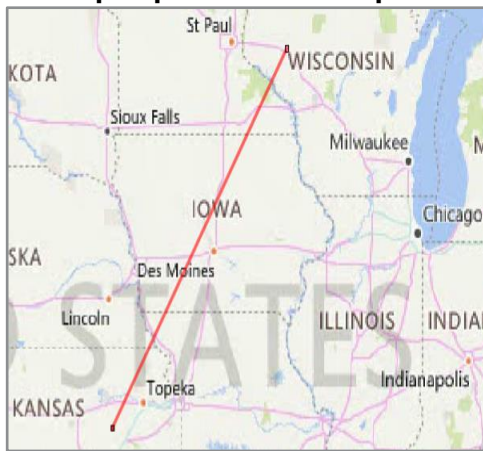
<https://www.ncdc.noaa.gov/billions/>



What climates today are most similar to the projected future



Climate analog:
2046-2065, mid



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

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



$\Delta T =$
3.6 °F
over 60



$\Delta T =$
2.7 °F
over 30
yrs



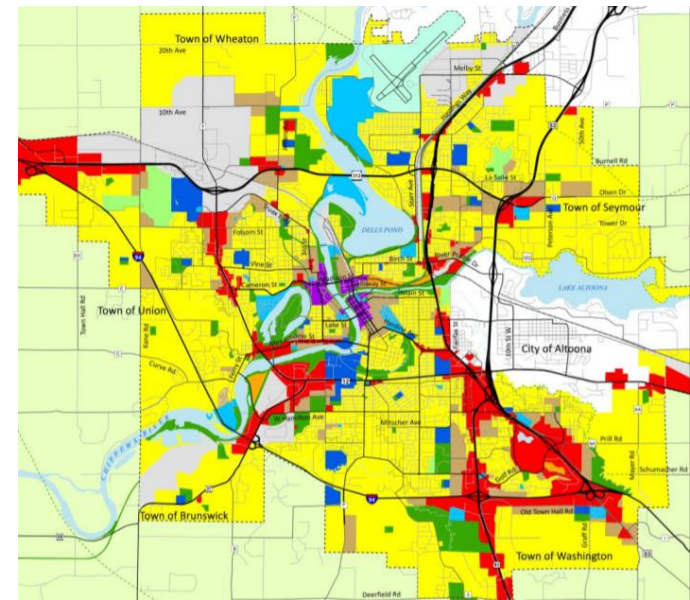
PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

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

Consistency with plans

- 2030 Comprehensive Plan (Major Themes)
 1. Be an **attractive city** where people want to live and work
 2. Thrive as a regional center with **good jobs** in education, health care and manufacturing, etc.
 3. Achieve **compact growth**; include nodes of higher intensity; build move-up housing; maintain a clear rural edge
 4. Bring about **redevelopment** and infill growth, particularly in the older neighborhoods
 5. Improve household **economic well-being**
 6. Practice **environmental stewardship**

The Comprehensive Plan is the basis for the City's subdivision regulations, official maps and amendments to the zoning ordinance and zoning map. The plan is a guide for the Council, Plan Commission and other advisors when they review development proposals and budget for improvements. The plan also guides public spending for roads, utilities, parks, housing and business growth.

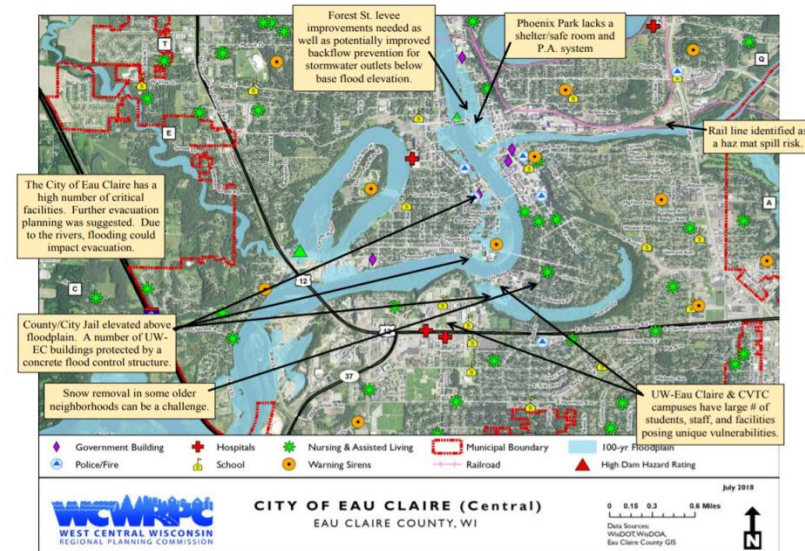


Vulnerabilities & Adaptation

- County & City Multi-Hazard Mitigation Plan 2018-2023
- Required by FEMA & Wisconsin Emergency Management every 5 years
- Inventory of critical facilities and services
- Risk and vulnerability assessment
- Climate change impacts addressed
- Flood emergency plan, including notifications and response
- Past example: removing vulnerable floodplain properties
- Future example: shoring up levees

Table 9. Eau Claire County Hazard Risk & Vulnerabilities Survey Results (2017)

Hazard	Risk	Vulnerability	Avg	HVA relative threat	in 2013 Plan?	section of 2013 plan
Natural Hazards						
Riverine or Overbank Flooding	3.9	2.9	3.4	34%	x	flooding
Overland or Stormwater Flooding	2.8	2.7	2.7	48%	x	flooding
Heavy Snow Storm and Blizzards	3.2	2.5	2.9	45%	x	winter storms & extreme cold
Ice Storms and Sleet	3.2	3.0	3.1	68%	x	winter storms & extreme cold
Winter Kill of Crops	1.8	1.7	1.7	--	x	winter storms & extreme cold
Extreme Cold	2.7	2.4	2.5	53%	x	winter storms & extreme cold
Forest or Wild Fire	2.7	2.8	2.7	35%	x	wildfire
Tornadoes	2.3	3.8	3.1	48%	x	tornadoes
High Winds	2.8	3.4	3.1	--	x	thunderstorms & high winds
Thunderstorms, Lightning, Hail, etc.	2.8	2.0	2.4	35%	x	thunderstorms
Extreme Heat	2.1	1.9	2.0	38%	x	extreme heat
Drought	2.2	2.7	2.5	31%	x	drought; county plan only



VISION & GUIDING PRINCIPLES



Sought Feedback on Draft Vision Statement



PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

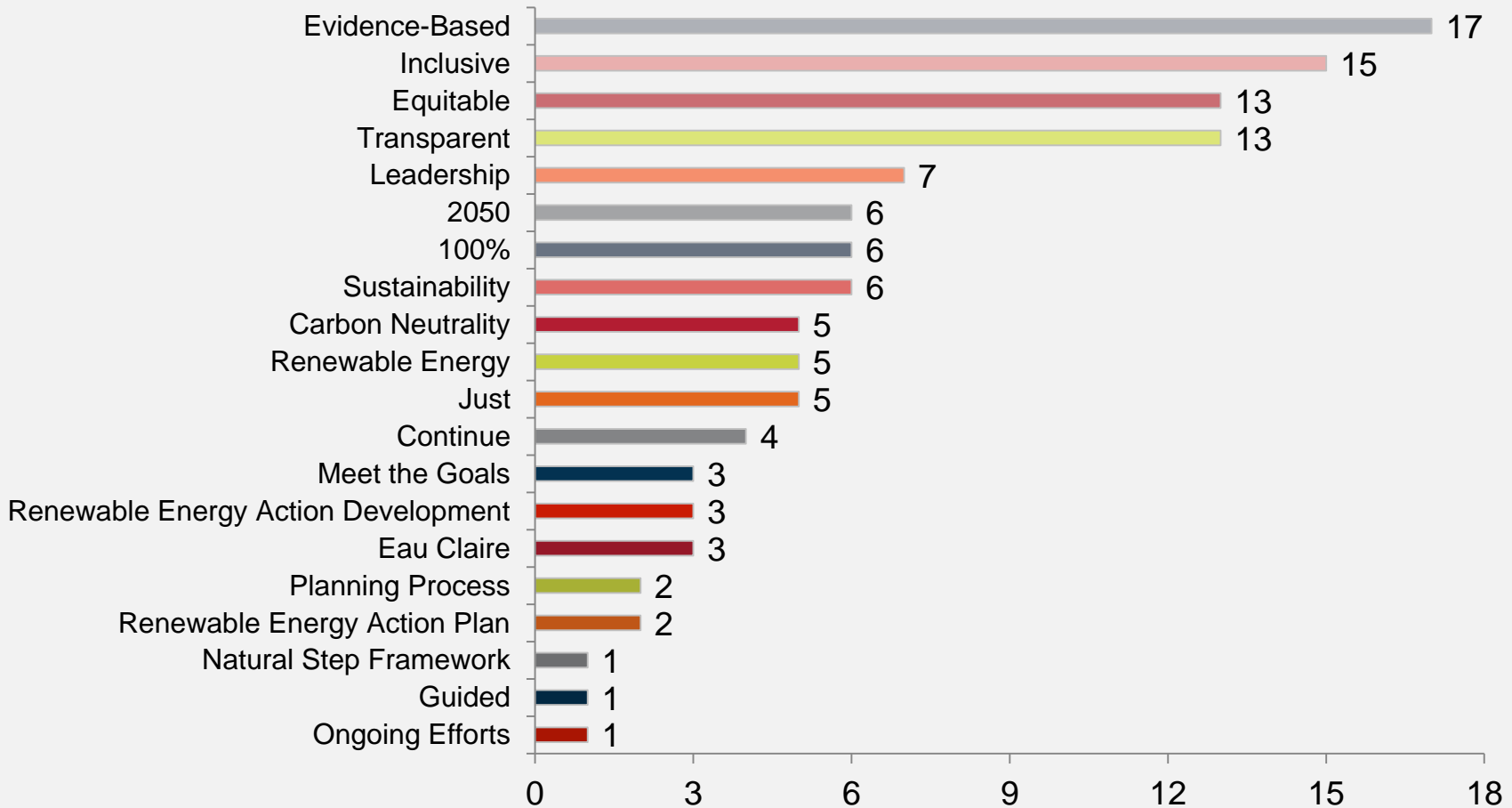
- Committee Members asked to circle key words in statement

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.



Evidence-Based, Inclusive Equitable, Transparent



Sample Feedback

We want to take pride and we want this to feel personal to us

What is the "Natural Step Framework"?

Possibly add a phrase about the future or future generations?

Remove "continue" and replace with "power" or "empower" or "strengthen"



Updated Vision Statement

- 😊 We want to take pride and we want this to feel personal to us
- 😊 Remove "continue" and replace with "power" or "empower" or "strengthen"
- 😊 Possibly add a phrase about the future or future generations?
- 😊 Evidence-Based, Inclusive Equitable, Transparent
- 😞 What is the "Natural Step Framework"?

Eau Claire's Renewable Energy Action Plan will strengthen our leadership in sustainability and renewable energy development for generations to come.

These ongoing efforts will be guided by an evidence-based, transparent, equitable, and inclusive process to meet the goals of 100% renewable energy and carbon neutrality by 2050.



Guiding Principles Feedback



Sought Feedback On Desired Guiding Principles

Guiding Principles



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

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

GUIDING PRINCIPLES

Use the space below to suggest up to three guiding principles this committee should consider when prioritizing actions in the Renewable Energy Action Plan. The questions below can help prompt your responses:

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

1)

2)

3)



Responses tended to cluster around 3 subjects

Economic Development

- Let's make wise investments

Ecosystem Stewardship

- Respect for the world around us
- Sustainability

Equity and Inclusiveness

- Make certain that all benefit
- Reach out to traditionally disenfranchised

- Numerous suggestions were more like tactical ideas than principles
 - Reported separately so we keep the ideas



Typical Economic Development Responses



PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

Affordable for
community
members &
businesses

Maximizing
existing
infrastructure

Affordability,
reliability
economic gain

Largest impact,
longevity



Typical Ecosystem Responses

Importance of natural environment - tree/flowers and beauty of natural environment

Prevent loss of biodiversity

Ecosystem preservation (habitat restoration)

Species/ecosystems protection and human and non-human health, quality of life, flourishing and habitat restoration/preservation



Typical Inclusiveness Responses

Prioritize the needs of the folks low on the socio-economic ladder

Making sure our efforts are inclusive to all levels of socioeconomic

Equity - inclusiveness of economic levels are included → small businesses, renters, low-income, etc.

How can all community members be included and educated when it comes to implementation?



Guiding Principles Draft

Economic Development

We will develop and implement ideas that maximize community investment and local economic opportunity

Equity and Inclusiveness

Our work will benefit the entire Eau Claire community

Ecosystem Stewardship

We will nurture and enhance the natural world around us, for our benefit and for generations to come



Eco-Municipality



PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

the NATURAL STEP

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 Council
Resolution Passed
2009



QUESTIONS & DISCUSSION

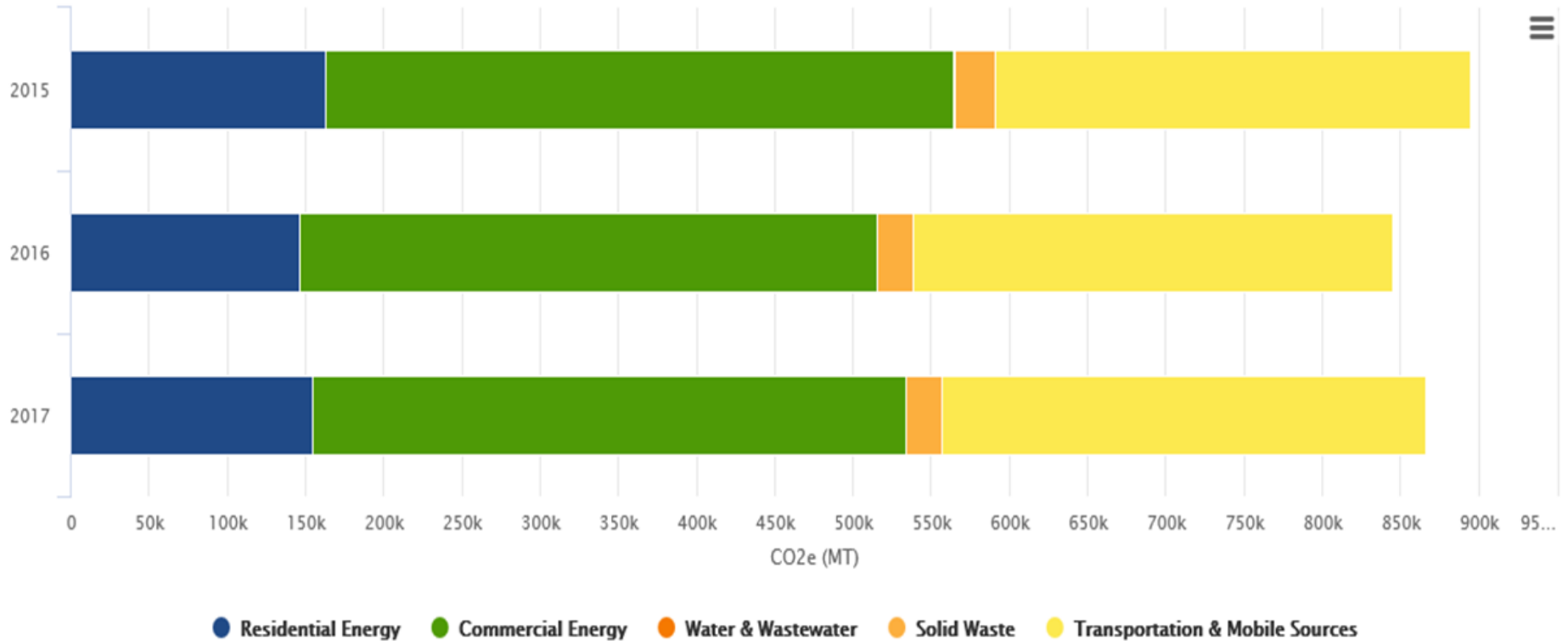


PATHWAYS TO CARBON NEUTRALITY



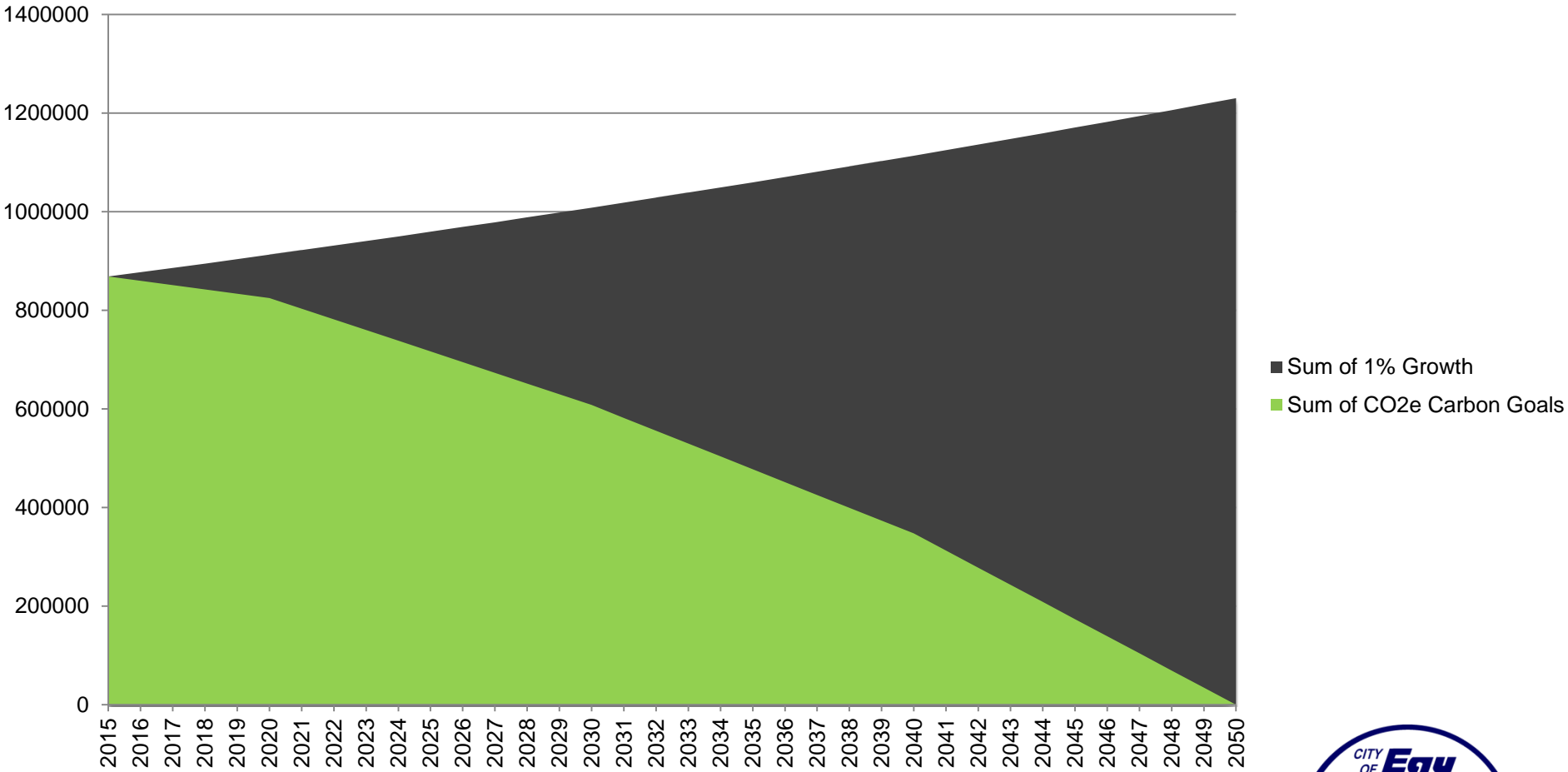
Grounding in Data

- Revised Carbon Footprint – Increased Vehicle Miles Traveled

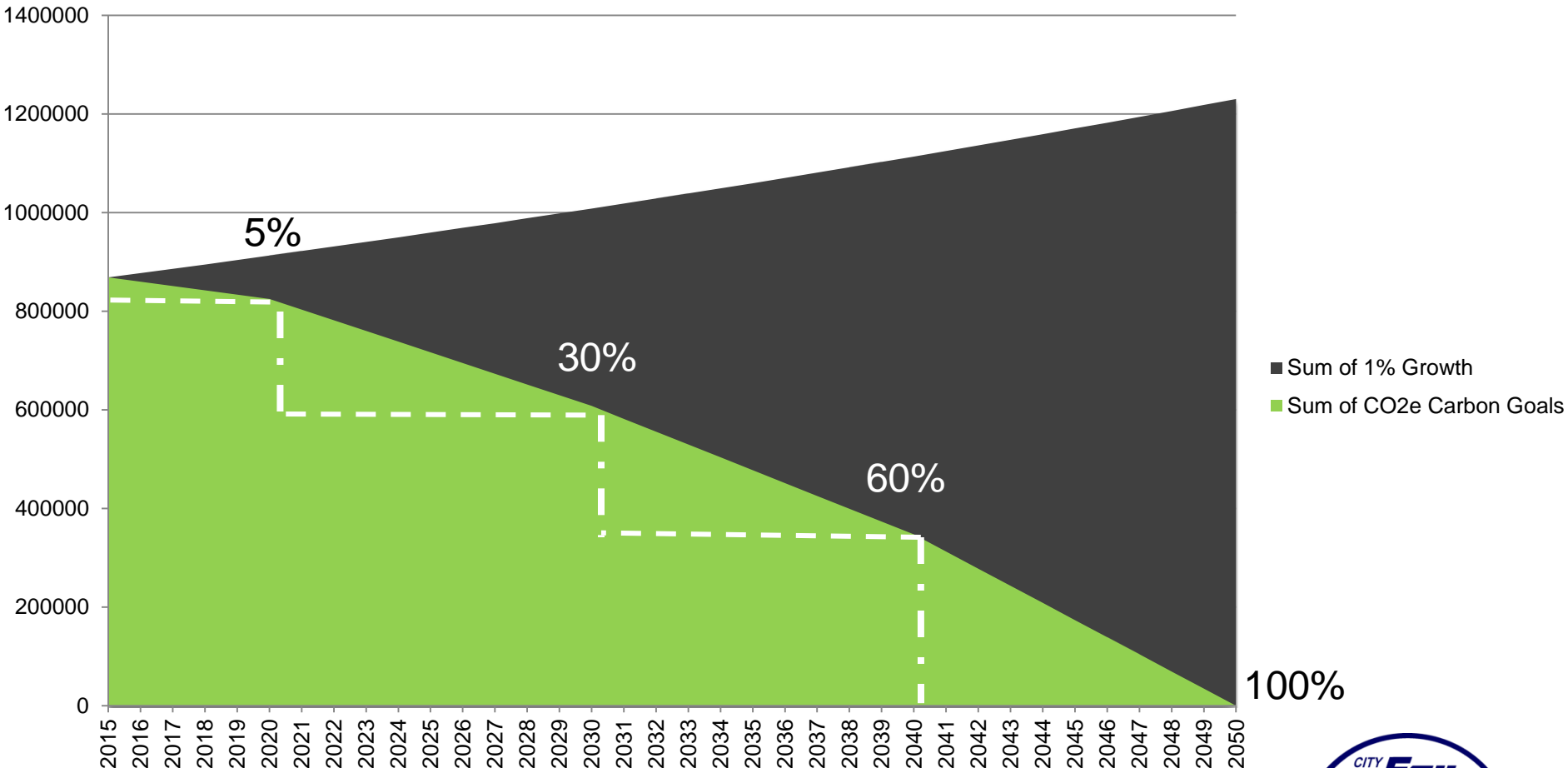


Year	Transportation & Mobile Sources	Solid Waste	Water & Wastewater	Commercial Energy	Residential Energy	Total
2015	303,535	26,471	188	401,923	162,739	894,856
2016	306,850	23,250	187	367,639	146,558	845,484
2017	308,913	23,250	180	378,516	155,018	865,877

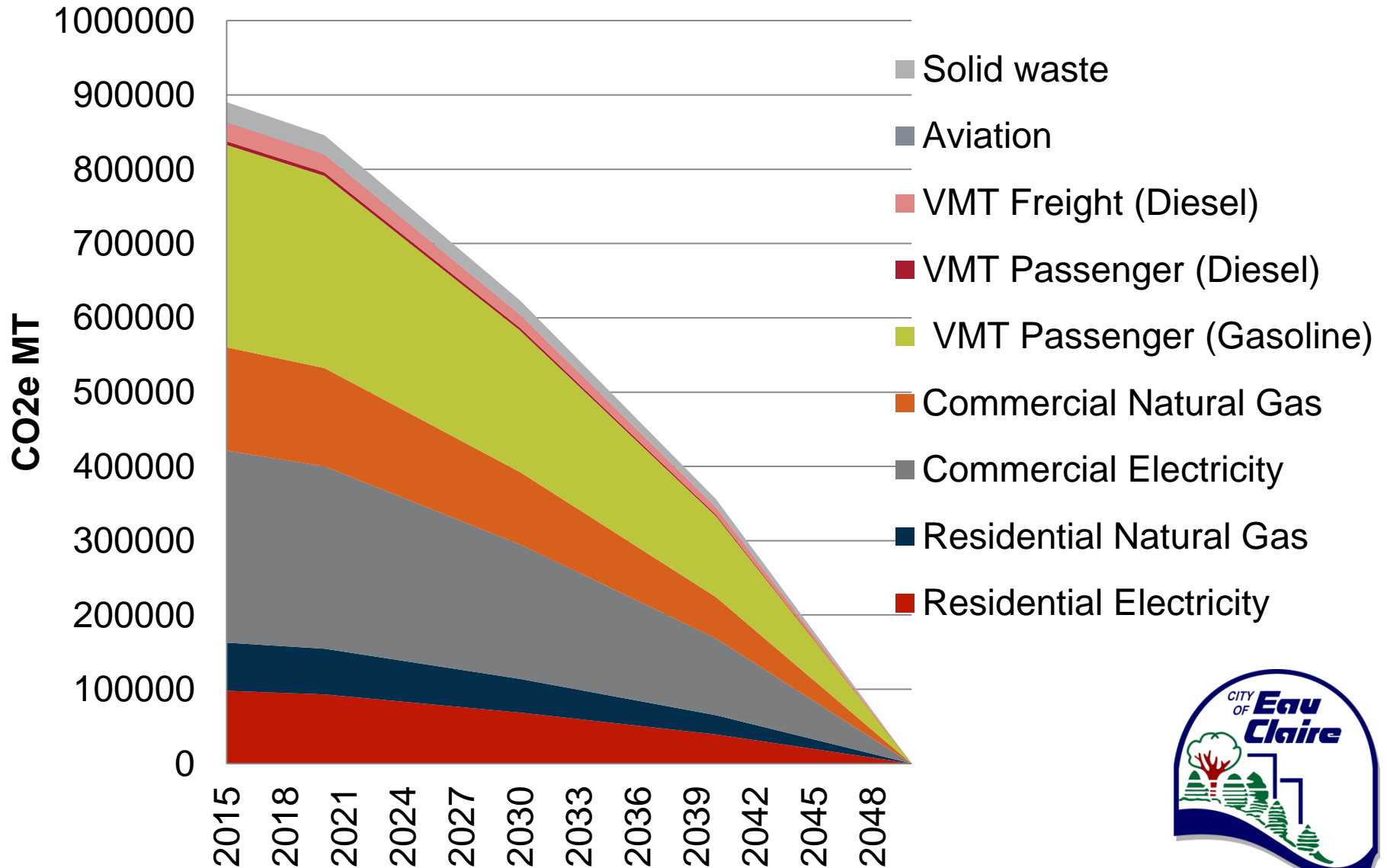
Overall Emissions Vs. Growth (1%)



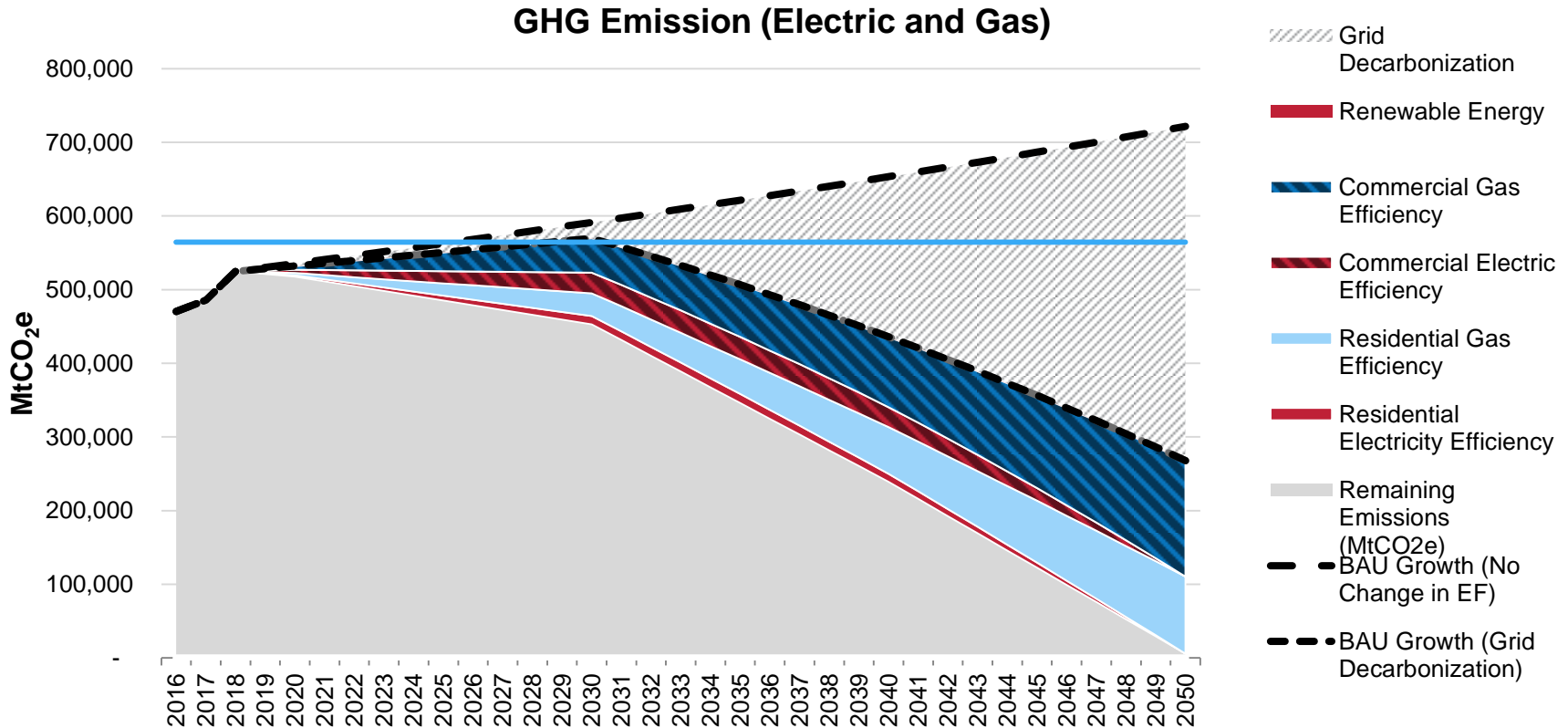
Carbon Drop Down Goals



Carbon Goals by Sector



Commercial and Residential



Notes

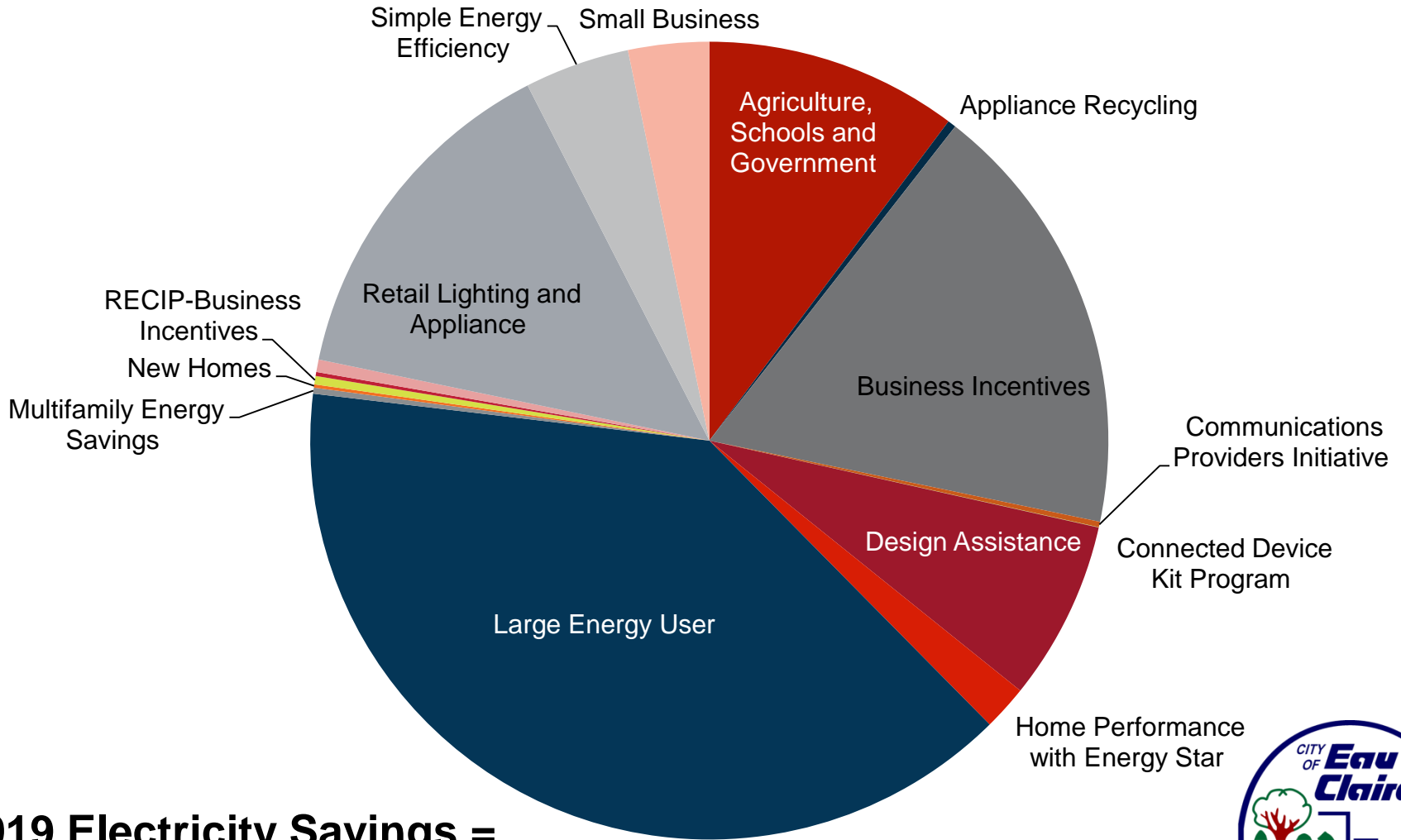
- 1% annual growth across all sectors and sources
- Goal of Carbon Neutrality by 2050
- Assumes electricity use will remain flat, and Gas use will decrease annually to meet the reduction targets, incl. zero use by 2050
- Grid Decarbonization refers to the decrease in carbon intensity of the electricity only, using Xcel Energy's Upper-Midwest goals



Electricity Efficiency



PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

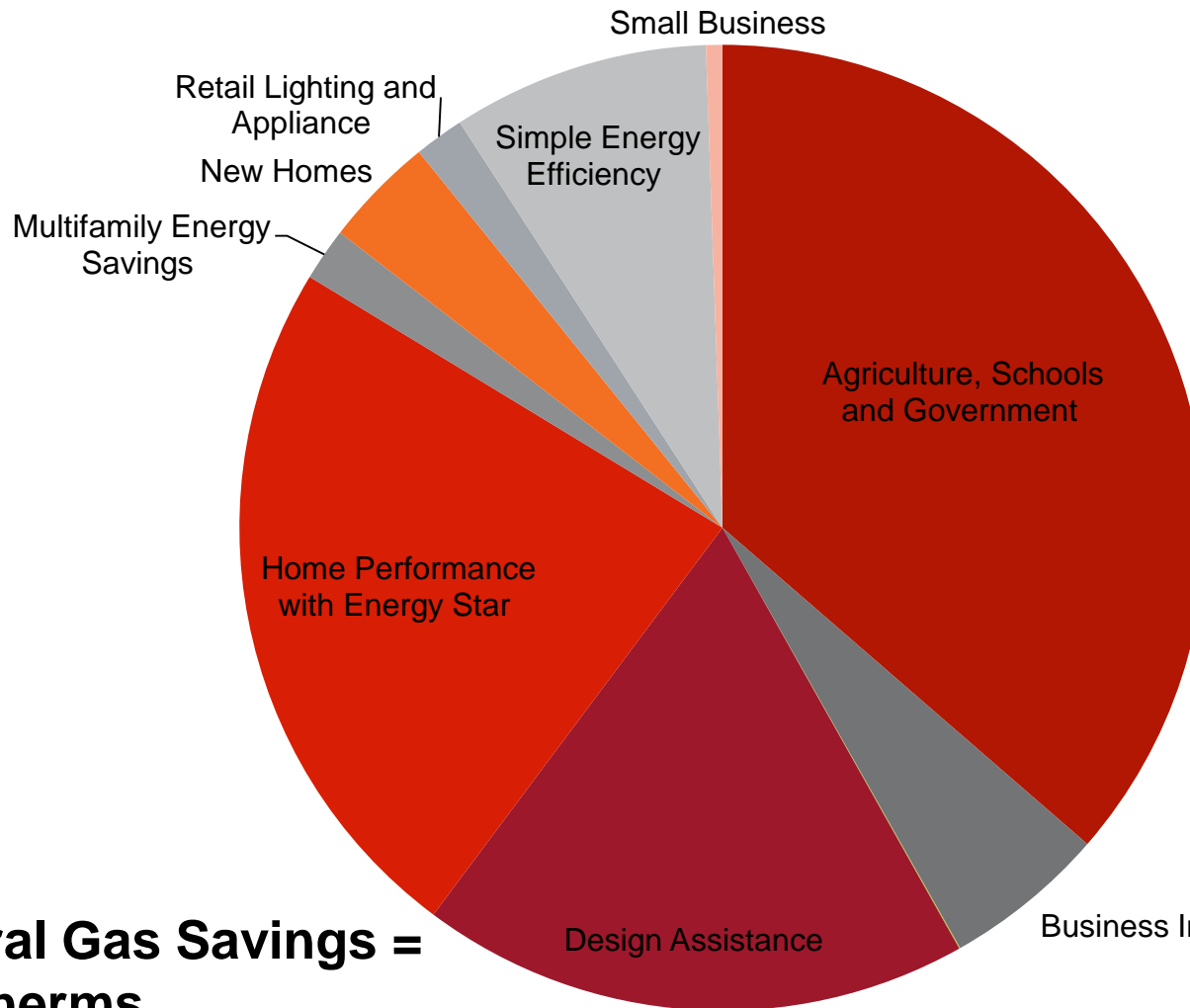


**2019 Electricity Savings =
18 million kWh
(2% Total Community Use)**

Natural Gas Efficiency



PARTNERS IN ENERGY
An Xcel Energy Community Collaboration



**2019 Natural Gas Savings =
355,000 Therms
(0.8% Total Community Use)**



Community Data Sheets

City of Eau Claire
Renewable Energy Action Plan Committee
Planning Data¹



Population

Population estimate (2018): 68,866²

Demographics (2017)

- Percent of Population White: 90%
- Percent of Individuals Below Poverty Level: 17.4%
- Population enrolled in college or graduate school: 11,242
- Median Age: 31.4

Educational Attainment (2017)

Degree	Percent
High school graduate or higher	93.4%
Bachelor's degree or higher	31.7%

Housing

Housing Demographics (2017)


- Number of housing units: 28,790
- Median household income: \$47,660
- Percent of housing that is renter-occupied: 45.7%

Housing by number of units in structure (2017)

Units in Structure	Count	Percent
1-unit, detached	15,620	54.3%
1-unit, attached	2,206	7.7%
2 units	2,868	10.0%
3 or 4 units	2,814	9.8%
5 to 9 units	2,085	7.2%
10 to 19 units	626	2.2%
20 or more units	2,142	7.4%
Mobile home	413	1.4%

Age of housing stock (2017)

Year Built	Count	Percent
2010 or later	830	2.9%
2000 to 2009	2,854	9.9%
1990 to 1999	3,941	13.7%
1980 to 1989	3,623	12.6%
1970 to 1979	5,207	18.1%
1960 to 1969	2,748	9.5%
1950 to 1959	2,635	9.2%
1940 to 1949	2,025	7.0%
1939 or earlier	4,927	17.1%

 Top House Heating Fuel (2017)



Strategies by Sector



PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

City of Eau Claire

Renewable Energy Action Plan Committee
List of Strategies by Sector (rank)



SECTOR: Commercial, Industrial, and Institutional Energy Use

- Preserve the urban tree canopy (4.21) (building shading)
- Incentivize energy efficient building codes (3.92)
- Energy efficiency incentive programs (3.85)
- Low-cost loans for energy efficiency, renewable energy, and water conservation improvements in commercial buildings (3.74)
- Community Solar (3.74)
- LED Streetlights (3.70)
- Develop eco building design guidelines (3.52)
- Rebates on smart thermostats (3.52)
- Water Efficiency (3.40)
- Community Owned Renewables (3.36)
- Behind the meter solar at commercial and industrial businesses (3.36)
- Battery Storage (3.33)
- Utilities Renewable Subscription Programs (e.g. Windsorce) (3.20)
- Energy Audits (3.19)
- Behind the meter solar at municipal buildings (3.12)
- Require Solar Ready Buildings (3.00)
- Better Buildings Energy Challenge (2.91)
- Building Energy Score Ordinance (2.83)
- Solar Powered Streetlights (2.75)
- Air Source Heat Pumps (2.75)
- Real time energy billing (2.70)
- Promote ENERGY STAR labeled purchases (2.68)
- Explore Energy District (2.63)
- Solar Group Buys (2.41)
- ENERGY STAR Portfolio Manager Energy Tracking (2.25)
- NEW: Biomass (and biogas)
- NEW: Ground Source Heat Pumps
- NEW: Geothermal HVAC
- NEW: Net Zero Buildings
- NEW: LEED Certification for new or rehabilitated buildings
- NEW: HVAC Commissioning
- NEW: Education campaign to turn off lights (esp at night)
- NEW: Smart Grid

Additional for group to consider:

- Waste Heat Recovery
- Eco-industrial/business Parks

v.1 6/4/19



SECTOR: Residential Energy Use

- Preserve the urban tree canopy (4.21) (building shading)
- Weatherization and energy efficiency for low income homes (4.11)
- Incentivize energy efficient building codes (3.92)
- Energy efficiency incentive programs (3.85)
- Low-cost loans for energy efficiency, renewable energy, and water conservation improvements in residential buildings (NEW: especially rental and low income) (3.74)
- Community Solar (3.74)
- Develop eco building design guidelines (3.52)
- Rebates on smart meters and thermostats (3.52)
- Water Efficiency (3.40)
- Community Owned Renewables (3.36)
- Behind the meter solar in the community at residences (3.36)
- Battery Storage (3.33)
- Rental efficiency requirement (3.25)
- Utilities Renewable Subscription Programs (e.g. Windsorce) (3.20)
- Energy Audits (3.19)
- Require Solar Ready Buildings (3.00)
- Home Energy Score Ordinance (2.83)
- Air Source Heat Pumps (2.75)
- Real time energy billing software (2.70)
- Promote ENERGY STAR labeled purchases (2.68)
- Solar Group Buys (2.41)
- NEW: Simple Residential Energy Use Tracking
- NEW: Energy loss Information targeted to older homes
- NEW: Ground Source Heat Pumps
- NEW: Geothermal HVAC
- NEW: Net Zero Homes
- NEW: LEED Certification for new or rehabilitated homes
- NEW: Low carbon diet residential teams
- NEW: Education campaign to turn off lights (esp at night)
- NEW: Finance programs for rental and low income housing

Additional for group to consider:

- Residential Solar Thermal

SECTOR: Transportation and Land Use

- Bike and ped projects (4.36)
- Transit Service (4.30)
- More efficient municipal fleet (4.10)
- Walkable neighborhoods (4.04)
- Electric Vehicle Chargers (3.90)
- Electric Vehicles (3.82)
- Infill development (redeveloping downtown and neighborhoods) (3.79)
- Snow plow routing to reduce fuel miles (3.50)
- Electric Vehicle Education (3.36)
- Renewable fuel for City transportation (3.24)



SURVEY RESULTS

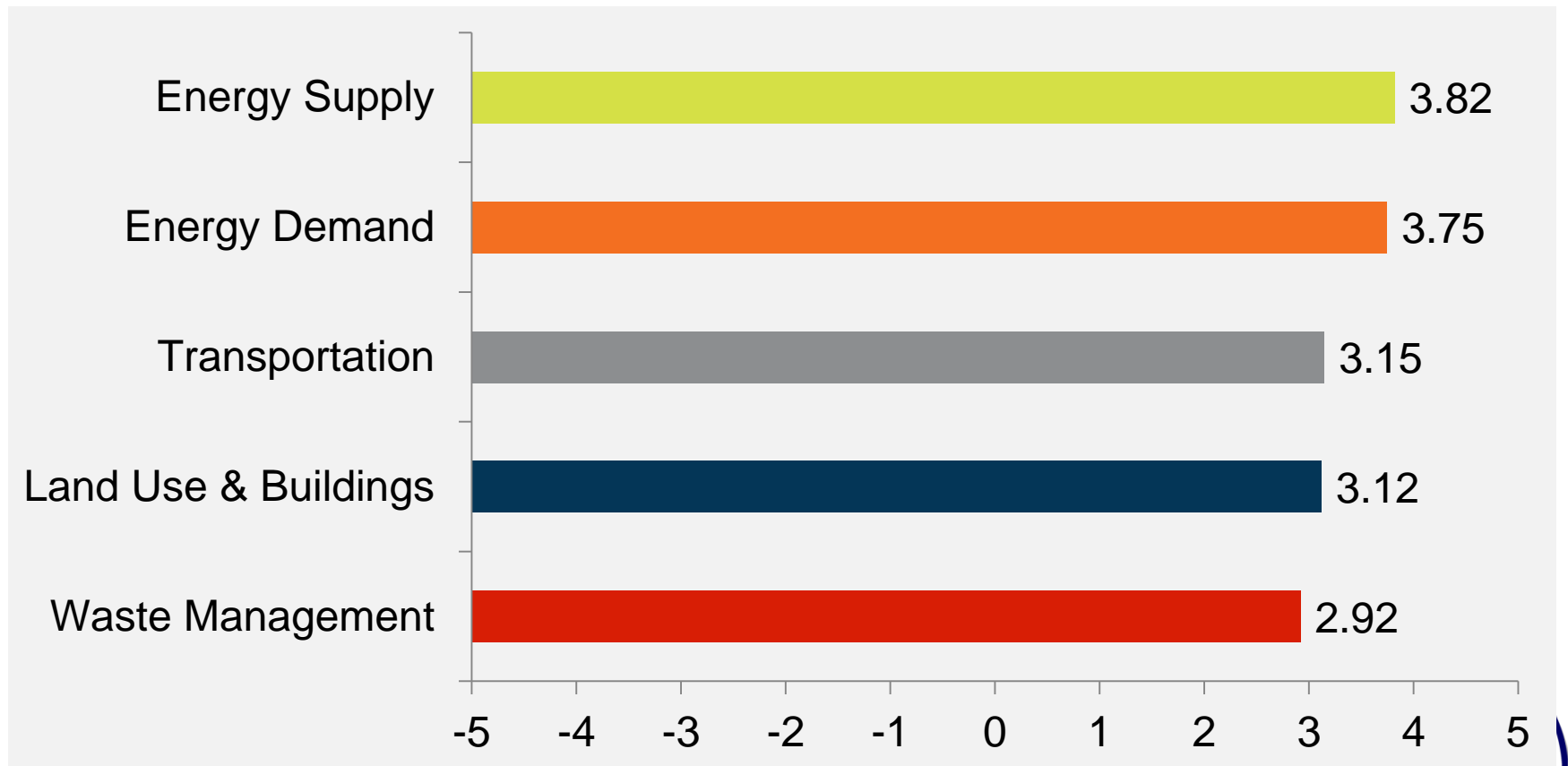


Background

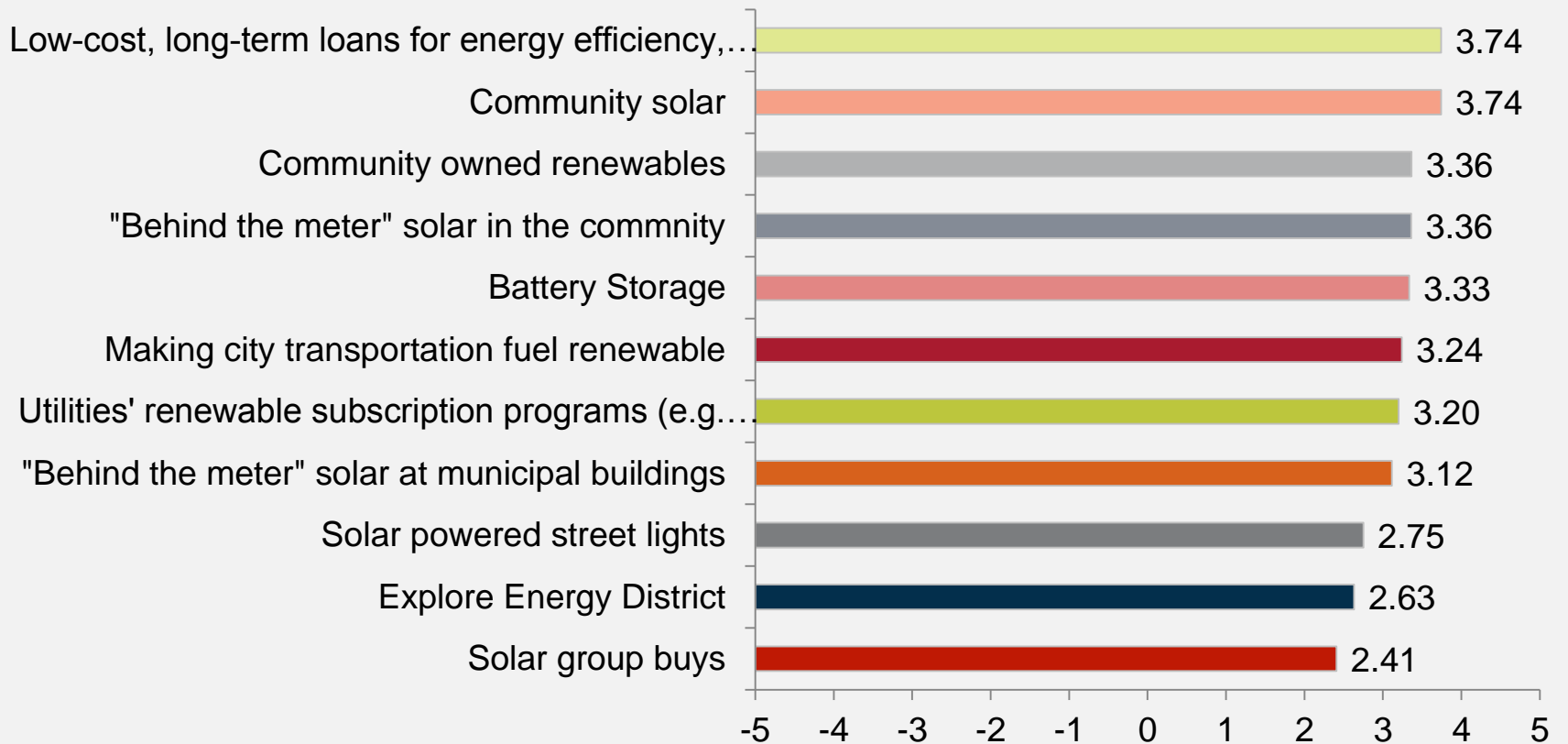
- Steering Committee was asked to read the “Towards a Renewable City” document and reply to an online survey to
 - Assess reactions to ideas in the report
 - Prioritize ideas
 - Seek out confusing or unfamiliar ideas
- Results
 - 55 persons emailed
 - 28 responses



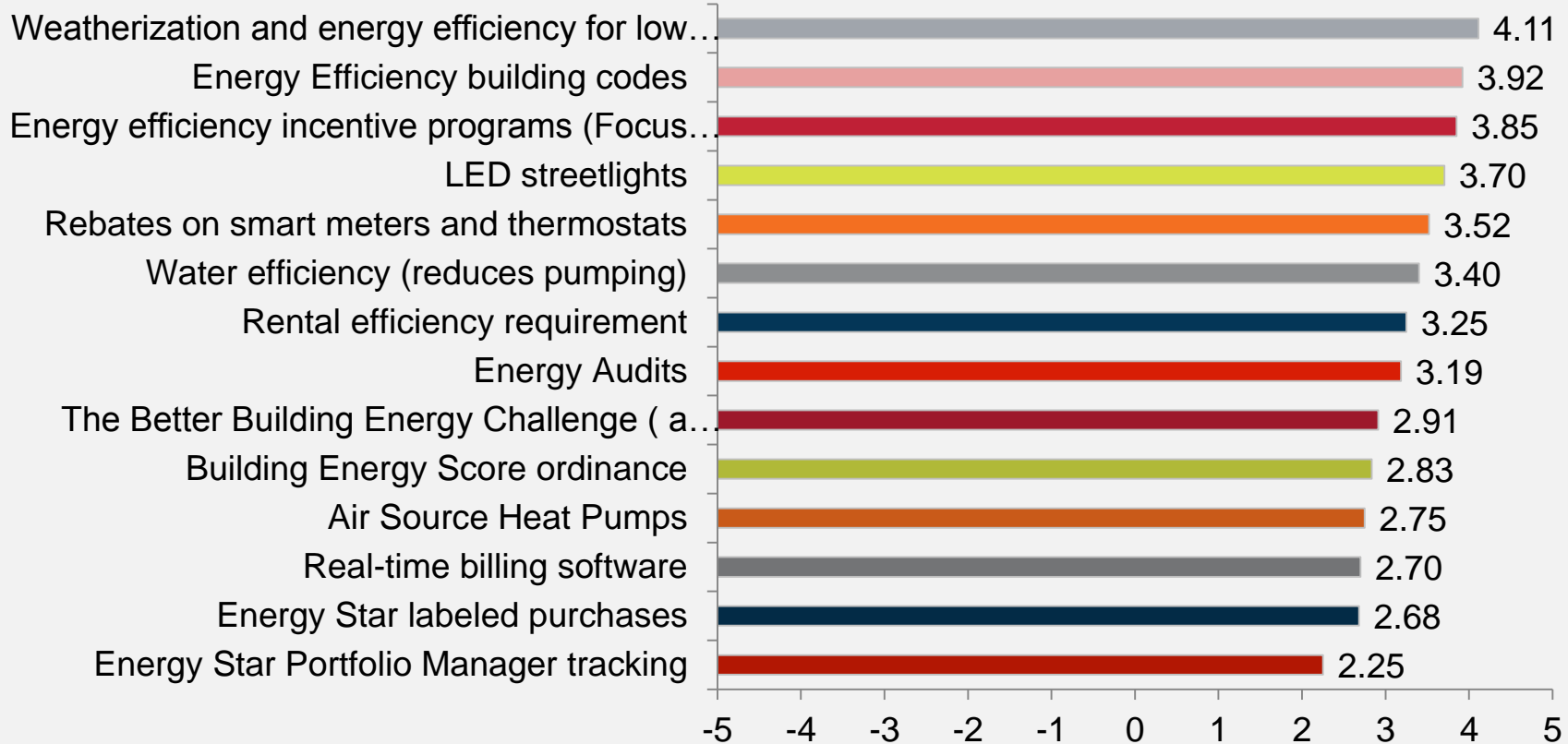
Which of these areas are you most interested in having represented in Eau Claire's Renewable Energy Action Plan?



Energy Supply



Energy Demand

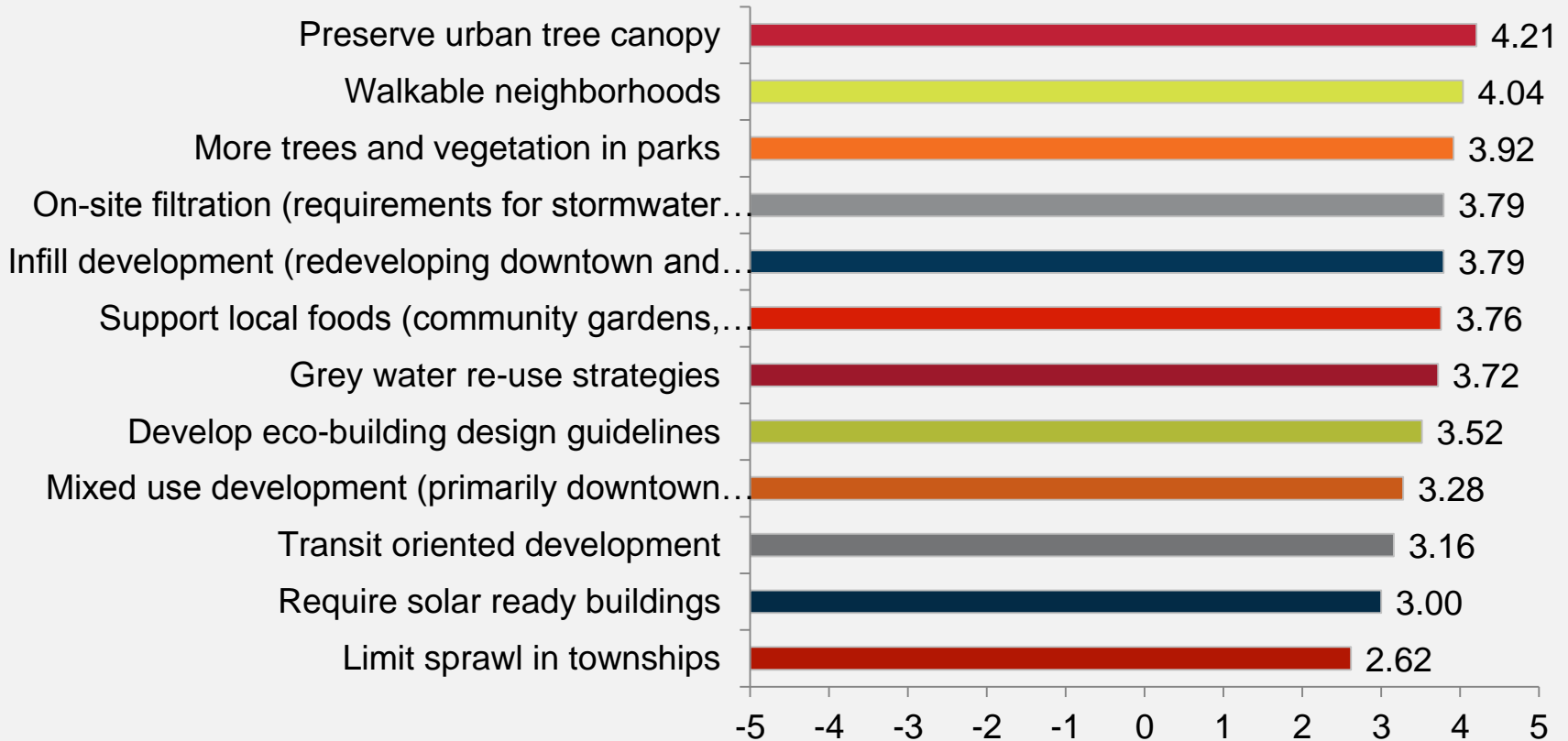


Anything Unclear?

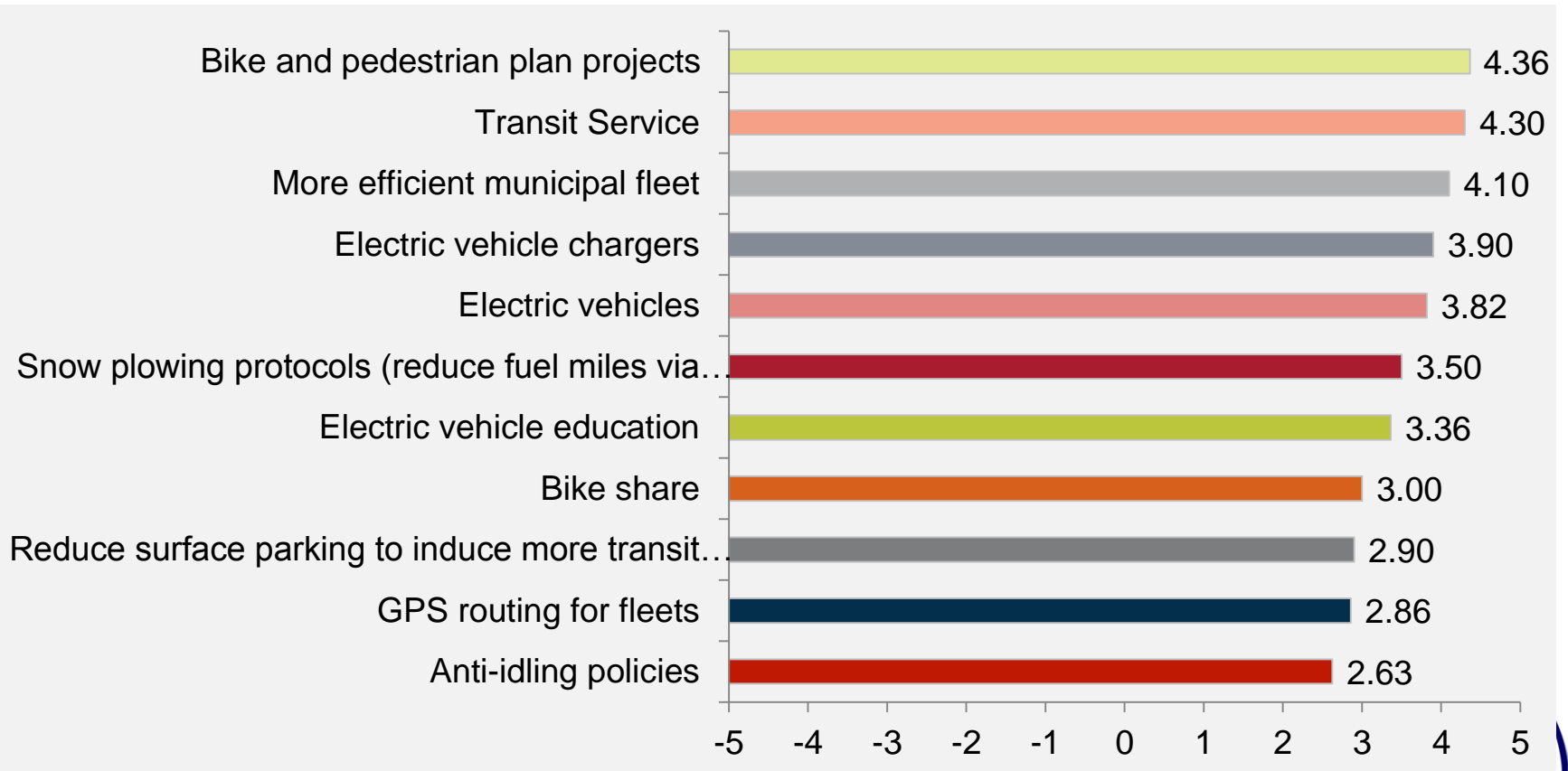
- “Behind the Meter” means installed and owned by the customer or a third party (not the utility)
- ENERGY STAR Portfolio Manager is a software program to track building energy use month over month
- Building Energy Challenge – a competition between buildings to lower energy use and / or carbon
- Energy District is a place based designation focused on energy demonstration or innovation
- Community Solar / Community Renewables means a larger system where customers can buy “shares” versus installing themselves



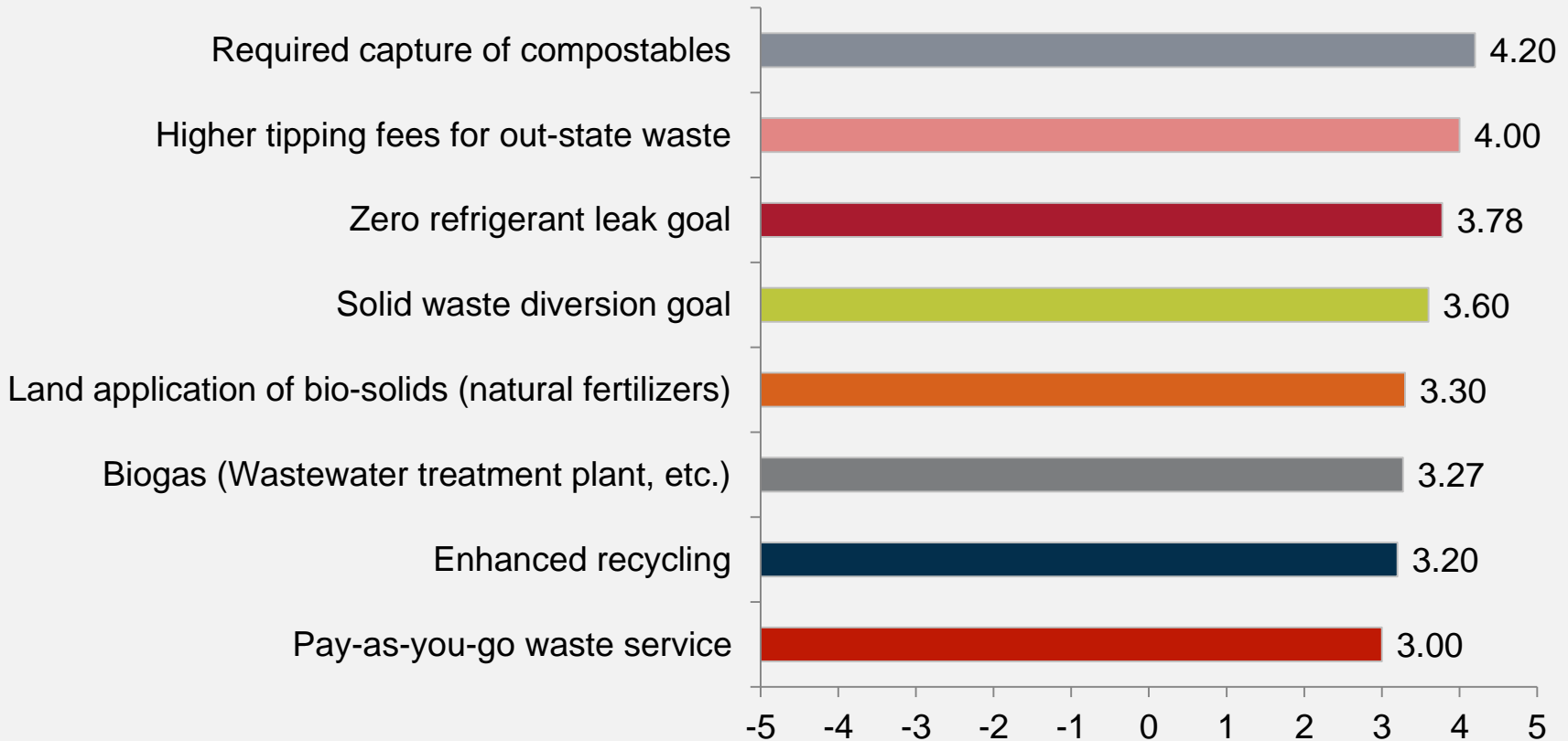
Land Use and Buildings



Transportation



Waste Management



Anything Unclear?

- Infill development means creating new development within existing neighborhoods versus on the outskirts of town
- GPS Routing for Fleets means charting more efficient routes for less time in traffic.
- Pay-as-you-go waste service = only pay for what you generate
- Enhanced Recycling = more service, larger bins



Plan Development Steps



Focus Groups by Sector

Transportation

Waste

Biodiversity

Commercial,
Industrial and
Institutional
Energy

Residential
Energy

Goal: Carbon Neutrality by 2050



BREAK



FOCUS AREA WORKING GROUPS



Focus Groups by Sector

Transportation

Waste

Biodiversity

Commercial,
Industrial and
Institutional
Energy

Residential
Energy



Back-Casting



Strategies by Sector

City of Eau Claire

Renewable Energy Action Plan Committee
List of Strategies by Sector (rank)



SECTOR: Commercial, Industrial, and Institutional Energy Use

- Preserve the urban tree canopy (4.21) (building shading)
- Incentivize energy efficient building codes (3.92)
- Energy efficiency incentive programs (3.85)
- Low-cost loans for energy efficiency, renewable energy, and water conservation improvements in commercial buildings (3.74)
- Community Solar (3.74)
- LED Streetlights (3.70)
- Develop eco building design guidelines (3.52)
- Rebates on smart thermostats (3.52)
- Water Efficiency (3.40)
- Community Owned Renewables (3.36)
- Behind the meter solar at commercial and industrial businesses (3.36)
- Battery Storage (3.33)
- Utilities Renewable Subscription Programs (e.g. Windsorce) (3.20)
- Energy Audits (3.19)
- Behind the meter solar at municipal buildings (3.12)
- Require Solar Ready Buildings (3.00)
- Better Buildings Energy Challenge (2.91)
- Building Energy Score Ordinance (2.83)
- Solar Powered Streetlights (2.75)
- Air Source Heat Pumps (2.75)
- Real time energy billing (2.70)
- Promote ENERGY STAR labeled purchases (2.68)
- Explore Energy District (2.63)
- Solar Group Buys (2.41)
- ENERGY STAR Portfolio Manager Energy Tracking (2.25)
- NEW: Biomass (and biogas)
- NEW: Ground Source Heat Pumps
- NEW: Geothermal HVAC
- NEW: Net Zero Buildings
- NEW: LEED Certification for new or rehabilitated buildings
- NEW: HVAC Commissioning
- NEW: Education campaign to turn off lights (esp at night)
- NEW: Smart Grid

Additional for group to consider:

- Waste Heat Recovery
- Eco-industrial/business Parks

v.1 6/4/19

SECTOR: Residential Energy Use

- Preserve the urban tree canopy (4.21) (building shading)
- Weatherization and energy efficiency for low income homes (4.11)
- Incentivize energy efficient building codes (3.92)
- Energy efficiency incentive programs (3.85)
- Low-cost loans for energy efficiency, renewable energy, and water conservation improvements in residential buildings (NEW: especially rental and low income) (3.74)
- Community Solar (3.74)
- Develop eco building design guidelines (3.52)
- Rebates on smart meters and thermostats (3.52)
- Water Efficiency (3.40)
- Community Owned Renewables (3.36)
- Behind the meter solar in the community at residences (3.36)
- Battery Storage (3.33)
- Rental efficiency requirement (3.25)
- Utilities Renewable Subscription Programs (e.g. Windsorce) (3.20)
- Energy Audits (3.19)
- Require Solar Ready Buildings (3.00)
- Home Energy Score Ordinance (2.83)
- Air Source Heat Pumps (2.75)
- Real time energy billing software (2.70)
- Promote ENERGY STAR labeled purchases (2.68)
- Solar Group Buys (2.41)
- NEW: Simple Residential Energy Use Tracking
- NEW: Energy loss Information targeted to older homes
- NEW: Ground Source Heat Pumps
- NEW: Geothermal HVAC
- NEW: Net Zero Homes
- NEW: LEED Certification for new or rehabilitated homes
- NEW: Low carbon diet residential teams
- NEW: Education campaign to turn off lights (esp at night)
- NEW: Finance programs for rental and low income housing

Additional for group to consider:

- Residential Solar Thermal

SECTOR: Transportation and Land Use

- Bike and ped projects (4.36)
- Transit Service (4.30)
- More efficient municipal fleet (4.10)
- Walkable neighborhoods (4.04)
- Electric Vehicle Chargers (3.90)
- Electric Vehicles (3.82)
- Infill development (redeveloping downtown and neighborhoods) (3.79)
- Snow plow routing to reduce fuel miles (3.50)
- Electric Vehicle Education (3.36)
- Renewable fuel for City transportation (3.24)

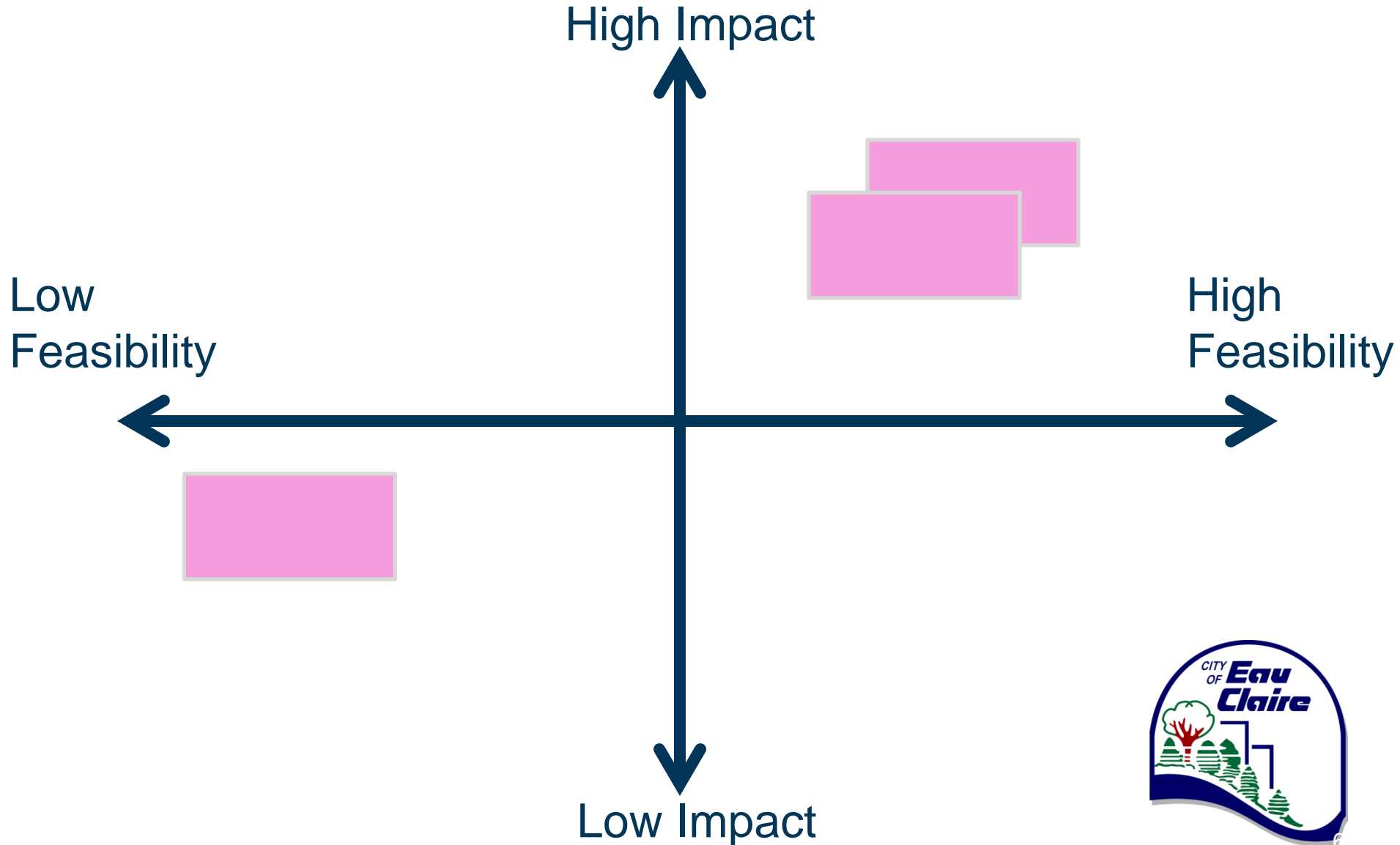


Strategy Review

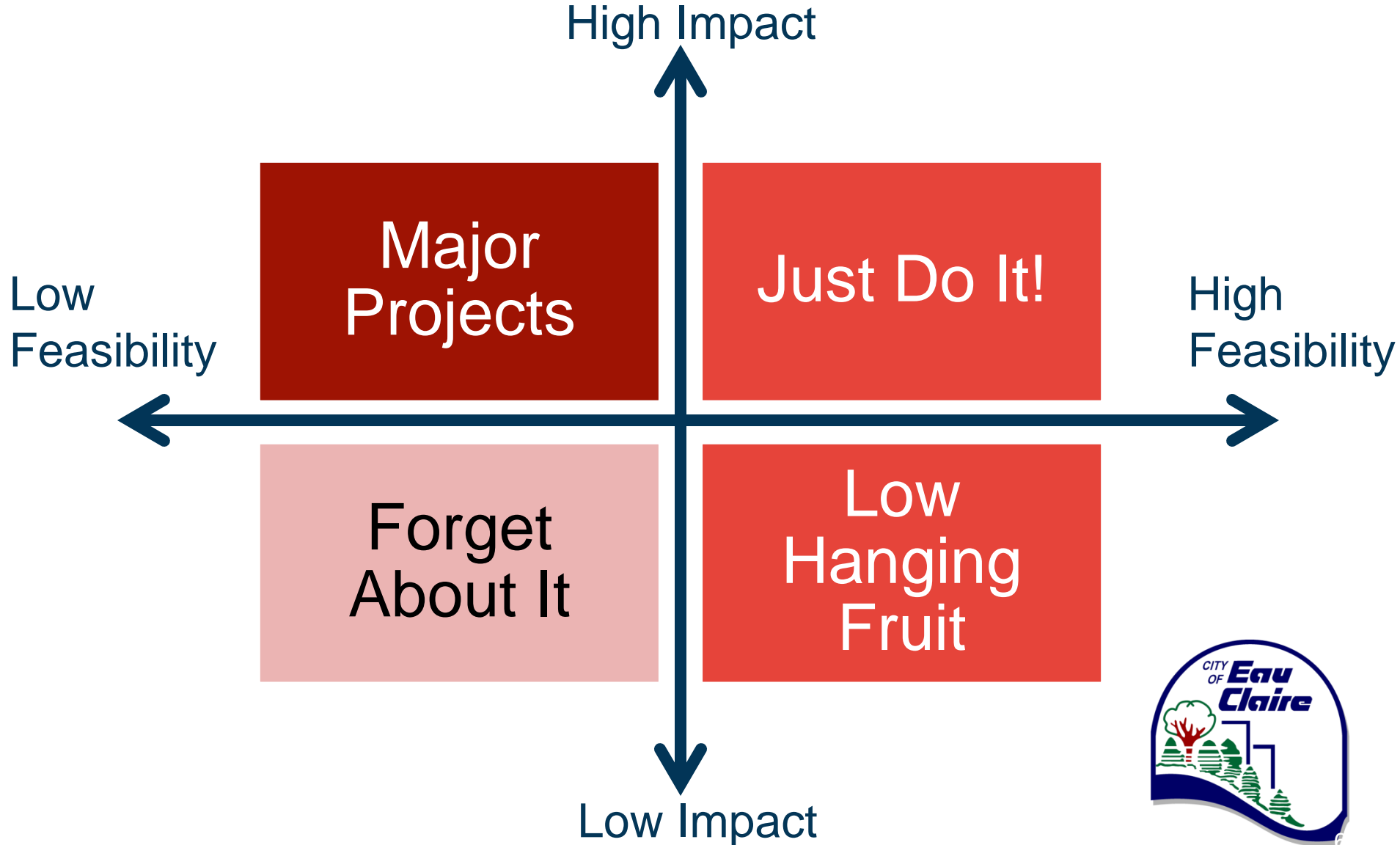
- **Eliminate Strategies:** Is there anything it seems you should get rid of?
- **Group Strategies:** Is there anything that should go together?
- **Add Strategies:** If we did everything here, what would still be left?
- **Share with your table**



Impact and Feasibility



Impact and Feasibility



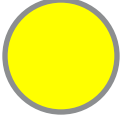


Visit a Different Table (10 min)

Ground Rules

- You are not allowed to move an existing post it placement
- You can add new post its with new strategy ideas
- You can add new post its with questions or endorsements.
 - E.g. this is really important – I think it will have even higher impact!
 - E.g. this seems hard – what in your mind gives it high feasibility?



Guiding Principles

-  Economic Development
-  Equity and Inclusiveness
-  Ecosystem Stewardship



REPORT OUT



Share with the Full Group

- Where is there strong agreement?
- What is one thing your group is still grappling with?
- What is one insight from the guiding principles exercise?



WRAP UP AND NEXT STEPS



Reminder: Sign up for the Exchange



PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

- Monthly “Office Hour” webinars on a special topic related to implementing your plan
 - Featuring topic experts and case studies
- Upcoming Office Hours: **Electric Vehicles**
 - June 27, from 12:30-1:30

Residential Event Identification  **PARTNERS IN ENERGY**
An Xcel Energy Community Collaboration

Good Candidates

- Well-attended by target audience
- Opportunities for visibility/exposure (e.g., table location, dedicated agenda time, etc.)
- Vibe aligns with Energy Action Plan vision or message
- Low level of costs and/or logistics to participate

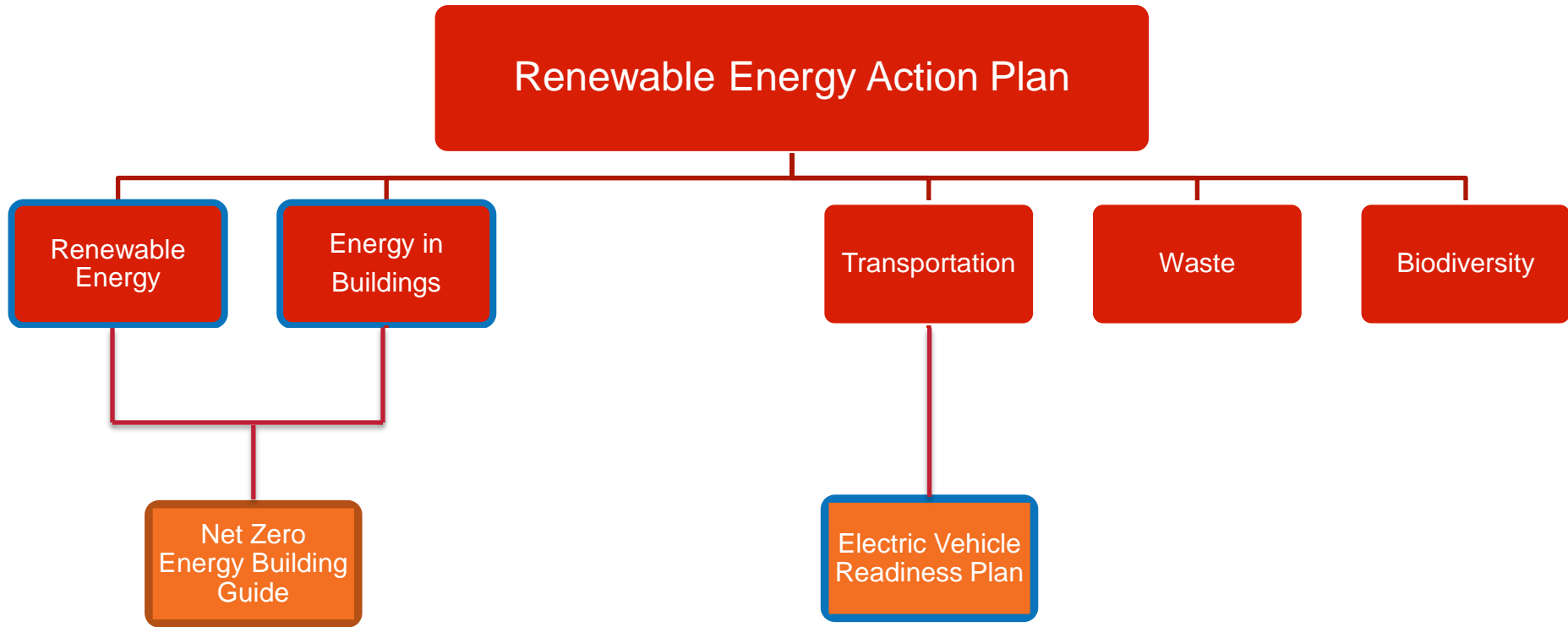


Contact Jamie Johnson to receive information about upcoming webinars

jcjohnson@mncee.org



Plan Structure & Focus Areas



 = Supported by Partners in Energy



Upcoming Workshops

All workshops are 6:30 – 8:30 p.m.
Chippewa Valley Technical College
Energy Education Center

UPCOMING DATES

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

