

Energy Usage for Space and Water Heating by Fuel Type

	Natural Gas			Alternative Fuel Source Totals	
	Tier I Therms	Tier II Therms	Total Therms	Propane Gallons	Electric kWh
January	20	107	127	139.1	3,722.2
February	20	116	136	148.9	3,985.9
March	20	95	115	125.9	3,370.5
April	19	34	53	58.0	1,553.3
May	18	18	36	39.4	1,055.1
June	15	1	16	17.5	468.9
July	12	2	14	15.3	410.3
August	11	2	13	14.2	381.0
September	10	3	13	14.2	381.0
October	15	7	22	24.1	644.8
November	19	37	56	61.3	1,641.3
December	19	77	96	105.1	2,813.6
Total	198	499	697	763	20,428

Equipment Costs and Current Heat Incentives

Equipment and Conversion Costs to Natural Gas from		
	Electric	Propane
Gas Line/Furnace Venting & Installation	\$1,500	
New Natural Gas Furnace	\$2,000	
New Natural Gas Furnace Orifice		\$300
New Natural Gas Water Heater Venting	\$200	
New Natural Gas Water Heater Installed	\$1,000	\$1,000
Total Cost	\$4,700	\$1,300
Average HOT/HEAT Incentive Amounts		
	Electric	Propane
Furnace	\$300	\$300
Water Heater	\$150	\$150
Total Incentive	\$450	\$450

Replacement Equipment		
	Electric	Propane
Installed Furnace	\$3,000	\$3,000
Installed Water Heater	\$1,000	\$1,000

Source: <https://www.fixr.com>

The furnace costs comes from these sites:

“How Much Does A New Furnace Cost To Install Or Replace?”, <https://www.homeadvisor.com/cost/heating-and-cooling/install-a-furnace/>, accessed February 9, 2020.

“HOW MUCH DOES NEW FURNACE REPLACEMENT COST?”, <https://www.hvac.com/blog/new-furnace-cost-5-things-need-know/#electric>, accessed February 9, 2020.

<https://www.homeadvisor.com/cost/heating-and-cooling/install-a-furnace/>

The hot water heater costs from these site:

“How Much Does Water Heater Installation Or Replacement Cost?”, <https://www.homeadvisor.com/cost/plumbing/install-a-water-heater/#calculator>, accessed February 9, 2020.

“Water Heater Installation Cost”, <https://www.fixr.com/costs/install-water-heater>, accessed February 9, 2020.

Rates by Fuel Source and Provider

Lincoln Electric System	https://www.les.com/residential/rates/rate-schedules		
Customer Charge	\$5.00	per mo	
Facilities Charge-Level 1	\$18.00	per mo	
Energy Charge -Summer	\$0.0801	per kWh	(Jun-Sep)
Energy Charge-Winter	\$0.0548	per kWh	(Oct-May)
NPPD	https://www.nppd.com/rates/for-your-home		
Customer Charge	\$22.50	per mo	
Summer All kWh	\$0.1013	per kWh	(Jun-Sep)
Winter First 750 kWh	\$0.0808	per kWh	(Oct-May)
Winter Addl kWh	\$0.0622	per kWh	(Oct-May)
OPPD	https://www.oppd.com/residential/residential-rates/		
Service Charge	\$30.00	per mo	
Summer All kWh	\$0.0936	per kWh	(Jun-Sep)
Summer Credit	\$2.07	per mo	for kWh > 100 kWh and < 401 kWh
Winter First 100 kWh	\$0.0863	per kWh	(Oct-May)
Winter Next 900 kWh	\$0.0746	per kWh	(Oct-May)
Winter All Addl kWh	\$0.0527	per kWh	(Oct-May)
FPPA - All kWh (eff 1/1/19)	\$0.00186	per kWh	
Minimum Bill	\$32.07	per mo	
Propane Rates	https://www.eia.gov/dnav/pet/pet_pri_wfr_dcus_SNE_w.htm		
Fuel Rate per Gallon	\$1.34	per gallon	
Natural Gas Residential Rates - BHE Nebraska			
Customer Charge	\$15.45	per mo	
Dist Charge Tier 1 (first 20 therms)	\$0.59960	per therm	
Dist Charge Tier 2	\$0.15000	per therm	
Gas Cost	\$0.42474	per therm	

Monthly and Annual Costs by Fuel Source and Provider

LES	January	February	March	April	May	June	July	August	September	October	November	December
Customer Charge	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Facility Chrg	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Energy Chrg	\$0.0548	\$0.0548	\$0.0548	\$0.0548	\$0.0548	\$0.0801	\$0.0801	\$0.0801	\$0.0801	\$0.0548	\$0.0548	\$0.0548
kWh Usage	3,722	3,986	3,370	1,553	1,055	469	410	381	381	645	1,641	2,814
Bill Calc	\$204	\$218	\$185	\$85	\$58	\$38	\$33	\$31	\$31	\$35	\$90	\$154
											TOTAL	\$1,161
NPPD												
Customer Charge	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
First 750 kWh	\$0.0808	\$0.0808	\$0.0808	\$0.0808	\$0.0808	\$0.1013	\$0.1013	\$0.1013	\$0.1013	\$0.0808	\$0.0808	\$0.0808
All Addl kWh	\$0.0622	\$0.0622	\$0.0622	\$0.0622	\$0.0622	\$0.1013	\$0.1013	\$0.1013	\$0.1013	\$0.0622	\$0.0622	\$0.0622
kWh Usage	3,722	3,986	3,370	1,553	1,055	469	410	381	381	645	1,641	2,814
kWh First Tier	750	750	750	750	750	469	410	381	381	645	750	750
All Addl kWh	2,972	3,236	2,620	803	305	0	0	0	0	0	891	2,064
Bill Calc	\$245	\$262	\$224	\$111	\$80	\$48	\$42	\$39	\$39	\$52	\$116	\$189
											TOTAL	\$1,444
OPPD												
Service Charge	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
First 100 kWh	\$0.08630	\$0.08630	\$0.08630	\$0.08630	\$0.08630	\$0.09360	\$0.09360	\$0.09360	\$0.09360	\$0.08630	\$0.08630	\$0.08630
Next 900 kWh	\$0.07460	\$0.07460	\$0.07460	\$0.07460	\$0.07460	\$0.09360	\$0.09360	\$0.09360	\$0.09360	\$0.07460	\$0.07460	\$0.07460
All addl kWh	\$0.05270	\$0.05270	\$0.05270	\$0.05270	\$0.05270	\$0.09360	\$0.09360	\$0.09360	\$0.09360	\$0.05270	\$0.05270	\$0.05270
FPPA all kWh	\$0.00186	\$0.00186	\$0.00186	\$0.00186	\$0.00186	\$0.00186	\$0.00186	\$0.00186	\$0.00186	\$0.00186	\$0.00186	\$0.00186
kWh Usage	3,722	3,986	3,370	1,553	1,055	469	410	381	381	645	1,641	2,814
kWh First Tier	100	100	100	100	100	100	100	100	100	100	100	100
kWh 2nd Tier	900	900	900	900	900	369	310	281	281	545	900	900
All Addl kWh	2,722	2,986	2,370	553	55	0	0	0	0	0	641	1,814
Bill Calc	\$226	\$241	\$207	\$108	\$81	\$45	\$39	\$36	\$36	\$50	\$113	\$177
											TOTAL	\$1,358

Monthly and Annual Costs by Fuel Source and Provider

PROPANE												
All Gallons	\$1.34	\$1.34	\$1.34	\$1.34	\$1.34	\$1.34	\$1.34	\$1.34	\$1.34	\$1.34	\$1.34	\$1.34
Gallon Usage	139	149	126	58	39	18	15	14	14	24	61	105
Bill Calc	\$186	\$200	\$169	\$78	\$53	\$23	\$21	\$19	\$19	\$32	\$82	\$141
											TOTAL	\$1,023
BH NEBRASKA GAS												
Customer Chrg	\$15.45	\$15.45	\$15.45	\$15.45	\$15.45	\$15.45	\$15.45	\$15.45	\$15.45	\$15.45	\$15.45	\$15.45
Dist Chrg Tier 1	\$0.59960	\$0.59960	\$0.59960	\$0.59960	\$0.59960	\$0.59960	\$0.59960	\$0.59960	\$0.59960	\$0.59960	\$0.59960	\$0.59960
Dist Chrg Tier 2	\$0.15000	\$0.15000	\$0.15000	\$0.15000	\$0.15000	\$0.15000	\$0.15000	\$0.15000	\$0.15000	\$0.15000	\$0.15000	\$0.15000
Gas Cost	\$0.42474	\$0.42474	\$0.42474	\$0.42474	\$0.42474	\$0.42474	\$0.42474	\$0.42474	\$0.42474	\$0.42474	\$0.42474	\$0.42474
Therm Usage	127	136	115	53	36	16	14	13	13	22	56	96
First Tier	20	20	20	19	18	15	12	11	10	15	19	19
All Addl Therms	107	116	95	34	18	1	2	2	3	7	37	77
Bill Calc	\$97	\$103	\$91	\$54	\$44	\$31	\$29	\$28	\$27	\$35	\$56	\$79
											TOTAL	\$675

Annual Savings by Fuel Source and Provider

	Annual Bill \$	Saving from BHE versus			
		LES \$	NPPD \$	OPPD \$	Propane \$
Electric - LES	\$1,161				
Electric - NPPD	\$1,444				
Electric - OPPD	\$1,358				
Propane	\$1,023				
Nat. Gas - BHE NE	\$675	(\$486)	(\$769)	(\$683)	(\$348)

Ten-year Net Present Value of Fuel Cost Savings Given Existing Equipment Works

Conversion from Propane to BHE												
		Customer										
		Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
(1)	Estimated Cost (Exhibit No. DIR- 2)	\$1,300										
(2)	HEAT Incentives (Exhibit No. DIR- 2)	(\$150)										
(3)	Net Investment	\$1,150										
(4)	Bill Savings (Exhibit No. DIR- 5)		\$348	\$348	\$348	\$348	\$348	\$348	\$348	\$348	\$348	\$348
(5)	Aggregate (Cost)/Return	(\$1,150)	(\$802)	(\$454)	(\$106)	\$242	\$590	\$938	\$1,286	\$1,634	\$1,982	\$2,330
(6)	PDV Aggregate (Cost)/Return	(\$1,150)	(\$814)	(\$489)	(\$175)	\$128	\$421	\$704	\$978	\$1,242	\$1,497	\$1,744
Conversion from NPPD to BHE												
		Customer										
		Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
(1)	Estimated Cost (Exhibit No. DIR- 2)	\$4,700										
(2)	HEAT Incentives (Exhibit No. DIR- 2)	(\$450)										
(3)	Net Investment	\$4,250										
(4)	Bill Savings (Exhibit No. DIR- 5)		\$769	\$769	\$769	\$769	\$769	\$769	\$769	\$769	\$769	\$769
(5)	Aggregate (Cost)/Return	(\$4,250)	(\$3,481)	(\$2,712)	(\$1,943)	(\$1,174)	(\$405)	\$364	\$1,133	\$1,902	\$2,671	\$3,440
(6)	PDV Aggregate (Cost)/Return	(\$4,250)	(\$3,507)	(\$2,789)	(\$2,096)	(\$1,425)	(\$778)	(\$152)	\$452	\$1,036	\$1,600	\$2,145
Conversion from OPPD to BHE												
		Customer										
		Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
(1)	Estimated Cost (Exhibit No. DIR- 2)	\$4,700										
(2)	HEAT Incentives (Exhibit No. DIR- 2)	(\$450)										
(3)	Net Investment	\$4,250										
(4)	Bill Savings (Exhibit No. DIR- 5)		\$683	\$683	\$683	\$683	\$683	\$683	\$683	\$683	\$683	\$683
(5)	Aggregate (Cost)/Return	(\$4,250)	(\$3,567)	(\$2,884)	(\$2,201)	(\$1,518)	(\$835)	(\$152)	\$531	\$1,214	\$1,897	\$2,580
(6)	PDV Aggregate (Cost)/Return	(\$4,250)	(\$3,590)	(\$2,953)	(\$2,336)	(\$1,741)	(\$1,166)	(\$611)	(\$74)	\$445	\$946	\$1,430

Ten-year Net Present Value of Fuel Cost Savings Given Existing Equipment Works

Conversion from LES to BHE												
		Customer										
		Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
(1)	Estimated Cost (Exhibit No. DIR- 2)	\$4,700										
(2)	HEAT Incentives (Exhibit No. DIR- 2)	(\$450)										
(3)	Net Investment	\$4,250										
(4)	Bill Savings (Exhibit No. DIR- 5)		\$486	\$486	\$486	\$486	\$486	\$486	\$486	\$486	\$486	\$486
(5)	Aggregate (Cost)/Return	(\$4,250)	(\$3,764)	(\$3,278)	(\$2,792)	(\$2,306)	(\$1,820)	(\$1,334)	(\$848)	(\$362)	\$124	\$610
(6)	PDV Aggregate (Cost)/Return	(\$4,250)	(\$3,780)	(\$3,327)	(\$2,888)	(\$2,465)	(\$2,056)	(\$1,660)	(\$1,278)	(\$909)	(\$553)	(\$208)

Cost of Equipment after Incentives

	Converting to Natural Gas		Remaining with	
	Electric	Propane	Electric	Propane
Gas Line/Furnace Venting & Installation	\$1,500	\$1,000		
New Natural Gas Furnace	\$2,000	\$2,000		
New Natural Gas Water Heater Venting	\$200			
New Natural Gas Water Heater Installed	\$1,000	\$1,000		
New Furnace Installed			\$3,000	\$3,000
New Water Heater Installed			\$1,000	\$1,000
Installed Cost	\$4,700	\$4,000	\$4,000	\$4,000
Less Incentive	(\$450)	(\$450)		
Net Installed Cost	\$4,250	\$3,550	\$4,000	\$4,000

Ten-year Net Present Value of Fuel Cost Savings Given Equipment must be Replaced in any Case

Conversion from Propane to BHE		Customer										
		Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
(1)	Cost of Gas Appliances	\$3,550										
(2)	Cost of Propane Appliances	\$4,000										
(3)	Net Investment	(\$450)										
(4)	Bill Savings (exhibit 5)		\$348	\$348	\$348	\$348	\$348	\$348	\$348	\$348	\$348	\$348
(5)	Aggregate (Cost)/Return	\$450	\$798	\$1,146	\$1,494	\$1,842	\$2,190	\$2,538	\$2,886	\$3,234	\$3,582	\$3,930
(6)	PDV Aggregate (Cost)/Return	\$450	\$786	\$1,111	\$1,425	\$1,728	\$2,021	\$2,304	\$2,578	\$2,842	\$3,097	\$3,344
Conversion from NPPD to BHE		Customer										
		Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
(1)	Cost of Gas Appliances	\$4,250										
(2)	Cost of Electric Appliances	\$4,000										
(3)	Net Investment	\$250										
(4)	Bill Savings (exhibit 5)		\$769	\$769	\$769	\$769	\$769	\$769	\$769	\$769	\$769	\$769
(5)	Aggregate (Cost)/Return	(\$250)	\$519	\$1,288	\$2,057	\$2,826	\$3,595	\$4,364	\$5,133	\$5,902	\$6,671	\$7,440
(6)	PDV Aggregate (Cost)/Return	(\$250)	\$493	\$1,211	\$1,904	\$2,575	\$3,222	\$3,848	\$4,452	\$5,036	\$5,600	\$6,145
Conversion from OPPD to BHE		Customer										
		Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
(1)	Cost of Gas Appliances	\$4,250										
(2)	Cost of Electric Appliances	\$4,000										
(3)	Net Investment	\$250										
(4)	Bill Savings (exhibit 5)		\$683	\$683	\$683	\$683	\$683	\$683	\$683	\$683	\$683	\$683
(5)	Aggregate (Cost)/Return	(\$250)	\$433	\$1,116	\$1,799	\$2,482	\$3,165	\$3,848	\$4,531	\$5,214	\$5,897	\$6,580
(6)	PDV Aggregate (Cost)/Return	(\$250)	\$410	\$1,047	\$1,664	\$2,259	\$2,834	\$3,389	\$3,926	\$4,445	\$4,946	\$5,430

Ten-year Net Present Value of Fuel Cost Savings Given Equipment must be Replaced in any Case

Conversion from LES to BHE												
		Customer										
		Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
(1)	Estimated Cost (Exhibit No. DIR- 2)	\$4,250										
(2)	HEAT Incentives (Exhibit No. DIR- 2)	\$4,000										
(3)	Net Investment	\$250										
(4)	Bill Savings (Exhibit No. DIR- 5)		\$486	\$486	\$486	\$486	\$486	\$486	\$486	\$486	\$486	\$486
(5)	Aggregate (Cost)/Return	(\$250)	\$236	\$722	\$1,208	\$1,694	\$2,180	\$2,666	\$3,152	\$3,638	\$4,124	\$4,610
(6)	PDV Aggregate (Cost)/Return	(\$250)	\$220	\$673	\$1,112	\$1,535	\$1,944	\$2,340	\$2,722	\$3,091	\$3,447	\$3,792