

ROSEVILLE ENERGY ACTION TEAM WORKSHOP TWO

JANUARY 12, 2021



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TODAY'S GOALS

1. Have the vision statement agreed upon
2. Understand our Focus Area options
 - Which make the most sense for Roseville
 - Which are the ones we should focus on first, next, and "after that"
 - Which have the most support
3. Understand each other better



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AGENDA

- Welcome
- Vision Statement Update
- Focus Areas, Part 1
- Break
- Focus Areas, Part 2
- Setting Priorities
- Wrap Up



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PLAN FRAMEWORK

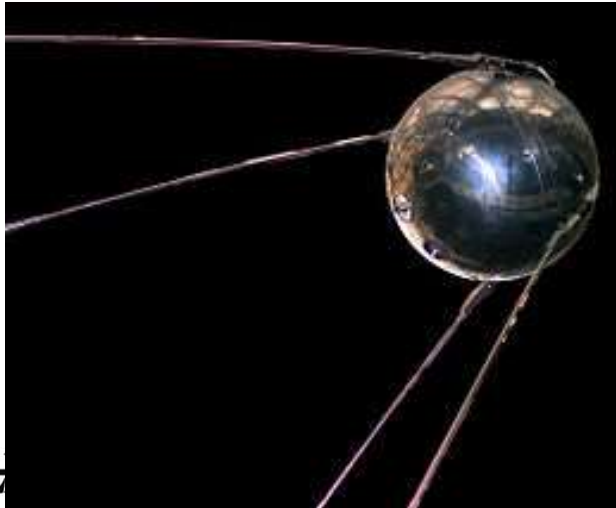


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OCTOBER 4, 1957



ROSEVILLE

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PARTNERS IN ENERGY
An Xcel Energy Community Collaboration

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EARLY US RESPONSE



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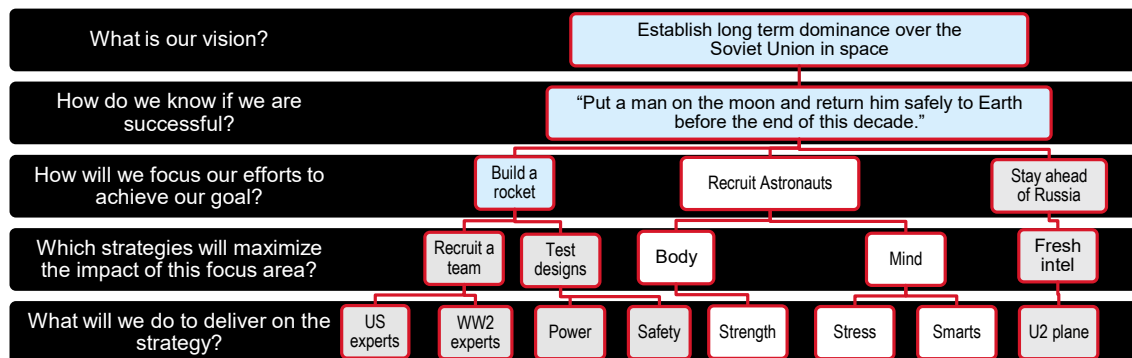
ROSEVILLE

Rice University Speech, September 12, 1962

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JFK'S PLAN



ROSEVILLE

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VISION STATEMENT REVISION

Residents and businesses in Roseville will use less energy than we have in the past, and what we do use will be cleaner.

Households who are burdened by their energy expenses will have resources to help them.



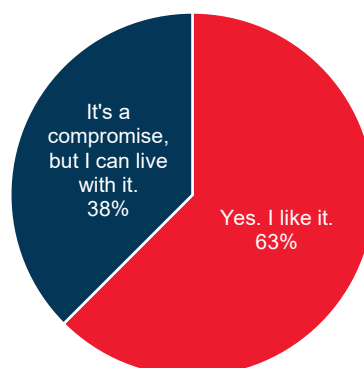
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SURVEY RESULTS

"Does this vision statement work for your Energy Action Plan?"

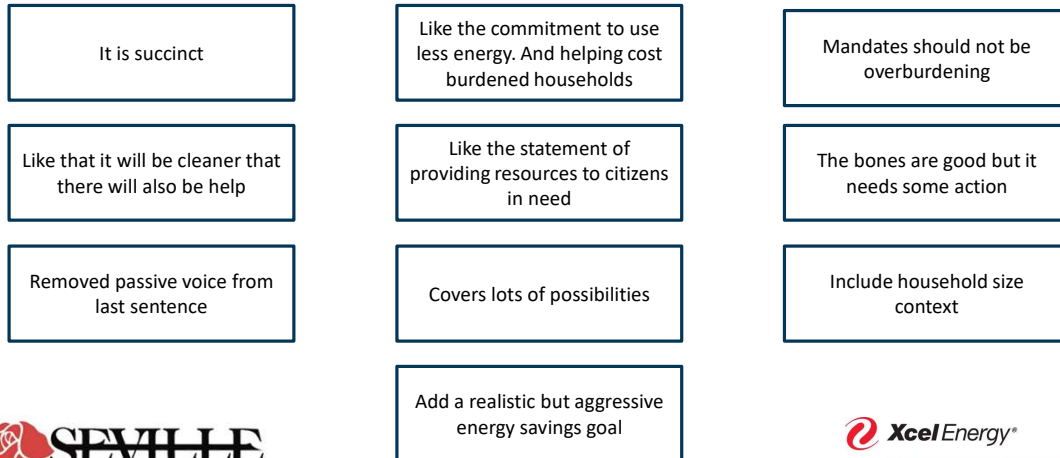


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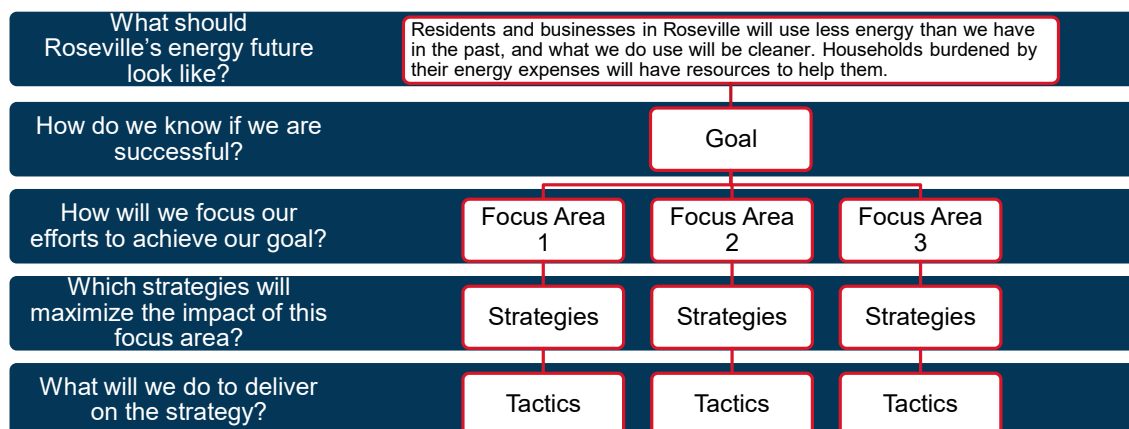
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WHAT DO YOU LIKE? WHAT'S MISSING?



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PLAN FRAMEWORK



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IT'S TIME FOR ...

Pick!

Your!

Focus
Area!



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Pick!

Your!

Focus
Area!

The exciting new game sweeping the USA, Roseville, this meeting!

Four lucky team members each pick a semi-finalist!

Each Focus Area has 2 minutes to introduce itself and win you over

Team members then enter the secret "ZOOM BREAKOUT ROOMS".

- ★ You'll discuss each option and agree on your Favorite, 1st, 2nd and 3rd Runners Up!
- ★ After 15 minutes, the secret Breakout Room *disappears* – and team members will magically be brought back to PYFA HQ, where they'll share their opinions with the others



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TIME TO USE YOUR TRACKER!

Pick! Your! Focus Area! **CONTESTANT TRACKER**

Contestant (Focus Area)	Important to Residents / Businesses? 1 - 10	How big an impact will it have? 1 - 10	How easy / difficult will it be? 1 - 10	Best for...? Right away Mid-term Longer term

 **PARTNERS IN ENERGY**
An Xcel Energy Community Collaboration



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Pick! Your! Focus Area!

1	2	3	4
5	6	7	



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RESIDENTIAL ENERGY EFFICIENCY

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AGING HOUSING STOCK IS AN EFFICIENCY OPPORTUNITY

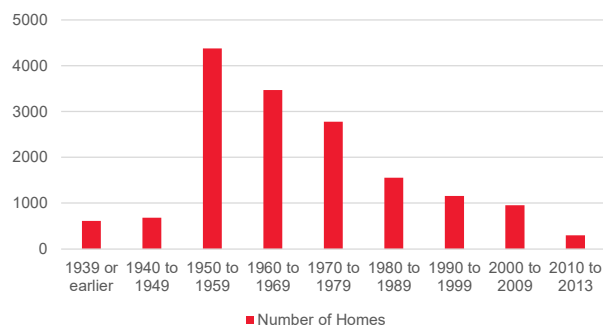
In Roseville ...

85% of homes are more
than 30 years old

75% are over 40 years old

58% are over 50 years old

Construction of Roseville Homes



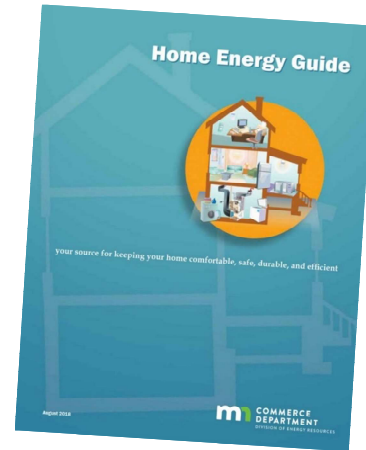
Source: [2019: ACS 5-Year Estimates Data Profiles](#)



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OLDER HOMES LIKELY READY FOR EQUIPMENT UPGRADES

Equipment	Lifespan
Furnace	15 – 20 years
Boiler	20 – 30 years
Central Air Conditioning	15 – 20 years
Water Heater	10 – 12 years

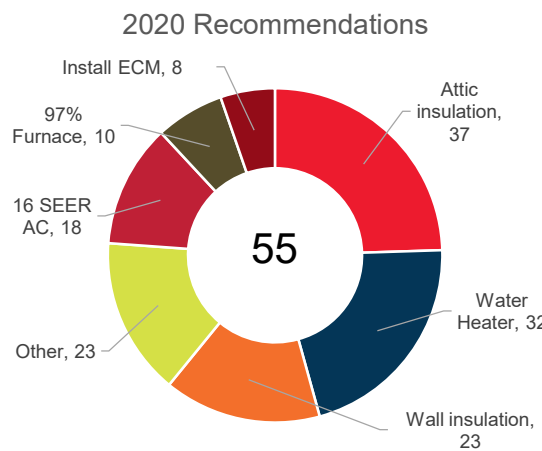
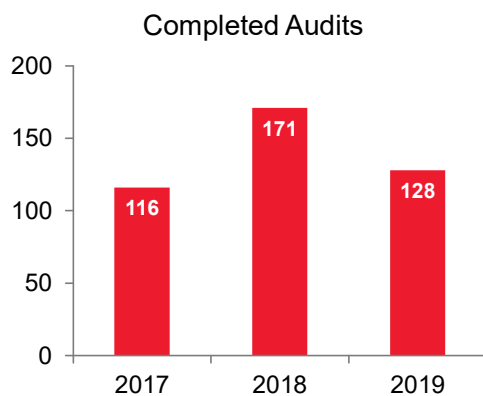


Source: [Home Energy Guide](#), 2018.
Minnesota Department of Commerce Division of Energy Resources



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ROSEVILLE HOME ENERGY SQUAD / ENERGY AUDIT RECAP



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REDUCING ENERGY BURDEN

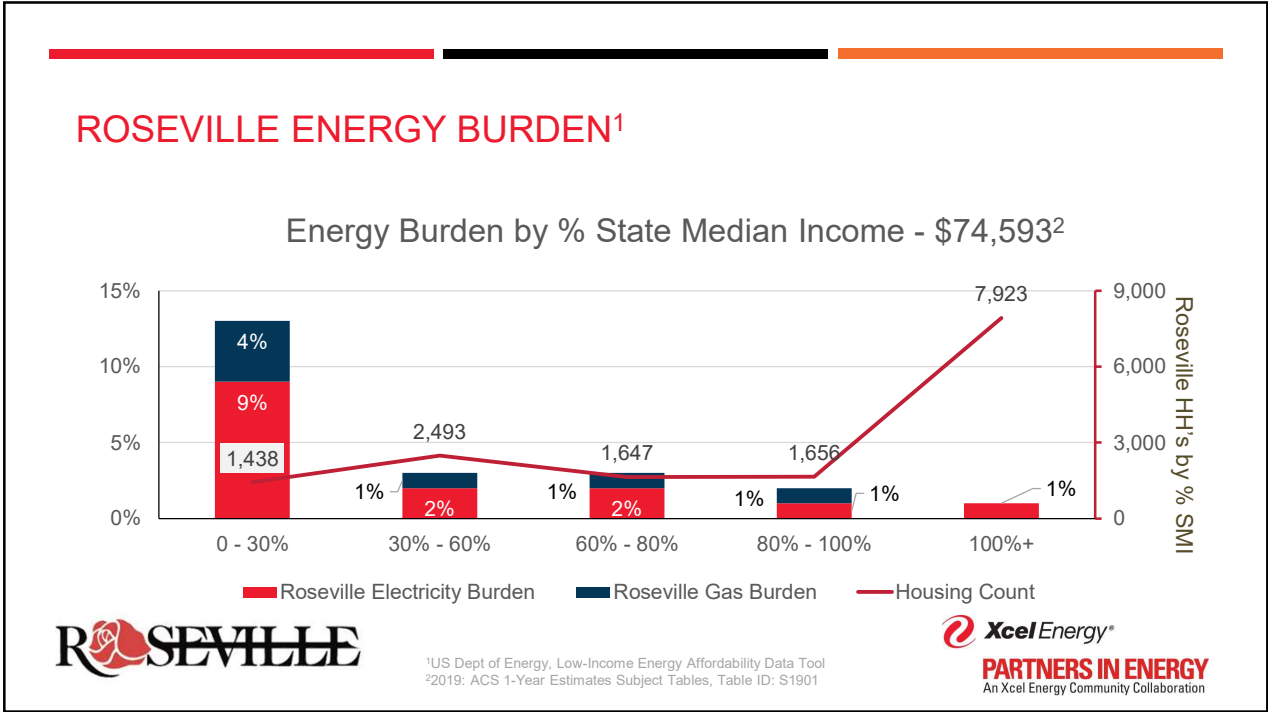
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ENERGY BURDEN DEFINED

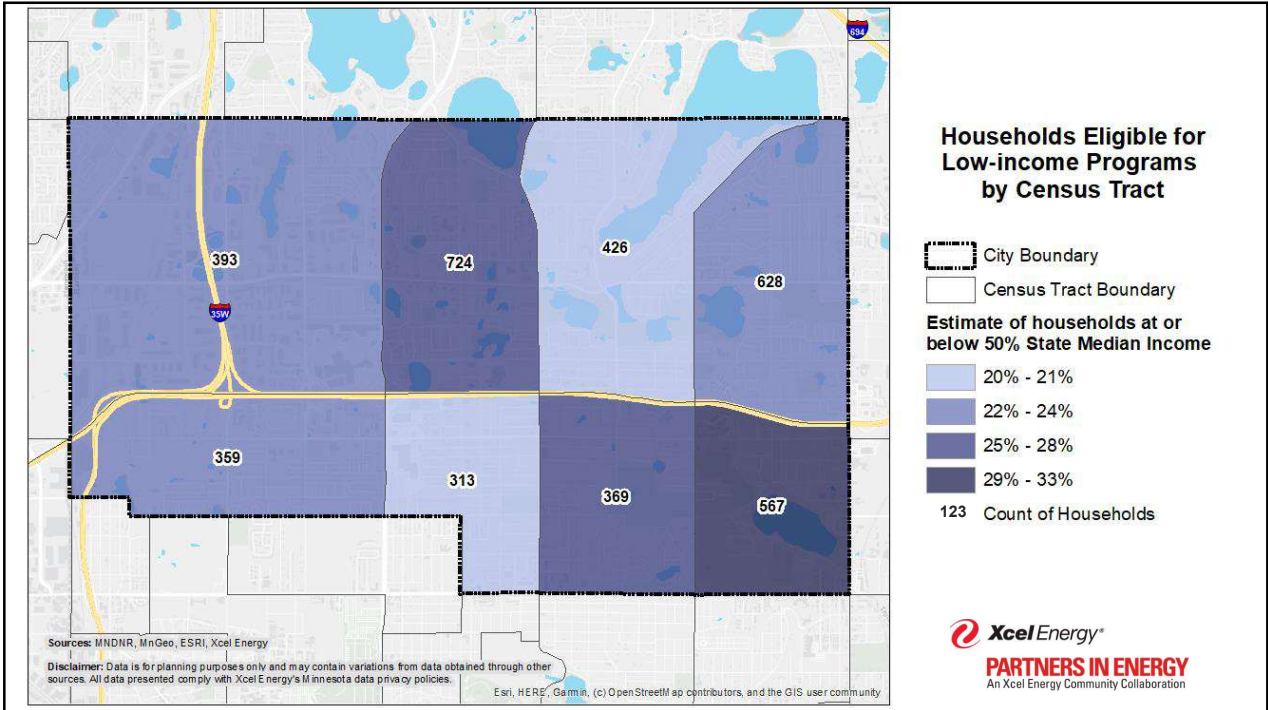
- **Energy burden:** the percentage of household income spent on home energy bills.
 - A “**high energy burden**” means more than **6%** of income is spent on home energy bills
 - A “**severe energy burden**” means more than **10%** of income is spent on home energy bills
- In Roseville, **average energy burden** is **2%**
 - But **~9.5%** of households are experiencing **high or severe energy burden** (*Statistics are pre-pandemic*)



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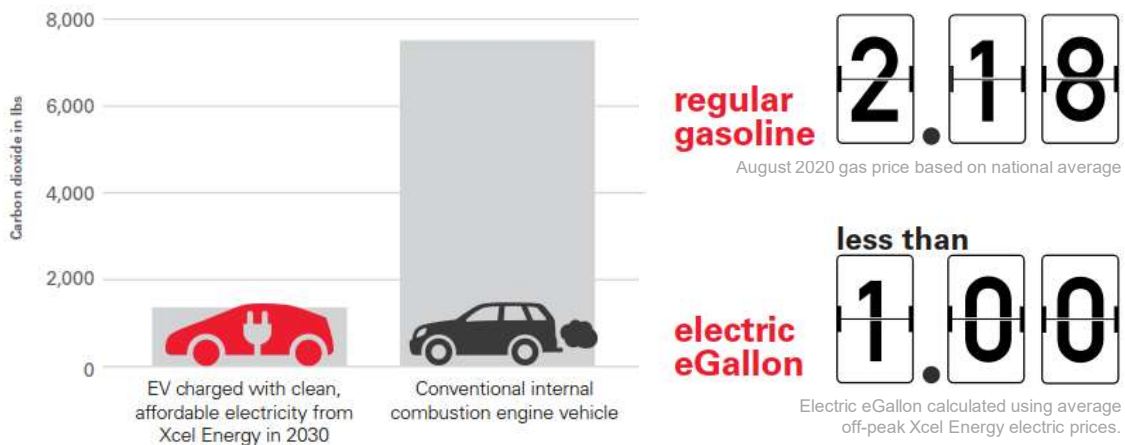


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PREPARING FOR ELECTRIC VEHICLES

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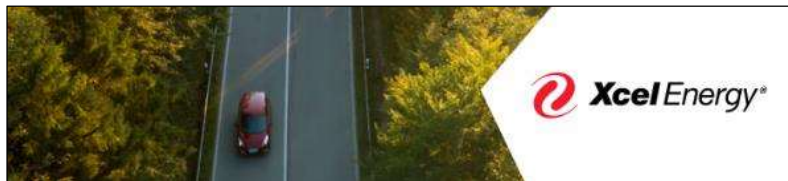
ELECTRIC VEHICLES OFFER LOWER EMISSIONS & LOWER COSTS



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ELECTRIC VEHICLES' POPULARITY IS GROWING

- Xcel Energy has a goal to serve 1.5 million EVs in its 8-state service territory by 2030
- Between 2018 & 2019, the number of electric vehicles in Minnesota almost doubled – from 5,000 to 10,000
- EVs registered in Roseville in 2019: **100**



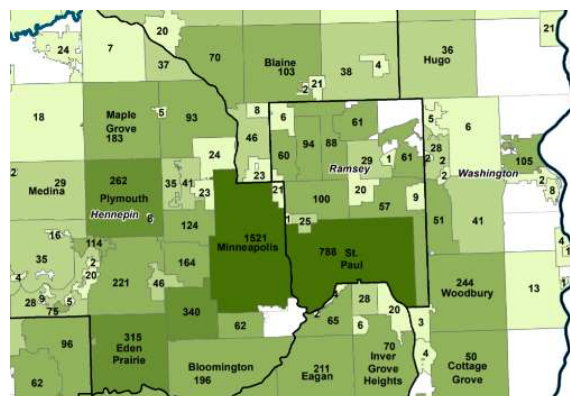
Source: Drive Electric Minnesota, Xcel Energy, U.S. Dept. of Energy



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ROSEVILLE EV REGISTRATIONS AT PARITY WITH MOST NEIGHBORS

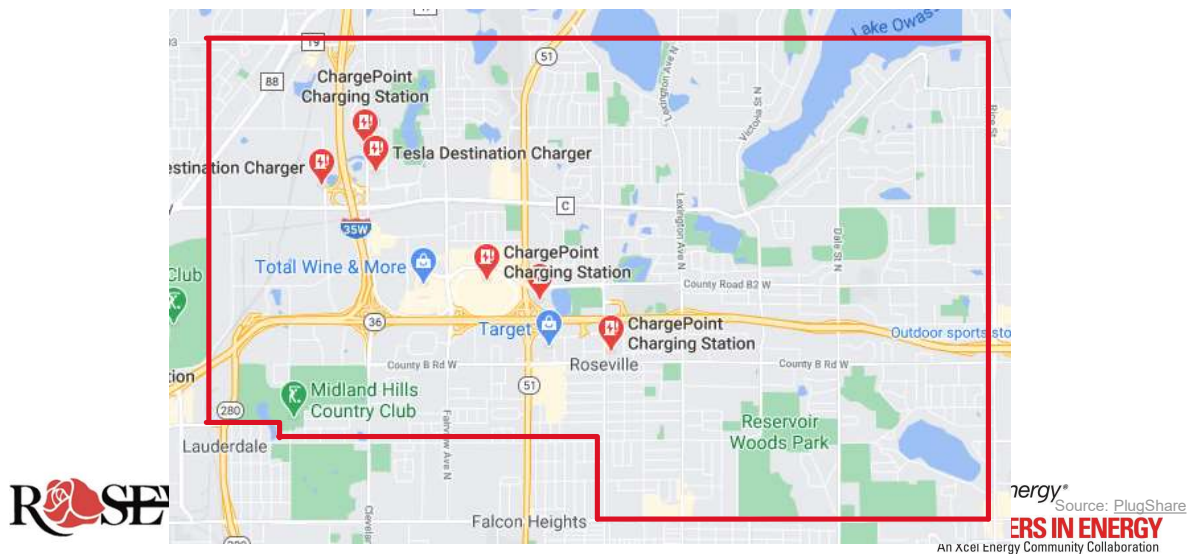
City	Households	EVs	%
Roseville	15,550	100	0.64
Arden Hills	3,208	94	2.90
New Brighton	9,553	60	0.63
Vadnais Heights	5,374	29	0.54
Saint Paul	119,113	788	0.66



Source: Drive Electric MN,
<https://scripts.betterenergy.org/DriveElectric/Registration/EVbyCityTown.pdf>

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GOOD PUBLIC CHARGING ACCESS IN ROSEVILLE

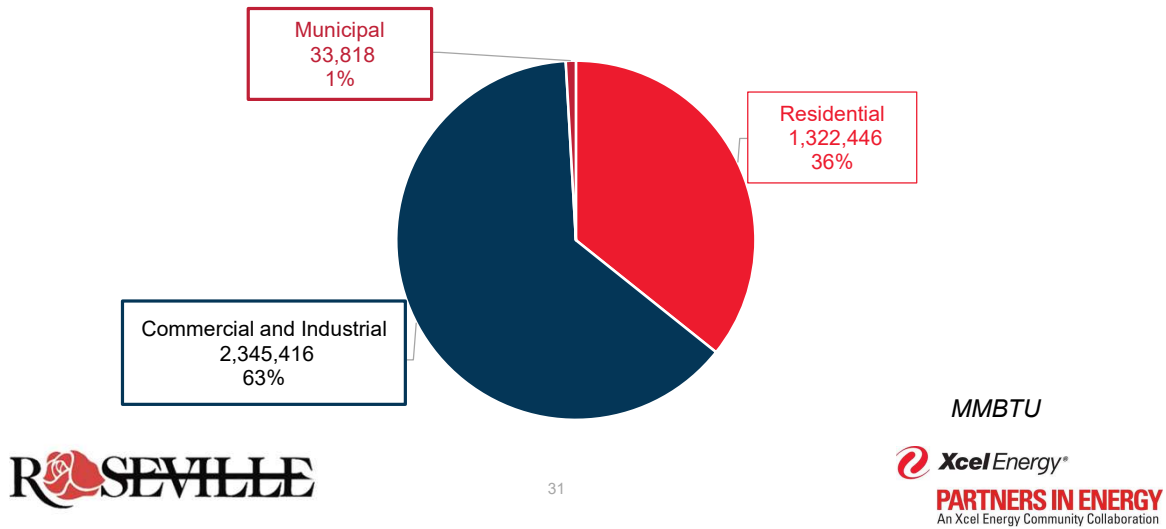


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ENERGY EFFICIENCY FOR BUSINESSES

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COMMERCIAL / INDUSTRIAL PREMISES USE ALMOST 2X MORE ENERGY THAN RESIDENCES IN ROSEVILLE



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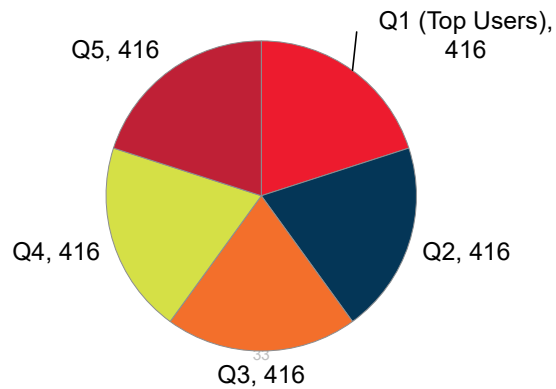
10% OF COMMERCIAL / INDUSTRIAL PREMISES USING EFFICIENCY PROGRAMS

Baseline Average Annual Utilization	
Total Commercial / Industrial Premises	2,512
Average Annual Electricity Use	271,660,853 kWh
Average Annual Program Participants	255
Average Annual kWh savings	5,576,441 kWh (2%)

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ROSEVILLE COMMERCIAL & INDUSTRIAL PREMISES VARY BY QUINTILE

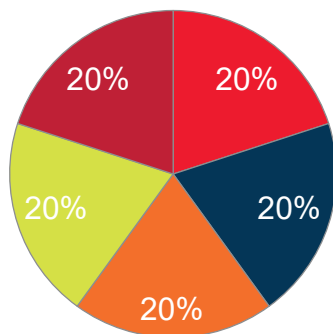
Commercial / Industrial Premises:
Largest to Smallest in 5 groups (Quintiles)



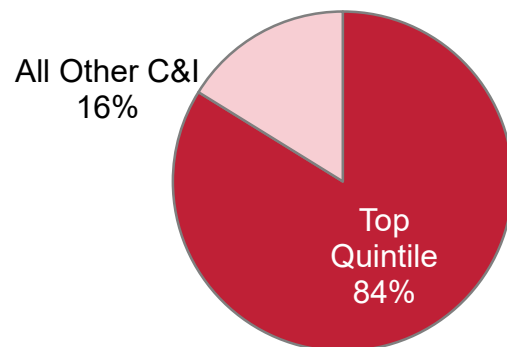
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TOP QUINTILE USES MOST OF THE C/I ELECTRICITY

Roseville Commercial /
Industrial Premises



Electricity Use, 2019



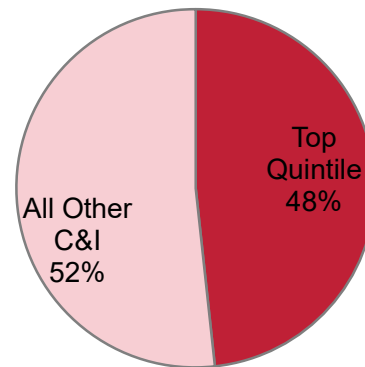
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TOP QUINTILE ALSO PARTICIPATES IN MORE PROGRAMS THAN ALL THE OTHERS

- Roseville commercial / industrial customers participated in programs 549 times 2017 – 2019
- Top quintile participated in 265 programs; 48% of total

Xcel Energy C&I Program Participation, 2017-2019



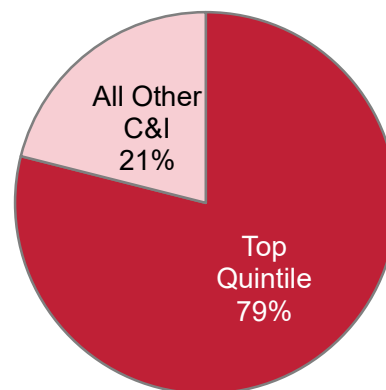
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TOP QUINTILE ALSO SAVES MOST OF THE ENERGY

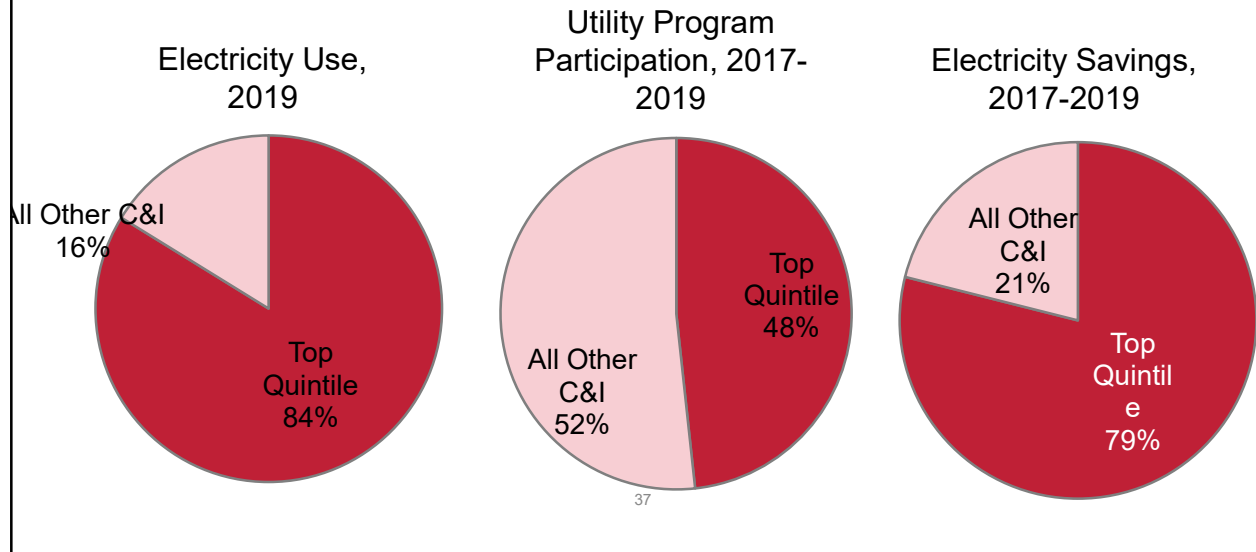
- Roseville Commercial / Industrial customers saved **21 million kWh**, 2017 – 2019
- Top Quintile accounts for 79% of savings **16 million kWh**

C&I Electricity Savings, 2017-2019



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RECAP: TOP 5TH USE AND SAVE THE MOST ELECTRICITY

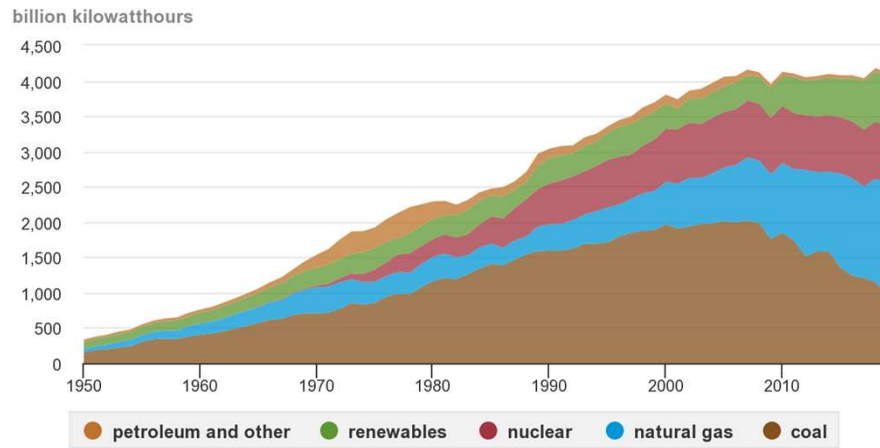


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RENEWABLE ENERGY

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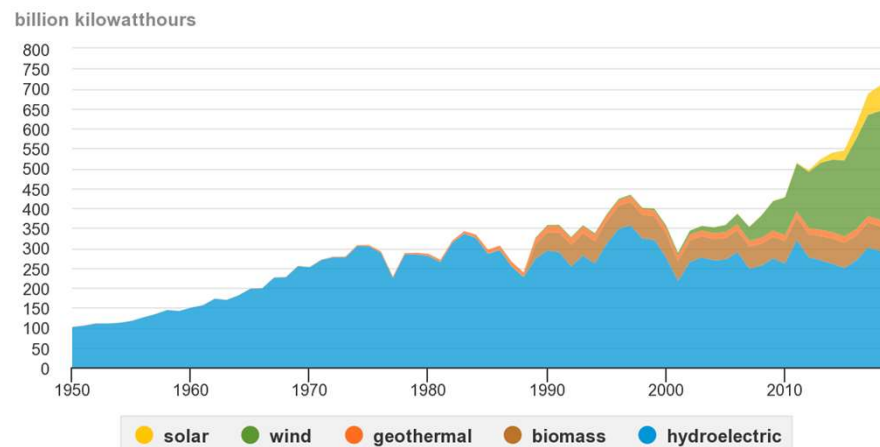
US ELECTRICITY FUEL SOURCES HAVE CHANGED



Note: Electricity generation from utility-scale facilities.
Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 7.2a, March 2020 and *Electric Power Monthly*, February 2020, preliminary data for 2019

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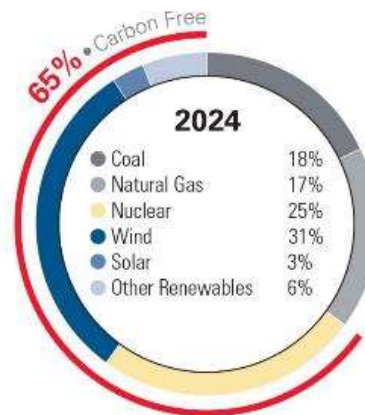
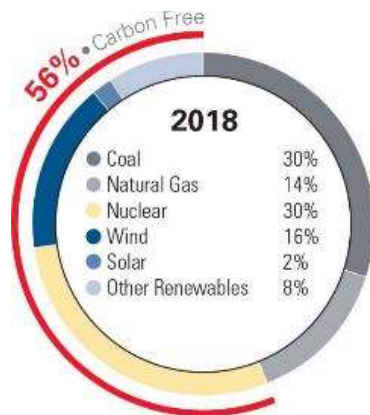
RENEWABLE ENERGY MIX DIVERSIFYING



Note: Electricity generation from utility-scale facilities. Hydroelectric is conventional hydropower.
Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 7.2a, March 2020 and *Electric Power Monthly*, February 2020, preliminary data for 2019

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XCEL ENERGY 26% RENEWABLE, 40% BY 2024



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TWO WAYS TO CHOOSE / SUPPORT RENEWABLE ENERGY

On-site



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Subscription

- Renewable*Connect®
- Windsource®
- Solar*Rewards Community®
- Solar*Rewards® for Residences
- Net Metering

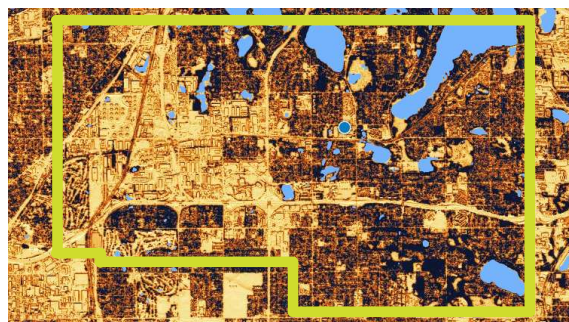
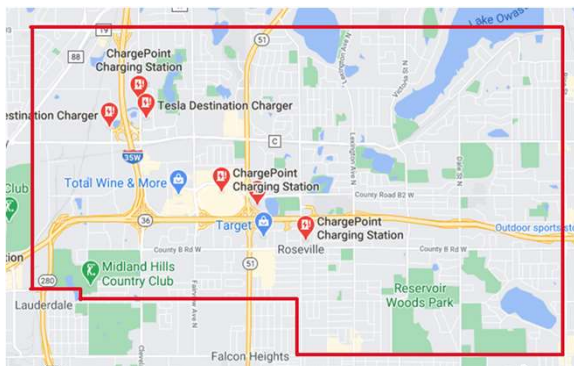


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TREE COVER IN OLDER SUBURBS MAKES ON-SITE SOLAR DIFFICULT



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Source: University of Minnesota Solar Suitability App, solar.maps.umn.edu, Google Maps

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GREENHOUSE GAS AVOIDANCE

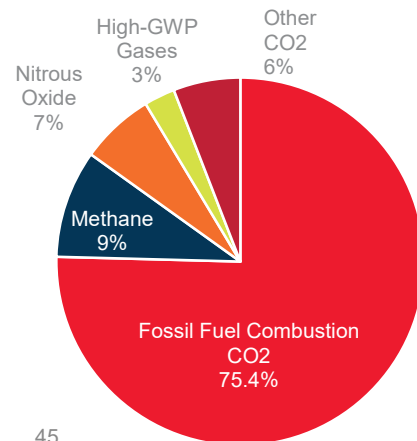
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GREENHOUSE GASES: WHAT ARE THEY AND WHERE DO THEY COME FROM



Source: [NASA](https://climate.nasa.gov)

U.S. greenhouse gas emissions by gas, 2018



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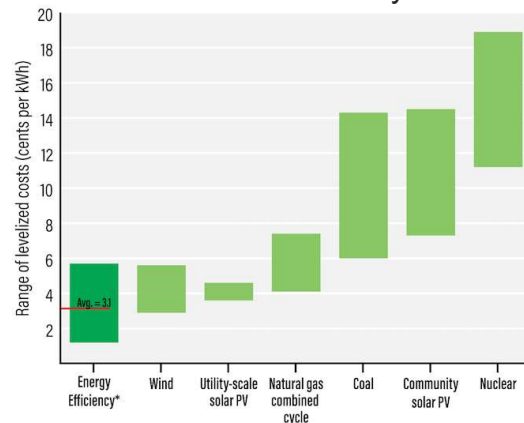
Source: [U.S. Energy Information Administration](https://www.eia.gov)

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THE PATH TO REDUCTION

- While **renewables** and **efficiency** can **reduce emissions** in the electricity sector, **efficiency** remains the cheapest option for reducing emissions in both electricity and natural gas sectors

Levelized Cost of Electricity Sources



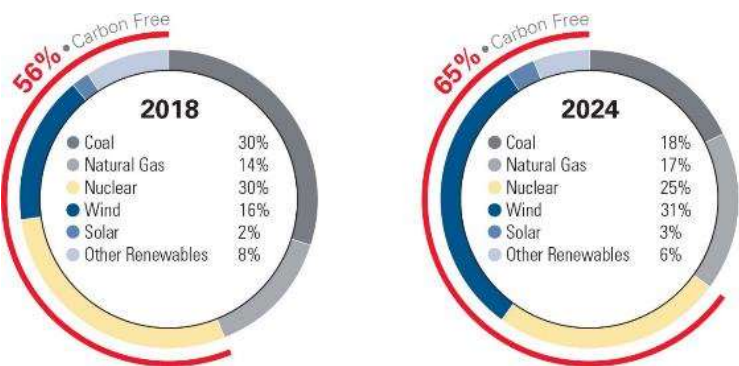
*Notes: Energy efficiency program portfolio data from Molina and Reif 2016. Represents costs to utilities or program administrators only, including shareholder performance incentives if applicable. All other data from Lazard 2016 Unsubsidized Levelized Cost of Energy Comparison.

Source: [U.S. Energy Information Administration](https://www.eia.gov)

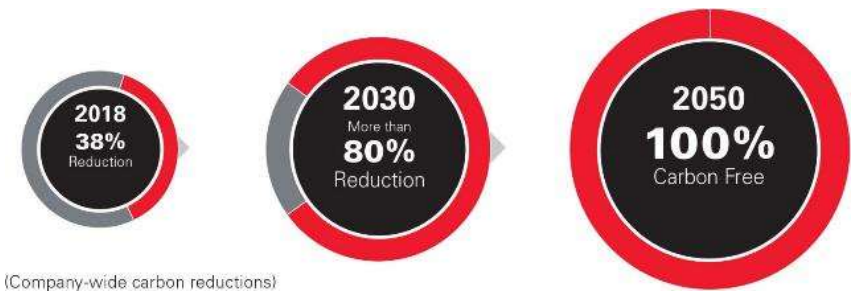


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A CLEANER ENERGY MIX

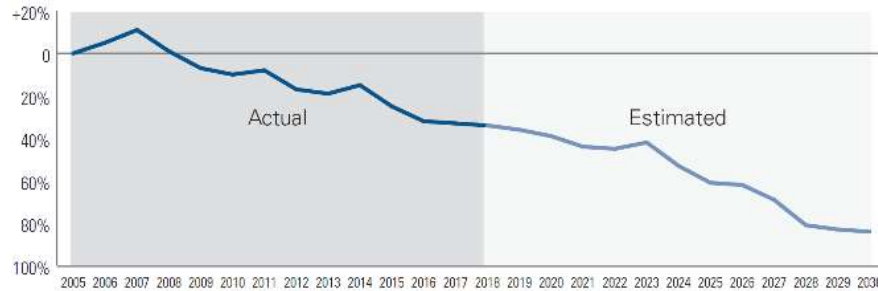


BOLD CARBON-REDUCTION GOALS



XCEL ENERGY'S JOURNEY TO REDUCE CARBON

UPPER MIDWEST



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ROSEVILLE'S ELECTRICITY AND NATURAL GAS USE CREATES MORE THAN A QUARTER MILLION TONS OF CO2E EVERY YEAR

Customer Type	Greenhouse Gas Emissions (MTCO2e)
Residential	88,012
Commercial / Industrial	173,371
Municipal	<u>3,005</u>
Total	264,388



Note: Baseline data.. Includes only natural gas and electricity



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**264,388 METRIC
TONS OF CO₂E**

Every year ...

- Equivalent to the greenhouse gasses emitted by 1,454 rail cars of coal.
- A train of loaded coal cars more than 14 miles long.
- Roseville's Portillo's to MOA



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**SAVING MONEY
SPENT ON ENERGY**

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HOW MUCH DOES ROSEVILLE SPEND ON ENERGY?

Customer Type	Premises	Average cost per premise	Total Energy Costs (\$)
Residential	15,546	\$1,205	\$18,735,730
Commercial and Industrial	2,512	\$13,874	\$34,855,142
Municipal	<u>103</u>	\$6,721	<u>\$694,510</u>
Total	18,161		\$54,285,382



Note: Baseline period annual averages



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HOW MUCH DOES ROSEVILLE SPEND ON ELECTRICITY AND NATURAL GAS?

Customer Type	Electricity		Natural Gas		Total Monthly \$ per Premise
	Total Spending	Cost per Premise	Total Spending	Cost per Premise	
Residential	\$12,644,902	\$813	\$6,090,828	\$392	\$100
Commercial and Industrial	\$27,423,398	\$10,916	\$7,431,744	\$2,958	\$1,156
Municipal	<u>\$631,949</u>	\$6,116	<u>\$62,561</u>	\$605	\$560
Total	40,700,249		13,585,133		



Note: Baseline period annual averages



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EFFICIENCY SAVES REAL MONEY

Saving 2% of Roseville's energy would put \$1,000,000 back into the local economy.

Customer Type	Total Energy Costs (\$)	
Residential	\$18,735,730	\$374,714
Commercial and Industrial	\$34,855,142	\$697,103
Municipal	<u>\$694,510</u>	<u>\$13,890</u>
Total	\$54,285,382	\$1,085,707



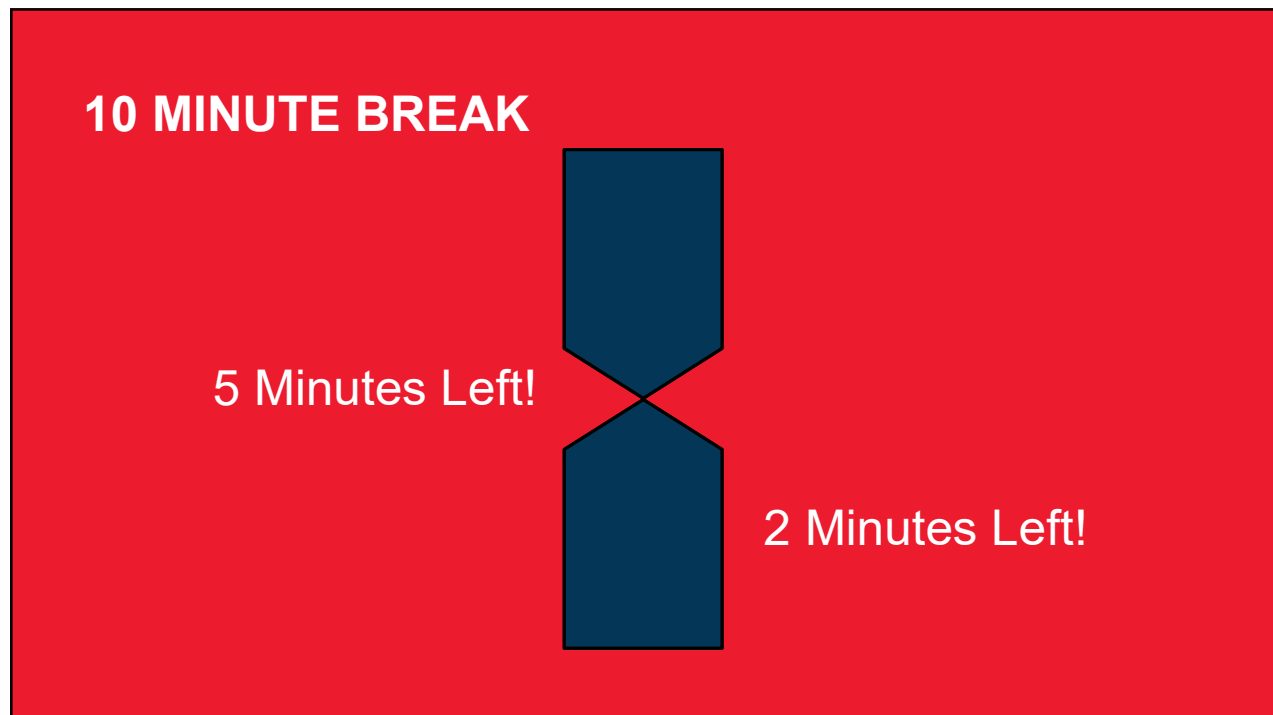
Note: Baseline period annual averages



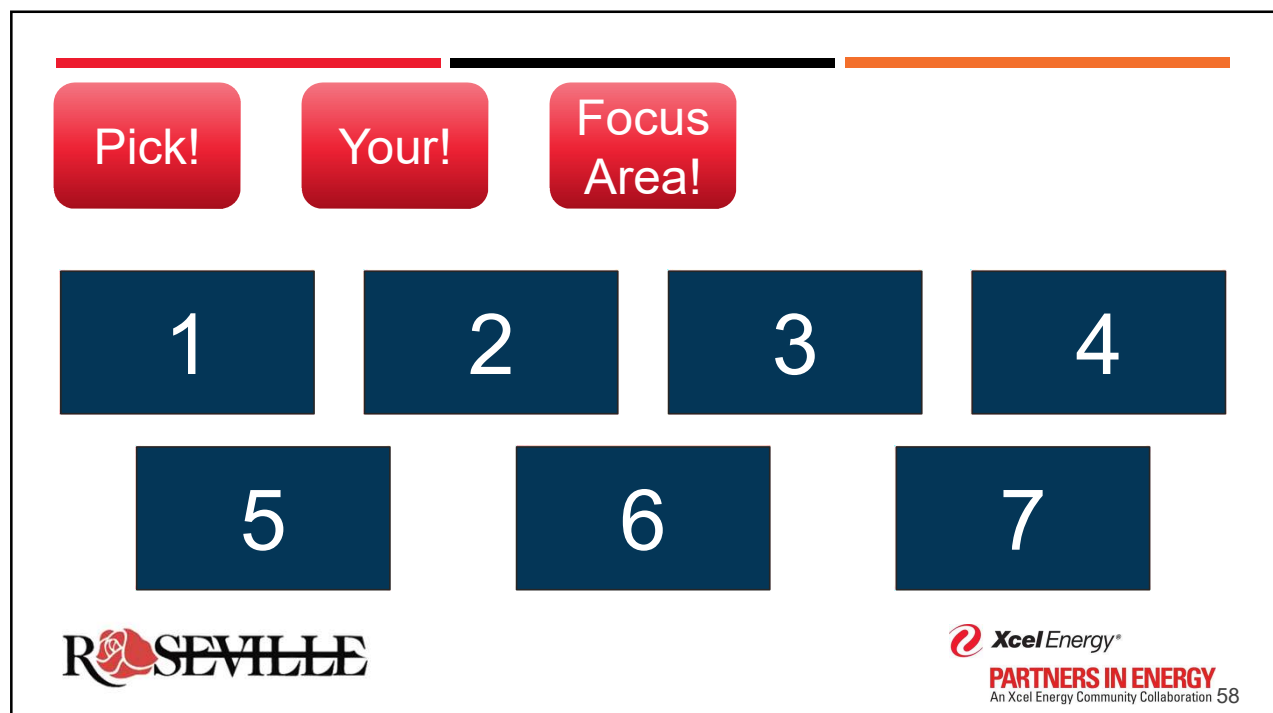
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**BREAK
BACK IN 10 MINUTES**

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CONTESTANT TRACKER

Contestant (Focus Area)	Important to Residents / Businesses? 1 not – 10 very	How big an impact will it have? 1 small – 10 big	How difficult will it be? 1 difficult – 10 easy	Combined Score	Best timing?		
					A. Next 2 years	B. Mid-term: 3-5 years	C. Later: 5+ years
Residential Energy Efficiency	6	4	3	13	A	B	C
Reducing Energy Burden	7	7	5	19			
Preparing for Electric Vehicles	4	3	6	13			
Energy Efficiency for Businesses	6	7	3	16			
Renewable Energy	8	7	3	18			
Greenhouse Gas Avoidance	9	10	2	21			
Saving Money Spent of Energy	5	3	4	12			

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KNOWING WHAT YOU KNOW NOW ...

Focus Area	Next 2 Years	3 – 5 Years	> 5 Years
Preparing for more electric vehicles on the road			
Renewable energy for businesses and institutions			
Renewable energy for residents			
Decreasing energy burden			
Energy efficiency for businesses and institutions			
Energy efficiency for residents			
Saving money spent on energy			
Greenhouse gas avoidance			
Educate the public on energy options			

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