How energy intensive are your buildings?

Compare with other municipalities in BC

8TH ANNUAL PUMA **BENCHMARKING SUMMARY**

For BC Municipalities: 2020 Calendar Year

PUMA™

PUMA Utility Monitoring Inc.

Scope

The sites included in the benchmarks are from the following BC municipalities that subscribed to monthly PUMA utility monitoring software & services during the 2020 calendar year.

About PUMA

PUMA comprises a combination of software and services that track over 23,000 electrical, natural gas, water, and other fuel accounts for government, commercial, and institutional customers. Since launching online in 2009, more and more organizations have enlisted PUMA to help track and analyze building energy use.

PUMA is currently used by over 20 Energy Managers, and more than 50 organizations across Canada. Our utility tracking software and services save time and money for owners of multiple properties by turning data into actionable information.

About this Report

Each year the PUMA team puts together a benchmarking report for school districts, advanced education and municipalities.
Based on compiled data from PUMA, this report enables the comparison of similar sites across each sector.

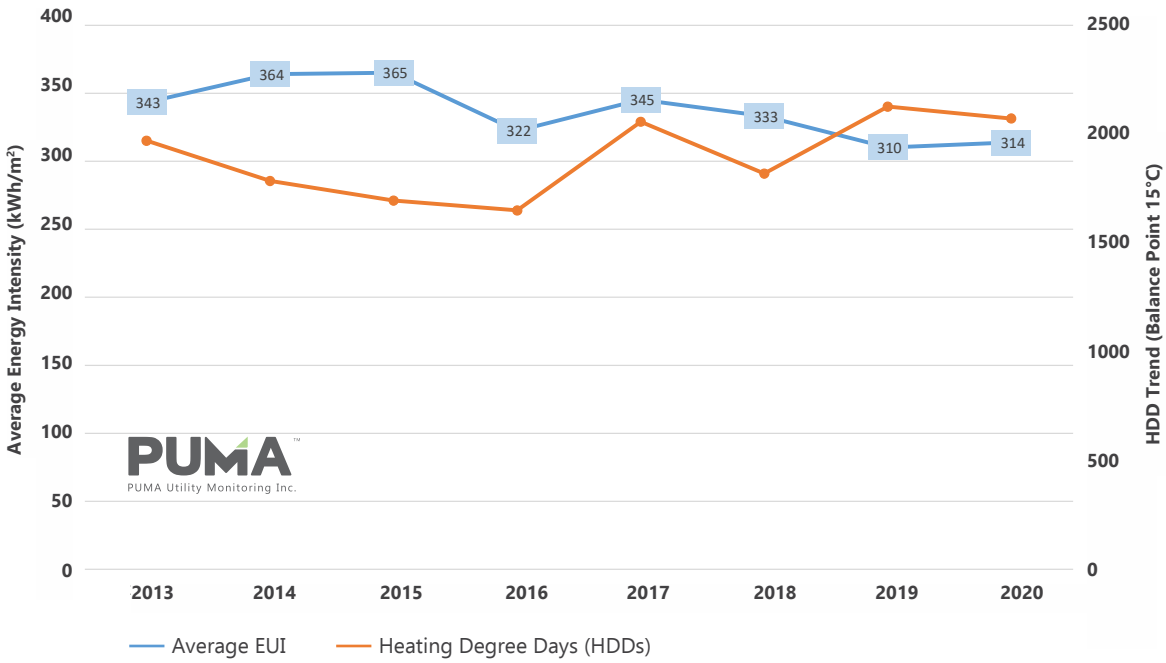
www.pumautilitymonitoring.ca

COVID-19 and 2020 Benchmarks

No benchmarking report for 2020 would be complete without addressing the serious changes to energy use in buildings because of changes in our collective behaviour during the COVID-19 pandemic. We have been quantifying these changes as they unfolded to help our clients understand both increases and decreases in energy use. We presented to a Canadian audience in April on how our techniques can reveal the scale of changes, which you can view online at this link: https://www.pumautilitymonitoring.ca/news-2021/may

Since **benchmarking compares buildings during the same time period,** and the changes in behaviour largely took effect at the same time across the sample area – British Columbia – **the comparison between how buildings performed remains valid**. Comparisons with prior years are more problematic due to the variability of the weather. However, with the big changes we have all experienced in 2020, the history of average performance provides some important context and is shown below for the sector:

Municipalities Energy Use Intensity (EUI) Trend Over 8 Years

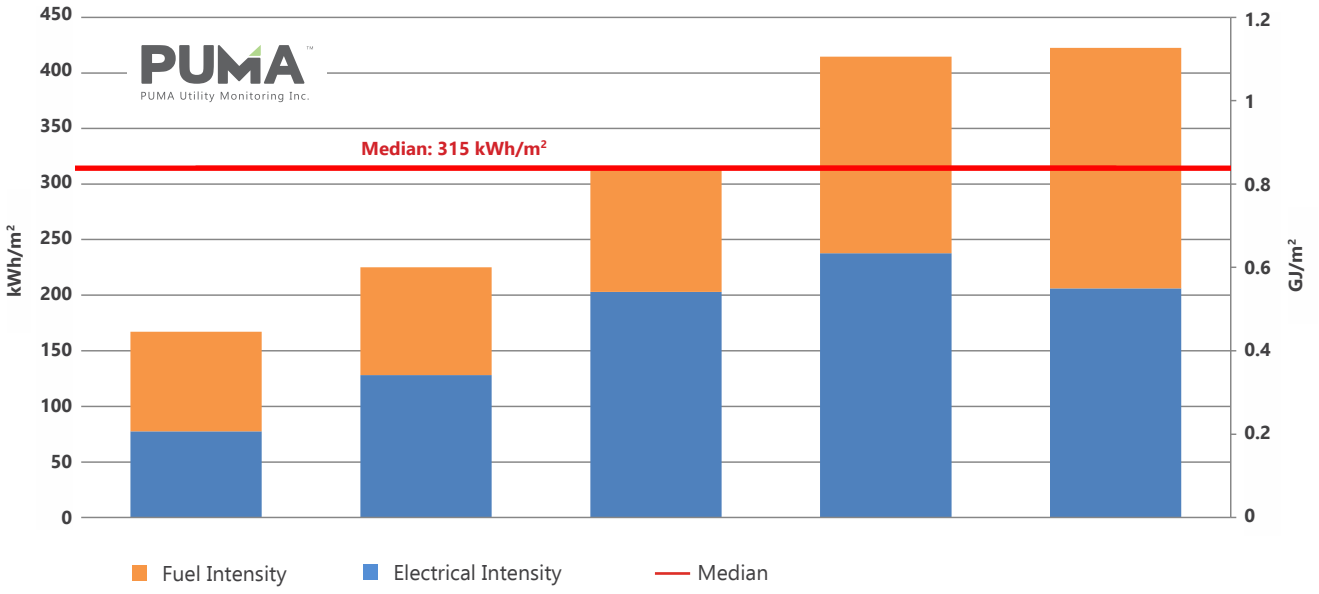


Plotting the average EUIs from each of the last 8 years of this report reveals a 'positive' observation regarding energy savings. Even as the HDDs have remained relatively constant there has been an overall downward trend in EUI since 2013.

How **energy intensive** are the buildings in your municipality?

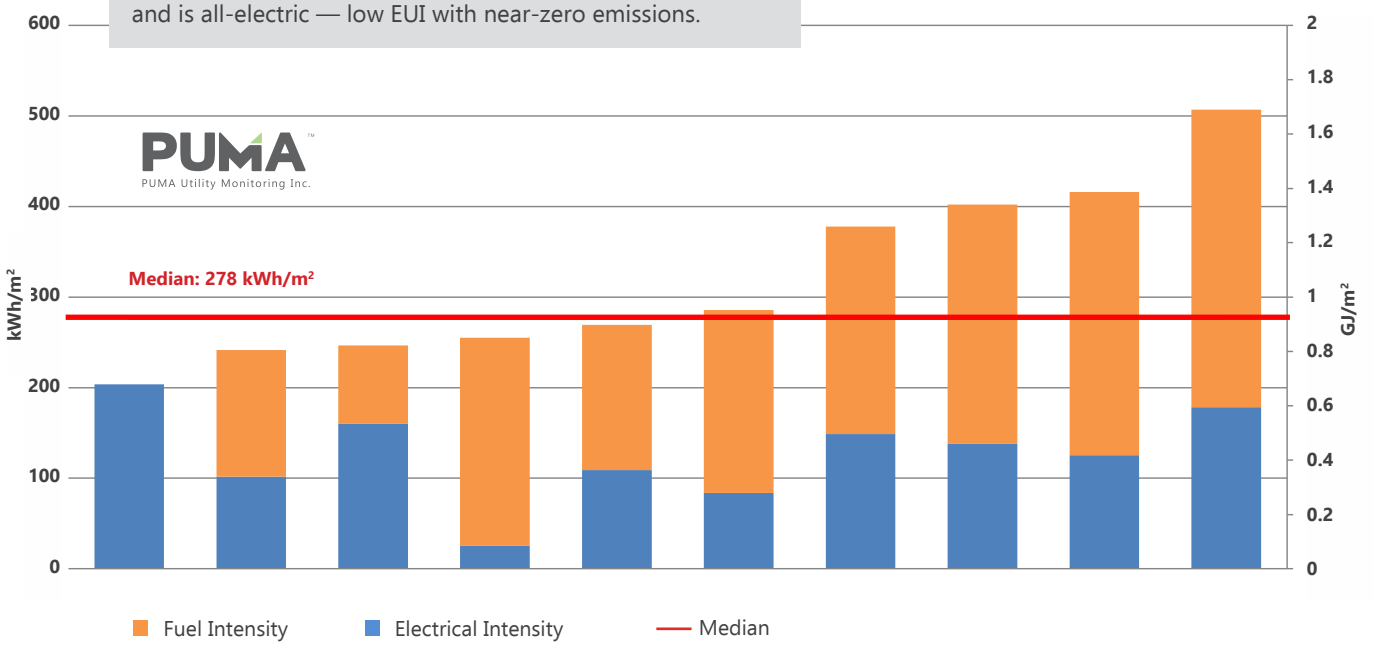
City Halls Energy Use Intensity (EUI) Calendar Year 2020

City Halls EUI range from 167 to 422 kWh/m².



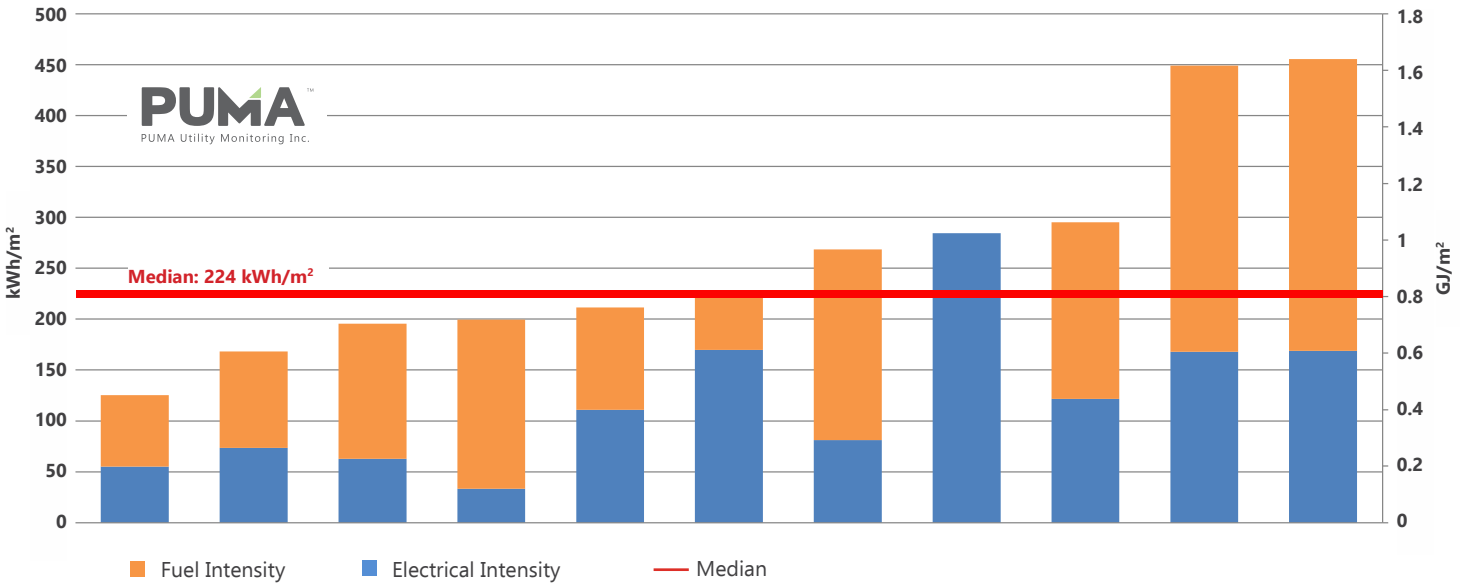
Fire Halls Energy Use Intensity (EUI) Calendar Year 2020

The best performing firehall has an EUI of just 204 kWh/m², and is all-electric — low EUI with near-zero emissions.



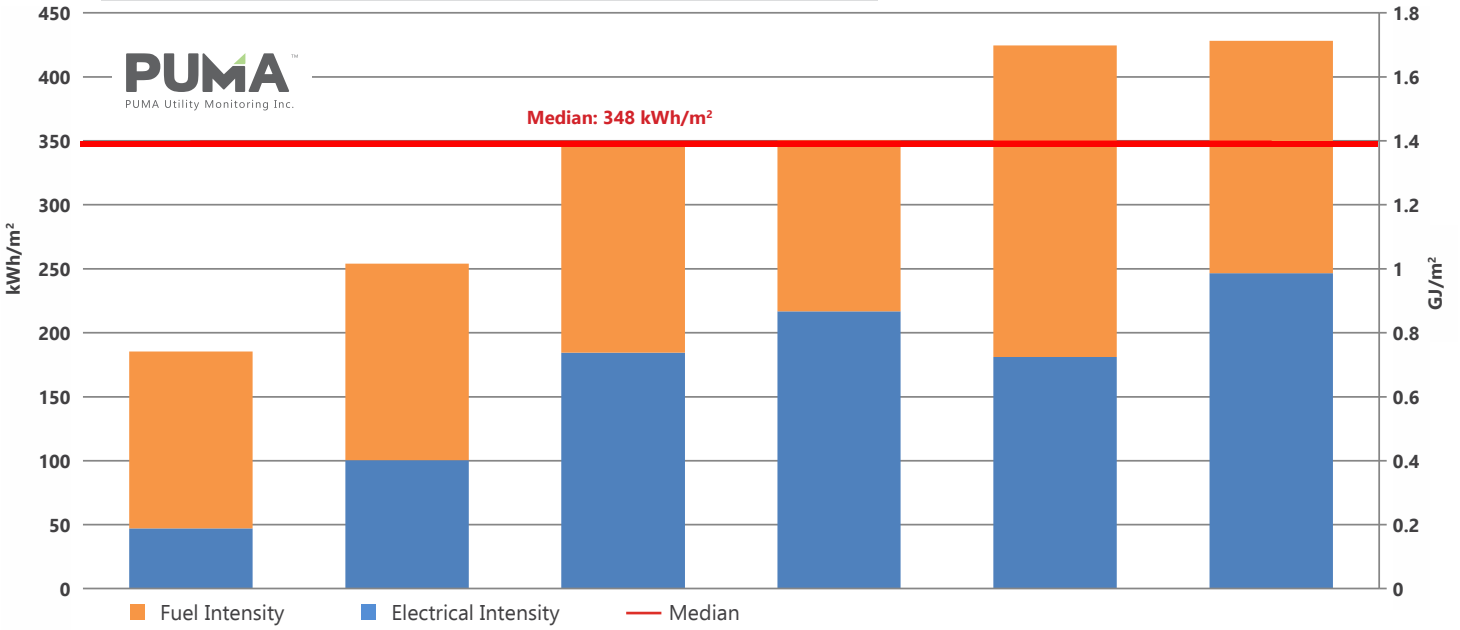
Social & Meeting Halls Energy Use Intensity (EUI) Calendar Year 2020

Social & Meeting Halls EUI range from 125 to 455 kWh/m^2.



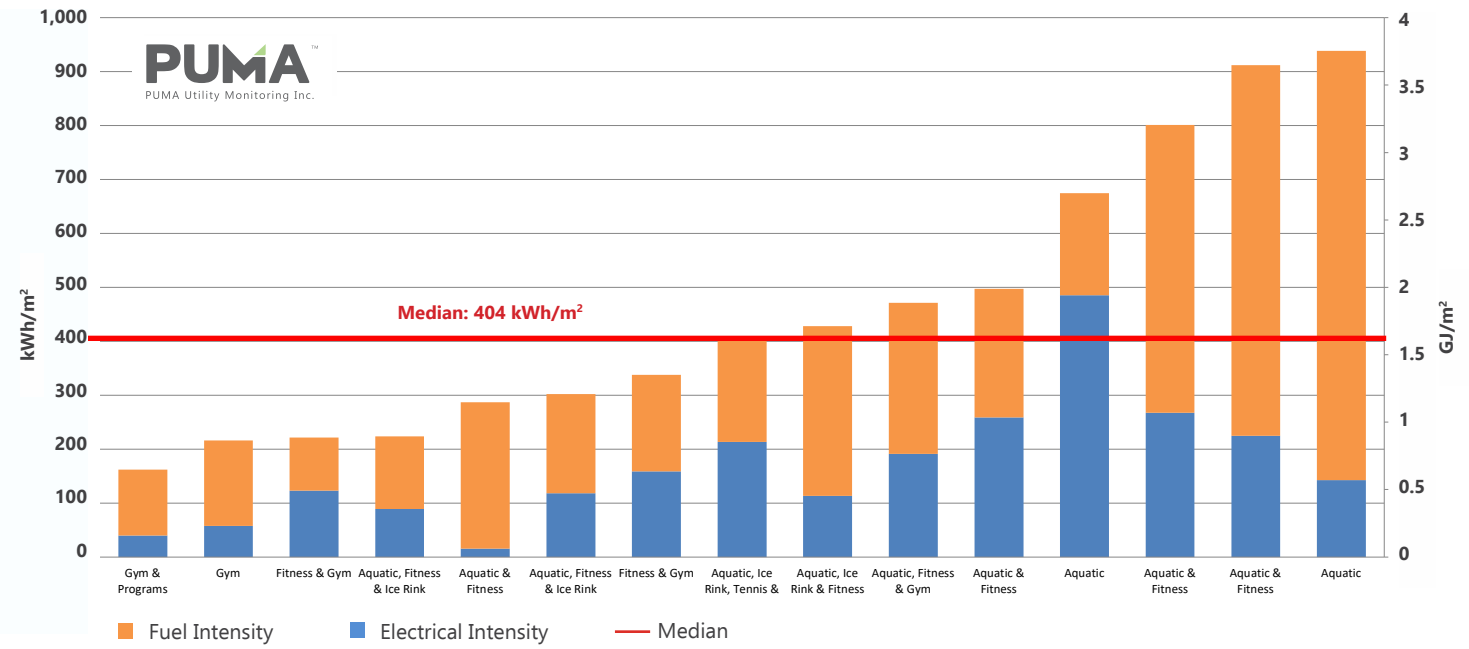
Arenas Energy Use Intensity (EUI) Calendar Year 2020

Most Arenas included have only 1 ice sheet.



Recreation Centres Energy Use Intensity (EUI) Calendar Year 2020

Since the function of Recreation Centres can vary widely — some with or without pools or rinks for example — there is a large variance in EUI.



2020 Median Energy Use Intensity

A summary of the 2020 median energy use intensity (EUI) for the building categories in this report is as follows:

Municipal Building Type	Median Energy Use per m^2 (EUI)	Number of buildings in sample
Office Buildings	**315 kWh/m^2**	n=5
Fire Halls	**278 kWh/m^2**	n=10
Social & Meeting Halls	**224 kWh/m^2**	n=11
Arenas & Rinks	**348 kWh/m^2**	n=6
Recreation Centres	**404 kWh/m^2**	n=15

If a building uses more than the median, it could be a good candidate for energy saving opportunities. If it uses less than the median, it may be a good example of energy efficiency leadership. Looking closely at where a building fits in the distribution may be more informative in many cases.

Weather Data

The figures on the preceding pages are computed without weather or location adjustment for simplicity of comparison and are based on billed energy use. Four of the municipalities are in a common climatic zone, and so are directly comparable.

PUMA incorporates local weather data so that weather adjusted savings and weather normalized figures can be easily calculated. Contact us for more details.

PUMA™

PUMA Utility Monitoring Inc.

PUMA is an affordable and effective way to compare the performance of all the buildings in your portfolio, including the ability to normalize for weather.

www.pumautilitymonitoring.ca

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