

Home

john doe
101 peach valley drive
GJ CO, 81526
970 222 2222

Audit Date

Mar 23, 2015
04:22 pm

Audited By

Vernon Nelson

Rater
RESNET + BPI BA
970-216-9917
vnelson@
energywisecompanies.com
8-5 M-F

EnergyWise Consultants, LLC

1111 South 7th Street
Grand Junction CO, 81501
Office: 970-242-9473



Homeowner,

Thanks for allowing us into your home to conduct your Home Energy Audit. Enclosed are our findings and suggestions. You are under no obligation to perform any of these recommendations. We are simply including things that can be done to improve the efficiency of your home. All prices are estimates. For bids on any recommendations, please contact us.

Please let us know if you've got any questions.

Thank you,
EnergyWise Consultants

Inside Your Report

- Cover
- Concerns
- Solutions
- Upgrade Details
- Health & Safety
- Additional Notes
- Rebates & Incentives
- Financing
- Metrics
- Tech specs
- Glossary



Concerns

We listened to you!

As our client, we want to make sure we are addressing all of your concerns for your home. If we have missed any concerns in this report, please let us know right away.

Homeowner would like to make energy efficient upgrade.

The homeowner has high utility bills and would like a comprehensive energy audit for energy efficiency suggestions to the home.

SAMPLE



Solutions for Your Home

Call us today at 970-242-9473 to ask a question or discuss the next step!

Totals

Approximate Cost

\$ 36,900

This is a ballpark guess. Ask your contractor for a detailed bid.

Estimated Savings

\$2,227 per year

This is an estimate of how much you could save starting in Year 1. Savings will only increase as energy prices rise over the years.

Savings to Investment Ratio

For Package: 1

SIR is the Savings to Investment Ratio. Simply put, if the SIR is 1 or greater, then the energy savings from the item will pay for itself before it needs to be replaced again. This metric is used to help prioritize the recommendations by financial merit.

Impact of upgrades

Energy Reduction	80%
Carbon (CO2) Savings	13 tons
Equivalent cars removed from the road	2.7/yr

DETAILS	APPROXIMATE INSTALLED COST	APPROXIMATE ANNUAL SAVINGS	SIR *
Thermostat Set Points	\$ 0	\$ 173	100
Lower Hot Water Temp	\$ 0	\$ 7	100
Upgrade Lighting	\$ 100	\$ 192	17.9
Seal Air Leaks	\$ 700	\$ 26	0.6
Insulate Attic	\$ 1,200	\$ 201	3.3
Insulate Crawl Space	\$ 1,200	\$ 399	6.6
Seal Duct Work	\$ 700	\$ 107	2.5
Upgrade Cooling System	\$ 2,500	\$ 175	1
Upgrade Water Heater	\$ 1,500	\$ 81	0.7
Replace Freezer	\$ 500	\$ 16	0.5
Upgrade Heating System	\$ 2,500	\$ 56	0.3
Refrigerator	\$ 1,100	\$ 63	0.9

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DETAILS	APPROXIMATE INSTALLED COST	APPROXIMATE ANNUAL SAVINGS	SIR *
Upgrade Windows	\$ 10,000	\$ 62	0.1
PV Production	\$ 15,000	\$ 671	0.9

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Thermostat Set Points

THERMOSTAT

Approximate installed cost

\$0

Energy Savings

Approx. \$173

Savings to Investment Ratio

100

Why it matters

Installing a programmable thermostat (or correctly setting the one you currently have) will help you to use less energy when you're not at home or when you're sleeping.



An example of a programmable thermostat.

Notes to Homeowners

Your temperature settings are very reasonable. However, we include this recommendation in all our audit reports because it doesn't cost anything and may save you money. Any time you can lower the thermostat in the winter and raise it in the summer you may see some savings.

Now & Goal

DETAILS	NOW	GOAL
Thermostat		
Heating Setpoint High	70 °F	68 °F
Heating Setpoint Low	68 °F	67 °F
Cooling Setpoint High	70 °F	72 °F
Cooling Setpoint Low	68 °F	70 °F

Lower Hot Water Temp

HOT WATER TEMPERATURE

Approximate installed cost

\$0

Energy Savings

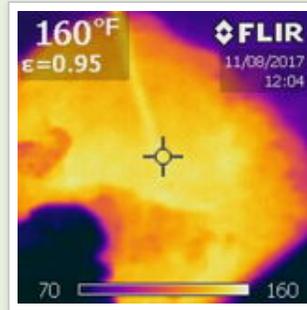
Approx. \$7

Savings to Investment Ratio

100

Why it matters

Set water heater to deliver at 122 F (use a cooking thermometer to test the temperature at the faucet) or the lowest practical setting for your preferences. A good measure is if you can take a shower using only hot water (not adding cold water), but still above 122 F. This will reduce standby energy loss and risk of scalding.



Your current hot water temperature setting.

Notes to Homeowners

Your current hot water temperature is set at around 160 degrees. This is very hot and has a high risk of scalding. It also is using a great deal of energy to keep the water at that temperature. We recommend setting your water to just above 120 degrees. This will be hotter than you would ever need for even the hottest shower/bath. Additionally, your dishwasher has a small heater installed that heats the water when running, so there is no need to have preheated water just for the dishwasher.

Now & Goal

DETAILS	NOW	GOAL
Hot Water Temperature		
Water Heater 1		
Temp	160 °F	122 °F

Upgrade Lighting

LED bulbs use 88% less energy than incandescent bulbs.



LIGHTING

Approximate installed cost

\$100

Energy Savings

Approx. \$192

Savings to Investment Ratio

17.9

Why it matters

Compact Florescent Lightbulbs (CFLs) use 1/4 of the energy of regular incandescent light bulbs and last 8 to 15 times as long. Light Emitting Diode (LED) bulbs use 12% of the energy of regular incandescent light bulbs and last up to 50 times as long. Replacing incandescent bulbs with CFLs or LEDs will save significant energy and replacement costs over time.

Notes to Homeowners

Approximately 25% of the bulbs in your home are CFL or LED. Switching the remaining incandescent bulbs to these more efficient ones will help decrease electricity usage. As lighting technology improves, prices of CFLs and LEDs decrease making the switch to these efficient bulbs an ever-increasing cost-effective option.

Now & Goal

DETAILS	NOW	GOAL
Lighting		
# of CFLs installed		
# of CFLs		
# of LEDs	5	42
# of Incandescents	37	

Seal Air Leaks

AIR LEAKAGE

Approximate installed cost

\$700

Energy Savings

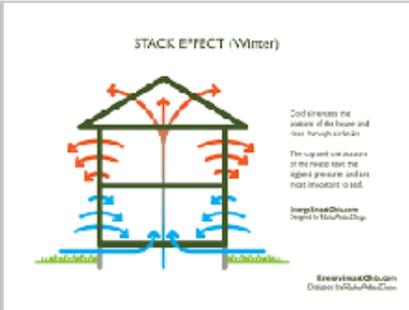
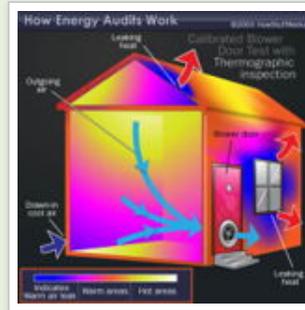
Approx. \$26

Savings to Investment Ratio

0.6

Why it matters

Air sealing is typically the most cost effective improvement you can make to your home. To properly seal out air leaks, a large fan called a blower door is used to depressurize your house. This makes air leaks easy to find, so corrective measures can be taken. A good air sealing job will dramatically increase the comfort of your home and help you save significant energy.



Examples of air leakage.

Notes to Homeowners

Your house is fairly leaky. We identified several areas of air infiltration throughout the home, including in the kitchen, upstairs bedrooms, and the closet in the stairway. Sealing these up will help to keep "conditioned" air inside the home.

Now & Goal

DETAILS	NOW	GOAL
Air Leakage		
Blower Door Reading	2821 CFM50	2115.75 CFM50
Conditioned Air Volume	18000 ft ³	
Wind Zone	2	
N-Factor	18.5	
Equivalent NACH	0.51 NACH	0.38 NACH
Effective Leakage Area	145.08 in ²	108.81 in ²
Equivalent ACH50	9.4 ACH50	7.05 ACH50
Kitchen Fan		
Bathroom Fan 1		
ASHRAE 62.2 Required mechanical ventilation rate	N/A CFM	N/A CFM
Minimum CFM50		2438 CFM50



ATTIC

Approximate installed cost

\$1,200

Energy Savings

Approx. \$201

Savings to Investment Ratio

3.3

Why it matters

Adding insulation to your attic can lead to a significant reduction in your utility bills. This process is often combined with careful air sealing of the ceiling from the attic side to ensure the new insulation perform at its maximum level.

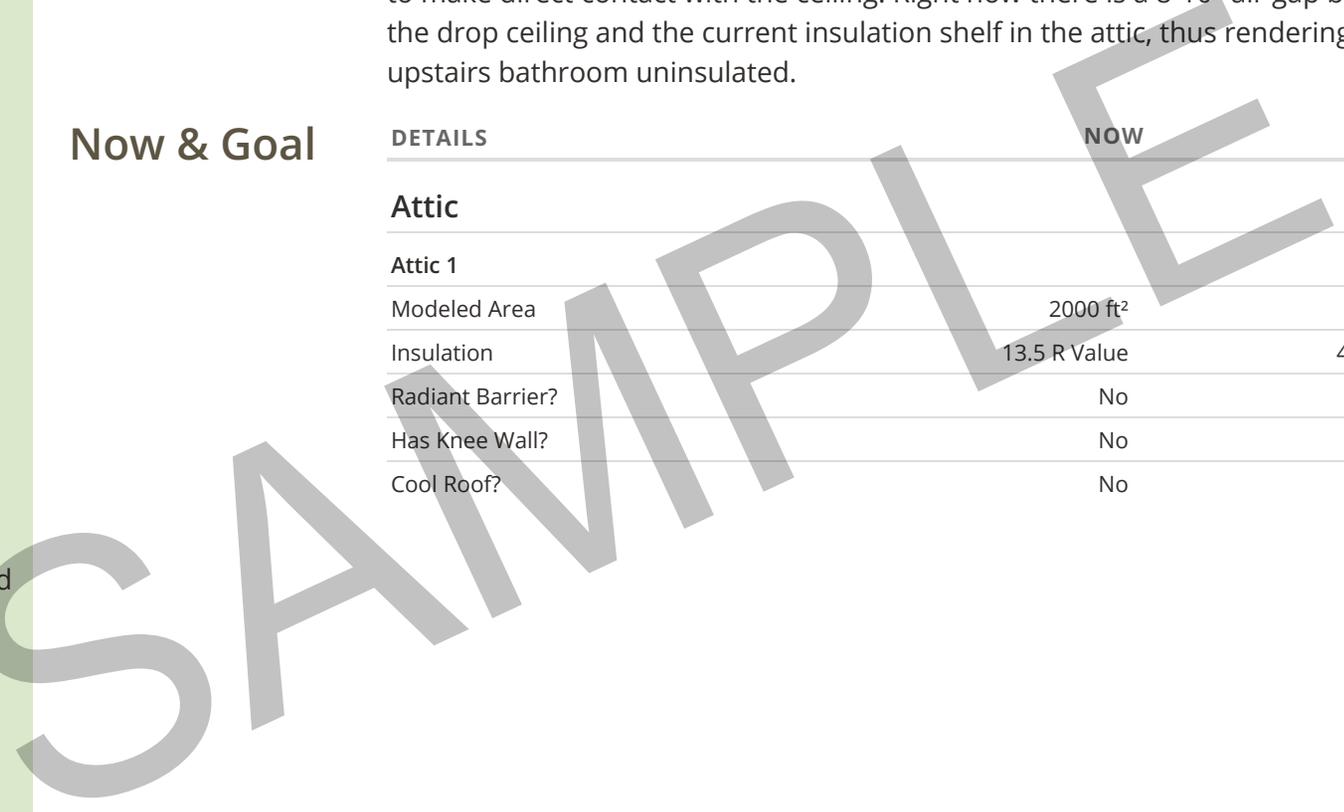
Insulate Attic

Notes to Homeowners

Your current attic insulation is around 4" in depth and is fairly old. Adding more attic insulation is highly recommended. If this is done, however, the ceiling area above the upstairs bathroom would need to be worked on to allow the insulation to make direct contact with the ceiling. Right now there is a 8-10" air gap between the drop ceiling and the current insulation shelf in the attic, thus rendering the upstairs bathroom uninsulated.

Now & Goal

DETAILS	NOW	GOAL
Attic		
Attic 1		
Modeled Area	2000 ft ²	2000 ft ²
Insulation	13.5 R Value	49 R Value
Radiant Barrier?	No	No
Has Knee Wall?	No	No
Cool Roof?	No	No



Insulate Crawl Space

CRAWL SPACE

Approximate installed cost

\$1,200

Energy Savings

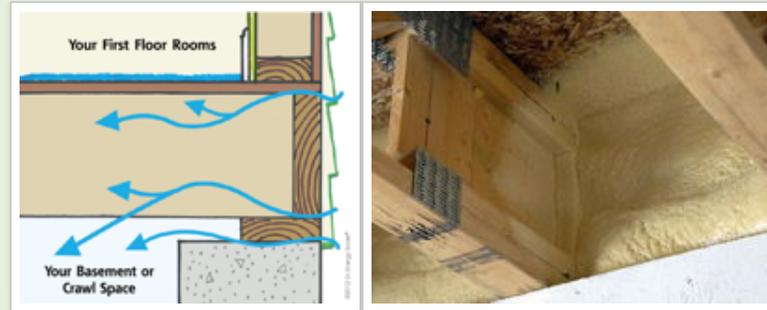
Approx. \$399

Savings to Investment Ratio

6.6

Why it matters

Insulating and "conditioning" your crawl space will increase the overall temperature of the space and make the floors above it more comfortable. Crawlspace can be converted from an unconditioned to a conditioned space which includes sealing off any vents to the outside, insulating the foundation walls, and installing a vapor barrier on top of the dirt floor. It often includes adding a jump vent to the main conditioned space in the house or ducting the furnace and/or A/C into the crawlspace as well.



(Left): Shows air leakage along the rims.
(Right): Spray foam along the rims.

Notes to Homeowners

Your crawl space is basically completely open to the outside via the foundation vents and the access hatches. Additionally, your floor is acting like a sieve between the house and crawler resulting in the inside and outside air mixing with relative ease. This is not helping your heating/cooling bills. There are several options for the crawl space, all of which will go towards keeping the crawl space more airtight and a more consistent temperature year-round. Doing all or some of these would be beneficial: 1) Foam the rim/band joists with closed-cell foam; 2) Close off and air seal existing crawl space vents; 3) Install a low-flow, continuous exhaust fan to keep the crawl space dry (if you close off the vents, we would highly recommend putting in this fan as well); 4) Drape the crawler walls with R-11 vinyl-faced batts. By closing off the crawl space from the outside, the air inside the house will stay a more consistent temperature. The price of doing some or all of these upgrade actions will vary widely, so please let us know what you're interested in and we can discuss more accurate costs, if desired.

Now & Goal

DETAILS	NOW	GOAL
Crawl Space		
Crawlspace Type	Vented - Year Round	Conditioned Crawl
Modeled Crawl Floor Area	2000 ft ²	
Modeled Crawl Wall Area	480 ft ²	



Insulate Crawl Space

CRAWL SPACE

Approximate installed cost

\$1,200

Energy Savings

Approx. \$399

Savings to Investment Ratio

6.6

Why it matters

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DETAILS	NOW	GOAL
Crawl Space		
Crawl Wall Insulation		21 R Value
Crawl Cavity Insulation		
Crawlspace Rim Joist Length	150 ft	
Crawlspace Rim Joist Treatment		Separately
Crawlspace Rim Joist Insulation		21 R Value

SAMPLE

Seal Duct Work

DUCTS

Approximate installed cost

\$700

Energy Savings

Approx. \$107

Savings to Investment Ratio

2.5

Why it matters

If you have a forced air system for heating or cooling, sealing the connections and penetrations with mastic will ensure that all of the air makes it to where it was designed to go. This increases the efficiency of your heating and cooling system and improves comfort. If you have a boiler system for heating, insulating the pipes will increase the effectiveness of the system.



Ducts within your crawl space.

Notes to Homeowners

The supply ductwork is located within the crawl space. They are currently fairly leaky and uninsulated. We highly recommend sealing these leaks and covering the ductwork with insulation. This will help air stay warm/cold and get to where it should be going.

Now & Goal

DETAILS	NOW	GOAL
Ducts		
System 1		
Duct Location	50/50 Attic (unconditioned) - Conditioned Space	50/50 Attic (unconditioned) - Conditioned Space
Duct Insulation	No Insulation	No Insulation Improvement
Duct Leakage	30% - Very leaky	Seal to 6% Leakage
Duct Efficiency	78.42%	88.09%

Upgrade Cooling System

COOLING SYSTEM

Approximate installed cost

\$2,500

Energy Savings

Approx. \$175

Savings to Investment Ratio

1

Why it matters

Install a more efficient air conditioner or evaporative cooler. Depending on the age of the unit, substantial savings may be gained by replacing it with an Energy Star rated appliance. If it doesn't quite make sense to replace your air conditioner now, be prepared to choose a high efficiency Energy Star unit (14 SEER or higher) when it finally wears out.



Image of new condenser (A/C).

Notes to Homeowners

Your current A/C unit is from 2002. If you decide to upgrade your furnace, we highly recommend you update the A/C condenser as well. Any new unit you have installed will be quite a bit more efficient than your current model.

Now & Goal

DETAILS	NOW	GOAL
Cooling System		
System 1		
System Name	System 1	
Equipment Type	Furnace / Central AC (shared ducts)	
Upgrade action	Replace with a newer model	
% of Total Cooling Load	100%	100%
Cooling Capacity	48000 BTU/h	24000 BTU/h
Cooling System Efficiency	9 SEER	15 SEER
Cooling System Model Year	1998	2018

Upgrade Water Heater

WATER HEATER

Approximate installed cost

\$1,500

Energy Savings

Approx. \$81

Savings to Investment Ratio

0.7

Why it matters

Replace your water heater with a tankless model or a heat pump water heater to save energy and reduce the ability for dangerous Carbon Monoxide to leak into your home.



An image of an on-demand, condensing hot water heater.

Notes to Homeowners

Your hot water heater is at least 15 years old. A newer condensing, on-demand unit will be much more efficient and save money in the long run.

Now & Goal

DETAILS	NOW	GOAL
Water Heater		
Water Heater 1		
Fuel	Natural Gas	Natural Gas
Type	Tank Water Heater	Tankless Water Heater
ENERGY STAR	No	Yes
Energy Factor	58 EF	97 EF
Model Year		2018

Replace Freezer

FREEZER

Approximate installed cost

\$500

Energy Savings

Approx. \$16

Savings to Investment Ratio

0.5

Why it matters

Old freezers can easily cost twice as much to operate as a new freezers. Replace your old freezer with a new Energy Star model and be sure to recycle the old one (keeping it running in your garage or basement will use even more energy).



An image of a chest freezer.

Notes to Homeowners

Your freezer is approximately 20 years old. A newer model will more efficient and save you money in the long run.

Now & Goal

DETAILS	NOW	GOAL
Freezer		
Freezer 1		
ENERGY STAR	No	No
Usage	483.51 kWh/yr	354 kWh/yr
Model Year		2018

Upgrade Heating System

HEATING SYSTEM

Approximate installed cost

\$2,500

Energy Savings

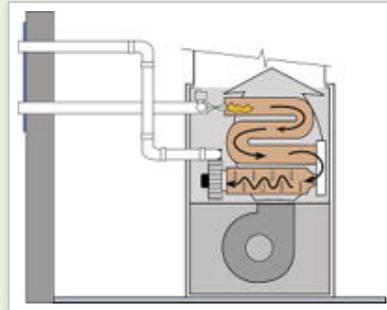
Approx. \$56

Savings to Investment Ratio

0.3

Why it matters

Install a more efficient furnace, boiler or heat pump. Depending on the age of the unit, substantial savings may be gained by replacing it with an Energy Star rated appliance. If you're heating with gas, look for a sealed combustion unit. They're much safer since the exhaust pathway from the unit is sealed and goes directly outside. If it doesn't quite make sense to replace your heating system now, be prepared to replace it with a high efficiency Energy Star unit when it finally wears out.



An example of a condensing, high-efficiency furnace.

Notes to Homeowners

Your current furnace is atmospherically vented and about 80% efficient. A newer furnace will be quite a bit more efficient (approximately 95% efficient) and save you money in the long run.

Now & Goal

DETAILS	NOW	GOAL
Heating System		
System 1		
System Name	System 1	
Equipment Type	Furnace / Central AC (shared ducts)	
Upgrade action	Replace with a newer model	
% of Total Heating Load	100%	100%
Heating Energy Source	Natural Gas	Natural Gas
Heating Capacity	100000 BTU/h	60000 BTU/h
Heating System Efficiency	72 AFUE	95 AFUE
Heating System Model Year	1988	2018

Refrigerator

REFRIGERATOR

Approximate installed cost

\$1,100

Energy Savings

Approx. \$63

Savings to Investment Ratio

0.9

Why it matters

Old refrigerators can often cost twice as much to operate as a new refrigerator. Replace your old refrigerator with a new Energy Star model and be sure to recycle the old one (keeping it running in your garage or basement will use even more energy).



A typical new fridge.

Notes to Homeowners

Your current model refrigerator is 18 years old and non-energy star. A new, energy star certified fridge will help save money over the long run.

Now & Goal

DETAILS	NOW	GOAL
Refrigerator		
Refrigerator 1		
ENERGY STAR	No	Yes
Usage	1072.72 kWh/yr	547 kWh/yr
Model Year		2018



Upgrade Windows

WINDOWS

Approximate installed cost

\$10,000

Energy Savings

Approx. \$62

Savings to Investment Ratio

0.1

Why it matters

Adding storm windows, solar screens or replacing your current windows can save energy and help reduce drafts or solar gain.



(Left): Your current window style.

(Right): Potential upgrade window style.

Notes to Homeowners

You currently have single pane windows with storm windows. Newer windows will be more energy efficient. We recommend double pane, vinyl windows if you decide to upgrade your windows. Vinyl frames conduct less heat than your current metal framed windows, thus keeping your house temperature more separated from the outside temperature.

Now & Goal

DETAILS	NOW	GOAL
Windows		
Window 1		
ENERGY STAR	No	No
U-Value	0.7 U Value	0.39 U Value
Solar Heat Gain Coefficient	0.67 SHGC	0.52 SHGC
Window Area: North (Left)	60.75 ft ²	60.75 ft ²
Window Area: East (Back)	48.6 ft ²	48.6 ft ²
Window Area: South (Right)	40.5 ft ²	40.5 ft ²
Window Area: West (Front)	32.4 ft ²	32.4 ft ²
Exterior Treatment: North (Left)	No Treatment	No Improvement
Exterior Treatment: East (Back)	No Treatment	No Improvement
Exterior Treatment: South (Right)	No Treatment	No Improvement
Exterior Treatment: West (Front)	No Treatment	No Improvement

PV Production

PV

Approximate installed cost

\$15,000

Energy Savings

Approx. \$671

Savings to Investment Ratio

0.9

Why it matters

Install a solar PV (photovoltaic) system to offset electric energy consumption in your house. A PV system can reduce or even eliminate your electric bill entirely.



PV installation.

Notes to Homeowners

Your roof has little to no tree coverage and good lines of sight to the sun. Your home may be a good candidate for photovoltaic panels. Although we don't deal in solar panels, we can make recommendations for local solar companies if you would like.

Now & Goal

DETAILS	NOW	GOAL
PV		
Array Size		3.7 kW
Array Slope		30 °
Array Orientation		180 °
Annual Production		5591 kWh

Health & Safety

What's This?

These tests are recommended by the Building Performance Institute (BPI). They can help identify potential health and safety concerns in your home.

Test Summary

- Ambient Carbon Monoxide
- Natural Condition Spillage
- Worst Case Depressurization
- Worst Case Spillage
- Undiluted Flue CO
- Draft Pressure
- Gas Leak
- Venting

Passed Failed Warning

Advising

Xcel Energy's expert Energy Advisors at CLEAResult will provide **unbiased advice and impartial guidance** on the next steps toward making your home more comfortable and less costly to operate. They can help you with applicable rebates, incentives, contractors and best practices **so you know you're making educated, smart decisions** that are right for your home.

Call (303) 446-7910 to speak with a free, impartial Energy Advisor about your home.

Energy Advisors are expert consultants who can:

- Provide expert advice about energy upgrades
- Help you prioritize next steps for your home energy improvements
- Connect you with qualified contractors
- Connect you with applicable rebates, financing, and incentives and help you with the paperwork
- Connect you with Xcel Energy's complementary programs, such as the Saver's Switch, Solar Rewards, and Wind Source, among others

You may receive a call from an Energy Advisor offering to review this audit with you. We look forward to working with you.

Spots are limited, so take advantage of this service while it lasts.

Here's what homeowners are saying about CLEAResult's Energy Advisors:

" Thank you for all of your thoroughness and assistance throughout.

" [My advisor was] very professional, knowledgeable, and extremely helpful.

" [My advisor] was fantastic! She was super helpful, answered all of my questions, and was very prompt responding to emails.

Call to speak with an Energy Advisor:(303) 446-7910xcelenergyadvisors@clearesult.com

2017-2018 Rebate Summary: CO Residential Energy Efficiency Programs

Key*	Rebate Area	Qualifiers	Rebate		More Information			
Cooling								
🔥	Evaporative coolers	Standard (window unit)	First-time install	\$300	Rebate can't be more than total cost.			
			Replacement	\$200				
		Premium unit	First-time install	\$700	Rebate for first-time install only available if additional equipment is listed on invoice such as pipes, valves			
	Replacement	\$600						
	Whole house system*	All	\$1,200	*Premium unit with 3 ducts or more				
🔥📦	High-efficiency AC or ASHP (air conditioners and air source heat pumps)	Below 14.5 SEER	Quality Installation**	\$100	**Available for existing homes only.			
		SEER 14.5/EER 12	New equipment	\$0	The rebate is paid according to the lesser value of the SEER/EER. Example: A system with 16 SEER and 12.5 EER will receive a \$350 rebate. AHRI certificate required.			
			Trade-in	\$500				
		SEER 15/EER 12.5	New equipment	\$350				
			Trade-in	\$500				
		SEER 16, EER 13	Max rebate	\$850				
			New equipment	\$500				
		SEER 17/EER 13	Trade-in	\$500				
			Max rebate	\$1000				
			New equipment	\$650				
	Trade-in	\$500						
	Max rebate	\$1,150						
🔥	Ductless mini-split heat pumps	15+ SEER, 11+ EER, 9+ HSPF	Max rebate	\$300	AHRI certificate required			
🔥📦	Ground source heat pumps	Minimum 3.3 COP and 14.1 EER	Max rebate per ton	\$300	ENERGY STAR® qualified, closed-loop systems			
Heating								
🔥📦	Furnaces	95% AFUE		\$300	Only new furnaces located on ahridirectory.org qualifies for a rebate.			
🔥📦	Electronically Commutated Motors (ECM)	ECM in new or existing furnace		\$100	Customers must have electric service to qualify for the ECM rebate, and gas service to qualify for the furnace rebate. Qualifying customers may receive both a furnace and an ECM rebate			
Water heating								
🔥	Standard tank heaters	.67 EF		\$70	Only new equipment located on energystar.gov or ahridirectory.org qualifies for a rebate.			
🔥	Tankless heaters	.90 EF		\$100				
🔥	Electric heat pump heaters			\$450				
Key*	Rebate area	Qualifiers And Associated Rebates						
Air sealing and insulation								
🔥🔥📦	Air sealing, bypass sealing, weather stripping (60% up to cap)	20% leakage reduction	Natural gas heating, no AC cooling	\$175	Natural gas heating with AC cooling	\$300	Electric resistance heating	\$350
		30% leakage reduction		\$250		\$400		\$450
		Attic insulation (30% up to cap)		\$350		\$500		\$600
		External wall insulation, above grade (30% up to cap)		\$350		\$500		\$600

*Please see key on next page.

2017-2018 Xcel Energy Rebate Summary Continued...

Key*	Rebate Area	Rebate	More Information
Home energy audit			
  	Infrared audit	\$200	60% of the cost, up to \$200
  	Blower door audit	\$160	60% of the cost, up to \$160
  	Standard audit	\$100	60% of the cost, up to \$100

Home performance with ENERGY STAR®			
  	Begin with an advanced Home Energy Audit. Bundle three or more energy efficiency improvements with Home Performance with ENERGY STAR. Natural gas service customers without Xcel Energy electric service do not qualify for this rebate program. Customers should specify that they want the higher, bundled rebates before any work is performed by a contractor. Customers applying for Home Performance rebates cannot receive other Xcel Energy rebates for the same improvements.		

Home Improvement Measures	Rebates For Home Performance Measures		
Top three REQUIRED improvements (If listed as a recommendation in the customer's audit report)	Natural gas heating, no AC cooling	Natural gas heating with AC cooling	Electric resistance heating
High efficiency LEDs*	\$2 per bulb up to \$40		
Air sealing, bypass sealing and weather stripping* (60% up to cap)	20% leakage reduction	\$250	\$400
	30% leakage reduction	\$325	\$500
Attic Insulation* (30% up to cap)	\$400	\$600	\$700
Optional improvements	Rebates		
Wall insulation, above grade (30% up to cap)	\$450	\$600	\$700
Evaporative cooling – standard system (First-time install)		\$325	
Evaporative cooling – standard system (Replacement)		\$225	
Evaporative cooling – premium system (First-time install)		\$725	
Evaporative cooling – premium system (Replacement)		\$625	
Evaporative cooling – Whole house system		\$1200	
Central AC-15 SEER, 12.5 EER		\$400	
Central AC-16 SEER, 13 EER		\$550	
Central AC-17 SEER, 13 EER		\$700	
Central AC trade-in (with qualifying new equipment)		\$550	
Ground source heat pump-Min. 3.3 COP and 14.1 EER		\$300 per heating ton	
Programmable set back thermostat		\$25	
95% + AFUE furnace		\$400	
Electronically commutated motor (ECM)		\$125	
.90 EF or higher tankless natural gas water heater		\$200	
.67 EF or higher storage natural gas water heater		\$100	
Electric heat pump water heater		\$550	
ENERGY STAR refrigerator – primary		\$15	
ENERGY STAR clothes washer		\$30	

*If any of these three measures are a recommended improvement from the energy audit, they must be completed in order to successfully complete the program.

KEY:  **Natural Gas:** This symbol indicates a program designed for our natural gas customers.  **Electric:** This symbol indicates a program available to our electric customers.

 **Participating contractor:** This symbol indicates a program that requires customers to use an Xcel Energy participating contractor to install the equipment or make the improvement. Our list of registered contractors can be found at xcelenergy.com/cotrades.



Metrics

About the metrics

These metrics are for the whole house in a pre and post-retrofit state.

The 'Baseline' savings numbers will likely not be the same as the actual energy consumption of the home. These numbers are weather normalized and then projected based on the Typical Meteorological Year for the past 30 years (TMY30). In other words, this is the energy consumption of the home for a typical year, not the year that the utility bills were from.

FUELS	BASELINE	IMPROVED	SAVED
Total Fuel Energy Usage <small>therms/year</small>	1,430	337	1,093
Natural Gas Energy Usage <small>therms/year</small>	1,430	337	1,093

METRIC	BASELINE	IMPROVED	SAVED
Electric Energy Usage <small>kWh/year</small>	13,472	1,472	12,000
Total Energy Usage <small>MMBtu/year</small>	189.00	39.00	150.00
Fuel Energy Cost <small>\$/year</small>	\$ 1,030	\$ 243	\$ 787
Electric Energy Cost <small>\$/year</small>	\$ 1,617	\$ 177	\$ 1,440
Total Energy Cost <small>\$/year</small>	\$ 2,646	\$ 419	\$ 2,227
CO2 Production <small>Tons/year</small>	15.8	2.7	13.1
Payback <small>years</small>			13
Total Energy Savings			80%
Total Carbon Savings			83%
Net Savings to Investment Ratio <small>SIR</small>			1.0
Net Annualized Return <small>MIRR</small>			5.0%

HEATING & COOLING LOAD CALCULATIONS		
Heating Load <small>Btu/hr</small>	Base: 58,788	Improved: 26,094
Cooling Load: Sensible <small>Btu/hr</small>	Base: 38,322	Improved: 24,426
Cooling Load: Latent <small>Btu/hr</small>	Base: 1,021	Improved: 947
Winter Design Temperature	Outdoor: 16°	Indoor: 70°
Summer Design Temperature	Outdoor: 95°	Indoor: 75°



Tech Specs

Property Details

Year Built:	2000
Conditioned Area:	2000 ft ²
Average Wall Height:	9 ft
House Length:	40 ft
House Width:	40 ft
Floors Above Grade:	1
Number of Occupants:	3
Number of Bedrooms:	3
Type of Home:	Single Family Detached
Front of Building Orientation:	West
Shielding:	Normal
Tuck Under Garage:	No

Thermostat

Programmable Thermostat Installed:	Yes
Heating Setpoint High:	70 °F
Heating Setpoint Low:	68 °F
Cooling Setpoint High:	70 °F
Cooling Setpoint Low:	68 °F

Heating & Cooling

Heating Design Load:	58788 Btu/hr
Hvac: 1	
System Name:	System 1
Equipment Type:	Furnace / Central AC (shared ducts)
Upgrade action:	Replace with a newer model
Heating Energy Source:	Natural Gas
% of Total Heating Load:	100%
Heating Capacity:	100000 BTU/h
Heating System Efficiency:	72 AFUE

Heating System Model Year:	1988
% of Total Cooling Load:	100%
Cooling Capacity:	48000 BTU/h
Cooling System Efficiency:	9 SEER
Cooling System Model Year:	1998
Duct Location:	50/50 Attic (unconditioned) - Conditioned Space
Duct Insulation:	No Insulation
Duct Leakage:	30% - Very leaky
Duct Efficiency:	78.42%

Appliances

Range: 1	
Range Fuel Type:	Electricity
Oven: 1	
Oven Fuel Type:	Electricity
Clothes Dryer: 1	
Dryer Fuel Type:	Electricity

Clothes Washer

Type:	Front Load
Integrated Modified Energy Factor:	1.62 IMEF
ENERGY STAR:	No

Dishwasher

Dishwasher Installed?:	Yes
Energy Factor:	0.43 EF
ENERGY STAR:	No

Freezers

Freezer: 1	
Usage:	483.51 kWh/yr
ENERGY STAR:	No

Refrigerators

Refrigerator: 1

Refrigerator Age:	15-21
Refrigerator Size:	22+
ENERGY STAR:	No
Usage:	1072.72 kWh/yr

Lighting

% CFLs or LEDs:	1-25%
Total # of Light Bulbs:	47
# of CFLs:	0
# of LEDs:	5
# of Incandescents:	37

Doors

Door: 1	
Type:	Wood with Storm
Area:	21 ft ²
ENERGY STAR:	No
U Value:	0.31 U Value
Door: 2	
Type:	Wood with Storm
Area:	21 ft ²
ENERGY STAR:	No
U Value:	0.31 U Value

Exterior Walls

Wall: 1	
Modeled Area:	1620 ft ²
Insulated?:	Poorly
Siding:	Wood/Fiber Cement siding
Construction:	2x4 Frame
Cavity Insulation:	7 R Value
Continuous Insulation:	0 R Value



Tech Specs

Attic & Vaulted Ceiling

Attic: 1

Modeled Area:	2000 ft ²
Insulation Depth:	4-6
Insulation Type:	Fiberglass or Rockwool (batts or blown)
Insulation:	13.5 R Value
Radiant Barrier?:	No
Has Knee Wall?:	No
Cool Roof?:	No

Foundation - General

Foundation: Crawlspace:	100%
Foundation Above Grade Height:	0.5 ft

Foundation - Crawlspace

Modeled Crawl Floor Area:	2000 ft ²
Crawlspace Type:	Vented - Year Round
Crawlspace Insulation:	Crawlspace is uninsulated
Crawl Cavity Insulation:	0 R Value

Frame Floors

Modeled Floor Area:	0 ft ²
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Windows

Window: 1

Window Area: North (Left):	60.75 ft ²
Window Area: East (Back):	48.6 ft ²
Window Area: South (Right):	40.5 ft ²
Window Area: West (Front):	32.4 ft ²
Type:	Single pane + storm
Frame:	Metal
ENERGY STAR:	No
U-Value:	0.7 U Value

Solar Heat Gain Coefficient:	0.67 SHGC
Window Area: North (Left) Overhang Depth:	1.5 ft
Window Area: East (Back) Overhang Depth:	1.5 ft
Window Area: South (Right) Overhang Depth:	1.5 ft
Window Area: West (Front) Overhang Depth:	1.5 ft
Exterior Treatment: North (Left):	No Treatment
Exterior Treatment: East (Back):	No Treatment
Exterior Treatment: South (Right):	No Treatment
Exterior Treatment: West (Front):	No Treatment

Skylights

Skylight Area:	8 ft ²
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Air Leakage

Blower Door Reading:	2821 CFM50
Conditioned Air Volume:	18000 ft ³
Wind Zone:	2
N-Factor:	18.5
Equivalent NACH:	0.51 NACH
Effective Leakage Area:	145.08 in ²
Equivalent ACH50:	9.4 ACH50
Kitchen Fan:	0 CFM
Bathroom Fan 1:	0 CFM
ASHRAE 62.2 Required mechanical ventilation rate:	N/A CFM

Water Heating

Water Heating: 1

Fuel:	Natural Gas
Type:	Tank Water Heater
Age:	11-15
Location:	Garage or Unconditioned Space
Temperature Settings:	Medium (130-140 F)
ENERGY STAR:	No

Energy Factor:	58 EF
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Pool & Hot Tub

Pool:	No
Hot Tub:	No

PV

Pv: 1

Has PV?:	No
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Utilities

Utility Price: Natural Gas:	0.72 \$/Therm
Utility Price: Propane:	2.17 \$/Gallon
Utility Price: Fuel Oil:	2.53 \$/Gallon
Utility Price: Electricity:	0.12 \$/kWh
Utility Price: Wood:	0 \$/cord
Utility Price: Pellets:	0 \$/Ton

Utility Bills

Electric

Electric Utility Provider Name	Xcel
Electric Account Number	53-000000000000-8

Fuel

Fuel Utility Provider Name	Xcel
Fuel Account Number	53-000000000000-8

Contact Information

Vernon Nelson
 Rater
 EnergyWise Consultants, LLC
 RESNET + BPI BA
 1111 South 7th Street
 Grand Junction, CO 81501
 vnelson@energywisecompanies.com



Tech Specs

About This Report

Report Date: April 13, 2018

Job ID: 43550

Xcel Energy

Report & modeling software: Snugg Pro™ 5.0

SAMPLE



Glossary

Annual Fuel Utilization Efficiency (AFUE) The measure of seasonal or annual efficiency of a residential heating furnace or boiler. It takes into account the cyclic on/off operation and associated energy losses of the heating unit as it responds to changes in the load, which in turn is affected by changes in weather and occupant controls.

Annualized Return The return an investment provides over a period of time, expressed as a time-weighted annual percentage. This is the equivalent annual interest rate you would get if you put the same amount of money spent on the energy upgrade into a savings account.

Asbestos Asbestos is a mineral fiber that has been used commonly in a variety of building construction materials for insulation and as a fire-retardant, but is no longer used in homes. When asbestos-containing materials are damaged or disturbed by repair, remodeling or demolition activities, microscopic fibers become airborne and can be inhaled into the lungs, where they can cause significant health problems.

British Thermal Unit (Btu) The amount of heat required to raise the temperature of one pound of water one degree Fahrenheit; equal to 252 calories.

Carbon Monoxide (CO) A colorless, odorless but poisonous combustible gas with the formula CO. Carbon monoxide is produced in the incomplete combustion of carbon and carbon compounds such as fossil fuels (i.e. coal, petroleum) and their products (e.g. liquefied petroleum gas, gasoline), and biomass.

Cashflow When financing energy efficiency improvements, cashflow is the difference between the average monthly energy savings and the monthly loan payment.

Combustion Appliance Zone (CAZ) A contiguous air volume within a building that contains a combustion appliance such as furnaces, boilers, and water heaters; the zone may include, but is not limited to, a mechanical closet, mechanical room, or the main body of a house, as applicable.

Compact Fluorescent Light bulb (CFL) A smaller version of standard fluorescent lamps which can directly replace standard incandescent lights. These highly efficient lights consist of a gas filled tube, and a magnetic or electronic ballast.

Cubic Feet per Minute (CFM) A measurement of airflow that indicates how many cubic feet of air pass by a stationary point in one minute.

Carbon Dioxide (CO₂) A colorless, odorless noncombustible gas that is present in the atmosphere. It is formed by the combustion of carbon and carbon compounds (such as fossil fuels and biomass). It acts as a greenhouse gas which plays a major role in global warming and climate change.

Energy Efficiency Ratio (EER) The measure of the energy efficiency of room air conditioners: cooling capacity in Btu/hr divided by the watts consumed at a specific outdoor temperature.

Energy Factor (EF) The measure of efficiency for a variety of appliances. For water heaters, the energy factor is based on three factors: 1) the recovery efficiency, or how efficiently the heat from the energy source is transferred to the water; 2) stand-by losses, or the percentage of heat lost per hour from the stored water compared to the content of the water; and 3) cycling losses. For dishwashers, the energy factor is the number of cycles per kWh of input power. For clothes washers, the energy factor is the cubic foot capacity per kWh of input power per cycle. For clothes dryers, the energy factor is the number of pounds of clothes dried per kWh of power consumed.

Heating Seasonal Performance Factor (HSPF) The measure of seasonal efficiency of a heat pump operating in the heating mode. It takes into account the variations in temperature that can occur within a season and is the average number of Btu of heat delivered for every watt-hour of electricity used.

Heat Recovery Ventilator (HRV) / Energy Recovery Ventilator (ERV)

A device that captures the heat or energy from the exhaust air from a building and transfers it to the supply/fresh air entering the building to preheat the air and increase overall heating efficiency while providing consistent fresh air.

Light Emitting Diode (LED) Lighting An extremely efficient semiconductor light source. LEDs present many advantages over incandescent light sources including lower energy consumption, longer lifetime, improved physical robustness, and smaller size.

Modified Internal Rate of Return (MIRR) This is your return on investment. Roughly speaking, if you invested the same amount of money for this project (listed on this report as the total cost) into a bank account, your equivalent interest rate from all of the energy savings would be the MIRR.

N-Factor A factor of how susceptible your house is to wind, influenced by weather patterns, location, and the number of floors in the home. Used in the calculation of NACH.

Natural Air Changes per Hour (NACH) The number of times in one hour the entire volume of air inside the building leaks to the outside naturally.

Payback Period The amount of time required before the savings resulting from your system equal the system cost.

R-Value A measure of the capacity of a material to resist heat transfer. The R-Value is the reciprocal of the conductivity of a material (U-Value). The larger the R-Value of a material, the greater its insulating properties.

Radon A naturally occurring radioactive gas found in the U.S. in nearly all types of soil, rock, and water. It can migrate into most buildings. Studies have linked high concentrations of radon to lung cancer.

Rim Joist In the framing of a deck or building, a rim joist is the final joist that caps the end of the row of joists that support a floor or ceiling. A rim joist makes up the end of the box that comprises the floor system.

Seasonal Energy Efficiency Ratio (SEER) A measure of seasonal or annual efficiency of a central air conditioner or air conditioning heat pump. It takes into account the variations in temperature that can occur within a season and is the average number of Btu of cooling delivered for every watt-hour of electricity used by the heat pump over a cooling season.

Savings to Investment Ratio (SIR) A ratio used to determine whether a project that aims to save money in the future is worth doing. The ratio compares the investment that is put in now with the amount of savings from the project.