# Liberty Utilities — Normal Weather Adjustment - Step by Step

## What is the Normal Weather Adjustment?

Begining November 1, 2018 you will see a new line item on your bill called the Normal Weather Adjustment (Only during our winter rate period: Nov 1 - Apr 30). This adjustment is used to account for warmer- or colder-than-normal weather during the winter billing period. When the weather is colder than normal, the Normal Weather Adjustment will appear as a credit on your bill. When the weather is warmer than normal, the Normal Weather Adjustment will appear as a charge on your bill. The Normal Weather Adjustment is calculated by comparing the Distribution Charges on your current bill with the Distribution Charges you would have been charged if the temperatures in the billing period matched the 30 year average for that period.

## How do we calculate that?

In the utility business, there is a standard called the **Heating Degree Day**, or **HDD**, that represents the demand for energy needed to heat your home.

The **HDD Value** for a day is the average daily temperature subtracted from 65.

*For example, on November 1, 2018, the average temperature was 51 degrees. 65 - 51 = 14. The Actual HDD Value for November 1, 2018 is 14 degrees.*

Liberty Utilities also tracks the average temperature for the last 30 years. The HDD Value for that average is the **Normalized HDD Value.**

*The 30 year average temperature for November 1 is 48 degrees, therefore the Normalized HDD Value for November 1 is 17 degrees. (65-48=17)*

**The HDD values for all the days on your bill are added together. If the total for the Actual HDD Values is higher than the total for the Normalized HDD Values, it was colder than average and you will see a credit on your bill. If it is lower than the Normalized HDD Value total, it was warmer and you will see a charge on your bill.**

## Here's How The Calculation Breaks Down:

1) The Normal Weather Adj is calculated by multiplying your Actual Distribution Charges and the Normal Weather Factor (NWF)
2) The NWF is calculated by dividing the Normalized Distribution Charges with your Actual Distribution Charges and subtracting 1
3) The **Normalized Distribution Charges** are calculated by multiplying the **Total Normalized Use** by the **Distribution Rate**
4) The **Total Normalized Use** is the **Base Use** plus the **Normalized Heating Use**
5) The **Normalized Heating Use** is the **Normalized HDD** multiplied by the **Normalization Slope**
6) The **Normalization Slope** is the **Actual Heating Use** divided by the **Actual HDD**
7) The **Actual Heating Use** is determined by subtracting the **Base Use** from the **Total Consumption**
8) The **Base Use** is calculated by multiplying the **Base Load** by the number of days on the bill
9) The **Base Load** is the useage per day during the last **2 Peak Summer** bills from the last two years- currently July and August 2017 and July and August 2018

## Let's see an example. We're going to start from the bottom and work towards the Normal Weather Adj.

**First, we need some information from your bill.**

**Please note this is an example created with the current winter's rates using last winter's Actual HDD values**

1) Total Consumption = 100 therms
2) Actual Distribution Charges = $55.02
3) Number of Days = 30
4) Service Dates 11/15/18 through 12/15/18

**We also need to look up the HDD Values**

This chart is available on our website. To find the HDD Values we need to calculate your Normal Weather Adj, we need to add up the highlighted values on the charts below. The top chart represents the 30 year Normalized HDD Values, the bottom chart represents the Actual HDD Values.

**30 Year Normalized HDD Values**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| October | 10 | 8 | 8 | 9 | 11 | 12 | 10 | 10 | 10 | 11 | 12 | 13 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 15 | 14 | 16 | 17 | 15 | 16 | 16 | 16 | 18 | 19 | 18 | 17 |
| November | 17 | 18 | 20 | 21 | 19 | 19 | 21 | 22 | 22 | 22 | 23 | 24 | 24 | 22 | 20 | 23 | 26 | 26 | 25 | 26 | 27 | 26 | 27 | 28 | 27 | 26 | 27 | 26 | 27 | 26 | |
| December | 28 | 30 | 30 | 30 | 31 | 32 | 32 | 36 | 35 | 33 | 33 | 35 | 35 | 35 | 35 | 37 | 36 | 36 | 36 | 37 | 33 | 34 | 32 | 34 | 36 | 36 | 38 | 36 | 36 | 38 | 39 |
| January | 37 | 38 | 38 | 37 | 38 | 37 | 40 | 39 | 38 | 39 | 38 | 37 | 37 | 41 | 42 | 41 | 39 | 39 | 39 | 40 | 44 | 42 | 41 | 38 | 40 | 41 | 41 | 40 | 38 | 38 | 39 |
| February | 36 | 38 | 38 | 38 | 40 | 41 | 40 | 39 | 39 | 40 | 41 | 41 | 41 | 38 | 39 | 36 | 37 | 36 | 34 | 33 | 33 | 32 | 34 | 35 | 36 | 37 | 35 | 35 | 33 | | |
| March | 33 | 34 | 34 | 35 | 33 | 34 | 32 | 30 | 31 | 31 | 30 | 31 | 30 | 29 | 29 | 31 | 29 | 29 | 30 | 29 | 28 | 29 | 28 | 28 | 25 | 24 | 23 | 22 | 22 | 22 | 22 |
| April | 22 | 22 | 21 | 24 | 23 | 22 | 20 | 21 | 20 | 18 | 18 | 20 | 19 | 17 | 16 | 16 | 15 | 16 | 14 | 14 | 13 | 13 | 15 | 14 | 15 | 15 | 13 | 13 | 13 | 12 | |

| Actual HDD Values: Winter 2017-2018 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| October | 10 | 8 | 6 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 7 | 17 | 7 | 1 | 0 | 20 | 16 | 9 | 2 | 8 | 4 | 5 | 2 | 0 | 3 | 16 | 16 | 5 | 4 | 16 | 20 |
| November | 15 | 3 | 10 | 17 | 7 | 14 | 25 | 30 | 22 | 39 | 37 | 31 | 30 | 28 | 29 | 25 | 33 | 24 | 27 | 27 | 19 | 29 | 32 | 25 | 16 | 29 | 36 | 26 | 27 | 24 | |
| December | 29 | 32 | 29 | 27 | 16 | 30 | 29 | 32 | 35 | 33 | 33 | 37 | 44 | 46 | 43 | 43 | 44 | 38 | 24 | 35 | 42 | 43 | 33 | 38 | 40 | 50 | 57 | 62 | 61 | 59 | 63 |
| January | 65 | 52 | 47 | 45 | 61 | 63 | 49 | 36 | 34 | 31 | 17 | 8 | 47 | 52 | 47 | 36 | 38 | 43 | 34 | 28 | 30 | 35 | 32 | 41 | 45 | 39 | 19 | 28 | 36 | 42 | 36 |
| February | 29 | 52 | 41 | 26 | 39 | 40 | 39 | 46 | 37 | 25 | 30 | 35 | 36 | 29 | 21 | 31 | 33 | 34 | 19 | 15 | 10 | 35 | 28 | 25 | 29 | 25 | 21 | 50 | | | |
| March | 21 | 24 | 24 | 28 | 29 | 34 | 33 | 35 | 33 | 30 | 32 | 28 | 34 | 30 | 29 | 35 | 43 | 42 | 37 | 30 | 27 | 24 | 23 | 26 | 31 | 29 | 22 | 19 | 16 | 18 | 15 |
| April | 22 | 28 | 23 | 24 | 30 | 28 | 26 | 29 | 26 | 28 | 23 | 15 | 8 | 25 | 33 | 21 | 23 | 19 | 23 | 20 | 17 | 15 | 9 | 4 | 11 | 9 | 11 | 5 | 18 | 18 | |

Normalized HDD Total: 883
Actual HDD Total: 894

**Why haven't you included November 15th in the totals?**

For calculation purposes, November 15th is not included. The meter was last read on November 15th and it was included in the calculation for the previous bill. The meter is read in the middle of the day, so some of your use did indeed occur on November 15th. However, if we included that day in our calculation again in December, we would be overcharging you for the minimum charge, so it is excluded.

**Now that we have almost all the information we need, let's return to our calculation:**

9) The **Base Load** is the customer's average gas usage per day that is assumed to be unrelated to weather.
*The Base Load is 0.1500 therms. This number does not appear on your bill. Please contact Customer Service who will be happy to provide it for you.*

8) The **Base Use** is calculated by multiplying the **Base Load** by the number of days on the bill
*There are 30 days on the bill. 30 days x 0.1500 therms = 4.50 therms*

7) The **Actual Heating Use** is determined by subtracting the **Base Use** from the **Total Consumption**
*Total Consumption is 100 therms. 100 - 4.5 = 95.50 therms*

6) The **Normalization Slope** is the **Actual Heating Use** divided by the **Actual HDD**
*The Actual HDD is 894. 95.50 ÷ 894 = 0.10682*

5) The **Normalized Heating Use** is the **Normalized HDD** times the **Normalization Slope**
*The Normalized HDD is 883. 0.10682 x 883 = 94.32206*

4) The **Total Normalized Use** is the **Base Use** plus the **Normalized Heating Use**
*94.32206 + 4.5 = 98.82206*

3) The **Normalized Distribution Charges** are calculated by multiplying the **Total Normalized Use** by the **Distribution Rate**
*The Distribution Rate is $0.5502 per therm. 98.82206 x $0.5502 = $54.37*

2) The Normal Weather Factor is calculated by dividing the Normalized Distribution Charges with your Actual Distribution Charges and subtracting 1
*The Actual Distribution Charges are $55.02. ($54.37 ÷ $55.02) - 1 = -0.01181*

1) The Normal Weather Adj is calculated by multiplying your Actual Distribution Charges and the Normal Weather Factor
*$55.02 x -0.01181 = -$0.65*

**In our example above, A credit of $0.65 will appear on your bill for this month.**