

October 17, 2011

Brian Kozak, Chief of Police
Cheyenne Police Department
Fire and Rescue Administration
Laramie County Combined Communication Center
Laramie County EMA
2020 Capitol Avenue
Cheyenne, WY 82001

520 Nicollet Mall, Suite 200
Minneapolis, MN 55402
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minneapolis@dlrgroup.com
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RE: Energy Analysis of the Cheyenne Police Department

Dear Brian,

Per your request DLR Group has performed a preliminary investigation into the energy consumption

PURPOSE OF STUDY:

DLR Group is working with the staff of the Cheyenne Police Department to analyze the amount of energy consumed by the existing facility and to compare the energy consumption to a new building.

The approach used to analyze the data included four scenarios; as described as follows:

Scenario 1: Existing Building. The information used in this analysis was provided by the Owner and reflects the last 12 months' worth of energy usage. The annual cost to operate a building under this scenario is \$89, 209.

Scenario 2: Existing Building meeting IAQ. Since the building has not had a major HVAC renovation since current ventilation rates were established (this is more commonly known as Indoor Air Quality or IAQ). To simulate this scenario, the gas and electrical usage was increased by 30% each. The annual cost to operate a building under this scenario is \$117,434.

Scenario 3: New Average Building. Energy Star Target Finder software was used as a tool to estimate the annual Energy Consumption of a facility of the same size and operation. This value will be at the 50 percentile, with respect to energy efficiency, as compared to similar buildings. The annual cost to operate a building under this scenario is \$78,074.

Scenario 4: New Energy Star Building. Energy Star Target Finder software was used as a tool to estimate the annual Energy Consumption of a facility of the same size and operation. This value will be at the 75 (top 25) percentile, with respect to energy efficiency, as compared to similar buildings. The annual cost to operate a building under this scenario is \$57,744.

These values can be better compared by reviewing the following table:

Energy Analysis Summary				
Reference	Baseline	Baseline with IAQ	New Average Building	New Energy Star Building
Annual Operational Costs	\$89,209	\$117,434	\$78,074	\$57,744
Difference from Baseline	\$0	\$28,225	-\$11,135	-\$31,465
	-			
Difference from Baseline with IAQ	\$28,225	\$0	-\$39,360	-\$59,690

A negative sign preceding a value reflect a savings with respect to the scenario to which it is being compared. Assuming a building life cycle of 40 years, with an inflation rate of 2.5%, a new Energy Star-rated building will save almost \$2,719,250 when compared to the existing facility, and would save over \$4,123,800 when compared to the existing facility were it to be operating in a manner consistent with current ventilation practices.

Attached are the supporting documents created using Target Finder, as described earlier in this document.

Sincerely,

DLR Group, Inc

Mike Lavoie, PE
Senior Associate DLR Group



STATEMENT OF ENERGY PERFORMANCE

Cheyenne Police Department

Building ID: 2900685
For 12-month Period Ending: August 31, 2011
Date SEP becomes ineligible: N/A

Date SEP Generated: October 19, 2011

Facility

Cheyenne Police Department
 2020 Capitol Avenue
 Cheyenne, WY 82001

Facility Owner

Cheyenne Police Department
 2020 Capitol Avenue
 Cheyenne, WY 82001

Primary Contact for this Facility

Michael Lavoie
 520 Nicollet Mall Suite 200
 Mpls, MN 55402

Year Built: 1950

Gross Floor Area (ft²): 42,000

Energy Performance Rating² (1-100) 36

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	2,299,441
Natural Gas (kBtu) ⁴	5,199,212
Total Energy (kBtu)	7,498,653

Energy Intensity⁵

Site (kBtu/ft ² /yr)	179
Source (kBtu/ft ² /yr)	312

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	949
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Electric Distribution Utility

Cheyenne Light Fuel & Power Co [Black Hills Corp]

National Average Comparison

National Average Site EUI	154
National Average Source EUI	270
% Difference from National Average Source EUI	16%
Building Type	Courthouse

Meets Industry Standards⁶ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Certifying Professional

Michael Lavoie
 520 Nicollet Mall Suite 200
 Mpls, MN 55402

Notes:

1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Values represent energy intensity, annualized to a 12-month period.
5. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

FOR YOUR RECORDS ONLY. DO NOT SUBMIT TO EPA.

Please keep this Facility Summary for your own records; do not submit it to EPA. Only the Statement of Energy Performance (SEP), Data Checklist and Letter of Agreement need to be submitted to EPA when applying for the ENERGY STAR.

Facility

Cheyenne Police Department
2020 Capitol Avenue
Cheyenne, WY 82001

Facility Owner

Cheyenne Police Department
2020 Capitol Avenue
Cheyenne, WY 82001

Primary Contact for this Facility

Michael Lavoie
520 Nicollet Mall Suite 200
Mpls, MN 55402

General Information

Cheyenne Police Department	
Gross Floor Area Excluding Parking: (ft ²)	42,000
Year Built	1950
For 12-month Evaluation Period Ending Date:	August 31, 2011

Facility Space Use Summary

Main Building	
Space Type	Courthouse
Gross Floor Area(ft ²)	42,000
Weekly operating hours	168
Workers on Main Shift	65
Number of PCs	70
Percent Cooled	50% or more
Percent Heated	50% or more

Energy Performance Comparison

Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date 08/31/2011)	Baseline (Ending Date 07/31/2011)	Rating of 75	Target	National Average
Energy Performance Rating	36	35	75	N/A	50
Energy Intensity					
Site (kBtu/ft ²)	179	181	114	N/A	154
Source (kBtu/ft ²)	312	315	200	N/A	270
Energy Cost					
\$/year	\$ 89,209.74	\$ 89,726.52	\$ 57,016.49	N/A	\$ 77,087.93
\$/ft ² /year	\$ 2.12	\$ 2.14	\$ 1.35	N/A	\$ 1.83
Greenhouse Gas Emissions					
MtCO ₂ e/year	949	953	607	N/A	820
kgCO ₂ e/ft ² /year	23	23	15	N/A	20

More than 50% of your building is defined as Courthouse. Please note that your rating accounts for all of the spaces listed. The National Average column presents energy performance data your building would have if your building had an average rating of 50.

Notes:

- o - This attribute is optional.
- d - A default value has been supplied by Portfolio Manager.



[Return to ENERGY STAR Web site](#) > Target Energy Performance Results

Target Energy Performance Results

The design **must** achieve a rating of 75 or higher to be eligible for "Designed to Earn the ENERGY STAR".

[View Statement of Energy Design Intent](#)

NOTE: Values are 31% Electricity - Grid Purchase and 69% Natural Gas. The Target & Average Building energy use for this facility are calculated based on fuel mix of input estimated energy use.

Target Energy Performance Results (estimated)			
Energy	Design	Target	Average Building
Energy Performance Rating (1-100)	15	75	50
Energy Reduction (%)	N/A	26	0
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	405	199	270
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	231	114	154
Total Annual Source Energy (kBtu)	17,025,705	8,371,724	11,319,190
Total Annual Site Energy (kBtu)	9,712,452	4,775,718	6,457,124
Total Annual Energy Cost (\$)	\$ 117,434	\$ 57,744	\$ 78,074
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	1,231	606	819
CO2-eq Emissions Reduction (%)	-50%	26%	0%

Facility Information [Edit](#)

Cheyenne PD IAQ new
 2020 Capitol Avenue, Cheyenne, CO 82001
 United States

Facility Characteristics Edit	
Space Type	Gross Floor Area (Sq. Ft.)
Courthouse	42,000
Total Gross Floor Area	42,000

Estimated Design Energy Edit			
Energy Source	Units	Estimated Total Annual Energy Use	Energy Rate (\$/Unit)
Electricity - Grid Purchase	kWh	876,408	\$ 0.068/kWh

* The Average Building is equivalent to an EPA Energy Performance Rating of 50.

Natural Gas	ccf	65,327	\$ 0.880/ccf
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Source: Data adapted from DOE-EIA. See EPA [Technical Description](#).