

Cloverdale Community League 2021 Energy Benchmarking Report





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1 Background

1.1 Introduction

This Energy Benchmarking Report was prepared by the Edmonton Federation of Community Leagues (EFCL) for:

Cloverdale Community League

Located at:

19411 97 Ave NW

This report was completed as part of the EFCL Energy Benchmarking Program administered by the EFCL.

A motion was passed at the 2022 Winter General Meeting held on February 15. The motion states:

“That all Leagues be required to submit to the EFCL on a yearly basis their electricity, natural gas and water utility usage and costs for a 3 year period.”

1.2 Purpose

With 128 Community Halls and 32 detached rink shacks owned and operated by Community Leagues, the EFCL is looking to gain a better understanding of the energy use of Community Leagues’ city-wide building portfolio. This work is being completed in tandem with the Desktop Infrastructure Review project and Avison Young Infrastructure Database, to which all gathered information will be uploaded.

By tracking and monitoring energy consumption and cost, we will begin to understand where our energy is going, and can then take steps to reduce it and monitor the success of our reduction efforts. Like other disciplines, such as finance, sport, and education, we cannot begin to set goals or measure success without first understanding where we are and identifying where our energy (and money) is going.

The Energy Benchmarking Program aims to support Leagues to understand their energy use and lower the operational cost of their facilities, identify and learn from Community Leagues that are the most successful at managing their energy, and provide additional support to those Leagues struggling with energy costs in the wake of the COVID-19 pandemic and increasingly high energy costs.



2 Utility Analysis

2.1 Bill Analysis

One year's worth of monthly utility bills were analyzed for the Community League. Electricity and natural gas bills from January to December 2021 were reviewed to determine consumption trends and to identify opportunities for utility savings. This information was used to compare the energy performance of the Community League to similar types of facilities through a process known as benchmarking.

The **total energy use** of the Community League was found to be:

236 GJ per year

Figure 1 displays the monthly energy use of the Community League over the one-year period covered by the bill analysis.

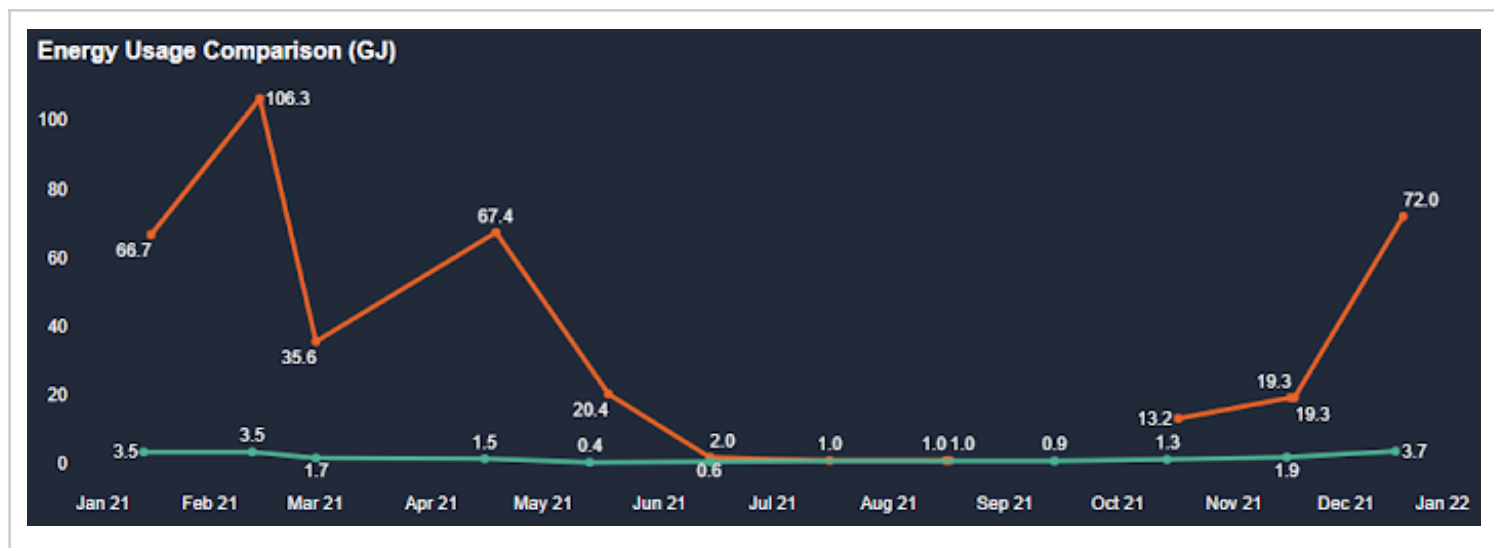


Figure 1. Facility annual energy use profile measured in GJ (Jan. 2021 – Dec. 2021). Electricity appears in green and natural gas appears in orange.



2.1.1 Electricity

Annual electricity consumption:

6,000 kWh per year

Annual electricity cost:

-\$3,461.04 per year

Average electricity rate:

-\$0.58 per kWh

Electricity costs can be divided into fixed and variable costs, with some charges being a blend of fixed and variable fees.

Figure 2 displays the fixed versus variable cost of electricity for the Community League. Based on the fluctuating variable cost,

the avoided electricity cost is calculated to be:

\$0.23 per kWh

This figure represents the dollar value of any electricity reduction for the facility. Note that while this figure is significantly higher than normal, the higher value is a result of your Community League's taking advantage of preferential solar PV utility rates. When you earn money on your electricity, you don't need to worry!

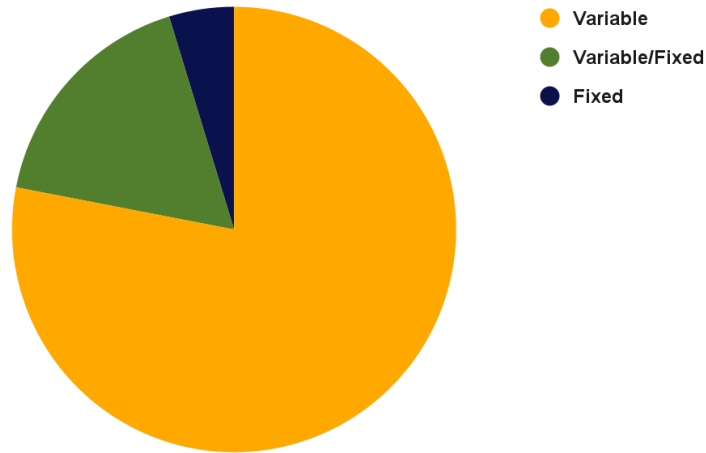


Figure 2. Fixed versus Variable electricity cost measured in per cent (Jan. 2021 - Dec. 2021)

2.1.2 Natural Gas

Annual natural gas consumption:

214.21 GJ per year

Annual natural gas cost:

\$2,830.97 per year

Average natural gas rate:

\$13.22 per GJ

Natural gas costs can be divided into fixed and variable costs, with some charges being a blend of fixed and variable fees.





Figure 3 displays the fixed versus variable cost of natural gas for the Community League. Based on the fluctuating variable cost,

the avoided natural gas cost is calculated to be:

\$9.08 per GJ

This figure represents the dollar value of any natural gas reduction for the facility.

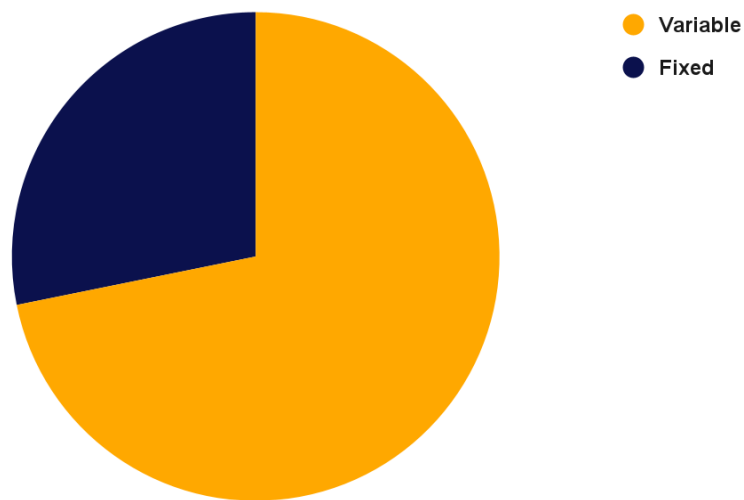


Figure 3. Fixed versus variable natural gas cost measured in per cent (Jan. 2021 - Dec. 2021)



2.2 Benchmarking Energy Use and Cost

Based on the energy bill analysis from the billing period, **the total annual energy use of the Community League was found to be:**

236 GJ per year

The **total energy cost** of the Community League was:

-\$630.07 per year

Table 1 shows the relative use and cost of electricity and natural gas for the Community League. The disparity between energy use and cost is explained by the fact that during the analyzed billing period, the price of electricity was roughly five times greater than natural gas per unit of energy consumed. Refer to Figure 4 for a visual breakdown of annual energy use and cost by energy source.

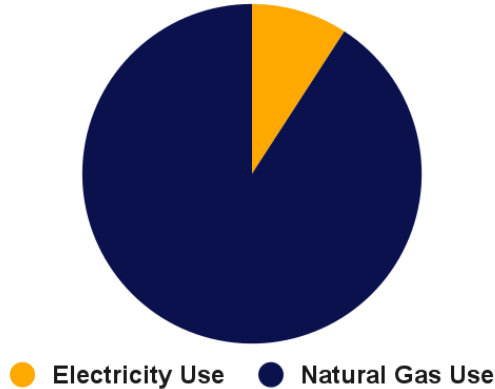
Table 1. Relative consumption and cost for natural gas and electricity.

Electricity Use GJ, (%)	21.6 GJ per year	9%
Natural Gas Use GJ, (%)	214.2 GJ per year	91%
Electricity Cost (\$), (%)	-\$3,461.04 per year	
Natural Gas Cost (\$), (%)	\$2,830.97 per year	

Table 1 shows the relative use and cost of electricity and natural gas for the Community League. The disparity between energy use and cost is explained by the fact that during the analyzed billing period, the price of electricity was roughly five times greater than natural gas per unit of energy consumed. Refer to Figure 5 for a breakdown of annual energy use and cost by energy source.



Electricity Versus Natural Gas Use (GJ)



Electricity Versus Natural Gas Cost (\$)

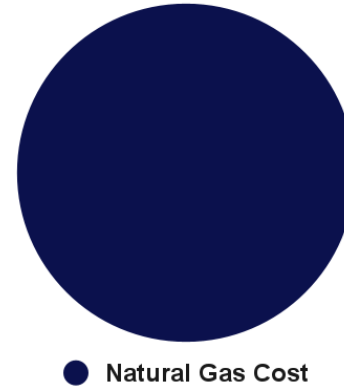


Figure 4. Facility average annual energy use and cost by source (Jan. 2021 to Dec. 2021)

2.2.1 Energy Use Intensity (EUI)

The Energy Use Intensity (EUI) metric is used to evaluate a building's energy performance. It is defined as a building's annual energy consumption per unit of area and is expressed in GJ/m².

EUI allows for the energy performance of a building to be compared to itself over time and assists building managers in setting and tracking energy efficiency targets. It also provides a measure for comparison of buildings of varied sizes so that energy performance can be evaluated against a group of buildings with similar use characteristics in similar climate zones.

The Community League's **Energy Use Intensity** was found to be:

0.40 GJ per square meter





According to building energy use data acquired through the Edmonton Federation of Community Leagues Energy Benchmarking Program, a typical Edmonton community league facility has an EUI of 0.83 GJ/m². By this comparison, **the Community League has a relatively Lowest!** energy use intensity relative to the median Edmonton community league.

Your Community League is the **BEST** performing league in the City of Edmonton. Congratulations!!!

**Note: EUI is a measure of energy usage, and thus heavily dependant on occupancy patterns. It could be expected that an older, less efficient building would have a higher EUI than a newer, more efficient building. This is not always the case; if the less efficient building has lower use and occupancy rates than the higher efficiency building, energy usage may be significantly less resulting in a lower EUI.*

2.2.2 Energy Cost Intensity (ECI)

The Energy Cost Intensity (ECI) is the annual cost of all energy used by a building per unit of area and is expressed in \$/m². ECI is useful for tracking the cost of energy consumption over time and for comparing energy costs in buildings of varied sizes with similar usage patterns and located in similar climate zones.

The Community League's **Energy Cost Intensity** was found to be:

-\$1.07 per square meter

According to building energy cost data acquired through the Edmonton Federation of Community Leagues Energy Benchmarking Program, a typical Edmonton community league facility has an ECI of \$13.36/m². By this comparison, **the Community League has a Lowest** energy cost intensity relative to the median Edmonton community league.

You earned money on your energy in 2021. Congratulations!



3 Recommendations

Congratulations, your Community League is far ahead of every other League that participated in this program. Your electricity is completely net zero, producing more energy than the facility consumed in 2021. You earned a significant profit from your electricity in 2021, so much so that it covered your entire natural gas costs as well as earning a small profit. This is truly impressive.

In terms of next steps, it is recommended that you investigate the potential to switch to electric heating when your furnaces reach end of life. The building is already very well insulated and airtight thanks to the retrofit project in 2016, so the potential to move the entire facility to net zero energy exists. When your furnaces near end of life, begin speaking to energy specialist firms about the potential for air source heat pumps to be used to meet the annual heating load. The net increase in electricity consumption from this could then be made up by expanding the existing solar system.

Because your league has done so well, it is more important than ever that you continue to showcase the benefits of the work your Community League and its dedicated volunteers have achieved. It is not small feat to earn profit on one's energy, and the benefits should be promoted to residents and the learnings shared among other Community Leagues and building owners.

Way to go.

Sincerely,
Michael Barnard, Energy Transition Advisor
Edmonton Federation of Community Leagues





4. Understanding your Bill

4.1 Electricity Bill Definitions

1. Energy charges

This amount is based on the rate and how much energy you used in the billing period. The energy you used can be based on an actual, estimated or adjusted meter reading. This is a variable cost dependant on how much electricity the site consumes.

2. Administrative costs

The administrative fee covers the costs of customer service and billing. It pays for calculating and sending bills, friendly responses to all your questions, helpful advice in choosing the right Energy Plan, switching services or helping with moving arrangements. The administration fee is a fixed cost and is therefore not impacted by energy consumption.

3. Distribution charges

This amount is billed on behalf of the power distribution company for your area. For all Community Leagues, the power distribution company is EPCOR, even if they are not your energy retailer. Distribution charges are regulated by the Alberta Utilities Commission and cover the cost of the infrastructure needed to move electricity from the transmission system through the distribution system to the power meter at your home or business. Distribution charges are a mix of fixed and variable costs. This means that reducing your electricity consumption *will* have a positive impact on your distribution costs, but only up to a point.

4. Transmission charges

This amount can be billed on behalf of the power distribution company for your area. Transmission charges are regulated by the Alberta Utilities Commission and cover the cost of the infrastructure needed to move electricity from the transmission system to the distribution system. Transmissions charges are entirely variable and depend on how much electricity your site consumes.

5. Rate riders

Rate riders are a temporary credit or charge, approved by the regulator, that may appear on utility bills in some communities. Rate riders are used to adjust for differences between actual operational costs that are not included in the approved rates. Typically, rate riders relate to transmission and distribution costs. More than one rate rider can appear on your bill at the same time, but we have combined all rate riders into one field for ease of reading. These fees are typically minimal, and can be either credits or charges to your bill.



6. Local access fee

This is based on your location and covers the cost to access municipal land for building and maintaining the power lines and other equipment used to deliver electricity to your home or business.

4.2 Natural Gas Bill Definitions

1. Energy charges

Energy charges are calculated by applying your energy plan rate to the actual amount of electricity or natural gas you used.

2. Administrative costs

The administrative fee covers the costs of customer service and billing. It pays for calculating and sending bills, friendly responses to all your questions, helpful advice in choosing the right Energy Plan, switching services or helping with moving arrangements. The administration fee is a fixed cost and is therefore not impacted by energy consumption.

3. Distribution and transmission charges

D and T charges, or delivery charges, are the costs of delivering electricity and natural gas to customers. This includes meter reading and the costs of building, operating and maintaining the local and provincial systems and infrastructure that moves the energy into homes and businesses.

4. Miscellaneous fees and charges

Miscellaneous fees and one-time charges appear on your bill as needed. They cover things like late fees, rush services, reconnection fees and duplicate bills.

5. Taxes

Utility providers are required to collect taxes, such as GST, on the services they provide.

The Federal Carbon Tax on natural gas consumption appeared on customer bills starting January 1, 2020. Customers may recall seeing the line item “Federal Carbon Tax” on their bills. The tax is designed to increase every April 1 until 2030. Its last increase was to \$2.629/GJ on April 1, 2022.

The Federal Carbon Tax is a Government of Canada tax on carbon pollution (including natural gas) to encourage the reduction of emissions and encourage investments in clean technology. Every Albertan pays this tax, regardless of who their energy provider is.