



FIRST PRESBYTERIAN CHURCH

Energy Audit, 2023

CLIMATE SMART CHURCH

- Tragedy of the Commons
- Culture Shifts
- Water Wise
- Recycling Program
- Composting
- Rooftop Garden
- Reduce your Carbon Footprint
- Grow your Climate Shadow



KEY FACTS ON CLIMATE CHANGE

The State of Global Climate Change

ENERGY USE AND HOUSING IN THE UNITED STATES (DOE FACTS)

Average person in the U.S. today uses 100x the energy that his or her great grandmother did a hundred years ago.

- Average American 3x more than Average Chinese

Residential Sector Accounts for 21% of Energy Use in U.S.

- 55% energy used for heating and cooling

Average House released an estimated 17,320 lbs of CO2 per year.

- 70% more CO2 than average car.
- Homes are 27% larger than in 1960.

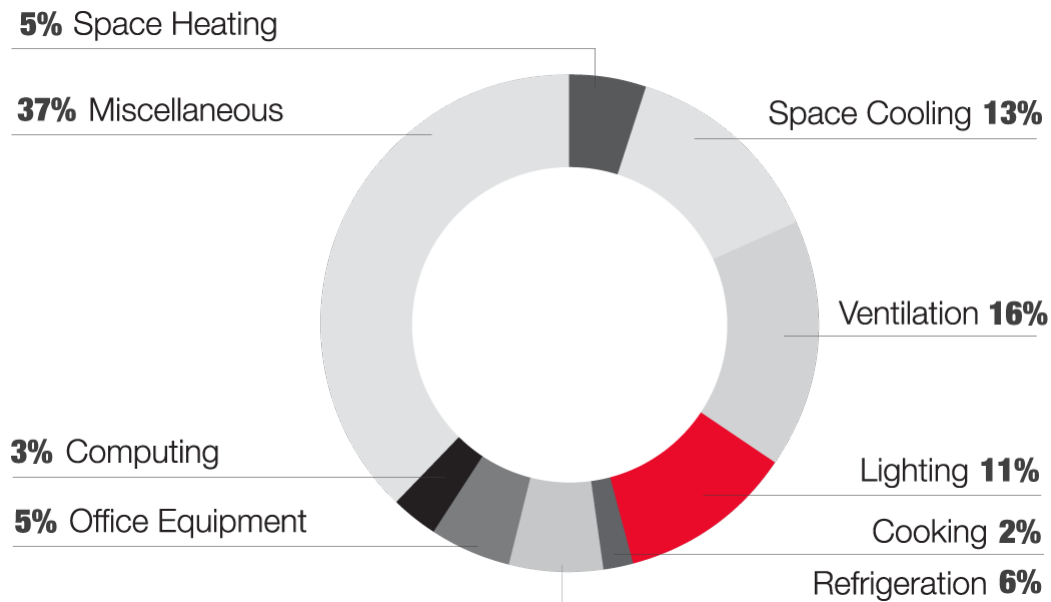
Energy Sources and Total Energy Consumption in Residences in 2020

- Electricity accounts for 43% of total energy consumed
 - Coal, Nuclear, Solar, Wind, Hydroelectric Dams
- Natural Gas accounts for 42% of total energy consumed
- Petroleum accounts for 8% (propane, heating oil and kerosene)
- Renewable Energy accounts for 7%

Average Energy Use Has Gone Down—115 BTUs in 1980 to 75 in 2015

- Building Improvements & Efficiencies & Migration.
- More Houses has been offset by more efficient houses.

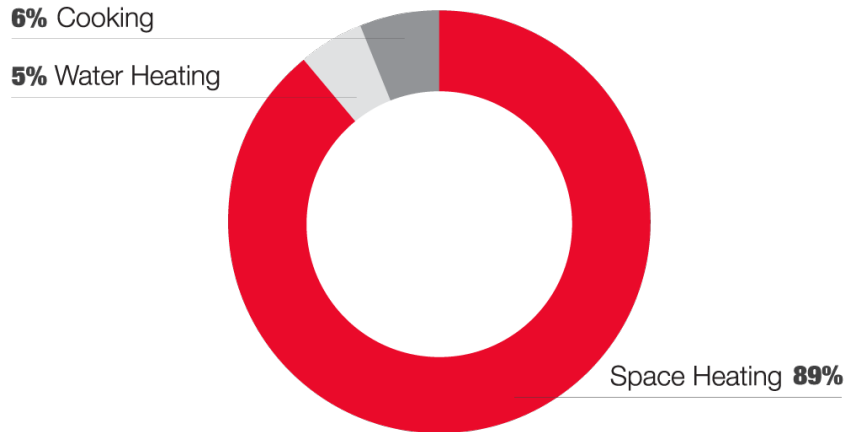
AVERAGE U.S. CHURCH ELECTRICITY USE



Energy Use Variables: Square Footage, Age, Programs, Use & Hours, Occupancy, Climate
Miscellaneous: Music, AV, Elevator, Microphones etc.

AVERAGE U.S. CHURCH NATURAL GAS USE AND MONTHLY ENERGY COSTS

Average U.S. Church Use of Natural Gas



Monthly Energy Costs For Churches

END USES	AVERAGE ELECTRIC COST/MONTH	AVERAGE GAS COST/MONTH	FPC PNM ELECTRICITY COSTS--2021
Space Heating, Cooling and Ventilation	\$106	\$197	\$1,710-\$2,500
Miscellaneous	\$115	-	402kWH

SOCIAL JUSTICE & ENVIRONMENTAL IMPACTS OF REDUCED CHURCH ENERGY USE

More Thoughtful Stewardship of Natural Resources:

Reduces Pollution that is harmful to human life and health

Protects our Life-Sustaining Ecosystems and Wildlife

Conserves Resources for Future Generations

Lessens Severity of Climate Change---Especially on marginalized communities.

Provides a Faithful Witness for What Stewardship of God's Creation Should and Can Look Like.

Reduces Impacts to New Mexico's & America's Public Lands

CREATING EFFICIENCIES & IMPACTS OF RESPONSIBLE STEWARDSHIP ON THE EARTH

- **EPA estimates that if every house of worship nationwide (about 300,000) cut back energy use by 10%:**
 - \$200 million could be saved and used for other projects for the community good
 - 5.4 billion kilowatt hours of electricity could be used elsewhere without generating additional pollution
 - 200 million tons of greenhouse gases would *not* be emitted—the equivalent of keeping 400,000 cars off the road or planting half a million trees.

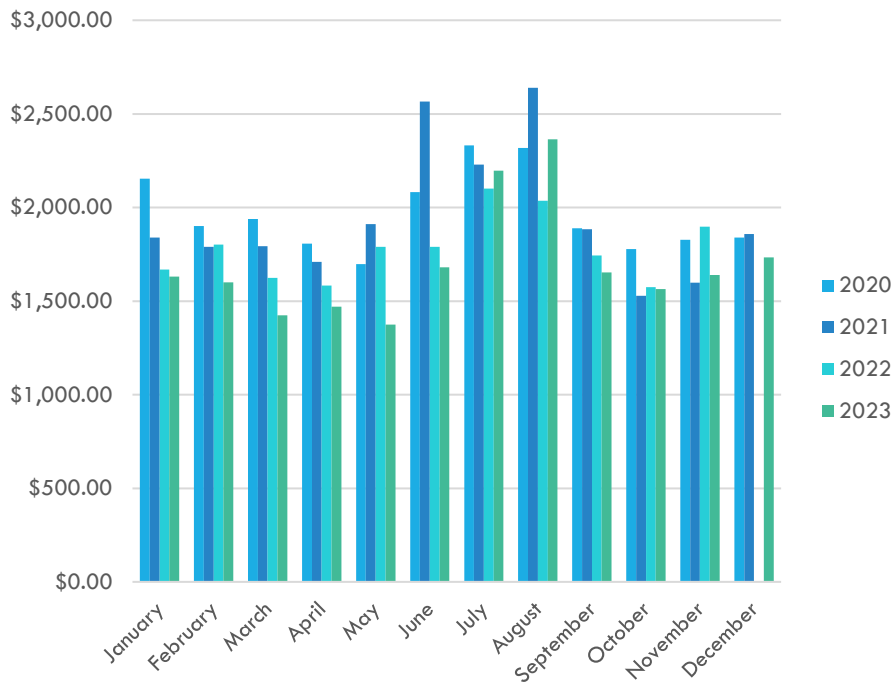
Energy Star for Congregations---average worship facility can save up to 30 percent on energy through no-cost actions, strategic investment, and smart operations and maintenance.

- Shows more careful stewardship of member's donations and can be repurposed to the mission and ministries of the congregation.

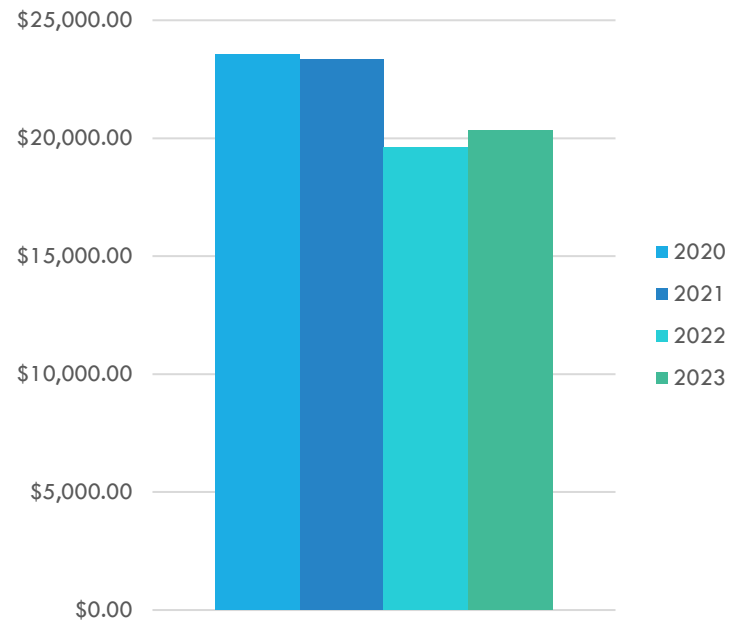
First Presbyterian Energy Audit 2022--a systematic analysis of how and where a building is using energy, affords a framework for determining how and where energy efficiency measures might be taken.

FPC ELECTRICITY COSTS

Monthly Expenses 2020-2023



Annual Cost 2020-2023



*Missing data: December 2022 roughly = \$1,850

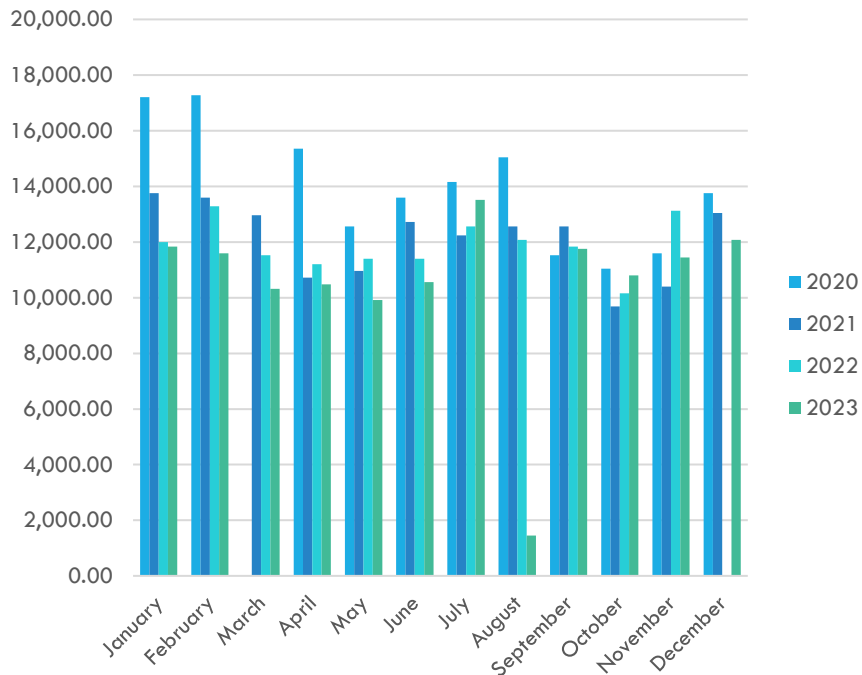
*Fluctuating price based on peak usage and block cost

*2022-2023 reduced by 4,784 kWh 3.67% decrease

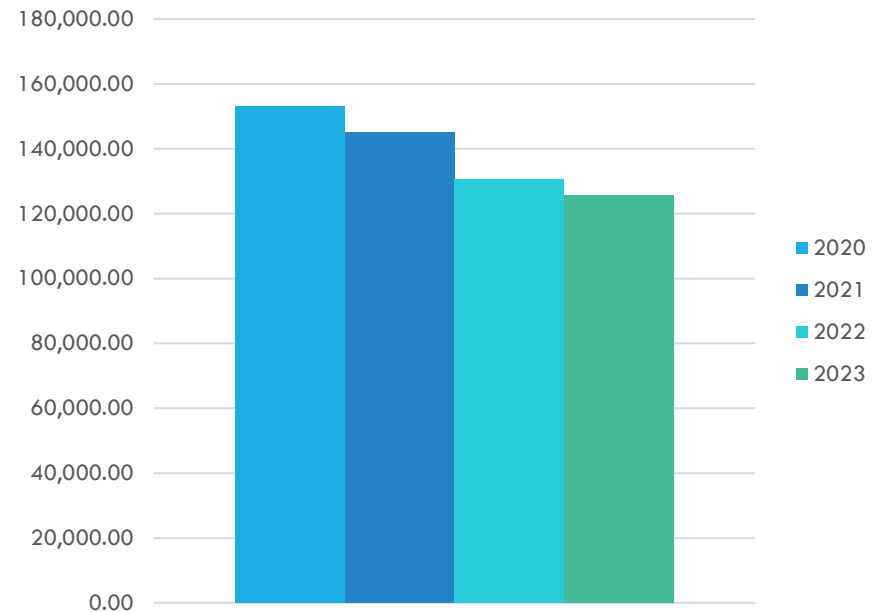
*Electric bill increased \$722.96

FPC ELECTRICITY CONSUMPTION IN KWH

Monthly Consumption 2020-2023



Total Consumption 2020-2023



* Missing data:

March 2020 = roughly 11,500 kWh

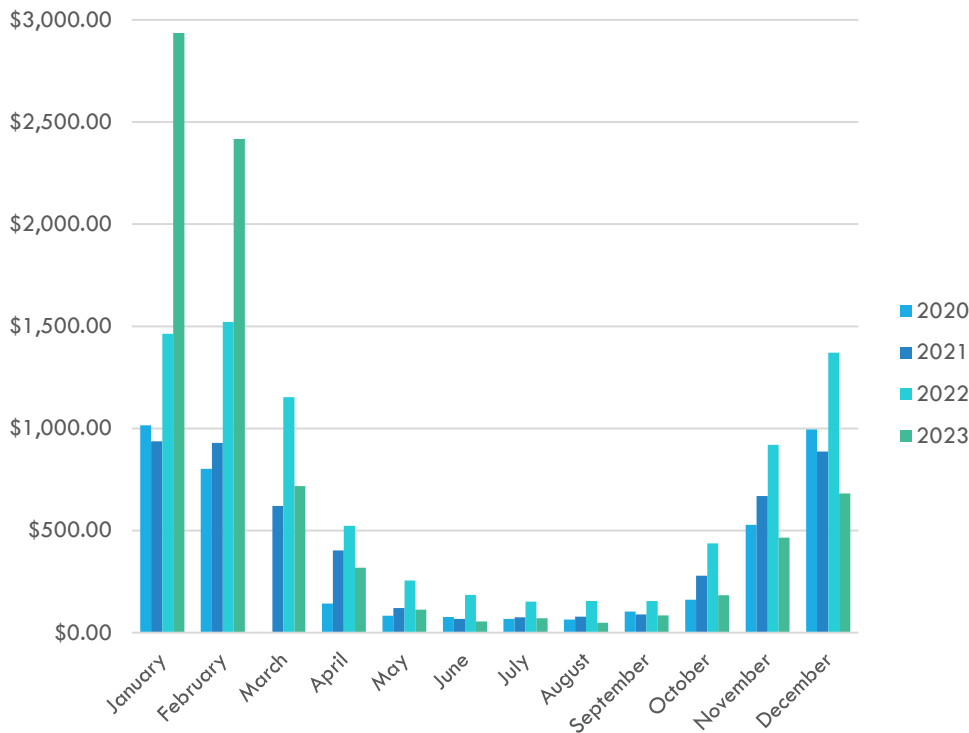
December 2022 = roughly 13,100 kWh

* 2022-2023 reduced by 4,784 kWh 3.67% decrease

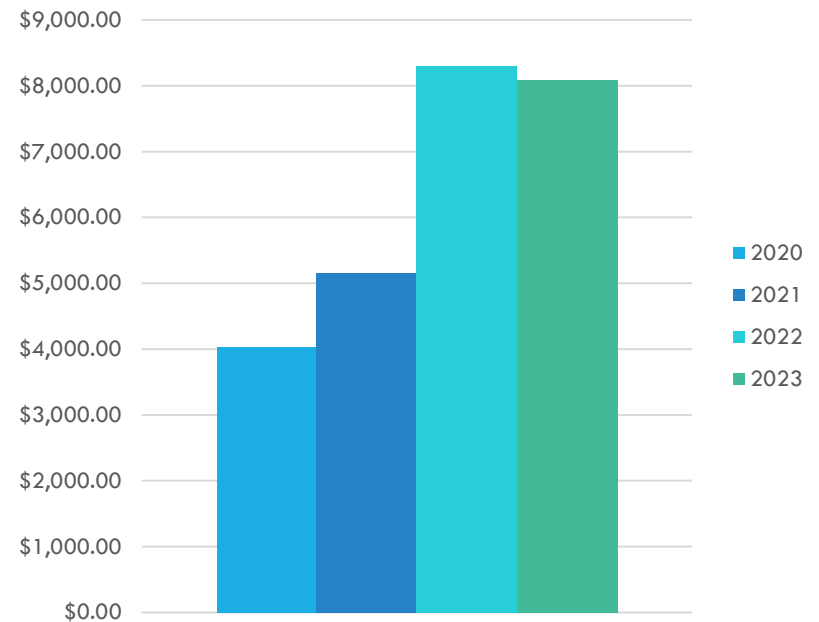
* Electric bill increased \$722.96

FPC GAS COSTS

Monthly Expenses 2020-2023

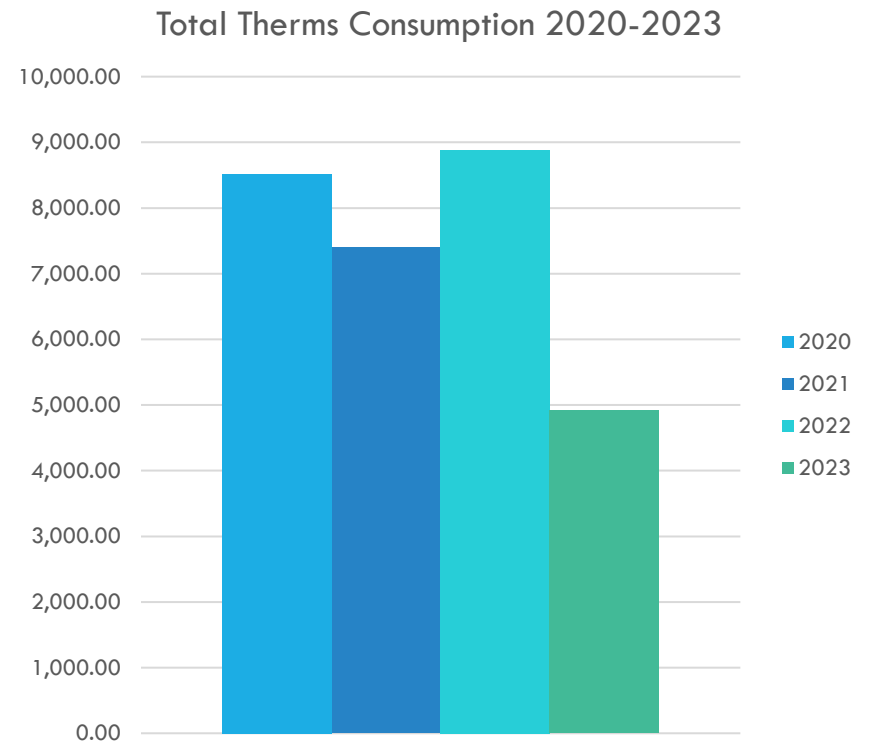
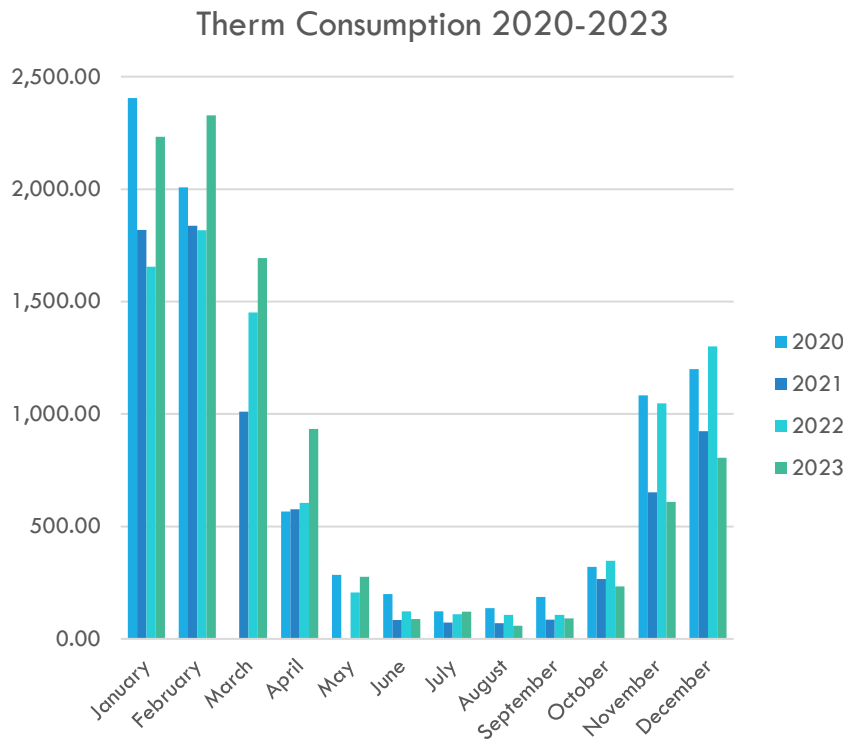


Annual Cost 2020-2023



- * Missing data: March 2020 = roughly \$1,000
- 2022-2023 reduced by 3,964.12 therms
- 45% decrease in consumption
- * Gas prices rose drastically, only saved \$200

FPC GAS CONSUMPTION IN THERMS



* Missing data:

March 2020 = roughly 1,100 therms

May 2021 = roughly 250 therms

2022-2023 reduced by 3,964.12 therms 45% decrease in use

TOTAL ENERGY COSTS FOR FIRST PRESBYTERIAN CHURCH

4 Year Average:

Electricity \$21,718.36

Gas \$6,394.48

Total \$28,112.84

ENERGY AND CLIMATE REFORMS MADE

- Replaced LED lights on the Second Floor
- Motion Detecting Lights in Upstairs Bathrooms & Deacons Closets
- Tinted the Entire South and West Facing Windows on the 3rd Floor
- Churchwide Composting and Childhood Development Center
- Replaced Flooring in the new youth room with sustainable flooring

REFORMS STILL TO BE MADE

- Tint the Second Floor Classroom Windows in the CDC
- Replace Elevator Lights with LED
- Motion Detection in First Floor Bathrooms and Closets
- Replace Fluorescent Lighting in Pope Hall and the Rendon Room with LED
- Creating a Culture of Composting, Reuse and Recycling
- Monitoring Heating and Cooling and Adjustments
- Renewable Energy and Plug-In Charging
- Ongoing Water Audit

FPC ELECTRIC BILLS 2020-2022

2020			2021			2022			2023		
Month	kWh	Cost \$	Month	kWh	Cost \$	Month	kWh	Cost \$	Month	kWh	Cost \$
January	17200	\$2,154.40	January	13760	\$1,840.64	January	12000	\$1,669.37	January	11,840.00	\$1,631.46
February	17280	\$1,900.81	February	13600	\$1,789.66	February	13280	\$1,802.12	February	11,600.00	\$1,599.99
March		\$1,938.89	March	12960	\$1,794.55	March	11520	\$1,624.19	March	10,320.00	\$1,425.29
April	15360	\$1,806.75	April	10720	\$1,710.11	April	11200	\$1,584.28	April	10,480.00	\$1,470.44
May	12560	\$1,697.33	May	10960	\$1,911.30	May	11400	\$1,789.52	May	9,920.00	\$1,375.48
June	13600	\$2,082.29	June	12720	\$2,565.88	June	11400	\$1,789.52	June	10,560.00	\$1,681.44
July	14160	\$2,332.75	July	12240	\$2,228.98	July	12560	\$2,101.73	July	13,520.00	\$2,197.60
August	15040	\$2,319.17	August	12560	\$2,640.70	August	12080	\$2,036.62	August	1,456.00	\$2,365.34
September	11520	\$1,888.95	September	12560	\$1,883.90	September	11840	\$1,744.86	September	11,760.00	\$1,653.00
October	11040	\$1,778.17	October	9680	\$1,528.12	October	10160	\$1,575.58	October	10,800.00	\$1,564.66
November	11600	\$1,827.25	November	10400	\$1,599.54	November	13120	\$1,897.35	November	11,440.00	\$1,640.02
December	13760	\$1,840.64	December	13040	\$1,859.42	December			December	12,080.00	\$1,733.38
total	153120	\$23,567.40	Total	145200	\$23,352.80	Total	130560	\$19,615.14	Total	125,776.00	\$20,338.10
Average	13920	\$1,963.95	Average	12100	\$1,946.07	Average	11869.09	\$1,783.19	Average	10,481.33	\$1,694.84

FPC GAS BILLS

2020			2021			2022			2023		
Month	Therms	Cost \$	Month	Therms	Cost \$	Month	Therms	Cost \$	Month	Therms	Cost \$
January	2404.182	\$1,015.21	January	1818.272	\$937.00	January	1655.379	\$1,463.12	January	2,232.17	\$2,936.67
February	2007.837	\$801.63	February	1837.161	\$929.45	February	1817.131	\$1,521.64	February	2,327.81	\$2,417.91
March			March	1010.799	\$619.64	March	1451.172	\$1,153.74	March	1,694.16	\$717.72
April	566.838	\$142.76	April	576.972	\$403.06	April	604.837	\$523.52	April	934.04	\$318.51
May	284.749	\$82.71	May		\$120.62	May	206.464	\$256.02	May	276.98	\$112.44
June	199.795	\$77.10	June	84.981	\$66.83	June	123.354	\$185.15	June	89.05	\$55.47
July	123.323	\$66.82	July	73.216	\$75.35	July	110.607	\$152.68	July	121.25	\$71.05
August	136.57	\$63.48	August	70.565	\$78.57	August	107.722	\$155.53	August	59.50	\$47.81
September	187.229	\$102.72	September	85.656	\$89.80	September	107.768	\$155.06	September	91.86	\$84.04
October	320.395	\$162.10	October	266.931	\$278.12	October	347.264	\$437.64	October	233.81	\$183.47
November	1083.384	\$528.48	November	652.405	\$668.75	November	1047.606	\$919.40	November	610.05	\$464.82
December	1200	\$995.17	December	923.618	\$886.18	December	1300.89	\$1,371.46	December	805.38	\$681.49
Total	8514.302	\$4,038.18	Total	7400.576	\$5,153.37	Total	8880.194	\$8,294.96	Total	4,916.07	\$8,091.40
Average	774.02745 5	\$367.11	Average	672.779636	\$429.45	Average	740.016167	\$691.25	Average	491.61	\$674.28