

# Memo

Date: March 3, 2022

To: Jean-Benoit Trahan, Martin Boisclair, Mariane Bilodeau

Cc: Gilmer Bashualdo-Hilario

From: Hulya Sayyan

Re: **Gazifère 2023 & 2024 Degree Day Forecast**

## **Summary**

This memo summarizes the 2023 and 2024 Calendar Month degree day forecasts for Gazifère. 2023 Traditional degree days are forecast at 4,288, representing a 2.5% decrease over the 2022 forecast<sup>1</sup> using the 20-year Trend approved forecast methodology. 2024 Traditional degree days are forecast at 4,284, representing a 0.09% decrease over the 2023 forecast using the same methodology.

The approved models' results are not significant. It is recommended that alternative degree day forecasting models be evaluated at the next opportunity.

## **Methodology**

Calendar Month degree day forecasts were completed for 2023 and 2024 in terms of Traditional degree days (18°C) and Balance Point degree days (14°C) using the 20-Year Trend methodology.

In order to arrive at the two and three years ahead<sup>2</sup> forecast of degree days, Environment Canada degree days were first collected and regressed on a 20-year linear time trend. Using this regression model, annual 2023 and 2024 Environment Canada degree day was forecasted resulting in 4,333 and 4,328 degree days respectively. Then, the annual Environment Canada degree day forecasts were converted to Traditional (Gas Supply) degree day forecasts which are 4,288 and 4,284 degree days respectively. Based on the historical monthly distributions of traditional degree days, monthly weights were applied to the annual 2023 and 2024 forecast to calculate traditional monthly degree days for 2023 and 2024. From these monthly distributions, daily values were distributed. Using the daily traditional degree days, a balance point of 14°C was applied to arrive at daily balance point degree days.

---

<sup>1</sup> See: Gazifère 2022 Degree Day Forecast (April 2019)

<sup>2</sup> Data was used from 2002-2021 to estimate the 2023 and 2024 20-year trend model.

Calendar month balance point degree day forecasts are calculated by summing 2023 and 2024 daily balance point degree days for each calendar month respectively.

## Results

Figure 1 shows the regression output for the 20-Year Trend model<sup>3</sup> while Figure 2 shows the actual Environment Canada degree days for the period of 2002-2021 and 20-year Trend line.

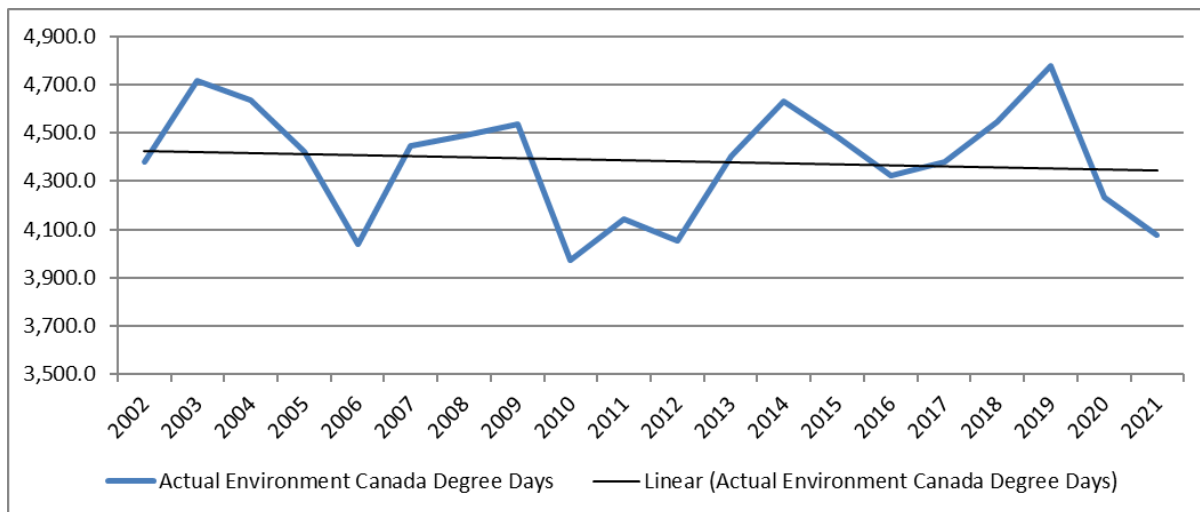
Table 1 and Table 2 shows the Calendar month degree day forecasts for 2023 and 2024. The 2023 and 2024 degree day forecast are lower than the 2022 forecast due to lower 2020/2021 data is added to estimation period while higher 2000/2001 data is removed. This caused a decrease in the slope of the updated 20-year trend model.

**Figure 1: 20-Year Trend Regression Output**

Dependent Variable: ECEDD  
Sample: 2000 2019

| Variable           | Coefficient | t-Statistic     | Prob. |
|--------------------|-------------|-----------------|-------|
| C                  | 4431.04     | 39.90           | 0.00  |
| TREND              | -4.46       | -0.48           | 0.64  |
| R-squared          | 0.01        | F-statistic     | 0.23  |
| Adjusted R-squared | -0.04       | Prob(F-statisti | 0.64  |
| Durbin Watson Stat | 1.42        |                 |       |

**Figure 2: Environment Canada Degree Days and 20-Year Trend Line**



<sup>3</sup> The trend coefficient and the model are not statistically significant. (t-statistic for Trend variable and F-statistic for the model)

**Table 1: 2023 Calendar Month Degree Days - Gazifère**

|           | Traditional | Balance Point |
|-----------|-------------|---------------|
| January   | 838.0       | 714.0         |
| February  | 717.0       | 605.0         |
| March     | 606.0       | 482.0         |
| April     | 350.0       | 230.0         |
| May       | 140.0       | 40.0          |
| June      | 34.0        | 0.0           |
| July      | 6.0         | 0.0           |
| August    | 14.0        | 0.0           |
| September | 97.0        | 0.0           |
| October   | 293.0       | 169.0         |
| November  | 481.0       | 361.0         |
| December  | 712.0       | 588.0         |
| Total     | 4288.0      | 3189.0        |

**Table 2: 2024 Calendar Month Degree Days - Gazifère**

|           | Traditional | Balance Point |
|-----------|-------------|---------------|
| January   | 838.0       | 714.0         |
| February  | 717.0       | 601.0         |
| March     | 605.0       | 481.0         |
| April     | 349.0       | 229.0         |
| May       | 140.0       | 40.0          |
| June      | 34.0        | 0.0           |
| July      | 5.0         | 0.0           |
| August    | 14.0        | 0.0           |
| September | 97.0        | 0.0           |
| October   | 293.0       | 169.0         |
| November  | 481.0       | 361.0         |
| December  | 711.0       | 587.0         |
| Total     | 4284.0      | 3182.0        |

If you have any questions, please reach us at [hulya.sayyan@enbridge.com](mailto:hulya.sayyan@enbridge.com).