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January 31, 2022

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: Ms. Cheryl Blundon
Director Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: Accuracy of Nostradamus Load Forecasting at Newfoundland and Labrador Hydro – Annual Report

Please find enclosed Newfoundland and Labrador Hydro's annual report on the accuracy of the Nostradamus load forecasting software. The analysis contained within the report encompasses data from the period of January 1, 2021 to December 31, 2021.

If you have any questions or comments please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

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Senior Legal Counsel, Regulatory
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Accuracy of Nostradamus Load Forecasting at Newfoundland and Labrador Hydro Annual Report

January 31, 2022

A report to the Board of Commissioners of Public Utilities

newfoundland labrador hydro

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1.0 Nostradamus Load Forecasting

1.1 Nostradamus

Newfoundland and Labrador Hydro ("Hydro") currently uses software called Nostradamus[1] for short-term load forecasting with a time frame of seven days.[2] The Nostradamus user guide provides the following description of the software, stating:

> The Nostradamus Neural Network Forecasting system is a flexible neural network-based forecasting tool developed specifically for utility demand forecasting. Unlike conventional computing processes, which are programmed, neural networks use sophisticated mathematical techniques to train a network of inputs and outputs. Neural networks recognize and learn the joint relationships (linear or non-linear) between the ranges of variables considered. Once the network learns these intricate relationships, this knowledge can then easily be extended to produce accurate forecasts.[3]

The Nostradamus model is trained using a sequence of continuous historic periods of hourly weather and demand data. The model then forecasts system demand for a seven-day horizon using predictions of weather parameters.

1.2 Short-Term Load Forecasting

Hydro uses its short-term load forecast to manage the power system and ensure adequate generating resources are available to meet customer demand.

1.2.1 Utility Load

Hydro has a contract with Wood PLC ("Wood") to provide the weather parameters in the form of hourly weather forecasts that are provided twice daily for the proceeding seven days. At the same time as the weather forecast data are provided, Wood also provides recent observed data at the locations used in the forecasts.[4] The actual and forecast data are automatically retrieved from Wood and input to the Nostradamus database.

Nostradamus can use a variety of weather parameters for forecasting, provided a sufficient historical record is available for training. Hydro currently uses air temperature, wind speed, and cloud cover. Nostradamus can use each variable more than once, for example, both the current and forecasted air

[1] The product is provided by Ventyx (an ABB Company).
[2] Hydro is in the process of replacing Nostradamus with a service-based product to ensure its continued ability to reliably plan and dispatch the power system.
[3] "Nostradamus User Guide," Ventyx (an ABB Company), Release 8.2, EMDDB-0170-1405-06, May 2014.
[4] St. John's, Gander, and Deer Lake.

temperatures are used in forecasting load. Wind chill is not explicitly used, as the neural network function of Nostradamus forms its own relationships between load, wind, and temperature.

Nostradamus uses weather data for St. John's, Gander, and Deer Lake as well as a parameter that indicates daily daylight hours. Training and verification[5] periods are selected to provide a sufficiently long period to ensure that a range of weather parameters are included (e.g., high and low temperatures) but short enough that the historic load is still representative of loads that can be expected in the future. Historically, data included in the training period has consisted of three years of training data compared to up to one year of verification data. However, following this methodology would have resulted in verifying data that includes the effects of the COVID-19 pandemic on the short-term load against a pre-pandemic training time period. This would have resulted in a forecast that was unable to properly map the inputs (i.e., the load affected by the pandemic) to the outputs (i.e., the new load forecast), thus not improving the short-term forecast. To properly account for the effects of the pandemic on system load and to improve the short-term forecast, Hydro worked with Nostradamus software support in 2020 to modify the defined period traditionally used in training.[6] The result is a forecast that has been trained to create a strong relationship between inputs and outputs, thus improving the short-term forecast during the ongoing COVID-19 pandemic. The most recent training and validation exercises used data from October 16, 2019 to October 31, 2021.

Demand data for the Island Interconnected System[7] is automatically input to Nostradamus each hour. Newfoundland Power Inc. and Hydro's total utility load (conforming)[8] is input in the Nostradamus model. Industrial load (non-conforming),[9] which is not a function of weather, is forecast outside of the Nostradamus program and added to the forecasts provided by Nostradamus to derive the total load forecast.

[5] Nostradamus will automatically perform verification over a designated historical time period upon completion of training. The verification period is used to evaluate the accuracy of the forecast using data that the model has not trained on. This ensures that the model is not memorizing the correct answer.
[6] While the impacts of the pandemic on system load are not able to be fully quantified, the implementation of public health measures throughout 2020 and 2021 may have contributed to increases in non-uniform customer behaviour that may have resulted in a small impact on the overall load and load shape.
[7] Load forecasts for the Avalon Peninsula are still generated but are no longer a focus since the in-service of the third transmission line from the Bay d'Espoir Hydroelectric Generating Station (TL 267).
[8] Conforming load refers to load which changes consistently with the load pattern of an area.
[9] Non-conforming load refers to load which changes abnormally with respect to the load pattern of an area.

The Nostradamus model creates separate sub-models for weekdays, weekends, and holidays during the training process to account for the variation in customer use of electricity. Nostradamus has separate holiday groups for statutory holidays and for days that are known to have unusual loads, for instance, the days between Christmas and New Year's Day, and schools' Easter break.[10]

1.2.2 Industrial Load

Industrial load tends to be almost constant as industrial processes are independent of weather. Under the current procedure, the Power on Order for each industrial customer plus the expected owned generation from Corner Brook Pulp and Paper Limited are used as the industrial load forecasts. Industrial customer loads can be modified based on some knowledge of customer loads, for instance, a temporary decrease in requirements at Vale Newfoundland and Labrador Limited associated with maintenance activities. The expected load can be modified in any given hour of the seven-day forecast, or the default value can be modified to be used indefinitely.[11]

1.2.3 Supply and Demand Status Reporting

Since December 2014, Hydro has submitted periodic reports on the accuracy of Nostradamus load forecasting in relation to the Board of Commissioners of Public Utilities ("Board") Investigation and Hearing into Supply Issues and Power Outages on the Island Interconnected System. Direction from the Board on January 18, 2018 indicated that the reporting frequency should change to annually commencing in November 2018.[12] On a daily basis, the forecast peak as of 7:20 a.m. is reported to the Board in the daily Supply and Demand Status Report.

The weather forecast for the next seven days and the observed weather data for the previous day are input into Nostradamus at approximately 5:00 a.m. and 2:00 p.m. Nostradamus is then run in every hour of the day, following which the generated forecast is made available for reference in monitoring and managing both available and spinning reserves. The within-day forecast updates are primarily used to manage operating reserve, in particular in advance of the forecast system peaks.

[10] Training the Nostradamus model is a process that is performed on an approximately annual basis. The goal is to improve the forecasting accuracy by providing Nostradamus with updated data and trends of recent loads and weather. This helps ensure that variables such as load growth and extreme weather are properly accounted for when predicting future load requirements.
[11] In Hydro's Energy Management System, there is functionality to modify the industrial load value when the Newfoundland and Labrador System Operator is aware of circumstances where an industrial customer will be reducing load. For example, if an industrial customer is completing maintenance, the forecast load can be modified to provide a more accurate load forecast.
[12] On November 6, 2018, the Board accepted Hydro's request to change the annual filing date of this report to January 31 which allows the report to cover the previous calendar year.

1.3 Potential Sources of Variance

As with any forecasting analysis, there will be discrepancies between the forecasted and actual values. Typical sources of variance in the load forecasting are as follows:

- Differences in the industrial load forecast due to unexpected changes in industrial customer loads. For example, if an industrial customer were to undertake maintenance or increase production to meet customer demand, the actual load would deviate from the scheduled load;
- Inaccuracies in the weather forecast, particularly temperature, wind speed, or cloud cover; and
- Non-uniform customer behaviour, which results in unpredictability. The impacts of the COVID-19 pandemic on the load in 2020 and 2021 can be considered non-uniform behaviour.

Delivery of the Nova Scotia Block commenced in August 2021, with the first physical delivery taking place on August 17, 2021. Delivery of the Supplemental Block commenced in November 2021, with the first physical delivery taking place on November 1, 2021.[13,14] These scheduled deliveries are included in the forecast at peak as reported by 7:20 a.m. each day. Decisions regarding additional exports over the Maritime Link during peak periods are carefully coordinated and include conservative consideration of Hydro's native load forecast and available supply. The forecast at peak as reported by 7:20 a.m. each day does not always account for exports as exports can be contracted at any time throughout the day. This can result in error when comparing a peak forecast prepared in the early morning against an actual peak that includes real-time exports.

2.0 Forecast Accuracy Summary

2.1 Analysis

This report examines the accuracy of the Hydro forecasting process for January 2021 through December 2021. All tables and figures referenced throughout the report are contained in Appendix A and Appendix B, respectively. Table 1 presents the daily forecast total peak, the actual total peak, and the available Island supply, as included in Hydro's daily Supply and Demand Status Reports submitted to the Board.[15] The data is also presented in Figures 1(a) and 1(b).

[13] Pursuant to the Energy and Capacity Agreement between Nalcor Energy and Emera Inc.
[14] Physical delivery of the Nova Scotia Block will only occur when the Labrador-Island Link is online and able to transfer power.
[15] "Investigation and Hearing into Supply Issues and Power Outages on the Island Interconnected System - Hydro System Supply and Demand Status Reports," Newfoundland and Labrador Hydro, <http://www.pub.nf.ca/applications/IslandInterconnectedSystem/DemandStatusReports.htm>

The total peak load during the period varied between 660 MW (June 29, 2021) and 1,639 MW (December 24, 2021). The available Island supply varied from 1,215 MW to 2,238 MW. Island Interconnected System reserves were sufficient throughout the period.

Table 2 presents error statistics for the total peak forecasts for the forecast period. Figures 2(a) and 2(b) are a plot of the total forecast and actual total peaks, as shown in Figures 1(a) and 1(b), but with the addition of a bar chart showing the difference between the two data series, in MW. In both the tables and the figures, a positive error is an overestimate and a negative error is an underestimate.

Figures 2(a) and 2(b) reveal that the forecasting process consistently overestimates the peak of the total load. This is typically a result of an overestimate in industrial load forecast, and/or export activity over the Maritime Link that was contracted after the forecast was published.

Table 3 presents error statistics for the peak utility forecast (i.e., the portion of the forecast actually determined by the Nostradamus model). Neither the industrial forecast nor the Maritime Link export activity is included in the values presented in Table 3. Figures 3(a) and 3(b) plot the data and error for the utility peak. Examination of the utility forecast provides more insight into the accuracy of Nostradamus, as error in the industrial forecast and export activity introduces error to the total forecast, making the total forecast appear worse or, at times, better than it is.

2.2 Data Adjustments and Forecast Issues

In analysing the data, there are instances that require adjustments for a variety of reasons. In these instances, the data for affected hours is replaced using interpolation so that in the future, when the data for this period is used in training, Nostradamus will use a value not affected by the event.

Throughout 2021, Nostradamus would infrequently forecast either a large increase or decrease in load that was inconsistent with expectations based on system conditions. The error would persist through weather forecast updates, pushing the erroneous value out by one hour at a time. This is the same error detailed in Hydro's 2020 Nostradamus report,[16] which presented between January and April 2020. The issue was corrected by establishing multiple automatic forecasts scheduled to run within the program at set times. Nostradamus support concluded that the issue was likely due to an error in the Nostradamus

[16] "Accuracy of Nostradamus Load Forecasting at Newfoundland and Labrador Hydro – 2020 Annual Report," Newfoundland and Labrador Hydro, February 1, 2021.

program and unrelated to Hydro's system or its usage of the program. In its 2022 Capital Budget Application ("CBA"), Hydro proposed the replacement of Nostradamus via the Replacement of Short-Term Load Forecasting Software project.[17] Hydro noted that increases in the instances of unpredictable errors, like the error described above, and issues with forecasts were determined to be related to Nostradamus. Despite working extensively with Nostradamus support on such matters when they occur, Nostradamus support has concluded that the problem is within the Nostradamus software package itself and cannot be precisely determined or corrected. Such instances have reduced Hydro's confidence that the existing software remains capable of meeting the evolving needs of the power system. Hydro received Board approval to replace Nostradamus in Board Order No. P.U. 37(2021)[18]

Between 12:00 p.m. and 7:00 p.m. on January 12, 2021, the Labrador-Island Link ("LIL") Pole 2 was not included in the Island generation calculation. This resulted in a reduction in Island load values by 40 MW for these hours. To correct the actual values, 40 MW was added to the Island load to offset the erroneous data.

Between 5:00 a.m. and 5:30 a.m. on January 26, 2021, there was an issue with the LIL Pole 2 that resulted in a reduction in Island load values by 40 MW. To correct the actual value, 40 MW was added to the Island load at 5:00 a.m. to offset the erroneous data.

On April 27, 2021 at 1:00 p.m., there was a loss of communications with Unit 7 at the Bay d'Espoir Hydroelectric Generating Facility, which was generating 120 MW at the time. To correct the actual value, 120 MW was added to the Island load at 1:00 p.m. to offset the erroneous data.

From 12:00 a.m. on June 20, 2021 to 3:00 p.m. on June 27, 2021, Nostradamus stopped producing an accurate forecast from day three to day seven in the seven-day forecast. Consultations with Nostradamus support occurred and another training exercise was completed, which did not correct the forecast. The program was restored with a historical version in an unsuccessful attempt to rewrite the corrupted application. It was discovered that there were a number of historical records within the Oracle database that contained erroneous values and incorrect time stamps. Once the erroneous data was removed from the Oracle database and a manual forecast was executed in Nostradamus, the

[17] "2022 Capital Budget Application, Newfoundland and Labrador Hydro, rev. September 17, 2021 (originally filed August 2, 2021), vol. II, s 7, at pp. 18–26.
[18] *Public Utilities Act*, RSNL 1990, c P-47, Board Order No. P.U. 37(2021), Board of Commissioners of Public Utilities, December 20, 2021.

resulting forecast was reasonable. With the exception of June 25, 2021 from 12:00 a.m. until 4:00 p.m., the load forecast from day one to day two in the seven-day forecast was accurate and was able to be used by the Newfoundland and Labrador System Operator ("NLSO") during this period.[19]

Between 8:00 p.m. and 9:00 p.m. on September 8, 2021, there was a loss of communications with the Maritime Link, which was exporting 100 MW at the time. To correct the actual value, 100 MW was subtracted from the Island load to offset the erroneous data.

Beginning at 12:00 a.m. on December 20, 2021, the Nostradamus load forecast stopped producing hourly updates for the current day forecast. While a forecast was still available for use, it was not being further refined each hour based on the previous hour's actual load and the twice-daily updates to the weather forecast. Following consultations with Nostradamus support, another training exercise was completed which corrected the forecast. The forecast was available for use by January 13, 2022. Nostradamus support concluded that the issue was likely due to an error in the Nostradamus program and unrelated to Hydro's system or its usage of the program.

2.3 Days of High Error[20]

The bolded dates in Tables 2 and 3 indicate the days of high error[21] in the load forecast. The days with the highest error (up to three days per month) are selected for a more detailed analysis, which includes the days of:

- January 6 and 8, 2021;
- February 3, 18, and 27, 2021;
- March 7, 2021;
- April 2, 4, and 13, 2021;
- June 8, 9, and 29, 2021;
- July 8, 15, and 24, 2021;
- August 10, 19, and 22, 2021;

[19] While the Operational Technology team attempted various measures to correct the load forecast, it temporarily caused the current day forecast for June 25, 2021 to be erroneous as well. The NLSO was aware of the inaccuracy.
[20] All plots showing the hourly distribution of the load forecast in comparison to the actual total load do not include Maritime Link export activity to aid in determining other sources of differences between actual and forecast loads.
[21] Hydro considers an error below 4.95% to be within acceptable forecasting limits.

- September 5, 11, and 14, 2021;
- October 9 and 10, 2021;
- November 13, 17, and 27, 2021; and
- December 7, 12, and 18, 2021.

There were no days of high error in the load forecast during the month of May 2021.

2.3.1 January 6, 2021

On January 6, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,340 MW; the actual reported peak was 1,235 MW. The peak of 1,235 MW, as reported to the Board, included a Maritime Link export of approximately 82 MW, which occurred throughout the entire day. The absolute difference, inclusive of exports, was 105 MW, 8.5% of the actual peak. Figure 4 includes an hourly plot of the load forecast for January 6, 2021 as well as actual load chart to assist in determining the sources of the differences between actual and forecast loads.

Figure 4(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 5:00 p.m. peak of 1,257 MW; the actual peak was 1,147 MW[22] and occurred at 5:00 p.m., resulting in an overestimate of 9.6%.

Figure 4(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The error in the forecast of the utility load was lower than the error in the forecast of total load, meaning that the error in the industrial load forecast contributed to the error in the total load forecast in addition to export activity. The hourly forecast predicted a utility peak at 5:00 p.m. of 1,096 MW; the actual peak was 1,031 MW and occurred at 5:00 p.m., resulting in an overestimate of 6.3%.

Figure 4(c) shows the actual temperature in St. John's compared to the forecast. The temperature was underestimated by 1°C from 9:00 a.m. until 5:00 p.m. The slightly warmer than forecast temperatures likely contributed to the load forecast error.

[22] The actual total peak reported in the daily Supply and Demand Status Reports is based on a five-minute time step; however, Nostradamus reports on an hourly time step, sometimes resulting in a different peak value.

Figure 4(d) shows the actual wind speed in St. John's compared to the forecast. The actual wind speed was slightly lower than forecast for the majority of the day. The slightly higher forecast wind speed than actual would likely have contributed to the load forecast error. Figure 4(e) shows the forecast cloud cover; however, actual cloud cover data did not import into Nostradamus on this day. Therefore, it is not possible to identify if the cloud cover forecast was a source of error.

The discrepancy between actual and forecast load for January 6, 2021 was primarily attributed to a combination of errors in the industrial load forecast and the temperature and wind speed forecasts. Export activity over the Maritime Link did not contribute to the discrepancy in the load forecast. An overestimation of the load resulted in more than enough reserve being available. The forecast did not improve throughout the day.

2.3.2 January 8, 2021

On January 8, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,185 MW; the actual reported peak was 1,250 MW. The peak of 1,250 MW, as reported to the Board, included a Maritime Link export of approximately 92 MW. Exports occurred through the day, with a maximum export of 109 MW. The absolute difference, inclusive of exports, was 65 MW, 5.2% of the actual peak. Figure 5 includes an hourly plot of the load forecast for January 8, 2021 as well as actual load chart to assist in determining the sources of the differences between actual and forecast loads.

Figure 5(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 5:00 p.m. peak of 1,163 MW; the actual peak was 1,151 MW and occurred at 5:00 p.m., resulting in an overestimate of 1.0%.

Figure 5(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The error in the forecast of the utility load was similar to the error in the forecast of total load, meaning that the error in the industrial load forecast did not contribute to the error in the total load forecast. The hourly forecast predicted a utility peak at 5:00 p.m. of 1,001 MW; the actual peak was 1,018 MW and occurred at 5:00 p.m.

Figures 5(c), 5(d), and 5(e) are provided for context; however, the discrepancy between actual and forecast load for January 8, 2021 was primarily attributed to export activity over the Maritime Link. Excluding Maritime Link exports, the forecast was accurate throughout the day. An overestimation of the load resulted in more than enough reserve being available.

2.3.3 February 3, 2021

On February 3, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,375 MW; the actual reported peak was 1,300 MW. The absolute difference was 75 MW, 5.8% of the actual peak. Figure 6 includes an hourly plot of the load forecast for February 3, 2021 as well as actual load chart to assist in determining the sources of the differences between actual and forecast loads.

Figure 6(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 9:00 a.m. peak of 1,375 MW; the actual peak was 1,300 MW and occurred at 10:00 a.m. The total load forecast at the time was 1,357 MW, resulting in an overestimate of 4.4%.

Figure 6(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was significantly lower than the error in the forecast of total load, meaning that the error in the industrial load forecast contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 9:00 a.m. of 1,214 MW; the actual peak was 1,180 MW and occurred at 10:00 a.m. The utility load forecast at the time was 1,196 MW, resulting in an overestimate of 1.4%.

Figures 6(c), 6(d), and 6(e) are provided for context; however, the discrepancy between actual and forecast load for February 3, 2021 was likely attributed to the error in the industrial load forecast. An overestimation of the load resulted in more than enough reserve being available. The forecast remained overestimated for the remainder of the day.

2.3.4 February 18, 2021

On February 18, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,420 MW; the actual reported peak was 1,323 MW. The absolute difference was 97 MW, 7.3% of the actual peak. Figure 7 includes an hourly plot of the load forecast for February 18, 2021 as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 7(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 6:00 p.m. peak of 1,418 MW; the actual peak was 1,319 MW and occurred at 6:00 p.m.

Figure 7(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was lower than the error in

the forecast of total load, meaning that the error in the industrial load forecast contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 6:00 p.m. of 1,257 MW; the actual peak was 1,213 MW and occurred at 6:00 p.m.

Figures 7(c), 7(d), and 7(e) are provided for context; however, the discrepancy between actual and forecast load for February 18, 2021 was primarily a result of error in industrial load forecast contributing to error in the total load forecast. An overestimate of the load resulted in more than enough reserve being available. The forecast remained overestimated for the remainder of the day.

2.3.5 February 27, 2021

On February 27, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,425 MW; the actual reported peak was 1,338 MW. The peak of 1,338 MW, as reported to the Board, included a Maritime Link export of approximately 39 MW. Exports occurred through the day, with a maximum export of 39 MW. The absolute difference, inclusive of exports, was 87 MW, 6.5% of the actual peak. Figure 8 includes an hourly plot of the load forecast for February 27, 2021 as well as actual load chart to assist in determining the sources of the differences between actual and forecast loads.

Figure 8(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 9:00 a.m. peak of 1,383 MW; the actual peak was 1,296 MW and occurred at 8:00 a.m. The total load forecast at the time was 1,343 MW, resulting in an overestimate of 3.6%.

Figure 8(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The error in the forecast of the utility load was lower than the error in the forecast of total load, meaning that the error in the industrial load forecast contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 9:00 a.m. of 1,221 MW; the actual peak was 1,156 MW and occurred at 8:00 a.m. The utility load forecast at the time was 1,181 MW, resulting in an overestimate of 2.2%.

Figures 8(c), 8(d), and 8(e) are provided for context; however, the discrepancy between actual and forecast load for February 27, 2021 was primarily attributed to export activity over the Maritime Link. While there was error in the industrial load forecast, error in the total load, exclusive of exports, was within acceptable limits. An overestimate of the load resulted in more than enough reserve being available. The forecast remained overestimated through the remainder of the day.

2.3.6 March 7, 2021

On March 7, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,220 MW; the actual reported peak was 1,293 MW. The absolute difference was 73 MW, 5.6% of the actual peak. Figure 9 includes an hourly plot of the load forecast for March 7, 2021 as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 9(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 12:00 p.m. peak of 1,220 MW; the actual peak was 1,279 MW and it occurred at 7:00 p.m. The total load forecast at the time was 1,181 MW, resulting in an underestimate of 7.7%.

Figure 9(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was more than the error in the forecast of total load, meaning that the error in the industrial load forecast did not contribute to the error in the total load forecast. The hourly forecast predicted a utility peak at 12:00 p.m. of 1,059 MW; the actual peak was 1,128 MW and occurred at 7:00 p.m. The total load forecast at the time was 1,020 MW, resulting in an underestimate of 9.7%.

Figures 9(c), 9(d), and 9(e) are provided for context; however, the discrepancy between actual and forecast load for March 7, 2021 was primarily a result of Nostradamus incorrectly forecasting a large decrease in load. The issue was corrected within Nostradamus by manually running a new forecast. The new forecast predicted an underestimation of the utility load at peak by 39.5 MW. The total load forecast at peak was underestimated by 28.6 MW. The forecast improved for the remainder of the day once the issue in Nostradamus was corrected.

2.3.7 April 2, 2021

On April 2, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,120 MW; the actual reported peak was 992 MW. The peak of 992 MW, as reported to the Board, included a Maritime Link export of approximately 19 MW. Exports occurred throughout the day, with a maximum export of 69 MW. The absolute difference, inclusive of exports, was 128 MW, 12.9% of the actual peak. Figure 10 includes an hourly plot of the load forecast for April 2, 2021 as well as actual load chart to assist in determining the sources of the differences between actual and forecast loads.

Figure 10(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 9:00 a.m. peak of 1,103 MW; the actual peak of 970 MW

occurred at 10:00 a.m. The total load forecast at the time was 1,090 MW, resulting in an overestimate of 12.4%.

Figure 10(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export component removed). The error in the forecast of the utility load was slightly lower than the error in the total load forecast, meaning the error in the industrial load forecast contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 9:00 a.m. of 939 MW; the actual peak was 831 MW and occurred at 10:00 a.m. The utility load forecast at the time was 927 MW, resulting in an overestimate of 11.6%.

Figure 10(c) shows the actual temperature in St. John's compared to the forecast. The temperature was underestimated by 1°C to 6°C throughout the day and was warmer by 3°C at the time of peak. The warmer than forecast temperatures likely contributed to the load forecast error.

Figure 10(d) shows the actual wind speed in St. John's compared to the forecast. The actual wind speed was lower than forecast for the majority of the day. The higher forecast wind speed than actual would likely have contributed to the load forecast error. Figure 10(e) shows the actual cloud cover compared to the forecast. During daylight hours, the actual cloud cover was slightly cloudier than forecast; however, this would not have contributed to the error in forecast.

Figures 10(c), 10(d), and 10(e) are provided for context; however, the discrepancy between actual and forecast load for April 2, 2021 was a combination of errors in the temperature and wind speed forecast, the industrial load, and export activity. In addition, it is likely that non-uniform customer behaviour contributed to the error in the load forecast, as this day occurred during a statutory holiday (Good Friday). An overestimate of the load resulted in more than enough reserve being available. The forecast did not improve throughout the day.

2.3.8 April 4, 2021

On April 4, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,025 MW; the actual reported peak was 1,093 MW. The peak of 1,093 MW, as reported to the Board, included a Maritime Link export of approximately 12 MW. Exports occurred throughout the day, with a maximum export of 78 MW. The absolute difference, inclusive of exports, was 68 MW, 6.2% of the actual peak. Figure 11 includes an hourly plot of the load forecast for April 4, 2021 as well as actual load chart to assist in determining the sources of the differences between actual and forecast loads.

Figure 11(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted an 11:00 a.m. peak of 1,015 MW; the actual peak of 1,077 MW occurred at 11:00 a.m., resulting in an underestimate of 5.8%.

Figure 11(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export component removed). The error in the forecast of the utility load was more than the error in the total load forecast, meaning error in the industrial load forecast did not contribute to error in the total load forecast. The hourly forecast predicted a utility peak at 11:00 a.m. of 852 MW; the actual peak was 927 MW and occurred at 11:00 a.m., resulting in an underestimate of 8.2%.

Figure 11(c) shows the actual temperature in St. John's compared to the forecast. The temperature was relatively accurate at peak and for the majority of the day, which would not have contributed to the load forecast error.

Figure 11(d) shows the actual wind speed in St. John's compared to the forecast. The actual wind speed was also relatively accurate throughout the day. Figure 11(e) shows the actual cloud cover compared to the forecast. During daylight hours, the actual cloud cover was less than forecast; however, it is not believed to have driven the load forecast error.

The discrepancy between actual and forecast load for April 4, 2021 was a likely a combination Maritime Link export activity and non-uniform customer behaviour, as this day occurred during a weekend and a holiday (Easter Sunday). The forecast did not improve until 8:00 p.m.

2.3.9 April 13, 2021

On April 13, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,250 MW; the actual reported peak was 1,172 MW. The peak of 1,172 MW, as reported to the Board, included a Maritime Link export of approximately 20 MW. Exports occurred throughout the day, with a maximum export of 68 MW. The absolute difference, inclusive of exports, was 78 MW, 6.7% of the actual peak. Figure 12 includes an hourly plot of the load forecast for April 13, 2021, as well as actual load chart to assist in determining the sources of the differences between actual and forecast loads.

Figure 12(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 12:00 p.m. peak of 1,231 MW; the actual peak of

1,150 MW occurred at 8:00 a.m. The total load forecast at the time was 1,160 MW, resulting in an overestimate of 0.9%.

Figure 12(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export component removed). The error in the forecast of the utility load was slightly higher than the error in the total load forecast; however, it was within acceptable limits. The hourly forecast predicted a utility peak at 12:00 p.m. of 1,067 MW; the actual peak was 1,021 MW and occurred at 9:00 a.m. The utility load forecast at the time was 1,019 MW, resulting in an underestimate of 0.1%.

Figures 12(c), 12(d), and 12(e) are provided for context; however, the discrepancy between actual and forecast load was primarily attributed to export activity over the Maritime Link. An overestimation of the load resulted in more than enough reserve being available. The forecast began to improve from 6:00 p.m. onward.

2.3.10 June 8, 2021

On June 8, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 815 MW; the actual reported peak was 740 MW. The peak of 740 MW, as reported to the Board, included a Maritime Link export of approximately 62 MW. Exports began at 2:00 p.m. until 10:00 p.m., with a maximum export of 62 MW. The absolute difference, inclusive of export, was 75 MW, 10.1% of the actual peak. Figure 13 includes an hourly plot of the load forecast for June 8, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 13(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 12:00 p.m. peak of 815 MW; the actual peak was 674 MW and occurred at 5:00 p.m. The total load forecast at the time was 782 MW, resulting in an overestimate of 15.9%.

Figure 13(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The error in the forecast of utility load was lower when compared to the error in the forecast of total load, meaning that the error in the industrial load forecast contributed to the error in the total load forecast in addition to export activity. The hourly forecast predicted a utility peak at 12:00 p.m. of 652 MW; the actual peak was 584 MW and occurred at 12:00 p.m., resulting in an overestimate of 11.6%.

Figures 13(c), 13(d), and 13(e) are provided for context; however, the discrepancy between actual and forecast load for June 8, 2021 was primarily attributed to the error in the industrial load forecast as well as Nostradamus incorrectly forecasting a large increase in load. The issue was corrected within Nostradamus by manually running a new forecast. The new forecast predicted an overestimation of the utility load at peak by 12.1 MW. The total load forecast at peak was overestimated by 122 MW. Export activity over the Maritime Link was not expected to have contributed to the discrepancy in the load forecast. An overestimation of the load resulted in more than enough reserve being available. The forecast remained overestimated for the remainder of the day once the issue in Nostradamus was corrected.

2.3.11 June 9, 2021

On June 9, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 930 MW; the actual reported peak was 839 MW. The peak of 839 MW, as reported to the Board, included a Maritime Link export of 142 MW. Exports occurred from 9:00 a.m. until 12:00 a.m., with a maximum export of 142 MW. The absolute difference, inclusive of exports, was 91 MW, 10.8% of the actual peak. Figure 14 includes an hourly plot of the load forecast for June 9, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 14(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 12:00 p.m. peak of 784 MW; the actual peak was 684 MW and occurred at 6:00 p.m. The total load forecast at the time was 761 MW, resulting in an overestimate of 11.4%.

Figure 14(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The error in the forecast of the utility load was significantly lower than the error in the forecast of total load, meaning that the error in the industrial load forecast contributed to the error in the total load forecast in addition to export activity. The hourly forecast predicted a utility peak at 12:00 p.m. of 620 MW; the actual peak was 589 MW and occurred at 5:00 p.m. The utility load forecast at the time was 614 MW, resulting in an overestimate of 4.1%.

Figures 14(c), 14(d), and 14(e) are provided for context; however, the discrepancy between actual and forecast load was a combination of an error in the industrial load forecast contributing to the error in the total load forecast as well as export activity over the Maritime Link. An overestimation of the load resulted in more than enough reserve being available. The forecast did not improve throughout the day.

2.3.12 June 29, 2021

On June 29, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 750 MW; the actual reported peak was 660 MW. The absolute difference was 90 MW, 13.6% of the actual peak. Figure 15 includes an hourly plot of the load forecast for June 29, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 15(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 10:00 a.m. peak of 751 MW; the actual peak was 659 MW and occurred at 12:00 p.m. The total load forecast at the time was 748 MW, resulting in an overestimate of 13.5%.

Figure 15(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was negligible, meaning that error in the industrial load forecast contributed to the error in the total load. The hourly forecast predicted a utility peak at 10:00 a.m. of 588 MW; the actual peak was 590 MW and occurred at 12:00 p.m. The utility load forecast at the time was 584 MW, resulting in an underestimate of 1.0%.

Figures 15(c), 15(d), and 15(e) are provided for context; however, the discrepancy between actual and forecast load was an error in the industrial load forecast contributing to the error in the total load forecast. An overestimation of the load resulted in more than enough reserve being available. The forecast remained overestimated throughout the day.

2.3.13 July 8, 2021

On July 8, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 775 MW; the actual reported peak was 720 MW. The absolute difference was 55 MW, 7.6% of the actual peak. Figure 16 includes an hourly plot of the load forecast for July 8, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 16(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 12:00 p.m. peak of 773 MW; the actual peak was 715 MW and occurred at 5:00 p.m. The total load forecast at the time was 761 MW, resulting in an overestimate of 6.6%.

Figure 16(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was lower than the error in the total load, meaning that error in the industrial load forecast contributed to the error in the total load

forecast. The hourly forecast predicted a utility peak at 12:00 p.m. of 610 MW; the actual peak was 588 MW and occurred at 12:00 p.m., resulting in an overestimate of 3.7%.

Figures 16(c), 16(d), and 16(e) are provided for context; however, the discrepancy between actual and forecast utility load for July 8, 2021 was primarily due to the errors in industrial load forecast. The forecast improved at 7:00 p.m. for the remainder of the day. An overestimate of the load resulted in more than enough reserve being available.

2.3.14 July 15, 2021

On July 15, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 750 MW; the actual reported peak was 682 MW. The absolute difference was 68 MW, 10.0% of the actual peak. Figure 17 includes an hourly plot of the load forecast for July 15, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 17(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 5:00 p.m. peak of 752 MW; the actual peak was 680 MW and occurred at 12:00 p.m. The total load forecast at the time was 737 MW, resulting in an overestimate of 8.4%.

Figure 17(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was negligible, meaning that the error in the industrial load forecast materially contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 5:00 p.m. of 588 MW; the actual peak was 576 MW and occurred at 12:00 p.m. The utility load forecast at the time was 573 MW, resulting in an underestimate of 0.5%.

Figures 17(c), 17(d), and 17(e) are provided for context; however, the discrepancy between actual and forecast load for July 15, 2021 was primarily due to the errors in industrial load forecast. An overestimate of the load resulted in more than enough reserve being available.

2.3.15 July 24, 2021

On July 24, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 745 MW; the actual reported peak was 702 MW. The absolute difference was 43 MW, 6.1% of the actual peak. Figure 18 includes an hourly plot of the load forecast for July 24, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 18(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 12:00 p.m. peak of 744 MW; the actual peak was 700 MW and occurred at 12:00 p.m., resulting in an overestimate of 6.3%.

Figure 18(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was lower than the error in the forecast of the total load, meaning that the error in the industrial load forecast contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 12:00 p.m. of 581 MW; the actual peak was 560 MW and occurred at 12:00 p.m., resulting in an overestimate of 3.8%.

Figures 18(c), 18(d), and 18(e) are provided for context; however, the discrepancy between actual and forecast load for July 24, 2021 was primarily due to the errors in the industrial load forecast and non-uniform customer behaviour, as this day occurred on a weekend. Discrepancy in weather is not expected to have impacted the total actual load during the summer season. The forecast did not improve through the day. An overestimate of the load results in more than enough reserve being available.

2.3.16 August 10, 2021

On August 10, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 735 MW; the actual reported peak was 663 MW. The absolute difference was 72 MW, 10.9% of the actual peak. Figure 19 includes an hourly plot of the load forecast for August 10, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 19(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 12:00 p.m. peak of 733 MW; the actual peak was 662 MW and occurred at 5:00 p.m. The total load forecast at the time was 727 MW, resulting in an overestimate of 10.0%.

Figure 19(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was significantly lower, meaning that the error in the industrial load forecast materially contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 12:00 p.m. of 570 MW; the actual peak was 578 MW and occurred at 5:00 p.m. The total load forecast at the time was 564 MW, resulting in an underestimate of 2.4%.

Figures 19(c), 19(d), and 19(e) are provided for context; however, the discrepancy between actual and forecast load for August 10, 2021 was primarily attributed to the error in the industrial load forecast. The forecast remained poor through the day. An overestimate of the load resulted in more than enough reserve being available.

2.3.17 August 19, 2021

On August 19, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 965 MW; the actual reported peak was 850 MW. The peak of 850 MW, as reported to the Board, included a Maritime Link export of approximately 166 MW. Exports occurred through the day, with a maximum export of 166 MW. The absolute difference, inclusive of export, was 115 MW, 13.5% of the actual peak. Figure 20 includes an hourly plot of the load forecast for August 19, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 20(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 5:00 p.m. peak of 789 MW; the actual peak was 682 MW and occurred at 12:00 p.m. The total load forecast at the time was 766 MW, resulting in an overestimate of 12.3%.

Figure 20(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The error in the forecast of the utility load was negligible. This suggests that the error in the industrial load forecast materially contributed to the error in the total load forecast in addition to export activity. The hourly forecast predicted a utility peak at 5:00 p.m. of 635 MW; the actual utility peak was 585 MW and occurred at 12:00 p.m. The total utility load forecast at the time was 603 MW, resulting in an overestimate of 2.8%.

Figures 20(c), 20(d), and 20(e) are provided for context; however, the discrepancy between actual and forecast load for August 19, 2021 was primarily due to the error in the industrial load forecast and export activity over the Maritime Link. The forecast improved slightly after 6:00 p.m. An overestimate of the load resulted in more than enough reserve being available.

2.3.18 August 22, 2021

On August 22, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 780 MW; the actual reported peak was 707 MW. The absolute difference was 73 MW, 10.3% of the actual peak. Figure 21

includes an hourly plot of the load forecast for August 22, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 21(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 12:00 p.m. peak of 733 MW; the actual peak was 685 MW and occurred at 9:00 p.m. The total load forecast at the time was 677 MW, resulting in an underestimate of 1.2%.

Figure 21(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load is slightly more than the error in the forecast of the total load. This suggests that the error in the industrial load forecast did not contribute to the error in the total load forecast. The hourly forecast predicted a utility peak at 12:00 p.m. of 580 MW; the actual peak was 545 MW and occurred at 9:00 p.m. The total load forecast at the time was 523 MW, resulting in an underestimate of 4.0%.

Figures 21(c), 21(d), and 21(e) are provided for context; however, the discrepancy between actual and forecast load for August 22, 2021 was primarily due to non-conforming customer behaviour, as this day occurred on a weekend. Discrepancy in weather is not expected to have impacted the total actual load during the summer season. The forecast improved after evening peak.

2.3.19 September 5, 2021

On September 5, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 870 MW; the actual reported peak was 792 MW. The peak of 792 MW, as reported to the Board, included a Maritime Link export of 90 MW, which occurred from 9:00 a.m. until 12:00 a.m. The absolute difference, inclusive of the export, was 78 MW, 9.8% of the actual peak. Figure 22 includes an hourly plot of the load forecast for September 5, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 22(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 12:00 p.m. peak of 778 MW; the actual peak was 698 MW and occurred at 12:00 p.m., resulting in an overestimate of 11.5%.

Figure 22(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The hourly forecast predicted a utility peak at 12:00 p.m.

of 615 MW; the actual peak was 556 MW and occurred at 12:00 p.m., resulting in an overestimate of 10.6%.

Figure 22(c) shows the actual temperature in St. John's compared to the forecast. The temperature was underestimated by 1°C to 2°C prior to peak; however, it was accurate at peak. The slightly warmer than forecast temperatures were not significant enough to have contributed to the load forecast error.

Figure 22(d) shows the actual wind speed in St. John's compared to the forecast. The actual wind speed was lower than forecast until 11:00 a.m., when it was slightly underestimated until 1:00 p.m., and was overestimated for the remainder of the day. The slightly higher forecast wind speed than actual that occurred through most of the day could have contributed to the load forecast error. Figure 22(e) shows the cloud cover forecast, which was relatively accurate during daylight hours.

The discrepancy between actual and forecast load for September 5, 2021 was primarily attributed to a combination of an error in the wind speed forecast, an error in the industrial load forecast, as well as non-uniform customer behaviour, as this day occurred during the Labour Day weekend. Export activity over the Maritime Link was not expected to have contributed to the discrepancy in the load forecast. An overestimation of the load resulted in more than enough reserve being available. The forecast did not improve throughout the day.

2.3.20 September 11, 2021

On September 11, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 815 MW; the actual reported peak was 742 MW. The peak of 742 MW, as reported to the Board, included a Maritime Link export of 97 MW, which occurred from 9:00 a.m. until 12:00 a.m. The absolute difference, inclusive of the export, was 73 MW, 9.8% of the actual peak. Figure 23 includes an hourly plot of the load forecast for September 11, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 23(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 12:00 p.m. peak of 720 MW; the actual peak was 642 MW and occurred at 5:00 p.m. The total load forecast at the time was 695 MW, resulting in an overestimate of 8.3%.

Figure 23(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The error in the forecast of the utility load was lower than the error in the forecast of total load, meaning that the error in the industrial load forecast contributed to the error in the total load forecast in addition to export activity. The hourly forecast predicted a utility peak at 12:00 p.m. of 556 MW; the actual peak was 511 MW and occurred at 5:00 p.m. The utility load forecast at the time was 532 MW, resulting in an overestimate of 3.9%.

Figures 23(c), 23(d), and 23(e) are provided for context; however, the discrepancy between actual and forecast load was primarily attributed to an error in the industrial load forecast and export activity over the Maritime Link as well as non-uniform customer behaviour, as this day occurred on a weekend. An overestimation of the load resulted in more than enough reserve being available. The forecast did not improve throughout the day.

2.3.21 September 14, 2021

On September 14, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 740 MW; the actual reported peak was 806 MW. The peak of 806 MW, as reported to the Board, included a Maritime Link export of approximately 100 MW. The absolute difference, inclusive of export, was 66 MW, 8.2% of the actual peak. Figure 24 includes an hourly plot of the load forecast for September 14, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 24(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 5:00 p.m. peak of 739 MW; the actual peak was 702 MW and occurred at 5:00 p.m., resulting in an overestimate of 5.3%.

Figure 24(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The error in the forecast of the utility load was negligible compared to the error in the forecast of total load, meaning that the error in the industrial load forecast contributed significantly to the error in the total load forecast in addition to export activity. The hourly forecast predicted a utility peak at 5:00 p.m. of 576 MW; the actual peak was 567 MW and occurred at 5:00 p.m., resulting in an overestimate of 1.6%.

Figures 24(c), 24(d), and 24(e) are provided for context; however, the discrepancy between actual and forecast load for September 14, 2021 was primarily attributed to export activity over the Maritime Link and the error in the industrial load forecast contributing to the error in the total load forecast. An

overestimate of the load resulted in more than enough reserve being available. The forecast improved slightly after peak.

2.3.22 October 9, 2021

On October 9, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 910 MW; the actual reported peak was 967 MW. The absolute difference was 57 MW, 5.9% of the actual peak. Figure 25 includes an hourly plot of the load forecast for October 9, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 25(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted an 8:00 p.m. peak of 909 MW; the actual peak was 959 MW and occurred at 7:00 p.m. The total load forecast at the time was 908 MW, resulting in an underestimate of 5.3%.

Figure 25(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was higher than the error in the forecast of the total load. This suggests that the industrial load forecast did not contribute to the error in the total load forecast. The hourly forecast predicted a utility peak at 8:00 p.m. of 746 MW; the actual peak was 812 MW and occurred at 7:00 p.m.

As noted in Section 1.2.1, Nostradamus includes holiday dates in the model during the training process to account for the variation in customer use of electricity. During the Thanksgiving weekend of 2021, the holiday dates disappeared from the forecast, despite multiple re-entries; therefore, Nostradamus was not accounting for the variation in customer use of electricity during this particular holiday. The issue was likely due to an error in the Nostradamus program and unrelated to Hydro's system or its usage of the program.

Figure 25(c) shows the actual temperature in St. John's compared to the forecast. The temperature was overestimated by 1°C to 2°C throughout most of the day. The colder than forecast temperatures likely contributed to the load forecast error.

Figure 25(d) shows the actual wind speed in St. John's compared to the forecast. The actual wind speed was lower than forecast throughout most of the day. The higher forecast wind speed than actual would not have contributed to the load forecast error. Figure 25(e) shows the cloud cover forecast, which was relatively accurate during daylight hours.

The discrepancy between actual and forecast load for October 9, 2021 was primarily attributed to the error in the Nostradamus program with respect to holiday dates combined with the error in the temperature forecast as well as non-uniform customer behaviour, as this day occurred during the Thanksgiving weekend. The forecast did not improve throughout the day.

2.3.23 October 10, 2021

On October 10, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 920 MW; the actual reported peak was 1,004 MW. The absolute difference was 84 MW, 8.4% of the actual peak. Figure 26 includes an hourly plot of the load forecast for October 10, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 26(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted an 11:00 a.m. peak of 921 MW; the actual peak was 1,000 MW and occurred at 11:00 a.m., resulting in an underestimate of 8.0%.

Figure 26(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The hourly forecast predicted a utility peak at 11:00 a.m. of 757 MW; the actual peak was 850 MW and occurred at 11:00 a.m., resulting in an underestimate of 10.8%.

As noted in Section 1.2.1, Nostradamus includes holiday dates in the model during the training process to account for the variation in customer use of electricity. During the Thanksgiving weekend of 2021, the holiday dates disappeared from the forecast, despite multiple re-entries. Therefore, Nostradamus was not accounting for variation in customer use of electricity during this particular holiday. The issue was likely due to an error in the Nostradamus program and unrelated to Hydro's system or its usage of the program.

Figure 26(c) shows the actual temperature in St. John's compared to the forecast. The temperature was overestimated by 1°C to 3°C from 10:00 a.m. onwards. The colder than forecast temperatures likely contributed to the load forecast error, however does not explain the error at peak.

Figure 26(d) shows the actual wind speed in St. John's compared to the forecast. The actual wind speed was lower than forecast throughout the entire day. The higher forecast wind speed than actual would not have contributed to the load forecast error. Figure 26(e) shows the cloud cover forecast was relatively accurate until 12:00 p.m. then became cloudier than forecast.

The discrepancy between actual and forecast load for October 10, 2021 was primarily attributed to an error in the Nostradamus program with respect to holiday dates in combination with non-uniform customer behaviour, as this day occurred during the Thanksgiving weekend. The forecast did not improve throughout the day.

2.3.24 November 13, 2021

On November 13, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,225 MW; the actual reported peak was 1,074 MW. The absolute difference was 151 MW, 14.1% of the actual peak. Figure 27 includes an hourly plot of the load forecast for November 13, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 27(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 10:00 a.m. peak of 1,152 MW; the actual peak was 1,071 MW and occurred at 10:00 a.m., resulting in an overestimate of 7.5%.

Figure 27(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was significantly higher than the error in the forecast of total load, meaning that the error in the industrial load forecast materially contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 10:00 a.m. of 988 MW; the actual peak was 1,003 MW and occurred at 10:00 a.m., resulting in an underestimate of 1.5%.

Figures 27(c), 27(d), and 27(e) are provided for context; however, the discrepancy between actual and forecast load for November 13, 2021 was primarily attributed to an error in the industrial load forecast in combination with non-uniform customer behaviour, as this day occurred on a weekend. An overestimate of the load resulted in more than enough reserve being available. The forecast did not improve as the day progressed.

2.3.25 November 17, 2021

On November 17, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,285 MW; the actual reported peak was 1,168 MW. The peak of 1,168 MW, as reported to the Board, included a Maritime Link export of 56 MW. Exports occurred through the day, with a maximum export of 125 MW. The absolute difference, inclusive of the export, was 117 MW, 10.0% of the actual peak. Figure 28

includes an hourly plot of the load forecast for November 17, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 28(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 5:00 p.m. peak of 1,206 MW; the actual peak was 1,109 MW and occurred at 5:00 p.m., resulting in an overestimate of 8.8%.

Figure 28(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The error in the forecast of the utility load was significantly lower than the error in the forecast of total load, suggesting that industrial load forecast contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 5:00 p.m. of 1,043 MW; the actual peak was 1,012 MW and occurred at 5:00 p.m., resulting in an overestimate of 3.1%.

Figures 28(c), 28(d), and 28(e) are provided for context; however, the discrepancy between actual and forecast load for November 17, 2021 was primarily attributed to error in the industrial load forecast in addition to export activity over the Maritime Link. An overestimate of the load resulted in more than enough reserve being available. The forecast improved by 9:00 p.m. for the remainder of the day.

2.3.26 November 27, 2021

On November 27, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,040 MW; the actual reported peak was 937 MW. The absolute difference was 103 MW, 11.0% of the actual peak. Figure 29 includes an hourly plot of the load forecast for November 27, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 29(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 5:00 p.m. peak of 989 MW; the actual peak was 930 MW and occurred at 5:00 p.m., resulting in an overestimate of 6.3%.

Figure 29(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The hourly forecast predicted a utility peak at 5:00 p.m. of 826 MW; the actual peak was 817 MW and occurred at 5:00 p.m., resulting in an overestimate of 1.1%.

Figures 29(c), 29(d), and 29(e) are provided for context; however, the discrepancy between actual and forecast load for November 27, 2021 was primarily attributed to the error in the industrial load forecast

combined with non-uniform customer behaviour, as this day occurred on a weekend. An overestimate of the load resulted in more than enough reserve being available. The forecast did not improve as the day progressed.

2.3.27 December 7, 2021

On December 7, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,170 MW; the actual reported peak was 1,078 MW. The absolute difference was 92 MW, 8.5% of the actual peak. Figure 30 includes an hourly plot of the load forecast for December 7, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 30(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 5:00 p.m. peak of 1,168 MW; the actual peak was 1,067 MW and occurred at 8:00 p.m. The total load forecast at the time was 1,130 MW, resulting in an overestimate of 5.9%.

Figure 30(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was negligible. This suggests that the error in the industrial load forecast materially contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 5:00 p.m. of 1,005 MW; the actual peak of 964 MW occurred at 8:00 p.m. The utility load forecast at the time was 967 MW, resulting in an overestimate of 0.3%.

Figures 30(c), 30(d), and 30(e) are provided for context; however, the discrepancy between actual and forecast load for December 7, 2021 was primarily attributed to errors in the industrial load forecast. The forecast did not improve as the day went on. An overestimate of the load resulted in more than enough reserve being available.

2.3.28 December 12, 2021

On December 12, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,135 MW; the actual reported peak was 1,045 MW. The absolute difference was 90 MW, 8.6% of the actual peak. Figure 31 includes an hourly plot of the load forecast for December 12, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 31(a) shows the hourly distribution of the load forecast compared to the actual load. The hourly forecast predicted a 5:00 p.m. peak of 1,135 MW; the actual peak was 1,030 MW and occurred at 9:00 a.m. The total load forecast at the time was 1,069 MW, resulting in an overestimate of 3.8%.

Figure 31(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial component removed). The error in the forecast of the utility load was negligible. The hourly forecast predicted a utility peak at 5:00 p.m. of 971 MW; the actual peak of 969 MW occurred at 5:00 p.m.

Figures 31(c), 31(d), and 31(e) are provided for context; however, the discrepancy between actual and forecast load is primarily attributed to errors in the industrial load forecast. An overestimation of the load resulted in more than enough reserve being available. The forecast did not improve for the remainder of the day.

2.3.29 December 18, 2021

On December 18, 2021, the forecast peak at 7:20 a.m., as reported to the Board, was 1,540 MW; the actual reported peak was 1,428 MW. The peak of 1,428 MW, as reported to the Board, included a Maritime Link export of 128 MW. Exports began at 10:00 a.m. until 12:00 a.m., with the maximum export of 128 MW. The absolute difference, inclusive of exports, was 112 MW, 7.8% of the actual peak. Figure 32 includes an hourly plot of the load forecast for December 18, 2021, as well as several plots to assist in determining the sources of the differences between actual and forecast loads.

Figure 32(a) shows the hourly distribution of the load forecast compared to the actual load, exclusive of export activity. The hourly forecast predicted a 6:00 p.m. peak of 1,411 MW; the actual peak was 1,298 MW and occurred at 5:00 p.m. The total load forecast at the time was 1,402 MW, resulting in an overestimate of 8.0%.

Figure 32(b) shows the hourly distribution of the utility load forecast only (i.e., the load forecast with the industrial and export components removed). The error in the forecast of the utility load was negligible. This suggests that the error in the industrial load forecast materially contributed to the error in the total load forecast. The hourly forecast predicted a utility peak at 6:00 p.m. of 1,247 MW; the actual peak of 1,240 MW occurred at 5:00 p.m. The utility load forecast at the time was 1,238 MW, resulting in an underestimate of 0.2%.

Figures 32(c), 32(d), and 32(e) are provided for context; however, the discrepancy between actual and forecast load for December 18, 2021 was primarily attributed to an error in the industrial load. Export activity over the Maritime Link was not expected to have contributed to the discrepancy in the load forecast. An overestimate of the load resulted in more than enough reserve being available. The forecast did not improve through the day.

3.0 Forecast Accuracy Review

Table 4 summarizes the average error in the peak of the utility load forecast by month in 2021. The absolute percent error at peak each month varied between 1.8% (May 2021) and 7.5% (June 2021)[23] with an average of 3.2%. With the exception of the error in June 2021, the largest error observed was 3.7% (April 2021). This is consistent with last year's observed absolute percent error at peak, which had a maximum error of 3.5%. For reference, Hydro considers an error below 4.95% to be within acceptable forecasting limits. Comparing absolute percent error, there does not appear to be any seasonal correlation. The average error was negative in nine months of the year and positive in three months of the year. On average, the forecast typically underestimates the load though the average understatement is -0.4% of actual peak. The average absolute error in 2021 was 26 MW, which compares to the average absolute error in 2020 of 23 MW. The slight increase in average error at peak is likely due to the software error that occurred from June 20 to 27, 2021.

Table 5 summarizes the maximum error in the peak of the utility load forecast by month in 2021. The maximum absolute error varied between 4.1% (May 2021) and 122.5% (June 2021).[24] With the exception of the error in June 2021, the largest error observed was 17.0% (November 2021). This is larger than last year's observed maximum error of 13.4%. Comparing absolute percent error, there does not appear to be any seasonal correlation. The maximum errors were positive in all 12 months. For monthly maximum errors, the forecast typically overestimates (rather than underestimates) the load. The largest absolute error at peak in 2021 was 707 MW and occurred on June 25, 2021 when Hydro was attempting to correct a forecast error that was occurring on day three to day seven of the forecast. This temporarily impacted the forecast on the current day forecast. The second largest absolute error at peak in 2021 was 163 MW, which occurred in November 2021. This is similar compared to the largest error at peak in 2020 of 158 MW, which occurred in December 2021.

[23] Refer to Section 2.2 for a detailed explanation of the cause of the error experienced in June 2021.
[24] Refer to Section 2.2 for a detailed explanation of the cause of the error experienced in June 2021.

Table 6 summarizes the error at the ten highest utility loads during the reporting period. The highest loads in this reporting period occurred in February 2021 (three instances), and December 2021 (seven instances).[25] Three of the ten highest loads were overestimated and seven were underestimated. The percent error varied from -6.4% to 2.0%; the overall average was -2.1%. The absolute percent error varied from 6.4% to 0.3%, with an average of 2.6%. These statistics confirm that there is no correlation between high load and high error in the load forecast and that Nostradamus is forecasting high load at peak well within the acceptable forecasting limit of less than 4.95% error.

Table 7 summarizes the result of the investigations into instances of high forecast error selected based on high error in the total load forecast against the actual utility load at peak and the forecast utility load at peak for each day. Most errors occur as a result of errors in the industrial forecast and errors due to export activity over the Maritime Link. Less frequently, errors occur due to the weather forecast—largely driven by errors in temperature and wind speed forecasting. Some errors remain unexplained; they result from unpredictable customer behavior that can occur on a weekend or during a statutory holiday that is not modelled by Nostradamus. An additional source of non-conforming error is the impact the COVID-19 pandemic had on load throughout 2021. While the impacts are not able to be fully quantified, the implementation of public health measures at different times through the year may have contributed to increases in non-uniform customer behaviour that may have resulted in a small impact on the overall load and load shape. Of the 29 included instances of high forecast error, 13 occurred on a weekend and 16 occurred on a weekday.

[25] Three of the seven instances occurred between December 20, 2021 to December 31, 2021 when the forecast was not producing hourly updates. Please refer to Section 2.2 for additional details.

Appendix A

Tables

Table 1: Load Forecasting Data (MW)[1]

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Jan-2021	1,410	1,356	2,075	665
2-Jan-2021	1,375	1,348	2,050	675
3-Jan-2021	1,410	1,391	2,085	675
4-Jan-2021	1,360	1,373	2,060	700
5-Jan-2021	1,355	1,402	2,224	869
6-Jan-2021	1,340	1,235	2,059	719
7-Jan-2021	1,255	1,214	2,079	824
8-Jan-2021	1,185	1,250	2,054	869
9-Jan-2021	1,280	1,276	2,075	795
10-Jan-2021	1,350	1,305	2,060	710
11-Jan-2021	1,435	1,435	2,070	635
12-Jan-2021	1,395	1,337	1,905	510
13-Jan-2021	1,330	1,273	1,845	515
14-Jan-2021	1,290	1,281	1,910	620
15-Jan-2021	1,310	1,361	1,910	600
16-Jan-2021	1,335	1,366	1,982	647
17-Jan-2021	1,315	1,296	2,031	716
18-Jan-2021	1,290	1,268	2,036	746
19-Jan-2021	1,335	1,274	1,910	575
20-Jan-2021	1,430	1,442	1,925	495
21-Jan-2021	1,380	1,427	1,880	500
22-Jan-2021	1,405	1,353	1,992	587
23-Jan-2021	1,360	1,421	1,999	639
24-Jan-2021	1,365	1,345	2,017	652
25-Jan-2021	1,385	1,392	1,967	582
26-Jan-2021	1,350	1,306	1,951	601
27-Jan-2021	1,310	1,339	2,060	750
28-Jan-2021	1,380	1,397	1,975	595
29-Jan-2021	1,395	1,418	2,050	655
30-Jan-2021	1,385	1,372	2,065	680
31-Jan-2021	1,375	1,334	2,065	690
Minimum	1,185	1,214	1,845	495
Average	1,351	1,342	2,012	661
Maximum	1,435	14,42	2,224	869

[1] Forecast Reserve does not include adjustments for interruptible load, the impact of voltage reduction, or scheduled off-Island imports.

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Feb-2021	1,350	1,369	2,050	700
2-Feb-2021	1,360	1,371	2,035	675
3-Feb-2021	1,375	1,300	2,183	808
4-Feb-2021	1,130	1,099	2,176	1,046
5-Feb-2021	1,190	1,204	1,985	795
6-Feb-2021	1,235	1,227	2,060	825
7-Feb-2021	1,355	1,316	2,095	740
8-Feb-2021	1,365	1,329	2,090	725
9-Feb-2021	1,390	1,326	2,085	695
10-Feb-2021	1,390	1,362	2,060	670
11-Feb-2021	1,480	1,522	2,050	570
12-Feb-2021	1,400	1,349	2,060	660
13-Feb-2021	1,330	1,358	2,075	745
14-Feb-2021	1,365	1,315	2,060	695
15-Feb-2021	1,360	1,351	2,045	685
16-Feb-2021	1,370	1,356	2,025	655
17-Feb-2021	1,335	1,272	2,065	730
18-Feb-2021	1,420	1,323	2,050	630
19-Feb-2021	1,430	1,427	2,030	600
20-Feb-2021	1,360	1,369	2,040	680
21-Feb-2021	1,480	1,514	2,060	580
22-Feb-2021	1,515	1,516	1,926	411
23-Feb-2021	1,355	1,366	2,030	675
24-Feb-2021	1,280	1,275	2,050	770
25-Feb-2021	1,305	1,278	2,217	912
26-Feb-2021	1,355	1,342	2,190	835
27-Feb-2021	1,425	1,338	2,205	780
28-Feb-2021	1,365	1,378	2,146	781
Minimum	1,130	1,099	1,926	411
Average	1,360	1,341	2,077	717
Maximum	1,515	1,522	2,217	1,046

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Mar-2021	1,290	1,248	2,165	875
2-Mar-2021	1,345	1,325	2,192	847
3-Mar-2021	1,380	1,345	2,205	825
4-Mar-2021	1,340	1,332	2,231	891
5-Mar-2021	1,310	1,311	2,213	903
6-Mar-2021	1,195	1,253	2,060	865
7-Mar-2021	1,220	1,293	2,060	840
8-Mar-2021	1,345	1,372	2,040	695
9-Mar-2021	1,315	1,359	2,065	750
10-Mar-2021	1,310	1,264	2,055	745
11-Mar-2021	1,260	1,233	2,090	830
12-Mar-2021	1,145	1,153	2,085	940
13-Mar-2021	1,070	1,065	2,060	990
14-Mar-2021	1,225	1,191	2,070	845
15-Mar-2021	1,305	1,313	2,040	735
16-Mar-2021	1,350	1,384	2,050	700
17-Mar-2021	1,390	1,414	1,985	595
18-Mar-2021	1,380	1,396	2,040	660
19-Mar-2021	1,195	1,203	2,090	895
20-Mar-2021	1,275	1,231	2,143	868
21-Mar-2021	1,245	1,231	2,130	885
22-Mar-2021	1,165	1,162	2,167	1,002
23-Mar-2021	1,110	1,110	2,090	980
24-Mar-2021	1,105	1,075	1,975	870
25-Mar-2021	1,115	1,097	1,955	840
26-Mar-2021	1,050	1,039	2,002	952
27-Mar-2021	1,340	1,381	2,057	717
28-Mar-2021	1,340	1,347	2,050	710
29-Mar-2021	1,400	1,445	2,076	676
30-Mar-2021	1,365	1,335	2,238	873
31-Mar-2021	1,440	1,402	2,042	602
Minimum	1,050	1,039	1,955	595
Average	1,268	1,268	2,088	819
Maximum	1,440	1,445	2,238	1,002

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Apr-2021	1,335	1,270	2,044	709
2-Apr-2021	1,120	992	2,046	926
3-Apr-2021	1,005	972	2,065	1,060
4-Apr-2021	1,025	1,093	2,070	1,045
5-Apr-2021	1,095	1,098	2,068	973
6-Apr-2021	1,100	1,102	2,054	954
7-Apr-2021	1,150	1,162	2,058	908
8-Apr-2021	1,095	1,101	2,071	976
9-Apr-2021	1,080	1,095	2,068	988
10-Apr-2021	1,185	1,197	2,073	888
11-Apr-2021	1,150	1,177	2,021	871
12-Apr-2021	1,210	1,188	1,989	779
13-Apr-2021	1,250	1,172	2,019	769
14-Apr-2021	1,220	1,228	2,049	829
15-Apr-2021	1,240	1,242	2,080	840
16-Apr-2021	1,280	1,273	2,108	828
17-Apr-2021	1,200	1,193	2,013	813
18-Apr-2021	1,225	1,195	1,978	753
19-Apr-2021	1,150	1,147	1,880	730
20-Apr-2021	1,085	1,134	1,760	675
21-Apr-2021	1,160	1,117	1,665	505
22-Apr-2021	1,055	1,155	1,850	795
23-Apr-2021	1,017	1,108	2,088	1,071
24-Apr-2021	1,085	1,095	2,088	1,003
25-Apr-2021	1,070	1,029	2,106	1,036
26-Apr-2021	1,100	1,100	2,050	950
27-Apr-2021	1,110	1,095	2,025	915
28-Apr-2021	1,130	1,061	2,028	898
29-Apr-2021	1,105	1,111	2,035	930
30-Apr-2021	1,030	1,086	2,031	1,001
Minimum	1,005	972	1,665	505
Average	1,135	1,133	2,016	881
Maximum	1,335	1,273	2,108	1,071

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-May-2021	1,020	1,031	2,003	983
2-May-2021	1,060	1,043	2,012	952
3-May-2021	1,015	1,058	1,850	835
4-May-2021	1,050	1,102	2,021	971
5-May-2021	1,075	1,042	1,994	919
6-May-2021	1,105	1,094	1,965	860
7-May-2021	1,125	1,158	1,920	795
8-May-2021	1,010	1,040	1,585	575
9-May-2021	1,045	1,044	1,610	565
10-May-2021	1,070	1,078	1,625	555
11-May-2021	1,025	1,009	1,595	570
12-May-2021	1,025	998	1,580	555
13-May-2021	1,020	1,019	1,535	515
14-May-2021	1,000	965	1,575	575
15-May-2021	1,015	979	1,693	678
16-May-2021	1,025	998	1,578	553
17-May-2021	1,050	1,045	1,430	380
18-May-2021	1,000	972	1,562	562
19-May-2021	990	990	1,435	445
20-May-2021	945	933	1,435	490
21-May-2021	865	829	1,535	670
22-May-2021	790	804	1,515	725
23-May-2021	855	874	1,505	650
24-May-2021	1,060	1,094	1,520	460
25-May-2021	1,040	1,030	1,485	445
26-May-2021	945	974	1,365	420
27-May-2021	860	864	1,435	575
28-May-2021	865	885	1,365	500
29-May-2021	870	884	1,310	440
30-May-2021	805	809	1,255	450
31-May-2021	915	894	1,385	470
Minimum	790	804	1,255	380
Average	985	985	1,603	617
Maximum	1,125	1,158	2,021	983

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Jun-2021	890	884	1,552	662
2-Jun-2021	805	781	1,405	600
3-Jun-2021	775	740	1,375	600
4-Jun-2021	800	794	1,465	665
5-Jun-2021	710	738	1,470	760
6-Jun-2021	785	790	1,480	695
7-Jun-2021	855	839	1,450	595
8-Jun-2021	815	740	1,485	670
9-Jun-2021	930	839	1,620	690
10-Jun-2021	1,040	1,103	1,767	727
11-Jun-2021	1,095	1,086	1,692	597
12-Jun-2021	770	762	1,315	545
13-Jun-2021	825	781	1,380	555
14-Jun-2021	830	833	1,370	540
15-Jun-2021	815	807	1,295	480
16-Jun-2021	830	898	1,400	570
17-Jun-2021	760	727	1,400	640
18-Jun-2021	740	710	1,370	630
19-Jun-2021	690	674	1,375	685
20-Jun-2021	730	721	1,330	600
21-Jun-2021	780	738	1,395	615
22-Jun-2021	745	741	1,310	565
23-Jun-2021	765	748	1,400	635
24-Jun-2021	770	734	1,385	615
25-Jun-2021	750	725	1,375	625
26-Jun-2021	760	707	1,380	620
27-Jun-2021	740	714	1,400	660
28-Jun-2021	765	822	1,485	720
29-Jun-2021	750	660	1,310	560
30-Jun-2021	750	704	1,285	535
Minimum	690	660	1,285	480
Average	802	785	1,424	622
Maximum	1,095	1,103	1,767	760

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Jul-2021	845	842	1,390	545
2-Jul-2021	815	833	1,400	585
3-Jul-2021	755	764	1,395	640
4-Jul-2021	845	841	1,400	555
5-Jul-2021	795	829	1,275	480
6-Jul-2021	755	736	1,290	535
7-Jul-2021	740	732	1,350	610
8-Jul-2021	775	720	1,360	585
9-Jul-2021	750	749	1,325	575
10-Jul-2021	760	788	1,365	605
11-Jul-2021	765	773	1,330	565
12-Jul-2021	805	822	1,325	520
13-Jul-2021	760	736	1,340	580
14-Jul-2021	765	735	1,315	550
15-Jul-2021	750	682	1,340	590
16-Jul-2021	765	732	1,330	565
17-Jul-2021	740	747	1,495	755
18-Jul-2021	775	761	1,490	715
19-Jul-2021	750	739	1,480	730
20-Jul-2021	770	756	1,460	690
21-Jul-2021	755	736	1,480	725
22-Jul-2021	785	763	1,310	525
23-Jul-2021	780	755	1,470	690
24-Jul-2021	745	702	1,520	775
25-Jul-2021	715	696	1,435	720
26-Jul-2021	735	718	1,355	620
27-Jul-2021	765	747	1,375	610
28-Jul-2021	750	727	1,280	530
29-Jul-2021	730	709	1,420	690
30-Jul-2021	735	708	1,437	702
31-Jul-2021	730	709	1,516	786
Minimum	715	682	1,275	480
Average	765	751	1,389	624
Maximum	845	842	1,520	786

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Aug-2021	710	681	1,496	786
2-Aug-2021	740	697	1,399	659
3-Aug-2021	750	701	1,441	691
4-Aug-2021	750	685	1,381	631
5-Aug-2021	755	686	1,225	470
6-Aug-2021	785	733	1,310	525
7-Aug-2021	730	718	1,330	600
8-Aug-2021	740	707	1,265	525
9-Aug-2021	745	696	1,295	550
10-Aug-2021	735	663	1,270	535
11-Aug-2021	740	718	1,290	550
12-Aug-2021	750	709	1,280	530
13-Aug-2021	740	745	1,290	550
14-Aug-2021	735	737	1,285	550
15-Aug-2021	725	690	1,285	560
16-Aug-2021	755	734	1,289	534
17-Aug-2021	755	698	1,270	515
18-Aug-2021	965	877	1,365	400
19-Aug-2021	965	850	1,485	520
20-Aug-2021	805	756	1,489	684
21-Aug-2021	745	711	1,280	535
22-Aug-2021	780	707	1,473	693
23-Aug-2021	725	727	1,235	510
24-Aug-2021	745	703	1,285	540
25-Aug-2021	750	731	1,290	540
26-Aug-2021	735	710	1,275	540
27-Aug-2021	735	718	1,275	540
28-Aug-2021	750	695	1,215	465
29-Aug-2021	730	712	1,280	550
30-Aug-2021	745	744	1,265	520
31-Aug-2021	775	748	1,265	490
Minimum	710	663	1,215	400
Average	761	722	1,319	558
Maximum	965	877	1,496	786

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Sep-2021	725	708	1,260	535
2-Sep-2021	735	746	1,250	515
3-Sep-2021	735	774	1,290	555
4-Sep-2021	795	786	1,440	645
5-Sep-2021	870	792	1,479	609
6-Sep-2021	850	794	1,487	637
7-Sep-2021	850	819	1,510	660
8-Sep-2021	795	778	1,295	500
9-Sep-2021	835	794	1,275	440
10-Sep-2021	815	800	1,280	465
11-Sep-2021	815	742	1,410	595
12-Sep-2021	800	776	1,280	480
13-Sep-2021	830	771	1,285	455
14-Sep-2021	740	806	1,347	607
15-Sep-2021	895	860	1,481	586
16-Sep-2021	875	851	1,572	697
17-Sep-2021	790	766	1,280	490
18-Sep-2021	785	780	1,463	678
19-Sep-2021	875	858	1,379	504
20-Sep-2021	890	880	1,320	430
21-Sep-2021	845	823	1,220	375
22-Sep-2021	725	741	1,235	510
23-Sep-2021	825	783	1,250	425
24-Sep-2021	765	726	1,290	525
25-Sep-2021	750	741	1,275	525
26-Sep-2021	725	734	1,280	555
27-Sep-2021	725	768	1,300	575
28-Sep-2021	740	744	1,285	545
29-Sep-2021	765	770	1,280	515
30-Sep-2021	800	789	1,290	490
Minimum	725	708	1,220	375
Average	799	783	1,336	537
Maximum	895	880	1,572	697

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Oct-2021	765	769	1,290	525
2-Oct-2021	730	737	1,295	565
3-Oct-2021	795	771	1,290	495
4-Oct-2021	855	861	1,300	445
5-Oct-2021	865	908	1,315	450
6-Oct-2021	885	876	1,290	405
7-Oct-2021	815	780	1,280	465
8-Oct-2021	900	919	1,369	469
9-Oct-2021	910	967	1,345	435
10-Oct-2021	920	1,004	1,350	430
11-Oct-2021	910	902	1,290	380
12-Oct-2021	900	923	1,260	360
13-Oct-2021	910	926	1,295	385
14-Oct-2021	940	934	1,255	315
15-Oct-2021	945	926	1,316	371
16-Oct-2021	930	926	1,295	365
17-Oct-2021	975	942	1,270	295
18-Oct-2021	955	943	1,280	325
19-Oct-2021	905	865	1,295	390
20-Oct-2021	875	861	1,285	410
21-Oct-2021	890	862	1,465	575
22-Oct-2021	935	931	1,450	515
23-Oct-2021	760	757	1,405	645
24-Oct-2021	775	745	1,425	650
25-Oct-2021	985	972	1,485	500
26-Oct-2021	975	982	1,530	555
27-Oct-2021	1,050	1,047	1,480	430
28-Oct-2021	1,065	1,083	1,355	290
29-Oct-2021	1,075	1,058	1,350	275
30-Oct-2021	945	989	1,395	450
31-Oct-2021	975	988	1,535	560
Minimum	730	737	1,255	275
Average	907	908	1,350	443
Maximum	1,075	1,083	1,535	650

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Nov-2021	980	941	1,595	615
2-Nov-2021	905	891	1,555	650
3-Nov-2021	1,030	1,044	1,540	510
4-Nov-2021	1,020	1,023	1,570	550
5-Nov-2021	1,115	1,114	1,540	425
6-Nov-2021	1,095	1,051	1,460	365
7-Nov-2021	1,030	985	1,460	430
8-Nov-2021	1,010	966	1,450	440
9-Nov-2021	960	943	1,415	455
10-Nov-2021	935	870	1,429	494
11-Nov-2021	1,115	1,088	1,531	416
12-Nov-2021	1,205	1,140	1,594	389
13-Nov-2021	1,225	1,074	1,482	257
14-Nov-2021	1,015	975	1,613	598
15-Nov-2021	1,105	1,151	1,581	476
16-Nov-2021	1,125	1,040	1,627	502
17-Nov-2021	1,285	1,168	1,639	354
18-Nov-2021	1,255	1,229	1,620	365
19-Nov-2021	1,185	1,130	1,740	555
20-Nov-2021	1,165	1,082	1,899	734
21-Nov-2021	1,220	1,187	1,890	670
22-Nov-2021	1,225	1,196	1,604	379
23-Nov-2021	1,180	1,187	1,644	464
24-Nov-2021	1,180	1,115	1,901	721
25-Nov-2021	1,155	1,114	1,830	675
26-Nov-2021	1,120	1,078	1,801	681
27-Nov-2021	1,040	937	1,539	499
28-Nov-2021	1,085	1,074	1,682	597
29-Nov-2021	1,070	1,082	1,525	455
30-Nov-2021	1,060	1,044	1,615	555
Minimum	905	870	1,415	257
Average	1,103	1,064	1,612	509
Maximum	1,285	1,229	1,901	734

Date	Forecast Total Peak	Actual Total Peak	Available Island Supply	Forecast Reserve
1-Dec-2021	1,185	1,198	1,620	435
2-Dec-2021	1,150	1,156	1,690	540
3-Dec-2021	1,105	1,054	1,630	525
4-Dec-2021	1,295	1,318	1,800	505
5-Dec-2021	1,225	1,275	1,790	565
6-Dec-2021	1,315	1,308	1,775	460
7-Dec-2021	1,170	1,078	1,795	625
8-Dec-2021	1,300	1,354	1,780	480
9-Dec-2021	1,355	1,343	1,810	455
10-Dec-2021	1,415	1,452	1,790	375
11-Dec-2021	1,320	1,357	1,755	435
12-Dec-2021	1,135	1,045	1,755	620
13-Dec-2021	1,310	1,238	1,770	460
14-Dec-2021	1,375	1,364	1,755	380
15-Dec-2021	1,470	1,506	1,775	305
16-Dec-2021	1,480	1,523	1,675	195
17-Dec-2021	1,440	1,458	1,794	354
18-Dec-2021	1,540	1,428	1,977	437
19-Dec-2021	1,615	1,534	1,971	356
20-Dec-2021	1,670	1,620	2,084	414
21-Dec-2021	1,635	1,584	2,128	493
22-Dec-2021	1,595	1,506	2,162	567
23-Dec-2021	1,510	1,449	2,215	705
24-Dec-2021	1,670	1,639	2,072	402
25-Dec-2021	1,540	1,470	2,050	510
26-Dec-2021	1,485	1,387	2,026	541
27-Dec-2021	1,475	1,433	1,977	502
28-Dec-2021	1,540	1,443	2,050	510
29-Dec-2021	1,550	1,471	2,163	613
30-Dec-2021	1,570	1,492	2,164	594
31-Dec-2021	1,485	1,493	2,013	528
Minimum	1,105	1,045	1,620	195
Average	1,417	1,386	1,897	480
Maximum	1,670	1,639	2,215	705

Table 2: Analysis of Total Forecast Error[2]

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Jan-2021	1,356	1,410	54	54	4.0%	4.0%	3.8%
2-Jan-2021	1,348	1,375	27	27	2.0%	2.0%	2.0%
3-Jan-2021	1,391	1,410	19	19	1.4%	1.4%	1.3%
4-Jan-2021	1,373	1,360	-13	13	-0.9%	0.9%	-1.0%
5-Jan-2021	1,402	1,355	-47	47	-3.4%	3.4%	-3.5%
6-Jan-2021	**1,235**	**1,340**	**105**	**105**	**8.5%**	**8.5%**	**7.8%**
7-Jan-2021	1,214	1,255	41	41	3.4%	3.4%	3.3%
8-Jan-2021	**1,250**	**1,185**	**-65**	**65**	**-5.2%**	**5.2%**	**-5.5%**
9-Jan-2021	1,276	1,280	4	4	0.3%	0.3%	0.3%
10-Jan-2021	1,305	1,350	45	45	3.4%	3.4%	3.3%
11-Jan-2021	1,435	1,435	0	0	0.0%	0.0%	0.0%
12-Jan-2021	1,337	1,395	58	58	4.3%	4.3%	4.2%
13-Jan-2021	1,273	1,330	57	57	4.5%	4.5%	4.3%
14-Jan-2021	1,281	1,290	9	9	0.7%	0.7%	0.7%
15-Jan-2021	1,361	1,310	-51	51	-3.7%	3.7%	-3.9%
16-Jan-2021	1,366	1,335	-31	31	-2.3%	2.3%	-2.3%
17-Jan-2021	1,296	1,315	19	19	1.5%	1.5%	1.4%
18-Jan-2021	1,268	1,290	22	22	1.7%	1.7%	1.7%
19-Jan-2021	1,274	1,335	61	61	4.8%	4.8%	4.6%
20-Jan-2021	1,442	1,430	-12	12	-0.8%	0.8%	-0.8%
21-Jan-2021	1,427	1,380	-47	47	-3.3%	3.3%	-3.4%
22-Jan-2021	1,353	1,405	52	52	3.8%	3.8%	3.7%
23-Jan-2021	1,421	1,360	-61	61	-4.3%	4.3%	-4.5%
24-Jan-2021	1,345	1,365	20	20	1.5%	1.5%	1.5%
25-Jan-2021	1,392	1,385	-7	7	-0.5%	0.5%	-0.5%
26-Jan-2021	1,306	1,350	44	44	3.4%	3.4%	3.3%
27-Jan-2021	1,339	1,310	-29	29	-2.2%	2.2%	-2.2%
28-Jan-2021	1,397	1,380	-17	17	-1.2%	1.2%	-1.2%
29-Jan-2021	1,418	1,395	-23	23	-1.6%	1.6%	-1.6%
30-Jan-2021	1,372	1,385	13	13	0.9%	0.9%	0.9%
31-Jan-2021	1,334	1,375	41	41	3.1%	3.1%	3.0%
Minimum	1,214	1,185	-65	0	-5.2%	0.0%	-5.5%
Average	1,342	1,351	9	35	0.8%	2.7%	0.7%
Maximum	1,442	1,435	105	105	8.5%	8.5%	7.8%

[2] Lines that have been bolded indicate further examination of the hourly forecast was provided in this report.

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Feb-2021	1,369	1,350	-19	19	-1.4%	1.4%	-1.4%
2-Feb-2021	1,371	1,360	-11	11	-0.8%	0.8%	-0.8%
3-Feb-2021	**1,300**	**1,375**	**75**	**75**	**5.8%**	**5.8%**	**5.5%**
4-Feb-2021	1,099	1,130	31	31	2.8%	2.8%	2.7%
5-Feb-2021	1,204	1,190	-14	14	-1.2%	1.2%	-1.2%
6-Feb-2021	1,227	1,235	8	8	0.7%	0.7%	0.6%
7-Feb-2021	1,316	1,355	39	39	3.0%	3.0%	2.9%
8-Feb-2021	1,329	1,365	36	36	2.7%	2.7%	2.6%
9-Feb-2021	1,326	1,390	64	64	4.8%	4.8%	4.6%
10-Feb-2021	1,362	1,390	28	28	2.1%	2.1%	2.0%
11-Feb-2021	1,522	1,480	-42	42	-2.8%	2.8%	-2.8%
12-Feb-2021	1,349	1,400	51	51	3.8%	3.8%	3.6%
13-Feb-2021	1,358	1,330	-28	28	-2.1%	2.1%	-2.1%
14-Feb-2021	1,315	1,365	50	50	3.8%	3.8%	3.7%
15-Feb-2021	1,351	1,360	9	9	0.7%	0.7%	0.7%
16-Feb-2021	1,356	1,370	14	14	1.0%	1.0%	1.0%
17-Feb-2021	1,272	1,335	63	63	5.0%	5.0%	4.7%
18-Feb-2021	**1,323**	**1,420**	**97**	**97**	**7.3%**	**7.3%**	**6.8%**
19-Feb-2021	1,427	1,430	3	3	0.2%	0.2%	0.2%
20-Feb-2021	1,369	1,360	-9	9	-0.7%	0.7%	-0.7%
21-Feb-2021	1,514	1,480	-34	34	-2.2%	2.2%	-2.3%
22-Feb-2021	1,516	1,515	-1	1	-0.1%	0.1%	-0.1%
23-Feb-2021	1,366	1,355	-11	11	-0.8%	0.8%	-0.8%
24-Feb-2021	1,275	1,280	5	5	0.4%	0.4%	0.4%
25-Feb-2021	1,278	1,305	27	27	2.1%	2.1%	2.1%
26-Feb-2021	1,342	1,355	13	13	1.0%	1.0%	1.0%
27-Feb-2021	**1,338**	**1,425**	**87**	**87**	**6.5%**	**6.5%**	**6.1%**
28-Feb-2021	1,378	1,365	-13	13	-0.9%	0.9%	-1.0%
Minimum	1,099	1,130	-42	1	-2.8%	0.1%	-2.8%
Average	1,341	1,360	19	32	1.5%	2.4%	1.4%
Maximum	1,522	1,515	97	97	7.3%	7.3%	6.8%

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Mar-2021	1,248	1,290	42	42	3.4%	3.4%	3.3%
2-Mar-2021	1,325	1,345	20	20	1.5%	1.5%	1.5%
3-Mar-2021	1,345	1,380	35	35	2.6%	2.6%	2.5%
4-Mar-2021	1,332	1,340	8	8	0.6%	0.6%	0.6%
5-Mar-2021	1,311	1,310	-1	1	-0.1%	0.1%	-0.1%
6-Mar-2021	1,253	1,195	-58	58	-4.6%	4.6%	-4.9%
7-Mar-2021	**1,293**	**1,220**	**-73**	**73**	**-5.6%**	**5.6%**	**-6.0%**
8-Mar-2021	1,372	1,345	-27	27	-2.0%	2.0%	-2.0%
9-Mar-2021	1,359	1,315	-44	44	-3.2%	3.2%	-3.3%
10-Mar-2021	1,264	1,310	46	46	3.6%	3.6%	3.5%
11-Mar-2021	1,233	1,260	27	27	2.2%	2.2%	2.1%
12-Mar-2021	1,153	1,145	-8	8	-0.7%	0.7%	-0.7%
13-Mar-2021	1,065	1,070	5	5	0.5%	0.5%	0.5%
14-Mar-2021	1,191	1,225	34	34	2.9%	2.9%	2.8%
15-Mar-2021	1,313	1,305	-8	8	-0.6%	0.6%	-0.6%
16-Mar-2021	1,384	1,350	-34	34	-2.5%	2.5%	-2.5%
17-Mar-2021	1,414	1,390	-24	24	-1.7%	1.7%	-1.7%
18-Mar-2021	1,396	1,380	-16	16	-1.1%	1.1%	-1.2%
19-Mar-2021	1,203	1,195	-8	8	-0.7%	0.7%	-0.7%
20-Mar-2021	1,231	1,275	44	44	3.6%	3.6%	3.5%
21-Mar-2021	1,231	1,245	14	14	1.1%	1.1%	1.1%
22-Mar-2021	1,162	1,165	3	3	0.3%	0.3%	0.3%
23-Mar-2021	1,110	1,110	0	0	0.0%	0.0%	0.0%
24-Mar-2021	1,075	1,105	30	30	2.8%	2.8%	2.7%
25-Mar-2021	1,097	1,115	18	18	1.6%	1.6%	1.6%
26-Mar-2021	1,039	1,050	11	11	1.1%	1.1%	1.0%
27-Mar-2021	1,381	1,340	-41	41	-3.0%	3.0%	-3.1%
28-Mar-2021	1,347	1,340	-7	7	-0.5%	0.5%	-0.5%
29-Mar-2021	1,445	1,400	-45	45	-3.1%	3.1%	-3.2%
30-Mar-2021	1,335	1,365	30	30	2.2%	2.2%	2.2%
31-Mar-2021	1,402	1,440	38	38	2.7%	2.7%	2.6%
Minimum	1,039	1,050	-73	0	-5.6%	0.0%	-6.0%
Average	1,268	1,268	0	26	0.1%	2.0%	0.0%
Maximum	1,445	1,440	46	73	3.6%	5.6%	3.5%

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Apr-2021	1,270	1,335	65	65	5.1%	5.1%	4.9%
2-Apr-2021	**992**	**1,120**	**128**	**128**	**12.9%**	**12.9%**	**11.4%**
3-Apr-2021	972	1,005	33	33	3.4%	3.4%	3.3%
4-Apr-2021	**1,093**	**1,025**	**-68**	**68**	**-6.2%**	**6.2%**	**-6.6%**
5-Apr-2021	1,098	1,095	-3	3	-0.3%	0.3%	-0.3%
6-Apr-2021	1,102	1,100	-2	2	-0.2%	0.2%	-0.2%
7-Apr-2021	1,162	1,150	-12	12	-1.0%	1.0%	-1.0%
8-Apr-2021	1,101	1,095	-6	6	-0.5%	0.5%	-0.5%
9-Apr-2021	1,095	1,080	-15	15	-1.4%	1.4%	-1.4%
10-Apr-2021	1,197	1,185	-12	12	-1.0%	1.0%	-1.0%
11-Apr-2021	1,177	1,150	-27	27	-2.3%	2.3%	-2.3%
12-Apr-2021	1,188	1,210	22	22	1.9%	1.9%	1.8%
13-Apr-2021	**1,172**	**1,250**	**78**	**78**	**6.7%**	**6.7%**	**6.2%**
14-Apr-2021	1,228	1,220	-8	8	-0.7%	0.7%	-0.7%
15-Apr-2021	1,242	1,240	-2	2	-0.2%	0.2%	-0.2%
16-Apr-2021	1,273	1,280	7	7	0.5%	0.5%	0.5%
17-Apr-2021	1,193	1,200	7	7	0.6%	0.6%	0.6%
18-Apr-2021	1,195	1,225	30	30	2.5%	2.5%	2.4%
19-Apr-2021	1,147	1,150	3	3	0.3%	0.3%	0.3%
20-Apr-2021	1,134	1,085	-49	49	-4.3%	4.3%	-4.5%
21-Apr-2021	1,117	1,160	43	43	3.8%	3.8%	3.7%
22-Apr-2021	1,017	1,055	38	38	3.7%	3.7%	3.6%
23-Apr-2021	1,108	1,155	47	47	4.2%	4.2%	4.1%
24-Apr-2021	1,095	1,085	-10	10	-0.9%	0.9%	-0.9%
25-Apr-2021	1,029	1,070	41	41	4.0%	4.0%	3.8%
26-Apr-2021	1,100	1,100	0	0	0.0%	0.0%	0.0%
27-Apr-2021	1,095	1,110	15	15	1.4%	1.4%	1.4%
28-Apr-2021	1,061	1,130	69	69	6.5%	6.5%	6.1%
29-Apr-2021	1,111	1,105	-6	6	-0.5%	0.5%	-0.5%
30-Apr-2021	1,086	1,030	-56	56	-5.2%	5.2%	-5.4%
Minimum	972	1,005	-68	0	-6.2%	0.0%	-6.6%
Average	1,128	1,140	12	30	1.1%	2.7%	0.9%
Maximum	1,273	1,335	128	128	12.9%	12.9%	11.4%

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-May-2021	1,031	1,020	-11	11	-1.1%	1.1%	-1.1%
2-May-2021	1,043	1,060	17	17	1.6%	1.6%	1.6%
3-May-2021	1,058	1,015	-43	43	-4.1%	4.1%	-4.2%
4-May-2021	1,102	1,050	-52	52	-4.7%	4.7%	-5.0%
5-May-2021	1,042	1,075	33	33	3.2%	3.2%	3.1%
6-May-2021	1,094	1,105	11	11	1.0%	1.0%	1.0%
7-May-2021	1,158	1,125	-33	33	-2.8%	2.8%	-2.9%
8-May-2021	1,040	1,010	-30	30	-2.9%	2.9%	-3.0%
9-May-2021	1,044	1,045	1	1	0.1%	0.1%	0.1%
10-May-2021	1,078	1,070	-8	8	-0.7%	0.7%	-0.7%
11-May-2021	1,009	1,025	16	16	1.6%	1.6%	1.6%
12-May-2021	998	1,025	27	27	2.7%	2.7%	2.6%
13-May-2021	1,019	1,020	1	1	0.1%	0.1%	0.1%
14-May-2021	965	1,000	35	35	3.6%	3.6%	3.5%
15-May-2021	979	1,015	36	36	3.7%	3.7%	3.5%
16-May-2021	998	1,025	27	27	2.7%	2.7%	2.6%
17-May-2021	1,045	1,050	5	5	0.5%	0.5%	0.5%
18-May-2021	972	1,000	28	28	2.9%	2.9%	2.8%
19-May-2021	990	990	0	0	0.0%	0.0%	0.0%
20-May-2021	933	945	12	12	1.3%	1.3%	1.3%
21-May-2021	829	865	36	36	4.3%	4.3%	4.2%
22-May-2021	804	790	-14	14	-1.7%	1.7%	-1.8%
23-May-2021	874	855	-19	19	-2.2%	2.2%	-2.2%
24-May-2021	1,094	1,060	-34	34	-3.1%	3.1%	-3.2%
25-May-2021	1,030	1,040	10	10	1.0%	1.0%	1.0%
26-May-2021	974	945	-29	29	-3.0%	3.0%	-3.1%
27-May-2021	864	860	-4	4	-0.5%	0.5%	-0.5%
28-May-2021	885	865	-20	20	-2.3%	2.3%	-2.3%
29-May-2021	884	870	-14	14	-1.6%	1.6%	-1.6%
30-May-2021	809	805	-4	4	-0.5%	0.5%	-0.5%
31-May-2021	894	915	21	21	2.3%	2.3%	2.3%
Minimum	804	790	-52	0	-4.7%	0.0%	-5.0%
Average	985	985	0	20	0.0%	2.1%	0.0%
Maximum	1,158	1,125	36	52	4.3%	4.7%	4.2%

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Jun-2021	884	890	6	6	0.7%	0.7%	0.7%
2-Jun-2021	781	805	24	24	3.1%	3.1%	3.0%
3-Jun-2021	740	775	35	35	4.7%	4.7%	4.5%
4-Jun-2021	794	800	6	6	0.8%	0.8%	0.7%
5-Jun-2021	738	710	-28	28	-3.8%	3.8%	-3.9%
6-Jun-2021	790	785	-5	5	-0.6%	0.6%	-0.6%
7-Jun-2021	839	855	16	16	1.9%	1.9%	1.9%
8-Jun-2021	**740**	**815**	**75**	**75**	**10.1%**	**10.1%**	**9.2%**
9-Jun-2021	**839**	**930**	**91**	**91**	**10.8%**	**10.8%**	**9.8%**
10-Jun-2021	1,103	1,040	-63	63	-5.7%	5.7%	-6.1%
11-Jun-2021	1,086	1,095	9	9	0.8%	0.8%	0.8%
12-Jun-2021	762	770	8	8	1.0%	1.0%	1.0%
13-Jun-2021	781	825	44	44	5.6%	5.6%	5.3%
14-Jun-2021	833	830	-3	3	-0.4%	0.4%	-0.4%
15-Jun-2021	807	815	8	8	1.0%	1.0%	1.0%
16-Jun-2021	898	830	-68	68	-7.6%	7.6%	-8.2%
17-Jun-2021	727	760	33	33	4.5%	4.5%	4.3%
18-Jun-2021	710	740	30	30	4.2%	4.2%	4.1%
19-Jun-2021	674	690	16	16	2.4%	2.4%	2.3%
20-Jun-2021	721	730	9	9	1.2%	1.2%	1.2%
21-Jun-2021	738	780	42	42	5.7%	5.7%	5.4%
22-Jun-2021	741	745	4	4	0.5%	0.5%	0.5%
23-Jun-2021	748	765	17	17	2.3%	2.3%	2.2%
24-Jun-2021	734	770	36	36	4.9%	4.9%	4.7%
25-Jun-2021	725	750	25	25	3.4%	3.4%	3.3%
26-Jun-2021	707	760	53	53	7.5%	7.5%	7.0%
27-Jun-2021	714	740	26	26	3.6%	3.6%	3.5%
28-Jun-2021	822	765	-57	57	-6.9%	6.9%	-7.5%
29-Jun-2021	**660**	**750**	**90**	**90**	**13.6%**	**13.6%**	**12.0%**
30-Jun-2021	704	750	46	46	6.5%	6.5%	6.1%
Minimum	660	690	-68	3	-7.6%	0.4%	-8.2%
Average	785	802	18	32	2.5%	4.2%	2.3%
Maximum	1,103	1,095	91	91	13.6%	13.6%	12.0%

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Jul-2021	842	845	3	3	0.4%	0.4%	0.4%
2-Jul-2021	833	815	-18	18	-2.2%	2.2%	-2.2%
3-Jul-2021	764	755	-9	9	-1.2%	1.2%	-1.2%
4-Jul-2021	841	845	4	4	0.5%	0.5%	0.5%
5-Jul-2021	829	795	-34	34	-4.1%	4.1%	-4.3%
6-Jul-2021	736	755	19	19	2.6%	2.6%	2.5%
7-Jul-2021	732	740	8	8	1.1%	1.1%	1.1%
8-Jul-2021	**720**	**775**	**55**	**55**	**7.6%**	**7.6%**	**7.1%**
9-Jul-2021	749	750	1	1	0.1%	0.1%	0.1%
10-Jul-2021	788	760	-28	28	-3.6%	3.6%	-3.7%
11-Jul-2021	773	765	-8	8	-1.0%	1.0%	-1.0%
12-Jul-2021	822	805	-17	17	-2.1%	2.1%	-2.1%
13-Jul-2021	736	760	24	24	3.3%	3.3%	3.2%
14-Jul-2021	735	765	30	30	4.1%	4.1%	3.9%
15-Jul-2021	**682**	**750**	**68**	**68**	**10.0%**	**10.0%**	**9.1%**
16-Jul-2021	732	765	33	33	4.5%	4.5%	4.3%
17-Jul-2021	747	740	-7	7	-0.9%	0.9%	-0.9%
18-Jul-2021	761	775	14	14	1.8%	1.8%	1.8%
19-Jul-2021	739	750	11	11	1.5%	1.5%	1.5%
20-Jul-2021	756	770	14	14	1.9%	1.9%	1.8%
21-Jul-2021	736	755	19	19	2.6%	2.6%	2.5%
22-Jul-2021	763	785	22	22	2.9%	2.9%	2.8%
23-Jul-2021	755	780	25	25	3.3%	3.3%	3.2%
24-Jul-2021	**702**	**745**	**43**	**43**	**6.1%**	**6.1%**	**5.8%**
25-Jul-2021	696	715	19	19	2.7%	2.7%	2.7%
26-Jul-2021	718	735	17	17	2.4%	2.4%	2.3%
27-Jul-2021	747	765	18	18	2.4%	2.4%	2.4%
28-Jul-2021	727	750	23	23	3.2%	3.2%	3.1%
29-Jul-2021	709	730	21	21	3.0%	3.0%	2.9%
30-Jul-2021	708	735	27	27	3.8%	3.8%	3.7%
31-Jul-2021	709	730	21	21	3.0%	3.0%	2.9%
Minimum	682	715	-34	1	-4.1%	0.1%	-4.3%
Average	751	765	13	21	1.9%	2.9%	1.8%
Maximum	842	845	68	68	10.0%	10.0%	9.1%

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Aug-2021	681	710	29	29	4.3%	4.3%	4.1%
2-Aug-2021	697	740	43	43	6.2%	6.2%	5.8%
3-Aug-2021	701	750	49	49	7.0%	7.0%	6.5%
4-Aug-2021	685	750	65	65	9.5%	9.5%	8.7%
5-Aug-2021	686	755	69	69	10.1%	10.1%	9.1%
6-Aug-2021	733	785	52	52	7.1%	7.1%	6.6%
7-Aug-2021	718	730	12	12	1.7%	1.7%	1.6%
8-Aug-2021	707	740	33	33	4.7%	4.7%	4.5%
9-Aug-2021	696	745	49	49	7.0%	7.0%	6.6%
10-Aug-2021	**663**	**735**	**72**	**72**	**10.9%**	**10.9%**	**9.8%**
11-Aug-2021	718	740	22	22	3.1%	3.1%	3.0%
12-Aug-2021	709	750	41	41	5.8%	5.8%	5.5%
13-Aug-2021	745	740	-5	5	-0.7%	0.7%	-0.7%
14-Aug-2021	737	735	-2	2	-0.3%	0.3%	-0.3%
15-Aug-2021	690	725	35	35	5.1%	5.1%	4.8%
16-Aug-2021	734	755	21	21	2.9%	2.9%	2.8%
17-Aug-2021	698	755	57	57	8.2%	8.2%	7.5%
18-Aug-2021	877	965	88	88	10.0%	10.0%	9.1%
19-Aug-2021	**850**	**965**	**115**	**115**	**13.5%**	**13.5%**	**11.9%**
20-Aug-2021	756	805	49	49	6.5%	6.5%	6.1%
21-Aug-2021	711	745	34	34	4.8%	4.8%	4.6%
22-Aug-2021	**707**	**780**	**73**	**73**	**10.3%**	**10.3%**	**9.4%**
23-Aug-2021	727	725	-2	2	-0.3%	0.3%	-0.3%
24-Aug-2021	703	745	42	42	6.0%	6.0%	5.6%
25-Aug-2021	731	750	19	19	2.6%	2.6%	2.5%
26-Aug-2021	710	735	25	25	3.5%	3.5%	3.4%
27-Aug-2021	718	735	17	17	2.4%	2.4%	2.3%
28-Aug-2021	695	750	55	55	7.9%	7.9%	7.3%
29-Aug-2021	712	730	18	18	2.5%	2.5%	2.5%
30-Aug-2021	744	745	1	1	0.1%	0.1%	0.1%
31-Aug-2021	748	775	27	27	3.6%	3.6%	3.5%
Minimum	663	710	-5	1	-0.7%	0.1%	-0.7%
Average	722	761	39	39	5.3%	5.4%	5.0%
Maximum	877	965	115	115	13.5%	13.5%	11.9%

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Sep-2021	708	725	17	17	2.4%	2.4%	2.3%
2-Sep-2021	746	735	-11	11	-1.5%	1.5%	-1.5%
3-Sep-2021	774	735	-39	39	-5.0%	5.0%	-5.3%
4-Sep-2021	786	795	9	9	1.1%	1.1%	1.1%
5-Sep-2021	**792**	**870**	**78**	**78**	**9.8%**	**9.8%**	**9.0%**
6-Sep-2021	794	850	56	56	7.1%	7.1%	6.6%
7-Sep-2021	819	850	31	31	3.8%	3.8%	3.6%
8-Sep-2021	778	795	17	17	2.2%	2.2%	2.1%
9-Sep-2021	794	835	41	41	5.2%	5.2%	4.9%
10-Sep-2021	800	815	15	15	1.9%	1.9%	1.8%
11-Sep-2021	**742**	**815**	**73**	**73**	**9.8%**	**9.8%**	**9.0%**
12-Sep-2021	776	800	24	24	3.1%	3.1%	3.0%
13-Sep-2021	771	830	59	59	7.7%	7.7%	7.1%
14-Sep-2021	**806**	**740**	**-66**	**66**	**-8.2%**	**8.2%**	**-8.9%**
15-Sep-2021	860	895	35	35	4.1%	4.1%	3.9%
16-Sep-2021	851	875	24	24	2.8%	2.8%	2.7%
17-Sep-2021	766	790	24	24	3.1%	3.1%	3.0%
18-Sep-2021	780	785	5	5	0.6%	0.6%	0.6%
19-Sep-2021	858	875	17	17	2.0%	2.0%	1.9%
20-Sep-2021	880	890	10	10	1.1%	1.1%	1.1%
21-Sep-2021	823	845	22	22	2.7%	2.7%	2.6%
22-Sep-2021	741	725	-16	16	-2.2%	2.2%	-2.2%
23-Sep-2021	783	825	42	42	5.4%	5.4%	5.1%
24-Sep-2021	726	765	39	39	5.4%	5.4%	5.1%
25-Sep-2021	741	750	9	9	1.2%	1.2%	1.2%
26-Sep-2021	734	725	-9	9	-1.2%	1.2%	-1.2%
27-Sep-2021	768	725	-43	43	-5.6%	5.6%	-5.9%
28-Sep-2021	744	740	-4	4	-0.5%	0.5%	-0.5%
29-Sep-2021	770	765	-5	5	-0.6%	0.6%	-0.7%
30-Sep-2021	789	800	11	11	1.4%	1.4%	1.4%
Minimum	708	725	-66	4	-8.2%	0.5%	-8.9%
Average	783	799	16	28	2.0%	3.6%	1.8%
Maximum	880	895	78	78	9.8%	9.8%	9.0%

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Oct-2021	769	765	-4	4	-0.5%	0.5%	-0.5%
2-Oct-2021	737	730	-7	7	-0.9%	0.9%	-1.0%
3-Oct-2021	771	795	24	24	3.1%	3.1%	3.0%
4-Oct-2021	861	855	-6	6	-0.7%	0.7%	-0.7%
5-Oct-2021	908	865	-43	43	-4.7%	4.7%	-5.0%
6-Oct-2021	876	885	9	9	1.0%	1.0%	1.0%
7-Oct-2021	780	815	35	35	4.5%	4.5%	4.3%
8-Oct-2021	919	900	-19	19	-2.1%	2.1%	-2.1%
9-Oct-2021	**967**	**910**	**-57**	**57**	**-5.9%**	**5.9%**	**-6.3%**
10-Oct-2021	**1,004**	**920**	**-84**	**84**	**-8.4%**	**8.4%**	**-9.1%**
11-Oct-2021	902	910	8	8	0.9%	0.9%	0.9%
12-Oct-2021	923	900	-23	23	-2.5%	2.5%	-2.6%
13-Oct-2021	926	910	-16	16	-1.7%	1.7%	-1.8%
14-Oct-2021	934	940	6	6	0.6%	0.6%	0.6%
15-Oct-2021	926	945	19	19	2.1%	2.1%	2.0%
16-Oct-2021	926	930	4	4	0.4%	0.4%	0.4%
17-Oct-2021	942	975	33	33	3.5%	3.5%	3.4%
18-Oct-2021	943	955	12	12	1.3%	1.3%	1.3%
19-Oct-2021	865	905	40	40	4.6%	4.6%	4.4%
20-Oct-2021	861	875	14	14	1.6%	1.6%	1.6%
21-Oct-2021	862	890	28	28	3.2%	3.2%	3.1%
22-Oct-2021	931	935	4	4	0.4%	0.4%	0.4%
23-Oct-2021	757	760	3	3	0.4%	0.4%	0.4%
24-Oct-2021	745	775	30	30	4.0%	4.0%	3.9%
25-Oct-2021	972	985	13	13	1.3%	1.3%	1.3%
26-Oct-2021	982	975	-7	7	-0.7%	0.7%	-0.7%
27-Oct-2021	1,047	1,050	3	3	0.3%	0.3%	0.3%
28-Oct-2021	1,083	1,065	-18	18	-1.7%	1.7%	-1.7%
29-Oct-2021	1,058	1,075	17	17	1.6%	1.6%	1.6%
30-Oct-2021	989	945	-44	44	-4.4%	4.4%	-4.7%
31-Oct-2021	988	975	-13	13	-1.3%	1.3%	-1.3%
Minimum	737	730	-84	3	-8.4%	0.3%	-9.1%
Average	908	907	-1	21	0.0%	2.3%	-0.1%
Maximum	1,083	1,075	40	84	4.6%	8.4%	4.4%

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Nov-2021	941	980	39	39	4.1%	4.1%	4.0%
2-Nov-2021	891	905	14	14	1.6%	1.6%	1.5%
3-Nov-2021	1,044	1,030	-14	14	-1.3%	1.3%	-1.4%
4-Nov-2021	1,023	1,020	-3	3	-0.3%	0.3%	-0.3%
5-Nov-2021	1,114	1,115	1	1	0.1%	0.1%	0.1%
6-Nov-2021	1,051	1,095	44	44	4.2%	4.2%	4.0%
7-Nov-2021	985	1,030	45	45	4.6%	4.6%	4.4%
8-Nov-2021	966	1,010	44	44	4.6%	4.6%	4.4%
9-Nov-2021	943	960	17	17	1.8%	1.8%	1.8%
10-Nov-2021	870	935	65	65	7.5%	7.5%	7.0%
11-Nov-2021	1,088	1,115	27	27	2.5%	2.5%	2.4%
12-Nov-2021	1,140	1,205	65	65	5.7%	5.7%	5.4%
13-Nov-2021	**1,074**	**1,225**	**151**	**151**	**14.1%**	**14.1%**	**12.3%**
14-Nov-2021	975	1,015	40	40	4.1%	4.1%	3.9%
15-Nov-2021	1,151	1,105	-46	46	-4.0%	4.0%	-4.2%
16-Nov-2021	1,040	1,125	85	85	8.2%	8.2%	7.6%
17-Nov-2021	**1,168**	**1,285**	**117**	**117**	**10.0%**	**10.0%**	**9.1%**
18-Nov-2021	1,229	1,255	26	26	2.1%	2.1%	2.1%
19-Nov-2021	1,130	1,185	55	55	4.9%	4.9%	4.6%
20-Nov-2021	1,082	1,165	83	83	7.7%	7.7%	7.1%
21-Nov-2021	1,187	1,220	33	33	2.8%	2.8%	2.7%
22-Nov-2021	1,196	1,225	29	29	2.4%	2.4%	2.4%
23-Nov-2021	1,187	1,180	-7	7	-0.6%	0.6%	-0.6%
24-Nov-2021	1,115	1,180	65	65	5.8%	5.8%	5.5%
25-Nov-2021	1,114	1,155	41	41	3.7%	3.7%	3.5%
26-Nov-2021	1,078	1,120	42	42	3.9%	3.9%	3.8%
27-Nov-2021	**937**	**1,040**	**103**	**103**	**11.0%**	**11.0%**	**9.9%**
28-Nov-2021	1,074	1,085	11	11	1.0%	1.0%	1.0%
29-Nov-2021	1,082	1,070	-12	12	-1.1%	1.1%	-1.1%
30-Nov-2021	1,044	1,060	16	16	1.5%	1.5%	1.5%
Minimum	870	905	-46	1	-4.0%	0.1%	-4.2%
Average	1,064	1,103	39	45	3.7%	4.2%	3.5%
Maximum	1,229	1,285	151	151	14.1%	14.1%	12.3%

Date	Actual Total Peak (MW)	Forecast Total Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Dec-2021	1,198	1,185	-13	13	-1.1%	1.1%	-1.1%
2-Dec-2021	1,156	1,150	-6	6	-0.5%	0.5%	-0.5%
3-Dec-2021	1,054	1,105	51	51	4.8%	4.8%	4.6%
4-Dec-2021	1,318	1,295	-23	23	-1.7%	1.7%	-1.8%
5-Dec-2021	1,275	1,225	-50	50	-3.9%	3.9%	-4.1%
6-Dec-2021	1,308	1,315	7	7	0.5%	0.5%	0.5%
7-Dec-2021	**1,078**	**1,170**	**92**	**92**	**8.5%**	**8.5%**	**7.9%**
8-Dec-2021	1,354	1,300	-54	54	-4.0%	4.0%	-4.2%
9-Dec-2021	1,343	1,355	12	12	0.9%	0.9%	0.9%
10-Dec-2021	1,452	1,415	-37	37	-2.5%	2.5%	-2.6%
11-Dec-2021	1,357	1,320	-37	37	-2.7%	2.7%	-2.8%
12-Dec-2021	**1,045**	**1,135**	**90**	**90**	**8.6%**	**8.6%**	**7.9%**
13-Dec-2021	1,238	1,310	72	72	5.8%	5.8%	5.5%
14-Dec-2021	1,364	1,375	11	11	0.8%	0.8%	0.8%
15-Dec-2021	1,506	1,470	-36	36	-2.4%	2.4%	-2.4%
16-Dec-2021	1,523	1,480	-43	43	-2.8%	2.8%	-2.9%
17-Dec-2021	1,458	1,440	-18	18	-1.2%	1.2%	-1.3%
18-Dec-2021	**1,428**	**1,540**	**112**	**112**	**7.8%**	**7.8%**	**7.3%**
19-Dec-2021	1,534	1,615	81	81	5.3%	5.3%	5.0%
20-Dec-2021	1,620	1,670	50	50	3.1%	3.1%	3.0%
21-Dec-2021	1,584	1,635	51	51	3.2%	3.2%	3.1%
22-Dec-2021	1,506	1,595	89	89	5.9%	5.9%	5.6%
23-Dec-2021	1,449	1,510	61	61	4.2%	4.2%	4.0%
24-Dec-2021	1,639	1,670	31	31	1.9%	1.9%	1.9%
25-Dec-2021	1,470	1,540	70	70	4.8%	4.8%	4.5%
26-Dec-2021	1,387	1,485	98	98	7.1%	7.1%	6.6%
27-Dec-2021	1,433	1,475	42	42	2.9%	2.9%	2.8%
28-Dec-2021	1,443	1,540	97	97	6.7%	6.7%	6.3%
29-Dec-2021	1,471	1,550	79	79	5.4%	5.4%	5.1%
30-Dec-2021	1,492	1,570	78	78	5.2%	5.2%	5.0%
31-Dec-2021	1,493	1,485	-8	8	-0.5%	0.5%	-0.5%
Minimum	1,045	1,105	-54	6	-4.0%	0.5%	-4.2%
Average	1,386	1,417	31	52	2.3%	3.8%	2.1%
Maximum	1,639	1,670	112	112	8.6%	8.6%	7.9%

Table 3: Analysis of Utility Forecast Error[3]

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Jan-2021	1,222	1,246	24	24	2.0%	2.0%	2.0%
2-Jan-2021	1,228	1,145	-83	83	-6.7%	6.7%	-7.2%
3-Jan-2021	1,221	1,214	-7	7	-0.5%	0.5%	-0.5%
4-Jan-2021	1,215	1,200	-16	16	-1.3%	1.3%	-1.3%
5-Jan-2021	1,210	1,195	-15	15	-1.2%	1.2%	-1.2%
6-Jan-2021	**1,031**	**1,096**	**65**	**65**	**6.3%**	**6.3%**	**5.9%**
7-Jan-2021	1,039	1,093	54	54	5.2%	5.2%	4.9%
8-Jan-2021	**1,018**	**1,001**	**-17**	**17**	**-1.6%**	**1.6%**	**-1.7%**
9-Jan-2021	1,068	1,090	22	22	2.0%	2.0%	2.0%
10-Jan-2021	1,162	1,187	25	25	2.2%	2.2%	2.1%
11-Jan-2021	1,258	1,275	17	17	1.4%	1.4%	1.3%
12-Jan-2021	1,189	1,232	43	43	3.6%	3.6%	3.5%
13-Jan-2021	1,201	1,167	-34	34	-2.9%	2.9%	-2.9%
14-Jan-2021	1,144	1,130	-14	14	-1.2%	1.2%	-1.2%
15-Jan-2021	1,163	1,151	-13	13	-1.1%	1.1%	-1.1%
16-Jan-2021	1,213	1,173	-41	41	-3.3%	3.3%	-3.5%
17-Jan-2021	1,134	1,151	18	18	1.6%	1.6%	1.5%
18-Jan-2021	1,061	1,054	-7	7	-0.7%	0.7%	-0.7%
19-Jan-2021	1,103	1,171	68	68	6.2%	6.2%	5.8%
20-Jan-2021	1,266	1,268	2	2	0.1%	0.1%	0.1%
21-Jan-2021	1,284	1,217	-67	67	-5.2%	5.2%	-5.5%
22-Jan-2021	1,205	1,242	37	37	3.1%	3.1%	3.0%
23-Jan-2021	1,260	1,180	-80	80	-6.3%	6.3%	-6.8%
24-Jan-2021	1,115	1,146	31	31	2.8%	2.8%	2.7%
25-Jan-2021	1,232	1,221	-10	10	-0.8%	0.8%	-0.8%
26-Jan-2021	1,166	1,188	22	22	1.9%	1.9%	1.8%
27-Jan-2021	1,162	1,150	-12	12	-1.0%	1.0%	-1.0%
28-Jan-2021	1,201	1,054	-147	147	-12.3%	12.3%	-14.0%
29-Jan-2021	1,247	1,232	-15	15	-1.2%	1.2%	-1.2%
30-Jan-2021	1,175	1,164	-11	11	-0.9%	0.9%	-0.9%
31-Jan-2021	1,147	1,163	15	15	1.3%	1.3%	1.3%
Minimum	1,018	1,001	-147	2	-12.3%	0.1%	-14.0%
Average	1,172	1,168	-5	33	-0.3%	2.8%	-0.4%
Maximum	1,284	1,275	68	147	6.3%	12.3%	5.9%

[3] Lines that have been bolded indicate further examination of the hourly forecast was provided in this report.

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Feb-2021	1,215	1,190	-25	25	-2.1%	2.1%	-2.1%
2-Feb-2021	1,240	1,201	-39	39	-3.2%	3.2%	-3.3%
3-Feb-2021	**1,180**	**1,214**	**34**	**34**	**2.9%**	**2.9%**	**2.8%**
4-Feb-2021	924	977	53	53	5.8%	5.8%	5.5%
5-Feb-2021	990	944	-46	46	-4.6%	4.6%	-4.9%
6-Feb-2021	1,068	1,013	-56	56	-5.2%	5.2%	-5.5%
7-Feb-2021	1,159	1,165	6	6	0.5%	0.5%	0.5%
8-Feb-2021	1,214	1,204	-10	10	-0.8%	0.8%	-0.8%
9-Feb-2021	1,208	1,229	21	21	1.8%	1.8%	1.7%
10-Feb-2021	1,245	1,230	-16	16	-1.3%	1.3%	-1.3%
11-Feb-2021	1,397	1,320	-77	77	-5.5%	5.5%	-5.8%
12-Feb-2021	1,212	1,239	27	27	2.2%	2.2%	2.2%
13-Feb-2021	1,207	1,170	-37	37	-3.1%	3.1%	-3.2%
14-Feb-2021	1,161	1,205	44	44	3.8%	3.8%	3.7%
15-Feb-2021	1,209	1,200	-9	9	-0.7%	0.7%	-0.7%
16-Feb-2021	1,225	1,208	-18	18	-1.5%	1.5%	-1.5%
17-Feb-2021	1,174	1,174	0	0	0.0%	0.0%	0.0%
18-Feb-2021	**1,213**	**1,257**	**44**	**44**	**3.6%**	**3.6%**	**3.5%**
19-Feb-2021	1,270	1,270	0	0	0.0%	0.0%	0.0%
20-Feb-2021	1,232	1,197	-34	34	-2.8%	2.8%	-2.9%
21-Feb-2021	1,378	1,321	-56	56	-4.1%	4.1%	-4.3%
22-Feb-2021	1,360	1,353	-7	7	-0.5%	0.5%	-0.5%
23-Feb-2021	1,205	1,194	-11	11	-0.9%	0.9%	-0.9%
24-Feb-2021	1,117	1,117	1	1	0.1%	0.1%	0.1%
25-Feb-2021	1,131	1,099	-33	33	-2.9%	2.9%	-3.0%
26-Feb-2021	1,183	1,192	9	9	0.7%	0.7%	0.7%
27-Feb-2021	**1,156**	**1,221**	**66**	**66**	**5.7%**	**5.7%**	**5.4%**
28-Feb-2021	1,230	1,203	-26	26	-2.1%	2.1%	-2.2%
Minimum	924	944	-77	0	-5.5%	0.0%	-5.8%
Average	1,197	1,190	-7	29	-0.5%	2.4%	-0.6%
Maximum	1,397	1,353	66	77	5.8%	5.8%	5.5%

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Mar-2021	1,153	1,123	-30	30	-2.6%	2.6%	-2.7%
2-Mar-2021	1,172	1,183	11	11	1.0%	1.0%	0.9%
3-Mar-2021	1,202	1,220	18	18	1.5%	1.5%	1.5%
4-Mar-2021	1,193	1,180	-14	14	-1.1%	1.1%	-1.2%
5-Mar-2021	1,106	1,089	-17	17	-1.5%	1.5%	-1.6%
6-Mar-2021	1,095	1,034	-61	61	-5.6%	5.6%	-5.9%
7-Mar-2021	**1,128**	**1,059**	**-69**	**69**	**-6.1%**	**6.1%**	**-6.5%**
8-Mar-2021	1,150	1,183	34	34	2.9%	2.9%	2.8%
9-Mar-2021	1,190	1,154	-36	36	-3.0%	3.0%	-3.1%
10-Mar-2021	1,128	1,148	20	20	1.8%	1.8%	1.7%
11-Mar-2021	1,090	1,100	10	10	0.9%	0.9%	0.9%
12-Mar-2021	1,010	981	-28	28	-2.8%	2.8%	-2.9%
13-Mar-2021	912	909	-3	3	-0.4%	0.4%	-0.4%
14-Mar-2021	1,052	1,065	13	13	1.2%	1.2%	1.2%
15-Mar-2021	1,164	1,143	-21	21	-1.8%	1.8%	-1.8%
16-Mar-2021	1,246	1,190	-56	56	-4.5%	4.5%	-4.7%
17-Mar-2021	1,270	1,230	-40	40	-3.1%	3.1%	-3.2%
18-Mar-2021	1,264	1,218	-46	46	-3.6%	3.6%	-3.8%
19-Mar-2021	1,069	1,036	-33	33	-3.1%	3.1%	-3.2%
20-Mar-2021	1,092	1,112	20	20	1.8%	1.8%	1.8%
21-Mar-2021	1,092	1,085	-7	7	-0.6%	0.6%	-0.6%
22-Mar-2021	1,023	1,004	-19	19	-1.9%	1.9%	-1.9%
23-Mar-2021	966	951	-16	16	-1.6%	1.6%	-1.7%
24-Mar-2021	934	943	9	9	0.9%	0.9%	0.9%
25-Mar-2021	955	955	0	0	0.0%	0.0%	0.0%
26-Mar-2021	871	862	-9	9	-1.0%	1.0%	-1.0%
27-Mar-2021	1,167	1,099	-68	68	-5.8%	5.8%	-6.1%
28-Mar-2021	1,125	1,103	-22	22	-1.9%	1.9%	-2.0%
29-Mar-2021	1,253	1,158	-95	95	-7.6%	7.6%	-8.2%
30-Mar-2021	1,131	1,141	10	10	0.9%	0.9%	0.9%
31-Mar-2021	1,214	1,208	-6	6	-0.5%	0.5%	-0.5%
Minimum	1,153	1,123	-30	30	-2.6%	2.6%	-2.7%
Average	1,110	1,092	-18	27	-1.5%	2.4%	-1.6%
Maximum	1,270	1,230	34	95	2.9%	7.6%	2.8%

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Apr-2021	1,061	1,107	46	46	4.4%	4.4%	4.2%
2-Apr-2021	**831**	**939**	**109**	**109**	**13.1%**	**13.1%**	**11.6%**
3-Apr-2021	812	831	19	19	2.3%	2.3%	2.3%
4-Apr-2021	**927**	**852**	**-76**	**76**	**-8.2%**	**8.2%**	**-8.9%**
5-Apr-2021	927	919	-8	8	-0.9%	0.9%	-0.9%
6-Apr-2021	952	900	-52	52	-5.4%	5.4%	-5.7%
7-Apr-2021	940	919	-21	21	-2.3%	2.3%	-2.3%
8-Apr-2021	929	915	-14	14	-1.5%	1.5%	-1.5%
9-Apr-2021	930	899	-31	31	-3.3%	3.3%	-3.4%
10-Apr-2021	1,030	999	-31	31	-3.0%	3.0%	-3.1%
11-Apr-2021	1,018	968	-51	51	-5.0%	5.0%	-5.2%
12-Apr-2021	1,030	1,029	-2	2	-0.2%	0.2%	-0.2%
13-Apr-2021	**1,021**	**1,067**	**47**	**47**	**4.6%**	**4.6%**	**4.4%**
14-Apr-2021	1,040	1,008	-32	32	-3.1%	3.1%	-3.1%
15-Apr-2021	1,047	1,026	-21	21	-2.0%	2.0%	-2.0%
16-Apr-2021	1,063	1,045	-18	18	-1.7%	1.7%	-1.7%
17-Apr-2021	967	967	0	0	0.0%	0.0%	0.0%
18-Apr-2021	1,033	990	-43	43	-4.2%	4.2%	-4.4%
19-Apr-2021	1,042	918	-124	124	-11.9%	11.9%	-13.5%
20-Apr-2021	991	922	-69	69	-6.9%	6.9%	-7.5%
21-Apr-2021	991	999	9	9	0.9%	0.9%	0.9%
22-Apr-2021	868	893	25	25	2.9%	2.9%	2.8%
23-Apr-2021	870	900	30	30	3.4%	3.4%	3.3%
24-Apr-2021	871	837	-33	33	-3.8%	3.8%	-4.0%
25-Apr-2021	788	821	33	33	4.2%	4.2%	4.0%
26-Apr-2021	856	851	-4	4	-0.5%	0.5%	-0.5%
27-Apr-2021	867	857	-10	10	-1.1%	1.1%	-1.1%
28-Apr-2021	831	875	44	44	5.3%	5.3%	5.1%
29-Apr-2021	876	859	-17	17	-2.0%	2.0%	-2.0%
30-Apr-2021	835	798	-37	37	-4.4%	4.4%	-4.6%
Minimum	788	798	-124	0	-11.9%	0.0%	-13.5%
Average	941	930	-11	35	-1.0%	3.7%	-1.2%
Maximum	1,063	1,107	109	124	13.1%	13.1%	11.6%

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-May-2021	807	794	-13	13	-1.6%	1.6%	-1.6%
2-May-2021	820	831	11	11	1.3%	1.3%	1.3%
3-May-2021	859	852	-8	8	-0.9%	0.9%	-0.9%
4-May-2021	881	869	-11	11	-1.3%	1.3%	-1.3%
5-May-2021	811	828	16	16	2.0%	2.0%	2.0%
6-May-2021	860	868	8	8	0.9%	0.9%	0.9%
7-May-2021	906	891	-16	16	-1.7%	1.7%	-1.8%
8-May-2021	825	830	6	6	0.7%	0.7%	0.7%
9-May-2021	807	802	-6	6	-0.7%	0.7%	-0.7%
10-May-2021	924	905	-19	19	-2.1%	2.1%	-2.1%
11-May-2021	872	862	-10	10	-1.1%	1.1%	-1.1%
12-May-2021	826	830	4	4	0.5%	0.5%	0.5%
13-May-2021	849	849	1	1	0.1%	0.1%	0.1%
14-May-2021	825	838	13	13	1.6%	1.6%	1.6%
15-May-2021	758	770	13	13	1.7%	1.7%	1.7%
16-May-2021	793	813	19	19	2.4%	2.4%	2.4%
17-May-2021	866	873	7	7	0.8%	0.8%	0.8%
18-May-2021	835	838	3	3	0.4%	0.4%	0.4%
19-May-2021	801	805	4	4	0.5%	0.5%	0.5%
20-May-2021	743	754	11	11	1.5%	1.5%	1.5%
21-May-2021	690	703	13	13	1.9%	1.9%	1.9%
22-May-2021	647	628	-19	19	-3.0%	3.0%	-3.1%
23-May-2021	718	689	-29	29	-4.0%	4.0%	-4.2%
24-May-2021	934	898	-36	36	-3.9%	3.9%	-4.0%
25-May-2021	883	877	-6	6	-0.6%	0.6%	-0.7%
26-May-2021	809	780	-29	29	-3.5%	3.5%	-3.7%
27-May-2021	716	698	-18	18	-2.5%	2.5%	-2.5%
28-May-2021	730	703	-28	28	-3.8%	3.8%	-4.0%
29-May-2021	722	706	-16	16	-2.2%	2.2%	-2.3%
30-May-2021	666	642	-24	24	-3.6%	3.6%	-3.8%
31-May-2021	654	681	27	27	4.1%	4.1%	3.9%
Minimum	647	628	-36	1	-4.0%	0.1%	-4.2%
Average	801	797	-4	14	-0.5%	1.8%	-0.6%
Maximum	934	905	27	36	4.1%	4.1%	3.9%

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Jun-2021	641	613	-28	28	-4.3%	4.3%	-4.5%
2-Jun-2021	624	640	16	16	2.6%	2.6%	2.5%
3-Jun-2021	584	614	30	30	5.1%	5.1%	4.8%
4-Jun-2021	636	637	1	1	0.2%	0.2%	0.2%
5-Jun-2021	583	548	-35	35	-6.0%	6.0%	-6.4%
6-Jun-2021	625	632	7	7	1.0%	1.0%	1.0%
7-Jun-2021	686	694	7	7	1.1%	1.1%	1.1%
8-Jun-2021	**584**	**652**	**68**	**68**	**11.7%**	**11.7%**	**10.5%**
9-Jun-2021	**589**	**620**	**31**	**31**	**5.3%**	**5.3%**	**5.0%**
10-Jun-2021	836	730	-107	107	-12.8%	12.8%	-14.6%
11-Jun-2021	811	788	-23	23	-2.9%	2.9%	-3.0%
12-Jun-2021	631	609	-22	22	-3.5%	3.5%	-3.6%
13-Jun-2021	636	663	27	27	4.2%	4.2%	4.0%
14-Jun-2021	681	668	-13	13	-1.9%	1.9%	-1.9%
15-Jun-2021	653	650	-3	3	-0.4%	0.4%	-0.4%
16-Jun-2021	723	668	-55	55	-7.7%	7.7%	-8.3%
17-Jun-2021	601	597	-4	4	-0.7%	0.7%	-0.7%
18-Jun-2021	584	575	-10	10	-1.6%	1.6%	-1.7%
19-Jun-2021	554	528	-26	26	-4.8%	4.8%	-5.0%
20-Jun-2021	571	565	-6	6	-1.0%	1.0%	-1.0%
21-Jun-2021	600	619	19	19	3.2%	3.2%	3.1%
22-Jun-2021	593	582	-12	12	-2.0%	2.0%	-2.0%
23-Jun-2021	608	600	-8	8	-1.3%	1.3%	-1.3%
24-Jun-2021	576	609	33	33	5.8%	5.8%	5.5%
25-Jun-2021	577	1284	707	707	122.5%	122.5%	55.0%
26-Jun-2021	552	598	46	46	8.4%	8.4%	7.8%
27-Jun-2021	576	576	0	0	0.1%	0.1%	0.1%
28-Jun-2021	617	603	-14	14	-2.3%	2.3%	-2.4%
29-Jun-2021	**590**	**588**	**-3**	**3**	**-0.5%**	**0.5%**	**-0.5%**
30-Jun-2021	586	587	1	1	0.2%	0.2%	0.2%
Minimum	552	528	-107	0	-12.8%	0.1%	-14.6%
Average	624	645	21	45	3.9%	7.5%	1.4%
Maximum	836	1284	707	707	122.5%	122.5%	55.0%

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Jul-2021	690	681	-9	9	-1.3%	1.3%	-1.3%
2-Jul-2021	683	654	-28	28	-4.1%	4.1%	-4.3%
3-Jul-2021	614	591	-23	23	-3.7%	3.7%	-3.9%
4-Jul-2021	694	681	-13	13	-1.9%	1.9%	-1.9%
5-Jul-2021	676	632	-43	43	-6.4%	6.4%	-6.9%
6-Jul-2021	596	591	-5	5	-0.8%	0.8%	-0.8%
7-Jul-2021	603	579	-24	24	-4.0%	4.0%	-4.2%
8-Jul-2021	**588**	**610**	**22**	**22**	**3.7%**	**3.7%**	**3.6%**
9-Jul-2021	598	586	-13	13	-2.1%	2.1%	-2.2%
10-Jul-2021	592	577	-15	15	-2.5%	2.5%	-2.6%
11-Jul-2021	578	544	-34	34	-5.9%	5.9%	-6.3%
12-Jul-2021	616	590	-26	26	-4.2%	4.2%	-4.4%
13-Jul-2021	599	599	0	0	-0.1%	0.1%	-0.1%
14-Jul-2021	575	602	27	27	4.8%	4.8%	4.6%
15-Jul-2021	**576**	**588**	**13**	**13**	**2.2%**	**2.2%**	**2.1%**
16-Jul-2021	597	601	4	4	0.6%	0.6%	0.6%
17-Jul-2021	565	557	-8	8	-1.4%	1.4%	-1.4%
18-Jul-2021	559	553	-7	7	-1.2%	1.2%	-1.2%
19-Jul-2021	593	589	-4	4	-0.7%	0.7%	-0.7%
20-Jul-2021	615	605	-10	10	-1.6%	1.6%	-1.6%
21-Jul-2021	597	590	-8	8	-1.3%	1.3%	-1.3%
22-Jul-2021	613	624	11	11	1.8%	1.8%	1.8%
23-Jul-2021	618	615	-3	3	-0.5%	0.5%	-0.5%
24-Jul-2021	**560**	**581**	**21**	**21**	**3.7%**	**3.7%**	**3.6%**
25-Jul-2021	556	553	-3	3	-0.5%	0.5%	-0.5%
26-Jul-2021	587	573	-14	14	-2.4%	2.4%	-2.5%
27-Jul-2021	609	602	-7	7	-1.1%	1.1%	-1.1%
28-Jul-2021	587	586	-1	1	-0.2%	0.2%	-0.2%
29-Jul-2021	575	567	-8	8	-1.5%	1.5%	-1.5%
30-Jul-2021	566	571	6	6	1.0%	1.0%	1.0%
31-Jul-2021	561	566	4	4	0.8%	0.8%	0.8%
Minimum	556	544	-43	0	-6.4%	0.1%	-6.9%
Average	601	595	-6	13	-1.0%	2.2%	-1.1%
Maximum	694	681	27	43	4.8%	6.4%	4.6%

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Aug-2021	537	547	10	10	1.9%	1.9%	1.9%
2-Aug-2021	568	591	23	23	4.0%	4.0%	3.9%
3-Aug-2021	581	580	-1	1	-0.2%	0.2%	-0.2%
4-Aug-2021	567	585	18	18	3.1%	3.1%	3.0%
5-Aug-2021	565	590	26	26	4.5%	4.5%	4.3%
6-Aug-2021	606	621	15	15	2.4%	2.4%	2.4%
7-Aug-2021	576	565	-11	11	-1.9%	1.9%	-1.9%
8-Aug-2021	567	575	7	7	1.3%	1.3%	1.3%
9-Aug-2021	579	582	3	3	0.6%	0.6%	0.6%
10-Aug20-21	**578**	**570**	**-8**	**8**	**-1.4%**	**1.4%**	**-1.4%**
11-Aug-2021	600	578	-22	22	-3.7%	3.7%	-3.8%
12-Aug-2021	587	586	-1	1	-0.2%	0.2%	-0.2%
13-Aug-2021	598	577	-22	22	-3.7%	3.7%	-3.8%
14-Aug-2021	574	547	-27	27	-4.6%	4.6%	-4.9%
15-Aug-2021	582	560	-22	22	-3.8%	3.8%	-3.9%
16-Aug-2021	609	590	-20	20	-3.3%	3.3%	-3.4%
17-Aug-2021	588	594	6	6	1.0%	1.0%	1.0%
18-Aug-2021	593	631	38	38	6.4%	6.4%	6.0%
19-Aug-2021	**585**	**635**	**50**	**50**	**8.6%**	**8.6%**	**7.9%**
20-Aug-2021	564	588	24	24	4.2%	4.2%	4.0%
21-Aug-2021	544	584	39	39	7.2%	7.2%	6.8%
22-Aug-2021	**545**	**580**	**35**	**35**	**6.4%**	**6.4%**	**6.0%**
23-Aug-2021	589	562	-27	27	-4.6%	4.6%	-4.8%
24-Aug-2021	600	584	-16	16	-2.7%	2.7%	-2.7%
25-Aug-2021	602	585	-17	17	-2.9%	2.9%	-3.0%
26-Aug-2021	570	573	2	2	0.4%	0.4%	0.4%
27-Aug-2021	579	574	-5	5	-0.9%	0.9%	-0.9%
28-Aug-2021	549	589	40	40	7.2%	7.2%	6.7%
29-Aug-2021	562	565	3	3	0.5%	0.5%	0.5%
30-Aug-2021	610	584	-25	25	-4.2%	4.2%	-4.3%
31-Aug-2021	622	610	-12	12	-2.0%	2.0%	-2.0%
Minimum	537	547	-27	1	-4.6%	0.2%	-4.9%
Average	580	583	3	19	0.6%	3.2%	0.5%
Maximum	622	635	50	50	8.6%	8.6%	7.9%

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Sep-2021	591	560	-31	31	-5.3%	5.3%	-5.6%
2-Sep-2021	599	571	-28	28	-4.7%	4.7%	-4.9%
3-Sep-2021	632	573	-59	59	-9.4%	9.4%	-10.4%
4-Sep-2021	547	540	-7	7	-1.2%	1.2%	-1.2%
5-Sep-2021	**556**	**615**	**59**	**59**	**10.7%**	**10.7%**	**9.7%**
6-Sep-2021	561	597	36	36	6.3%	6.3%	5.9%
7-Sep-2021	610	598	-12	12	-2.0%	2.0%	-2.1%
8-Sep-2021	639	569	-70	70	-11.0%	11.0%	-12.3%
9-Sep-2021	578	577	0	0	-0.1%	0.1%	-0.1%
10-Sep-2021	582	567	-16	16	-2.7%	2.7%	-2.8%
11-Sep-2021	**511**	**556**	**45**	**45**	**8.8%**	**8.8%**	**8.1%**
12-Sep-2021	540	565	25	25	4.6%	4.6%	4.4%
13-Sep-2021	568	573	5	5	0.9%	0.9%	0.9%
14-Sep-2021	**567**	**576**	**9**	**9**	**1.6%**	**1.6%**	**1.5%**
15-Sep-2021	593	605	11	11	1.9%	1.9%	1.9%
16-Sep-2021	590	586	-4	4	-0.6%	0.6%	-0.6%
17-Sep-2021	574	555	-19	19	-3.3%	3.3%	-3.4%
18-Sep-2021	538	524	-13	13	-2.5%	2.5%	-2.5%
19-Sep-2021	591	582	-9	9	-1.6%	1.6%	-1.6%
20-Sep-2021	637	633	-4	4	-0.6%	0.6%	-0.6%
21-Sep-2021	693	683	-9	9	-1.3%	1.3%	-1.3%
22-Sep-2021	571	561	-10	10	-1.7%	1.7%	-1.7%
23-Sep-2021	580	568	-12	12	-2.0%	2.0%	-2.1%
24-Sep-2021	589	603	15	15	2.5%	2.5%	2.4%
25-Sep-2021	599	588	-11	11	-1.8%	1.8%	-1.9%
26-Sep-2021	600	562	-38	38	-6.4%	6.4%	-6.8%
27-Sep-2021	619	607	-12	12	-1.9%	1.9%	-1.9%
28-Sep-2021	597	579	-18	18	-3.0%	3.0%	-3.1%
29-Sep-2021	621	600	-21	21	-3.4%	3.4%	-3.5%
30-Sep-2021	656	637	-18	18	-2.8%	2.8%	-2.9%
Minimum	511	524	-70	0	-11.0%	0.1%	-12.3%
Average	591	584	-7	21	-1.1%	3.6%	-1.3%
Maximum	693	683	59	70	10.7%	11.0%	9.7%

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Oct-2021	625	602	-23	23	-3.7%	3.7%	-3.8%
2-Oct-2021	586	569	-17	17	-3.0%	3.0%	-3.1%
3-Oct-2021	616	632	16	16	2.6%	2.6%	2.6%
4-Oct-2021	710	692	-18	18	-2.5%	2.5%	-2.6%
5-Oct-2021	743	700	-43	43	-5.8%	5.8%	-6.1%
6-Oct-2021	760	720	-40	40	-5.3%	5.3%	-5.6%
7-Oct-2021	670	654	-16	16	-2.4%	2.4%	-2.5%
8-Oct-2021	773	739	-34	34	-4.4%	4.4%	-4.6%
9-Oct-2021	**812**	**746**	**-66**	**66**	**-8.1%**	**8.1%**	**-8.8%**
10-Oct-2021	**850**	**757**	**-92**	**92**	**-10.9%**	**10.9%**	**-12.2%**
11-Oct-2021	764	749	-15	15	-1.9%	1.9%	-2.0%
12-Oct-2021	769	738	-31	31	-4.1%	4.1%	-4.2%
13-Oct-2021	768	748	-20	20	-2.6%	2.6%	-2.7%
14-Oct-2021	797	779	-19	19	-2.3%	2.3%	-2.4%
15-Oct-2021	782	779	-3	3	-0.4%	0.4%	-0.4%
16-Oct-2021	786	766	-20	20	-2.5%	2.5%	-2.6%
17-Oct-2021	812	813	0	0	0.0%	0.0%	0.0%
18-Oct-2021	821	793	-28	28	-3.4%	3.4%	-3.6%
19-Oct-2021	743	740	-3	3	-0.4%	0.4%	-0.4%
20-Oct-2021	764	759	-5	5	-0.7%	0.7%	-0.7%
21-Oct-2021	765	770	5	5	0.6%	0.6%	0.6%
22-Oct-2021	836	813	-23	23	-2.8%	2.8%	-2.8%
23-Oct-2021	659	638	-21	21	-3.2%	3.2%	-3.3%
24-Oct-2021	665	654	-11	11	-1.6%	1.6%	-1.6%
25-Oct-2021	849	853	4	4	0.5%	0.5%	0.5%
26-Oct-2021	851	841	-9	9	-1.1%	1.1%	-1.1%
27-Oct-2021	910	888	-22	22	-2.4%	2.4%	-2.4%
28-Oct-2021	920	903	-17	17	-1.8%	1.8%	-1.9%
29-Oct-2021	923	911	-12	12	-1.3%	1.3%	-1.3%
30-Oct-2021	829	782	-47	47	-5.6%	5.6%	-6.0%
31-Oct-2021	892	810	-83	83	-9.3%	9.3%	-10.2%
Minimum	586	569	-92	0	-10.9%	0.0%	-12.2%
Average	776	753	-23	25	-2.9%	3.1%	-3.1%
Maximum	923	911	16	92	2.6%	10.9%	2.6%

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Nov-2021	809	814	5	5	0.6%	0.6%	0.6%
2-Nov-2021	735	743	7	7	1.0%	1.0%	1.0%
3-Nov-2021	889	865	-23	23	-2.6%	2.6%	-2.7%
4-Nov-2021	888	858	-30	30	-3.4%	3.4%	-3.5%
5-Nov-2021	955	952	-3	3	-0.3%	0.3%	-0.3%
6-Nov-2021	919	933	14	14	1.5%	1.5%	1.5%
7-Nov-2021	850	866	16	16	1.9%	1.9%	1.9%
8-Nov-2021	825	878	53	53	6.5%	6.5%	6.1%
9-Nov-2021	863	892	29	29	3.3%	3.3%	3.2%
10-Nov-2021	834	867	33	33	4.0%	4.0%	3.8%
11-Nov-2021	999	1,003	4	4	0.4%	0.4%	0.4%
12-Nov-2021	1,024	1,041	17	17	1.7%	1.7%	1.7%
13-Nov-2021	**1,003**	**988**	**-15**	**15**	**-1.5%**	**1.5%**	**-1.5%**
14-Nov-2021	807	801	-6	6	-0.7%	0.7%	-0.7%
15-Nov-2021	904	846	-58	58	-6.4%	6.4%	-6.8%
16-Nov-2021	915	891	-24	24	-2.7%	2.7%	-2.7%
17-Nov-2021	**1,012**	**1,043**	**31**	**31**	**3.0%**	**3.0%**	**3.0%**
18-Nov-2021	1,034	1,014	-19	19	-1.9%	1.9%	-1.9%
19-Nov-2021	951	945	-6	6	-0.7%	0.7%	-0.7%
20-Nov-2021	905	922	17	17	1.9%	1.9%	1.9%
21-Nov-2021	1,007	979	-27	27	-2.7%	2.7%	-2.8%
22-Nov-2021	1,070	1,061	-9	9	-0.8%	0.8%	-0.8%
23-Nov-2021	1,054	1,016	-38	38	-3.6%	3.6%	-3.7%
24-Nov-2021	883	861	-22	22	-2.5%	2.5%	-2.5%
25-Nov-2021	851	840	-11	11	-1.3%	1.3%	-1.3%
26-Nov-2021	957	794	-163	163	-17.0%	17.0%	-20.5%
27-Nov-2021	**817**	**826**	**9**	**9**	**1.1%**	**1.1%**	**1.1%**
28-Nov-2021	879	870	-9	9	-1.0%	1.0%	-1.0%
29-Nov-2021	941	906	-35	35	-3.7%	3.7%	-3.9%
30-Nov-2021	885	898	13	13	1.4%	1.4%	1.4%
Minimum	735	743	-163	3	-17.0%	0.3%	-20.5%
Average	916	907	-8	25	-0.8%	2.7%	-1.0%
Maximum	1,070	1,061	53	163	6.5%	17.0%	6.1%

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
1-Dec-2021	1,056	1,021	-36	36	-3.4%	3.4%	-3.5%
2-Dec-2021	1,018	987	-31	31	-3.1%	3.1%	-3.2%
3-Dec-2021	901	942	41	41	4.6%	4.6%	4.4%
4-Dec-2021	1,168	1,129	-39	39	-3.3%	3.3%	-3.5%
5-Dec-2021	1,122	1,062	-60	60	-5.3%	5.3%	-5.6%
6-Dec-2021	1,174	1,150	-25	25	-2.1%	2.1%	-2.1%
7-Dec-2021	**964**	**1,005**	**41**	**41**	**4.3%**	**4.3%**	**4.1%**
8-Dec-2021	1,150	1,136	-14	14	-1.2%	1.2%	-1.3%
9-Dec-2021	1,207	1,193	-14	14	-1.1%	1.1%	-1.2%
10-Dec-2021	1,254	1,250	-4	4	-0.3%	0.3%	-0.3%
11-Dec-2021	1,194	1,155	-38	38	-3.2%	3.2%	-3.3%
12-Dec-2021	**969**	**971**	**2**	**2**	**0.2%**	**0.2%**	**0.2%**
13-Dec-2021	1,128	1,147	19	19	1.7%	1.7%	1.7%
14-Dec-2021	1,216	1,211	-5	5	-0.4%	0.4%	-0.4%
15-Dec-2021	1,398	1,309	-89	89	-6.4%	6.4%	-6.8%
16-Dec-2021	1,368	1,316	-51	51	-3.7%	3.7%	-3.9%
17-Dec-2021	1,306	1,279	-27	27	-2.1%	2.1%	-2.1%
18-Dec-2021	**1,240**	**1,247**	**7**	**7**	**0.6%**	**0.6%**	**0.6%**
19-Dec-2021	1,286	1,312	26	26	2.0%	2.0%	2.0%
20-Dec-2021	1,337	1,341	4	4	0.3%	0.3%	0.3%
21-Dec-2021	1,302	1,307	5	5	0.4%	0.4%	0.4%
22-Dec-2021	1,229	1,268	39	39	3.2%	3.2%	3.1%
23-Dec-2021	1,188	1,182	-6	6	-0.5%	0.5%	-0.5%
24-Dec-2021	1,379	1,364	-15	15	-1.1%	1.1%	-1.1%
25-Dec-2021	1,208	1,250	41	41	3.4%	3.4%	3.3%
26-Dec-2021	1,124	1,191	67	67	6.0%	6.0%	5.6%
27-Dec-2021	1,169	1,184	15	15	1.3%	1.3%	1.3%
28-Dec-2021	1,207	1,248	40	40	3.4%	3.4%	3.2%
29-Dec-2021	1,170	1,223	54	54	4.6%	4.6%	4.4%
30-Dec-2021	1,182	1,241	59	59	5.0%	5.0%	4.7%
31-Dec-2021	1,237	1,267	29	29	2.4%	2.4%	2.3%
Minimum	901	942	-89	2	-6.4%	0.2%	-6.8%
Average	1,189	1,190	1	31	0.2%	2.6%	0.1%
Maximum	1,398	1,364	67	89	6.0%	6.4%	5.6%

Table 4: Monthly Peak Utility Load Error Summary - Average Error

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
Jan 2021	1,172	1,168	-5	33	-0.3%	2.8%	-0.4%
Feb 2021	1,197	1,190	-7	29	-0.5%	2.4%	-0.6%
Mar 2021	1,110	1,092	-18	27	-1.5%	2.4%	-1.6%
Apr 2021	941	930	-11	35	-1.0%	3.7%	-1.2%
May 2021	801	797	-4	14	-0.5%	1.8%	-0.6%
Jun 2021	624	645	21	45	3.9%	7.5%	1.4%
Jul 2021	601	595	-6	13	-1.0%	2.2%	-1.1%
Aug 2021	580	583	3	19	0.6%	3.2%	0.5%
Sep 2021	591	584	-7	21	-1.1%	3.6%	-1.3%
Oct 2021	776	753	-23	25	-2.9%	3.1%	-3.1%
Nov 2021	916	907	-8	25	-0.8%	2.7%	-1.0%
Dec 2021	1,189	1,190	1	31	0.2%	2.6%	0.1%
Total Average	**875**	**869**	**-5**	**26**	**-0.4%**	**3.2%**	**-0.7%**

Table 5: Monthly Peak Utility Load Error Summary - Maximum Error[4]

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
Jan 2021	1,284	1,275	68	147	6.3%	12.3%	5.9%
Feb 2021	1,397	1,353	66	77	5.8%	5.8%	5.5%
Mar 2021	1,270	1,230	34	95	2.9%	7.6%	2.8%
Apr 2021	1,063	1,107	109	124	13.1%	13.1%	11.6%
May 2021	934	905	27	36	4.1%	4.1%	3.9%
Jun 2021	836	1,284	707	707	122.5%	122.5%	55.0%
Jul 2021	694	681	27	43	4.8%	6.4%	4.6%
Aug 2021	622	635	50	50	8.6%	8.6%	7.9%
Sep 2021	693	683	59	70	10.7%	11.0%	9.7%
Oct 2021	923	911	16	92	2.6%	10.9%	2.6%
Nov 2021	1,070	1,061	53	163	6.5%	17.0%	6.1%
Dec 2021	1,398	1,364	67	89	6.0%	6.4%	5.6%
Annual	**1,398**	**1,364**	**707**	**707**	**122.5%**	**122.5%**	**55.0%**

[4] The maximum forecast, the maximum peak, and the maximum error do not necessarily occur on the same day.

Table 6: Error in Ten Highest Utility Loads

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Percent Error	Absolute Percent Error	Actual/ Forecast
15-Dec-2021	1,398	1,309	-89	89	-6.4%	6.4%	-6.8%
11-Feb-2021	1,397	1,320	-77	77	-5.5%	5.5%	-5.8%
24-Dec-2021	1,379	1,364	-15	15	-1.1%	1.1%	-1.1%
21-Feb-2021	1,378	1,321	-56	56	-4.1%	4.1%	-4.3%
16-Dec-2021	1,368	1,316	-51	51	-3.7%	3.7%	-3.9%
22-Feb-2021	1,360	1,353	-7	7	-0.5%	0.5%	-0.5%
20-Dec-2021	1,337	1,341	4	4	0.3%	0.3%	0.3%
17-Dec-2021	1,306	1,279	-27	27	-2.1%	2.1%	-2.1%
21-Dec-2021	1,302	1,307	5	5	0.4%	0.4%	0.4%
19-Dec-2021	1,286	1,312	26	26	2.0%	2.0%	2.0%
Average	**1,351**	**1,322**	**-29**	**36**	**-2.1%**	**2.6%**	**-2.2%**

Table 7: Summary of Forecast Issues

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Absolute Percent Error	Explanation
6-Jan-21	1031	1096	65	65	6.3%	Error in industrial load forecast; error in temperature and wind speed forecast
8-Jan-21	1018	1001	-17	17	1.6%	Export activity over the Maritime Link
3-Feb-21	1180	1214	34	34	2.9%	Error in industrial load
18-Feb-21	1213	1257	44	44	3.6%	Error in industrial load
27-Feb-21	1156	1221	66	66	5.7%	Export activity over the Maritime Link
7-Mar-21	1128	1059	-69	69	6.1%	Software program error
2-Apr-21	831	939	109	109	13.1%	Error in industrial load; errors in temperature and wind speed forecast; non-uniform customer behaviour
4-Apr-21	927	852	-76	76	8.2%	Export activity over the Maritime Link; non-uniform customer behaviour
13-Apr-21	1021	1067	47	47	4.6%	Export activity over the Maritime Link
8-Jun-21	584	652	68	68	11.7%	Error in industrial load; software program error

Date	Actual Utility Peak (MW)	Forecast Utility Peak (MW)	Error (MW)	Absolute Error (MW)	Absolute Percent Error	Explanation
9-Jun-2021	589	620	31	31	5.3%	Error in industrial load; export activity over the Maritime Link
29-Jun-2021	590	588	-3	3	0.5%	Error in industrial load
8-Jul-2021	588	610	22	22	3.7%	Error in industrial load
15-Jul-2021	576	588	13	13	2.2%	Error in industrial load
24-Jul-2021	560	581	21	21	3.7%	Error in industrial load; non-uniform customer behaviour
10-Aug-2021	578	570	-8	8	1.4%	Error in industrial load
19-Aug-2021	585	635	50	50	8.6%	Error in industrial load; export activity over the Maritime Link
22-Aug-2021	545	580	35	35	6.4%	Non-uniform customer behaviour
5-Sep-2021	556	615	59	59	10.7%	Error in industrial load; error in wind speed forecast; non-uniform customer behaviour
11-Sep-2021	511	556	45	45	8.8%	Error in industrial load; export activity over the Maritime Link; non-uniform customer behaviour
14-Sep-2021	567	576	9	9	1.6%	Error in industrial load; export Activity over the Maritime Link
9-Oct-2021	812	746	-66	66	8.1%	Error in temperature forecast; non-uniform customer behaviour; software program error
10-Oct-2021	850	757	-92	92	10.9%	Non-uniform customer behaviour; software forecast error
13-Nov-2021	1,003	988	-15	15	1.5%	Error in industrial load; non-uniform customer behaviour
17-Nov-2021	1,012	1,043	31	31	3.0%	Error in industrial load; export Activity over the Maritime Link
27-Nov-2021	817	826	9	9	1.1%	Error in industrial load; non-uniform customer behaviour
7-Dec-2021	964	1,005	41	41	4.3%	Error in industrial load
12-Dec-2021	969	971	2	2	0.2%	Error in industrial load
18-Dec-2021	1,240	1,247	7	7	0.6%	Error in industrial load

Appendix B

Figures

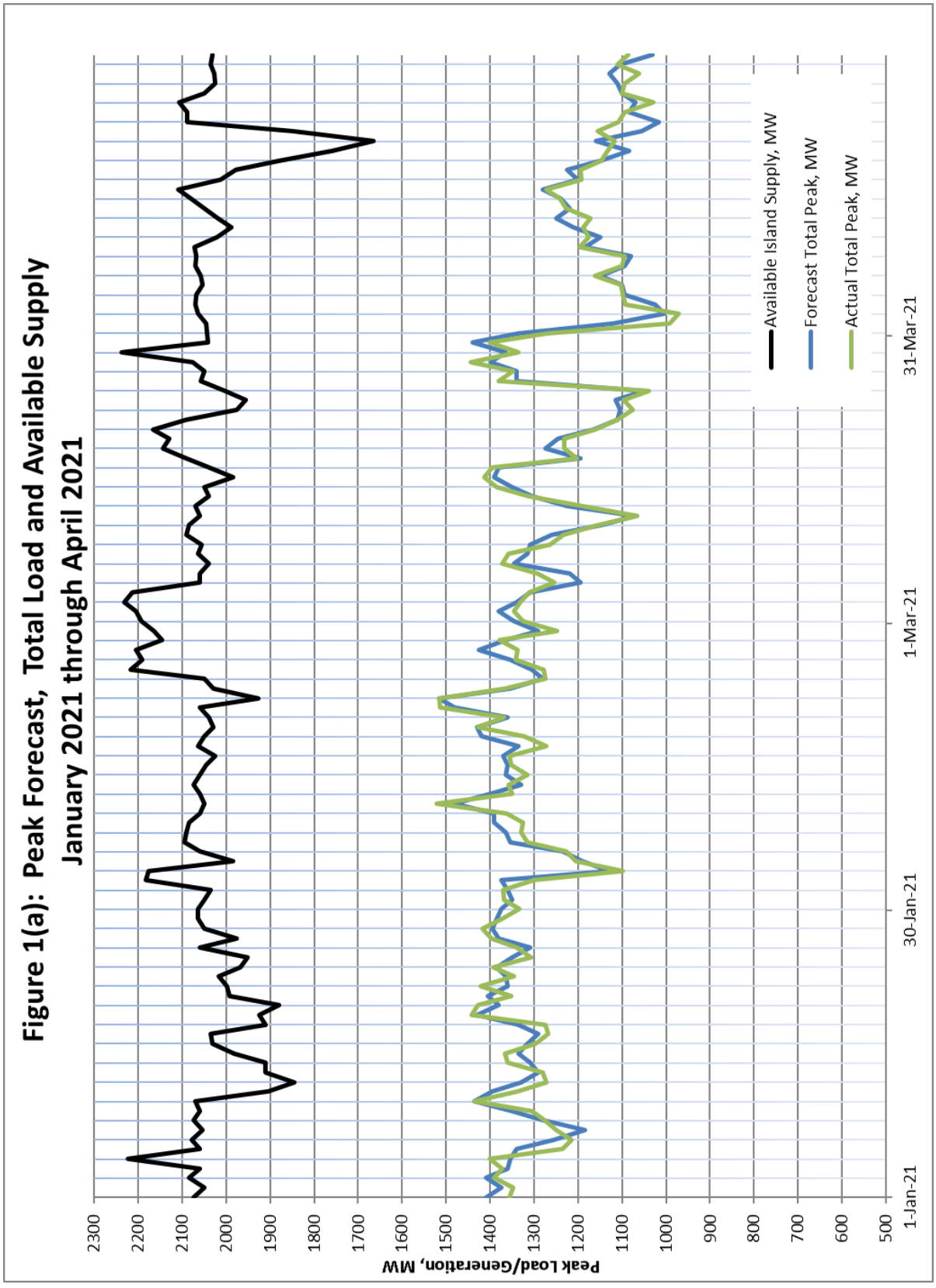
Figure 1(a): Peak Forecast, Total Load and Available Supply
January 2021 through April 2021
Peak Load/Generation, MW
2300
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
1-Jan-21
30-Jan-21
1-Mar-21
31-Mar-21
Available Island Supply, MW
Forecast Total Peak, MW
Actual Total Peak, MW

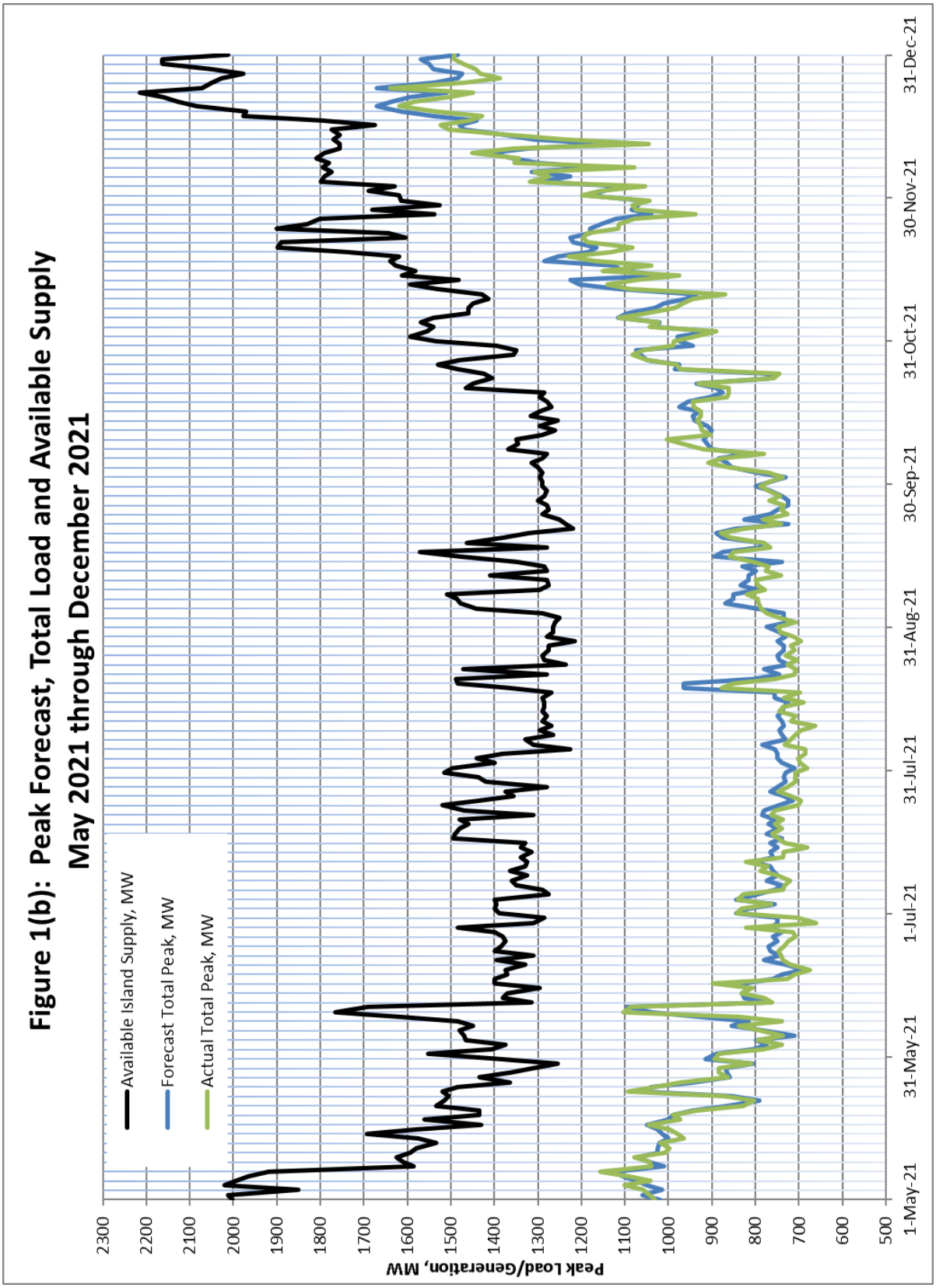
Figure 1(b): Peak Forecast, Total Load and Available Supply
May 2021 through December 2021
Available Island Supply, MW
Forecast Total Peak, MW
Actual Total Peak, MW
Peak Load/Generation, MW
2300
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
1-May-21
31-May-21
1-Jul-21
31-Jul-21
31-Aug-21
30-Sep-21
31-Oct-21
30-Nov-21
31-Dec-21

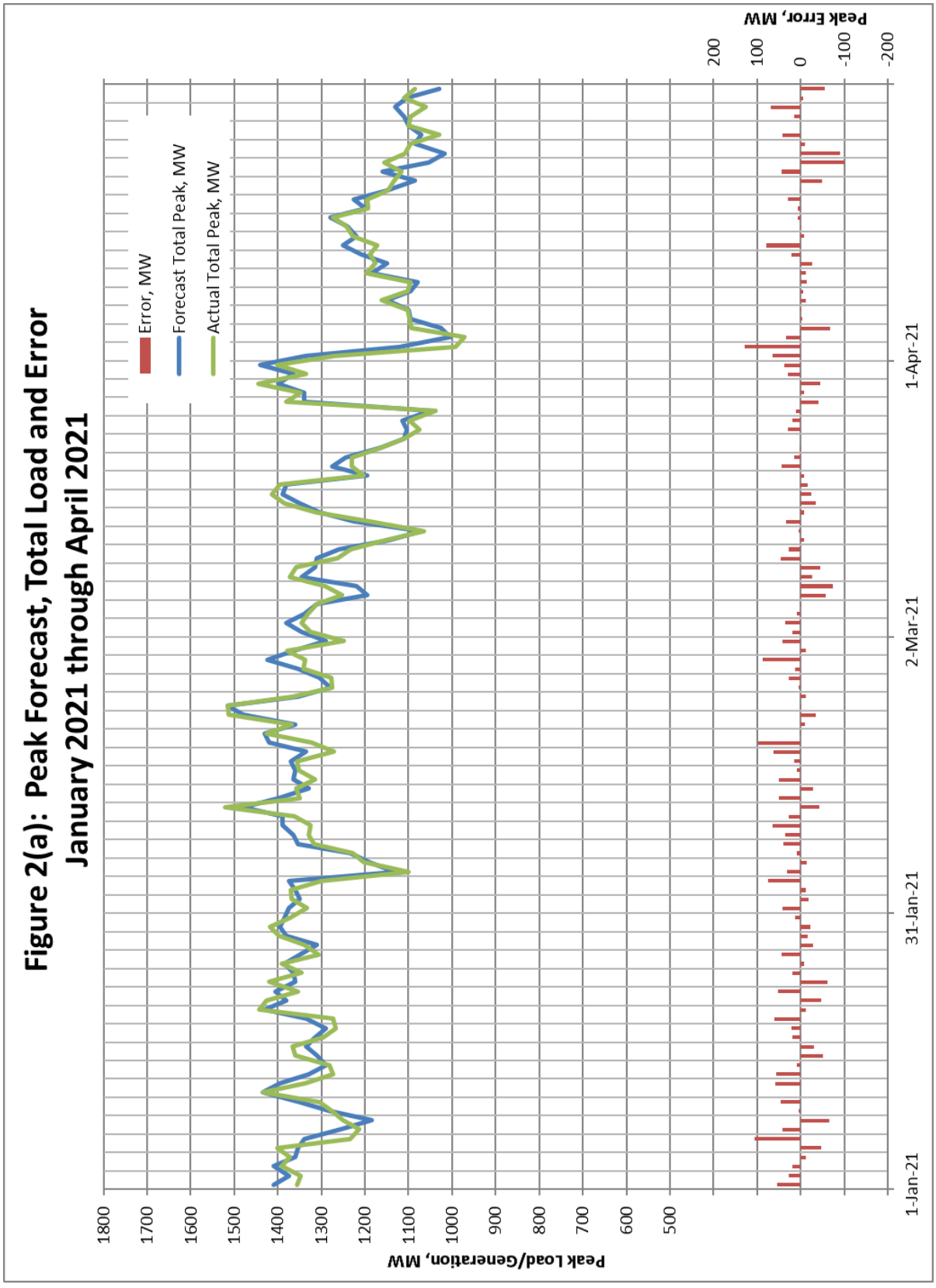
Figure 2(a): Peak Forecast, Total Load and Error
January 2021 through April 2021
Error, MW
Forecast Total Peak, MW
Actual Total Peak, MW
Peak Load/Generation, MW
Peak Error, MW
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
200
100
0
-100
-200
1-Jan-21
31-Jan-21
2-Mar-21
1-Apr-21

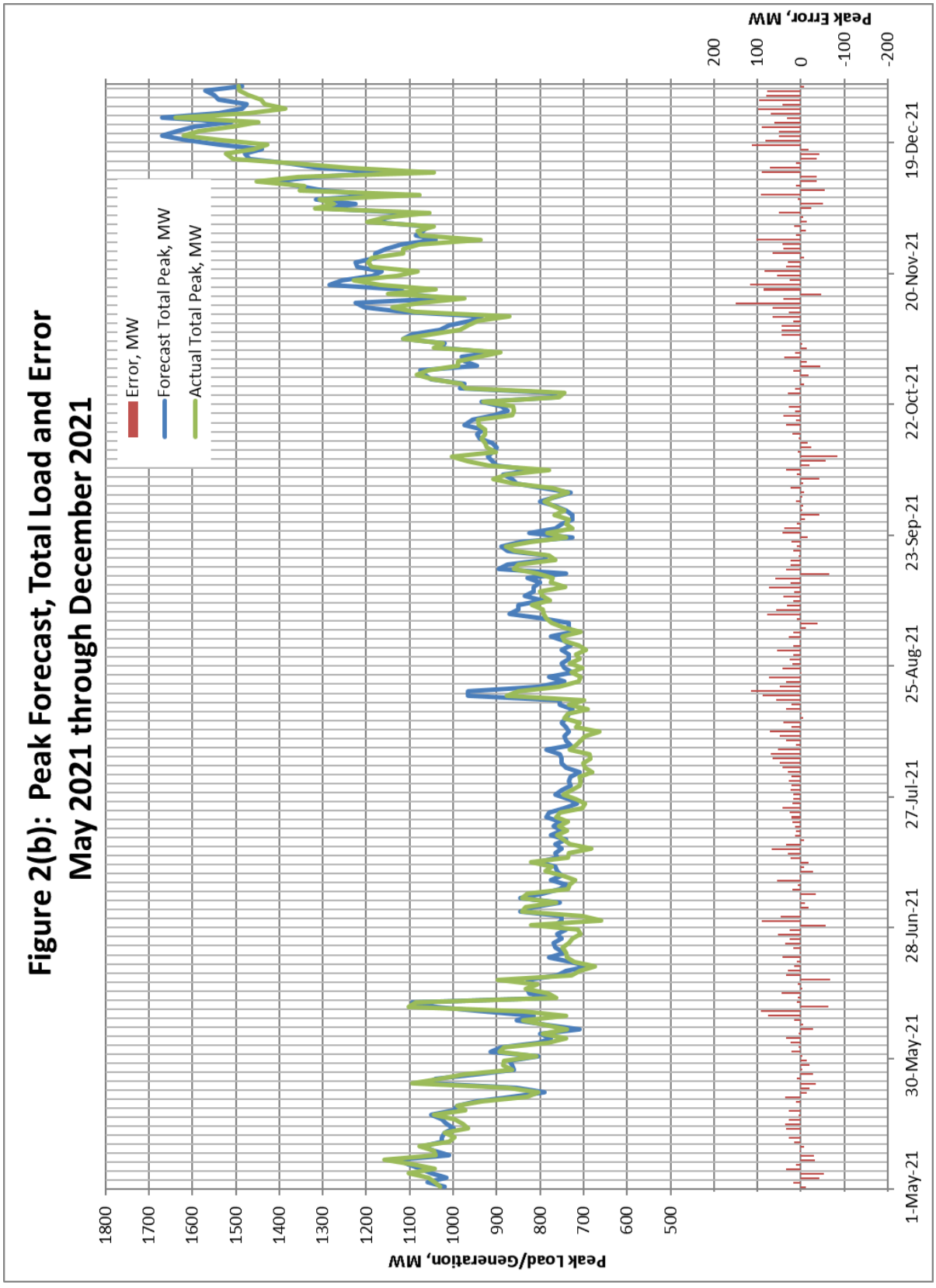
Figure 2(b): Peak Forecast, Total Load and Error
May 2021 through December 2021
Error, MW
Forecast Total Peak, MW
Actual Total Peak, MW
Peak Load/Generation, MW
Peak Error, MW
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
200
100
0
-100
-200
1-May-21
30-May-21
28-Jun-21
27-Jul-21
25-Aug-21
23-Sep-21
22-Oct-21
20-Nov-21
19-Dec-21

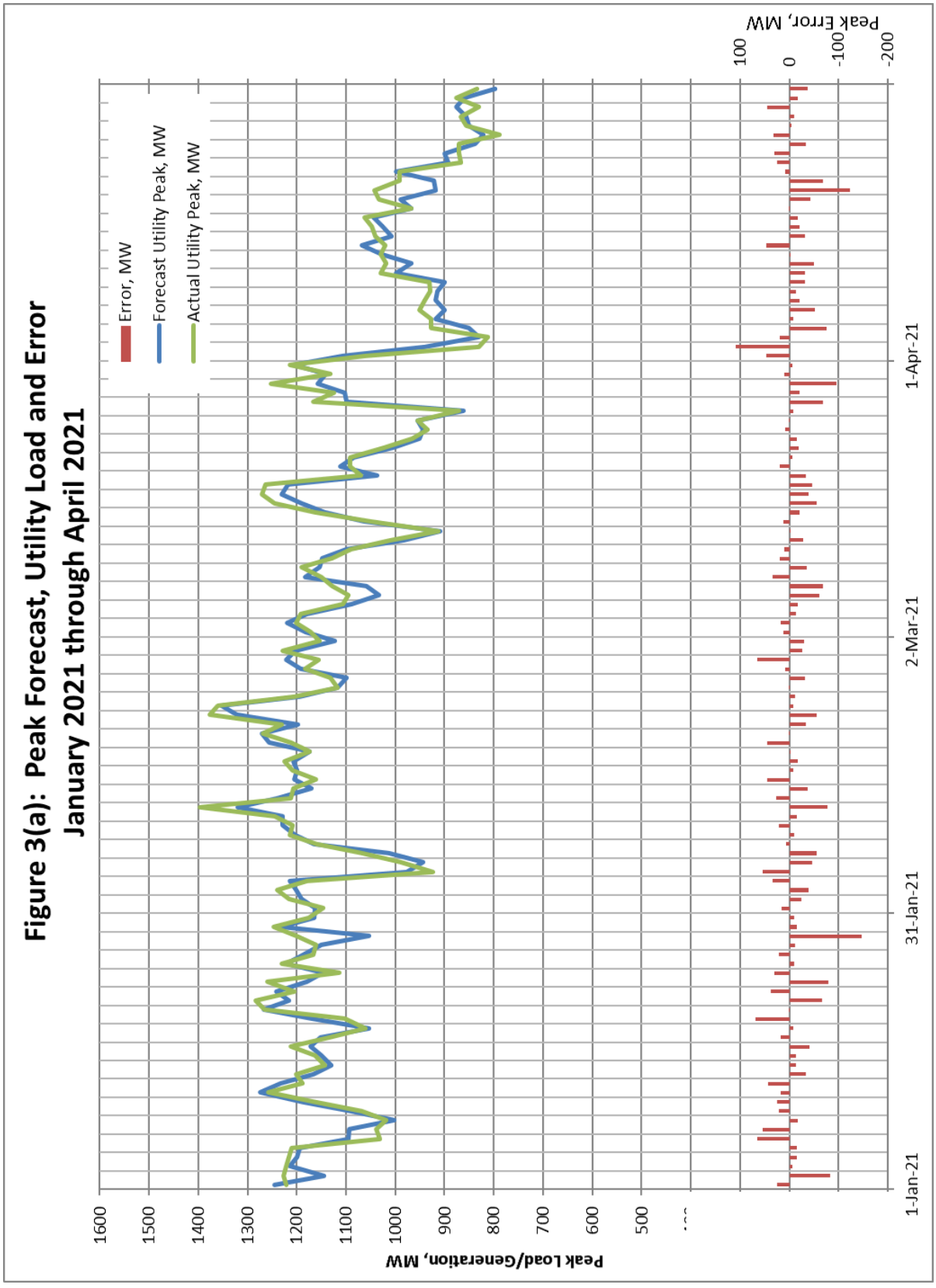
Figure 3(a): Peak Forecast, Utility Load and Error
January 2021 through April 2021
Error, MW
Forecast Utility Peak, MW
Actual Utility Peak, MW
Peak Load/Generation, MW
Peak Error, MW
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
100
0
-100
-200
1-Jan-21
31-Jan-21
2-Mar-21
1-Apr-21

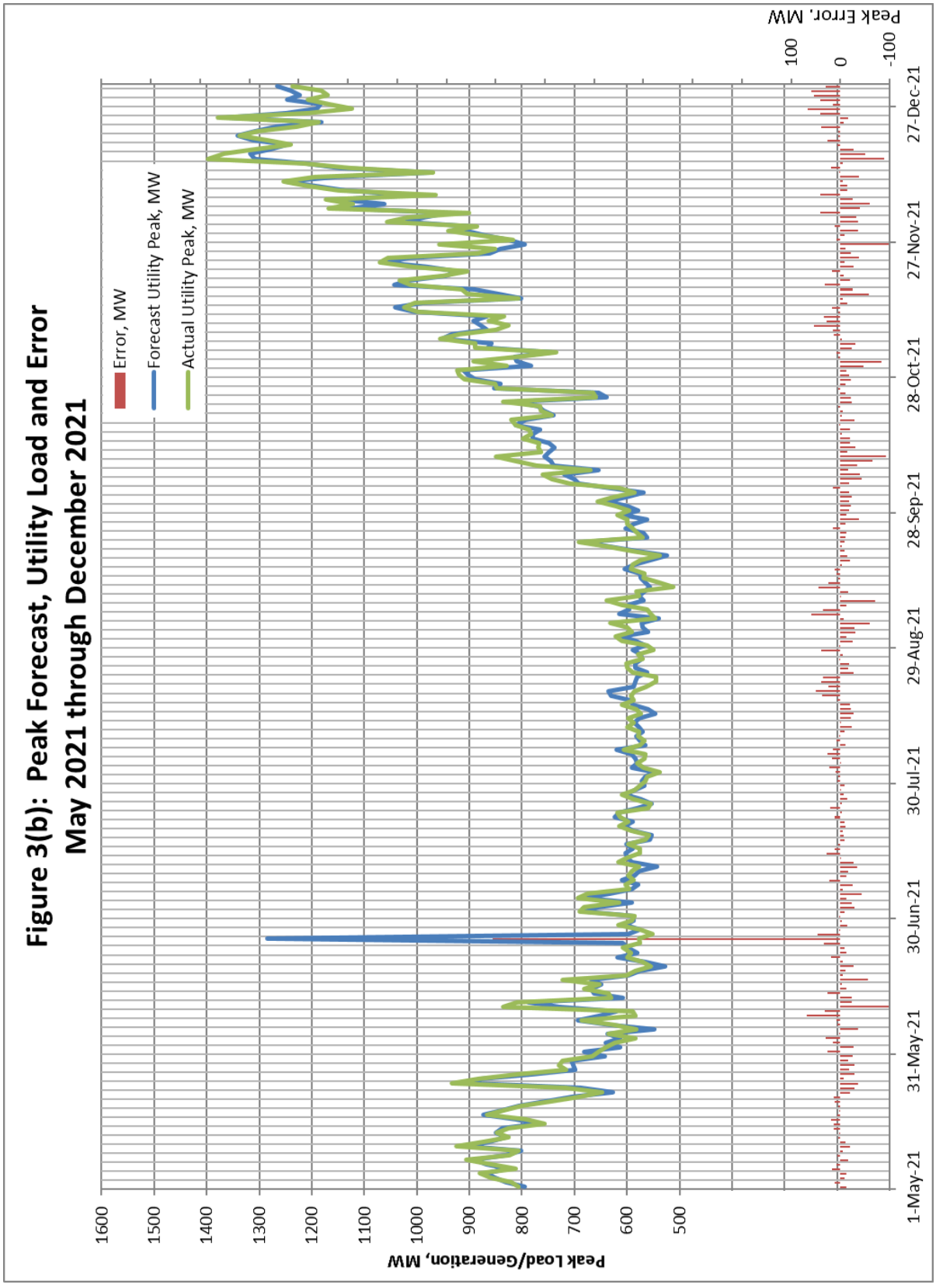
Figure 3(b): Peak Forecast, Utility Load and Error
May 2021 through December 2021
Error, MW
Forecast Utility Peak, MW
Actual Utility Peak, MW
Peak Load/Generation, MW
Peak Error, MW
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
100
0
-100
1-May-21
31-May-21
30-Jun-21
30-Jul-21
29-Aug-21
28-Sep-21
28-Oct-21
27-Nov-21
27-Dec-21

Figure 4 Accuracy Analysis - Jan 06, 2021

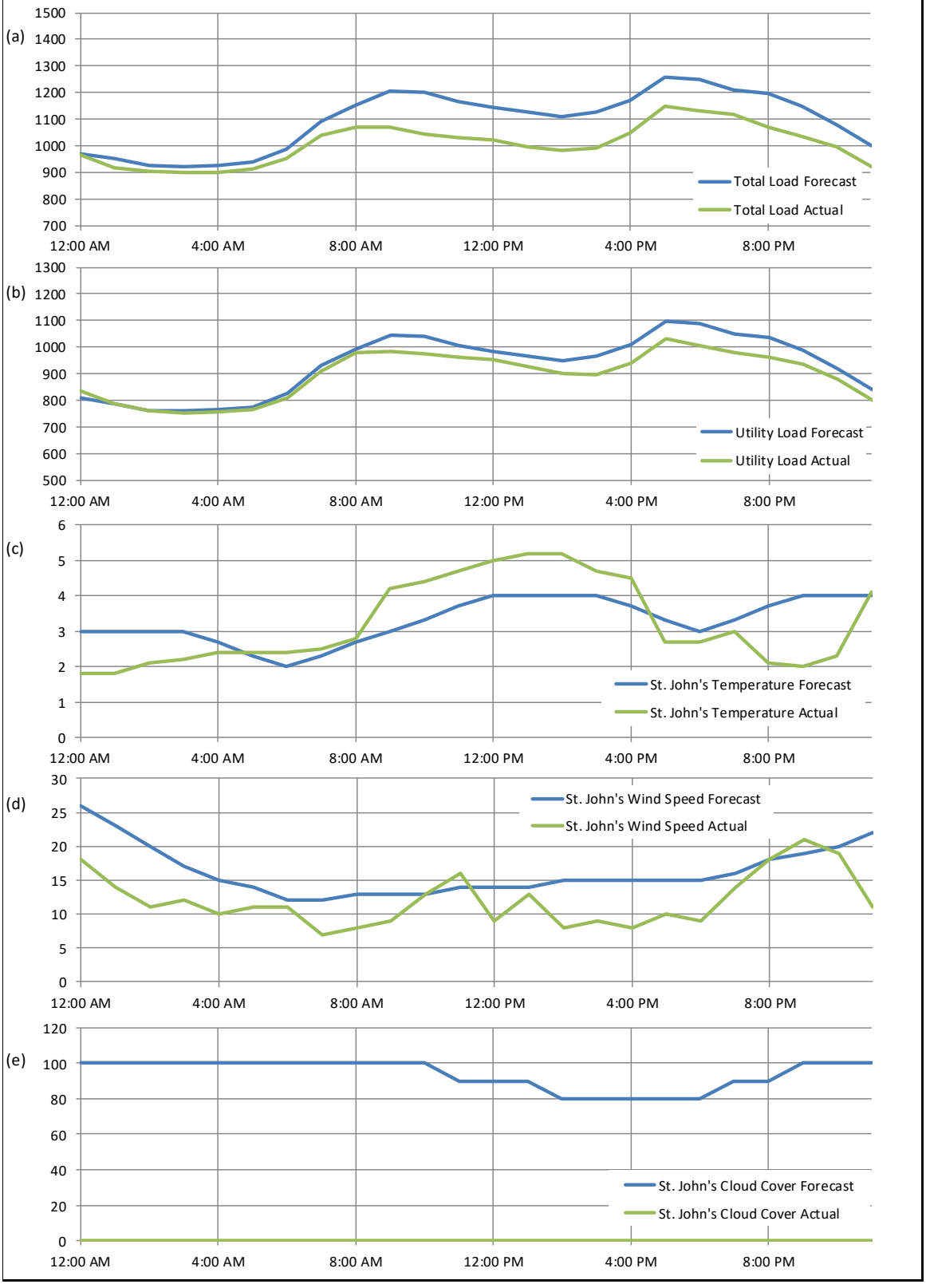

Figure 5 Accuracy Analysis - Jan 08, 2021

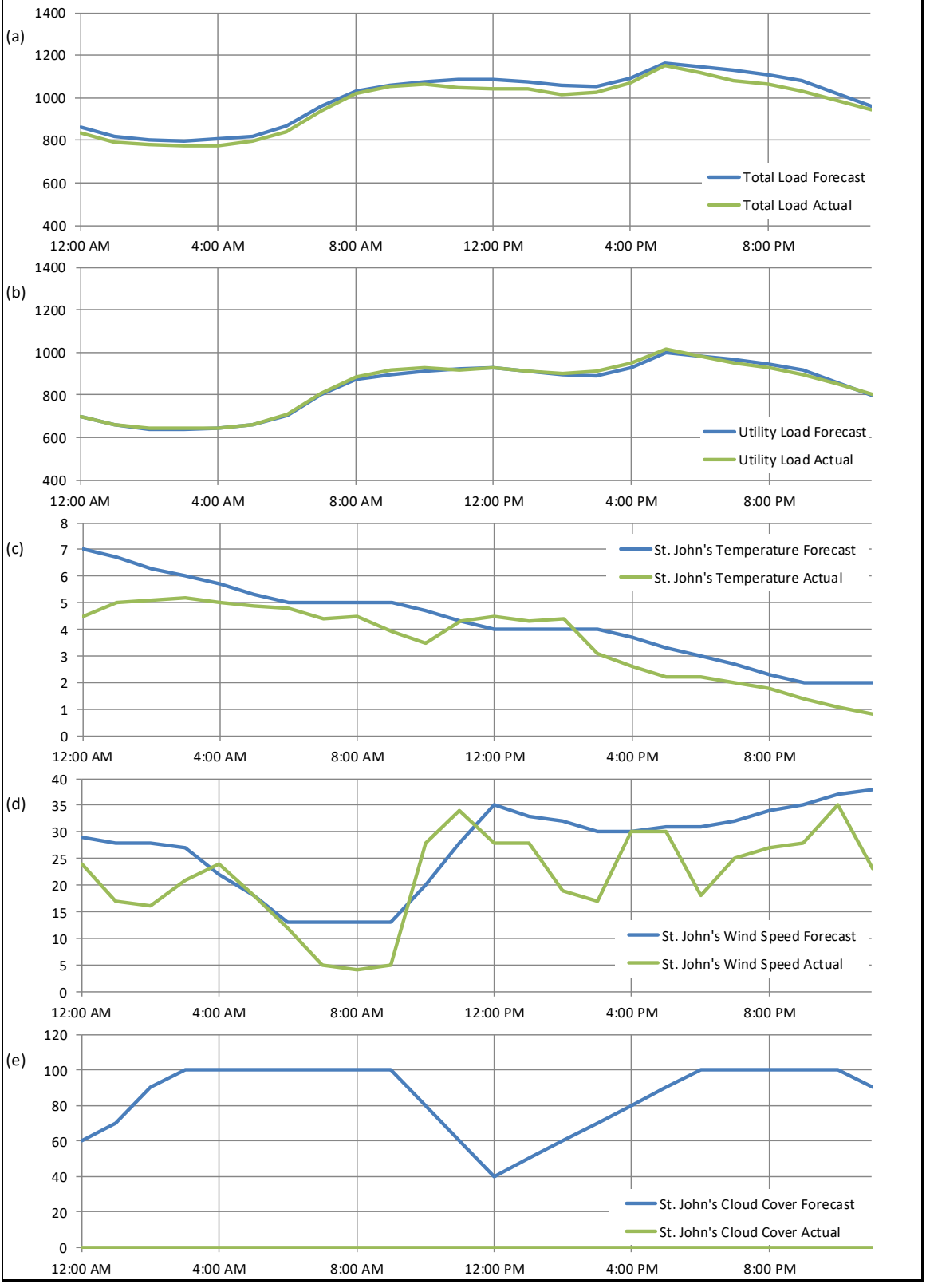

Figure 6 Accuracy Analysis - Feb 03, 2021

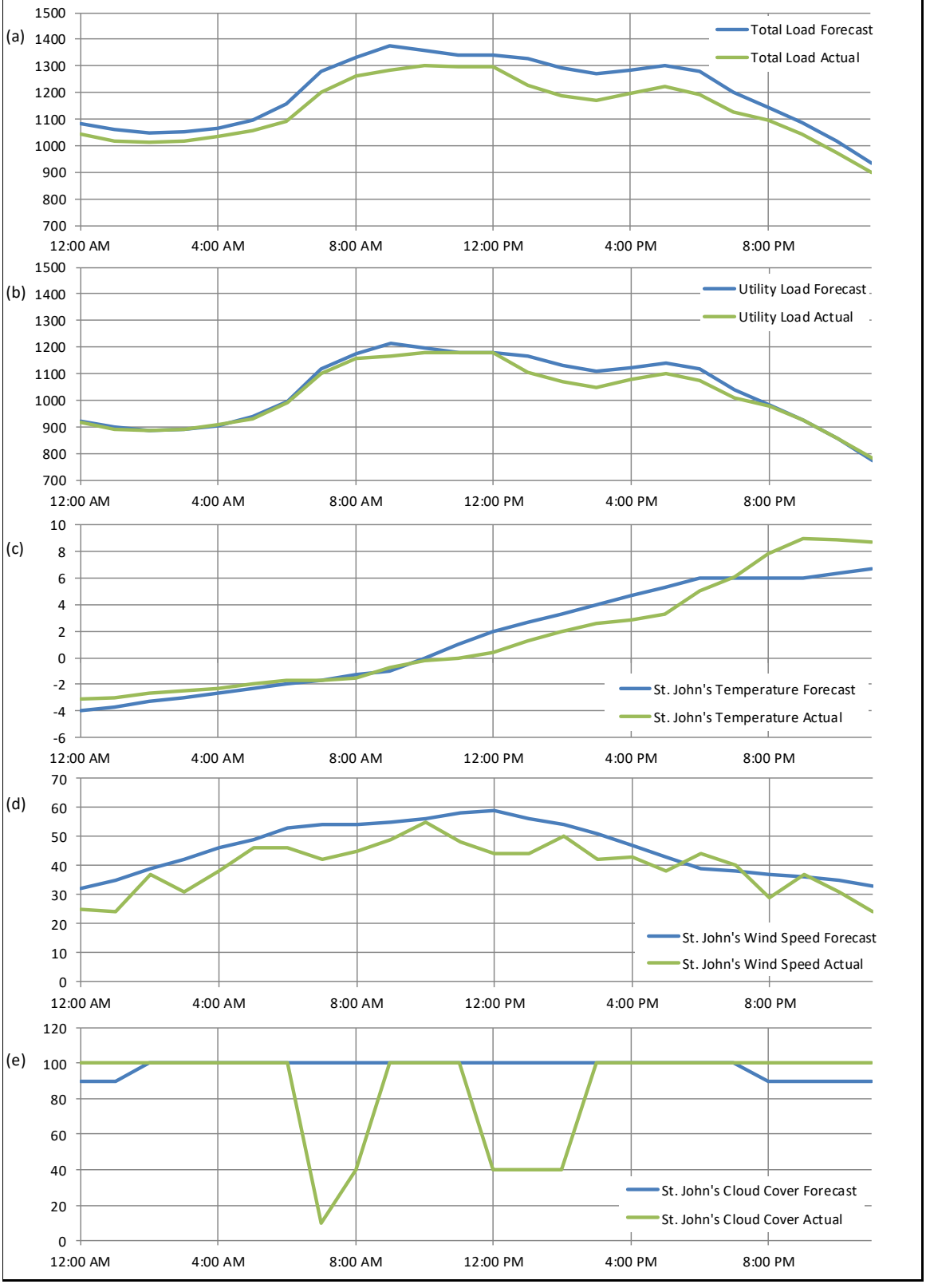

Figure 7 Accuracy Analysis - Feb 18, 2021

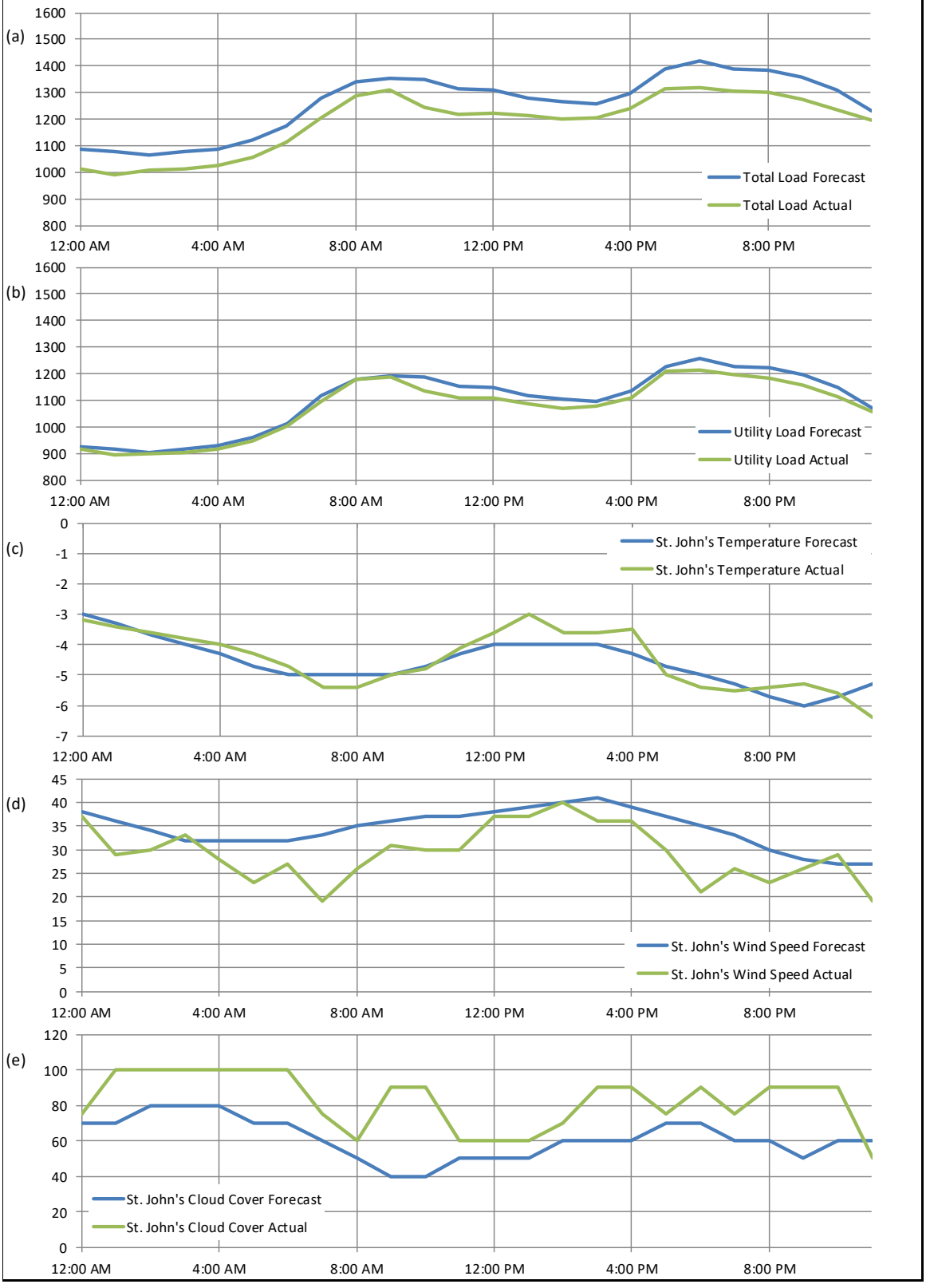

Figure 8 Accuracy Analysis - Feb 27, 2021

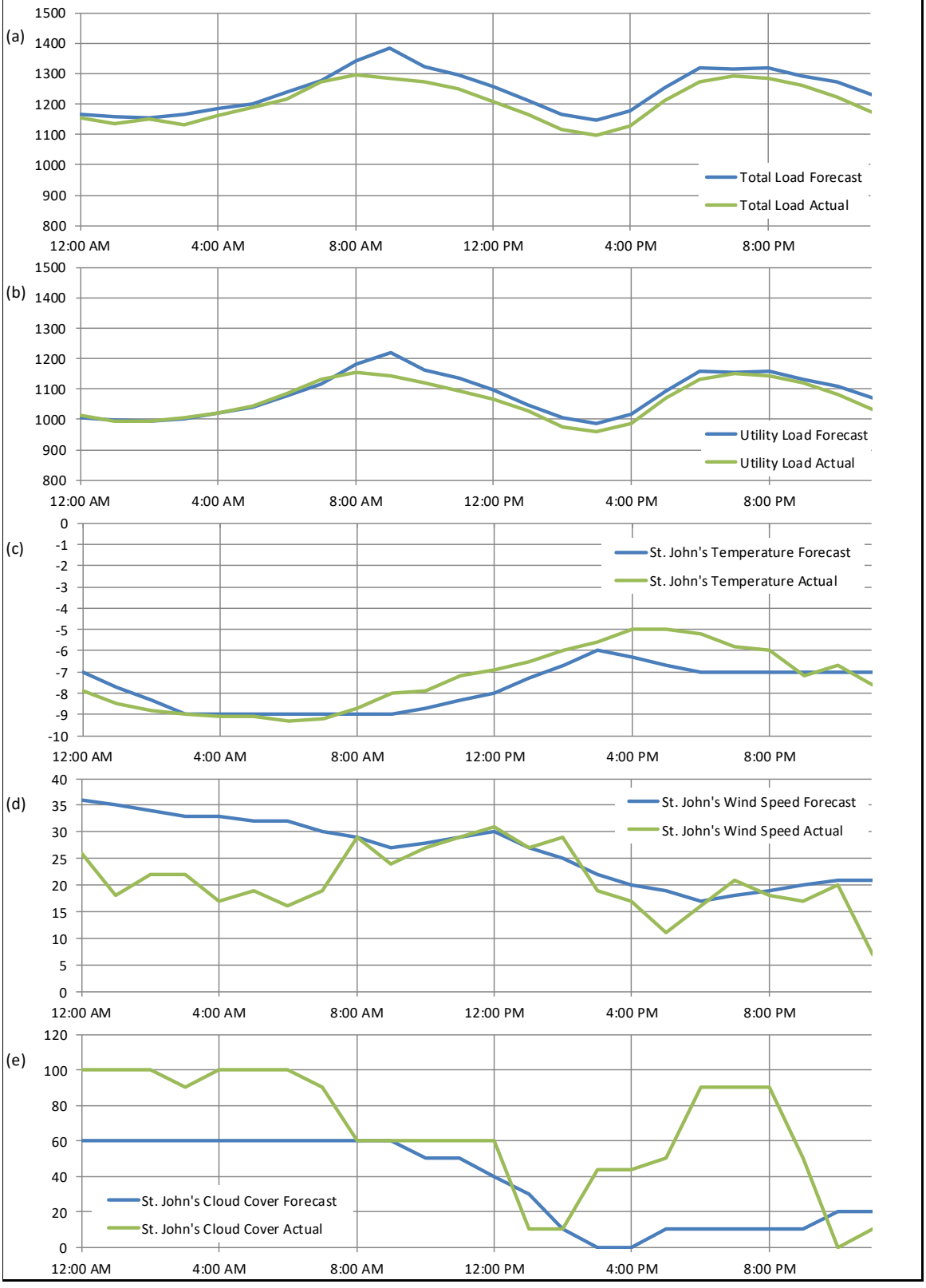

Figure 9 Accuracy Analysis - Mar 07, 2021

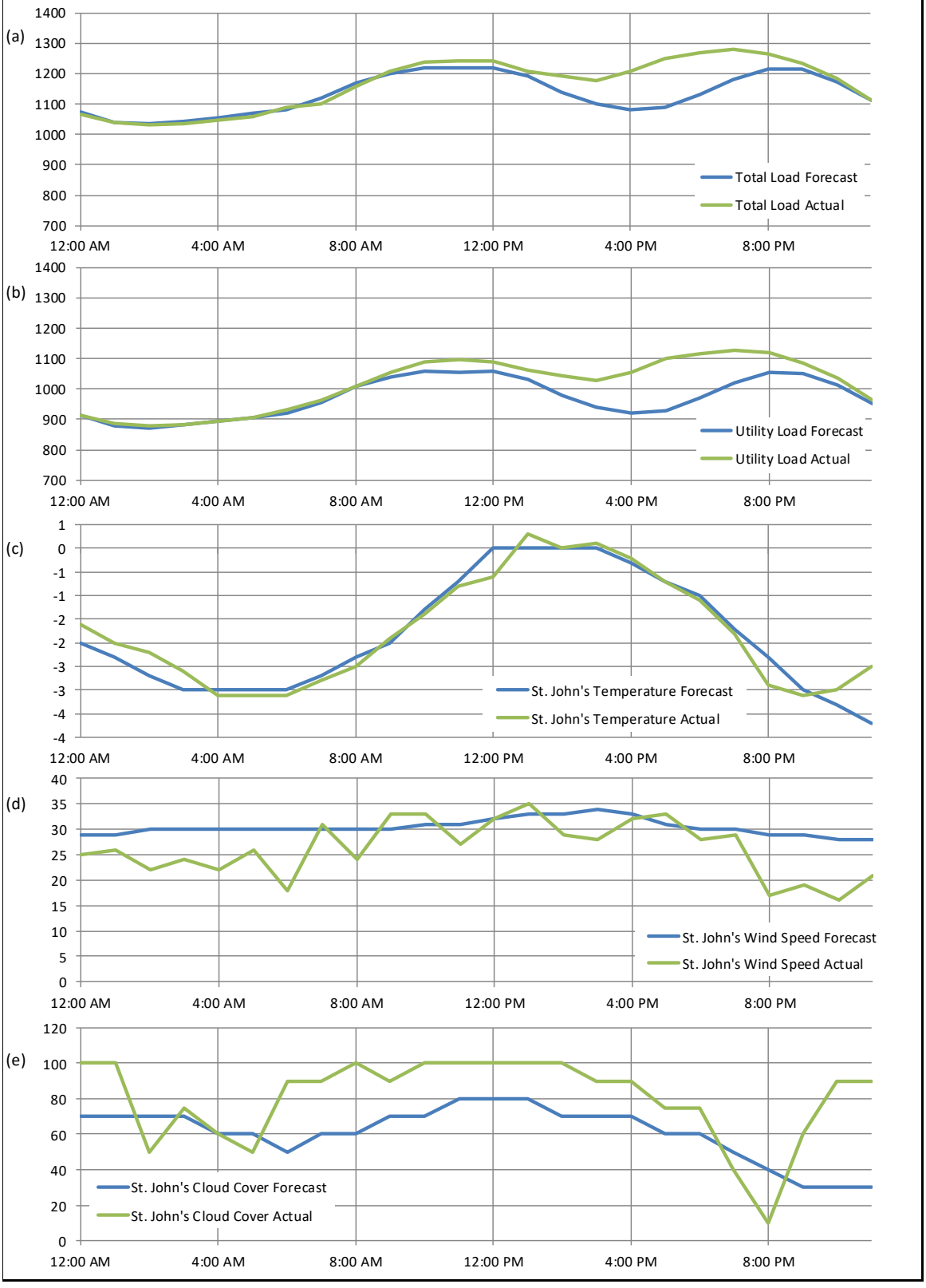

Figure 10 Accuracy Analysis - Apr 02, 2021

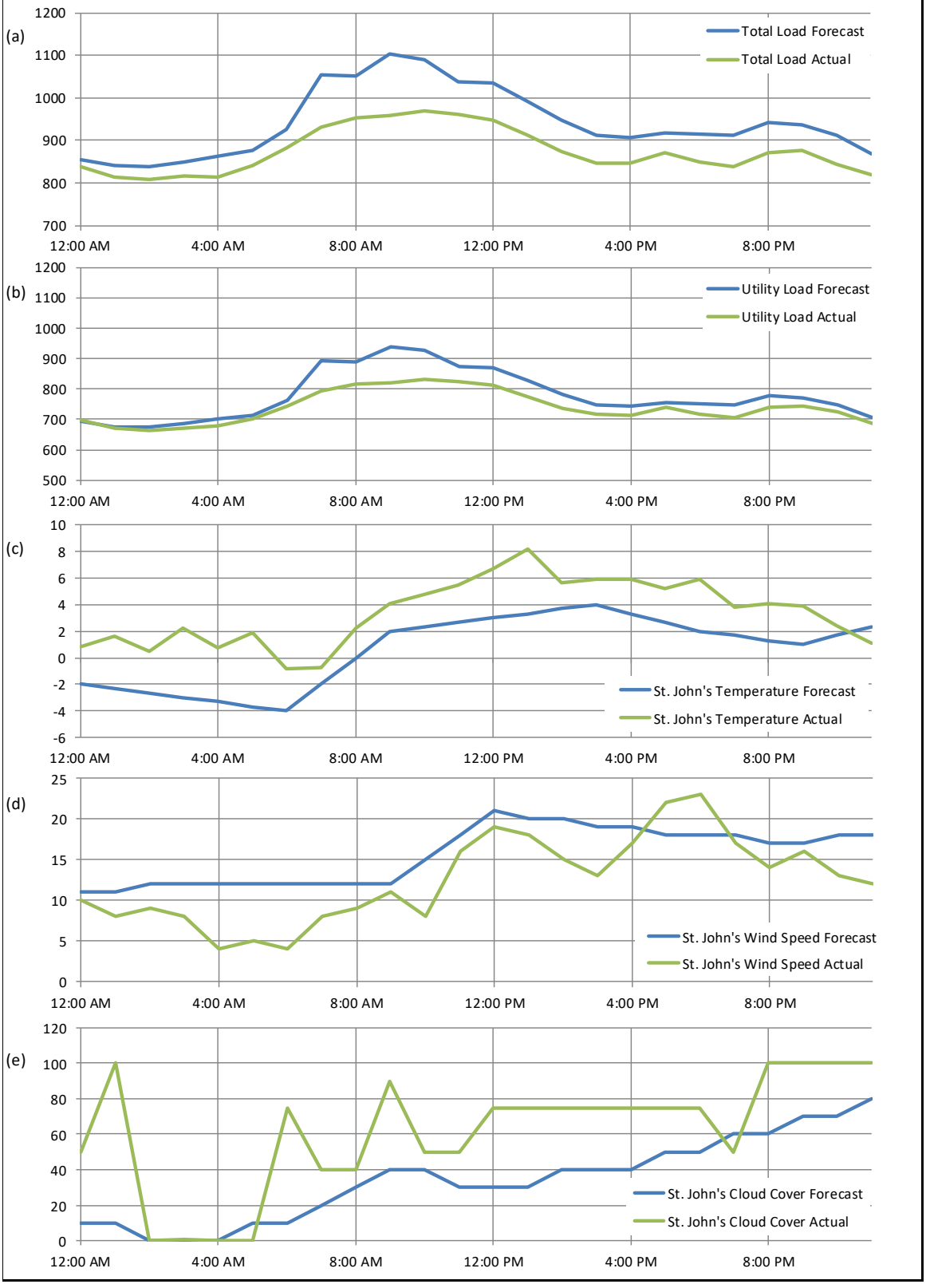

Figure 11 Accuracy Analysis - Apr 04, 2021

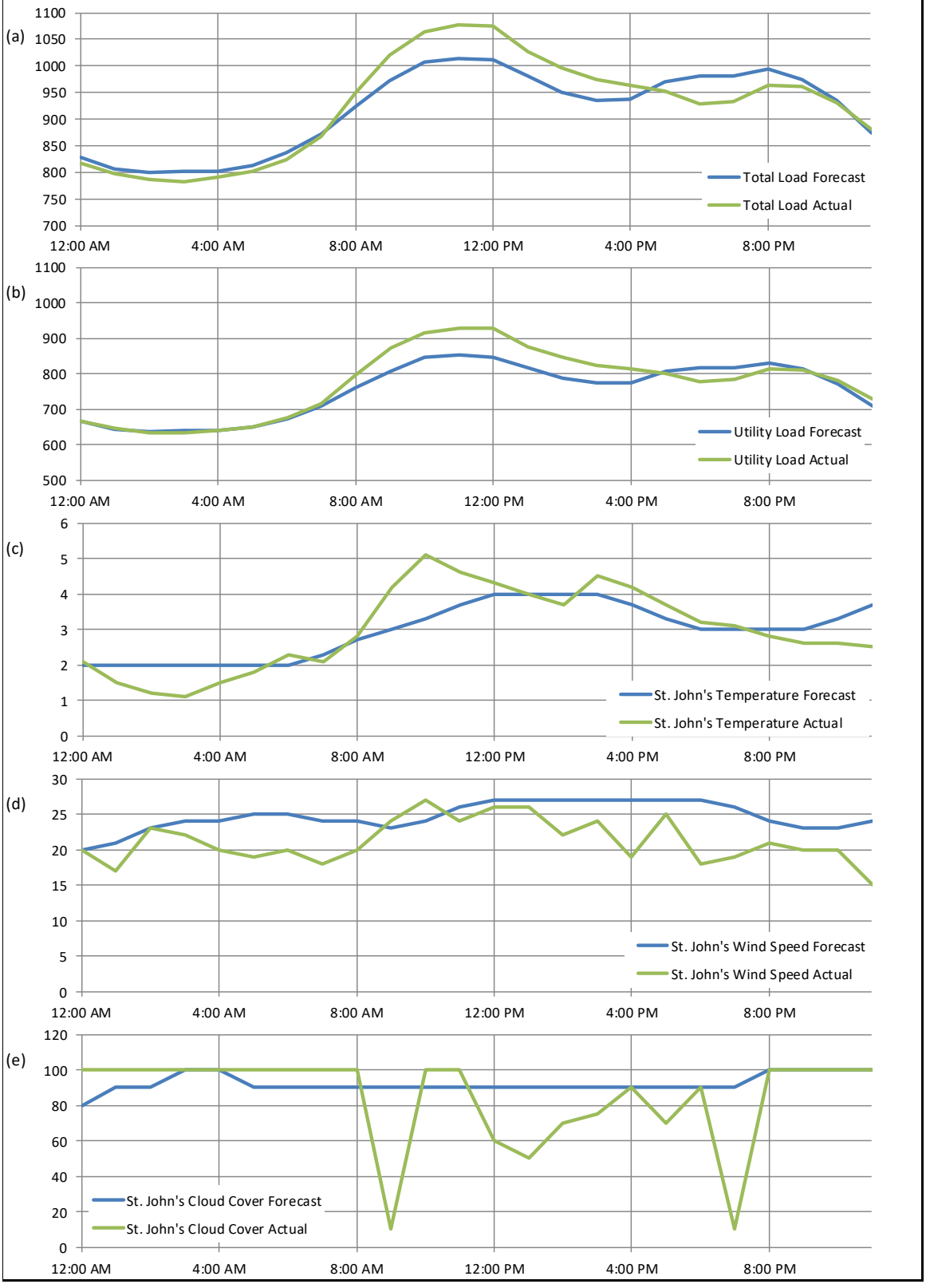

Figure 12 Accuracy Analysis - Apr 13, 2021

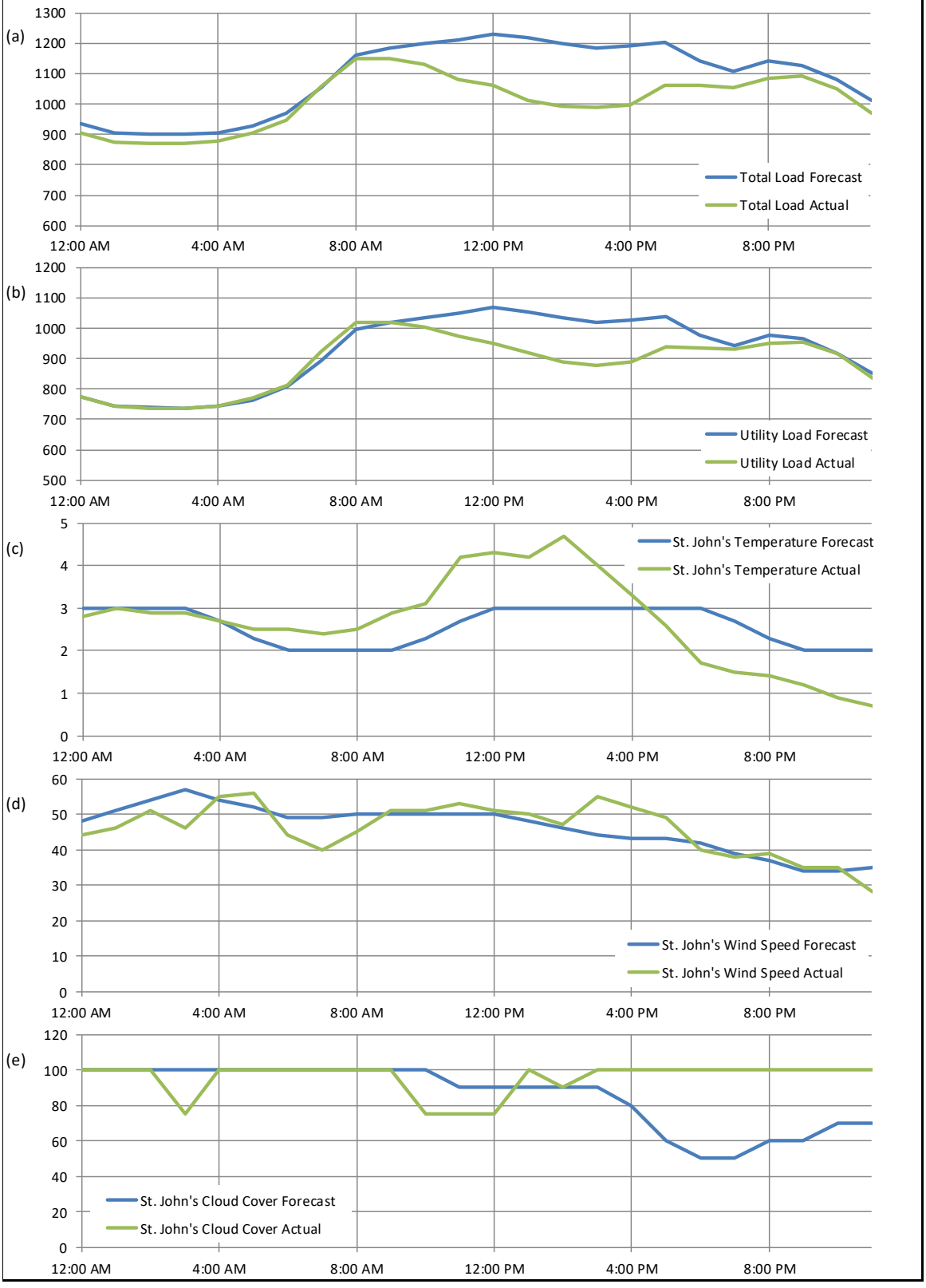

Figure 13 Accuracy Analysis - Jun 08, 2021

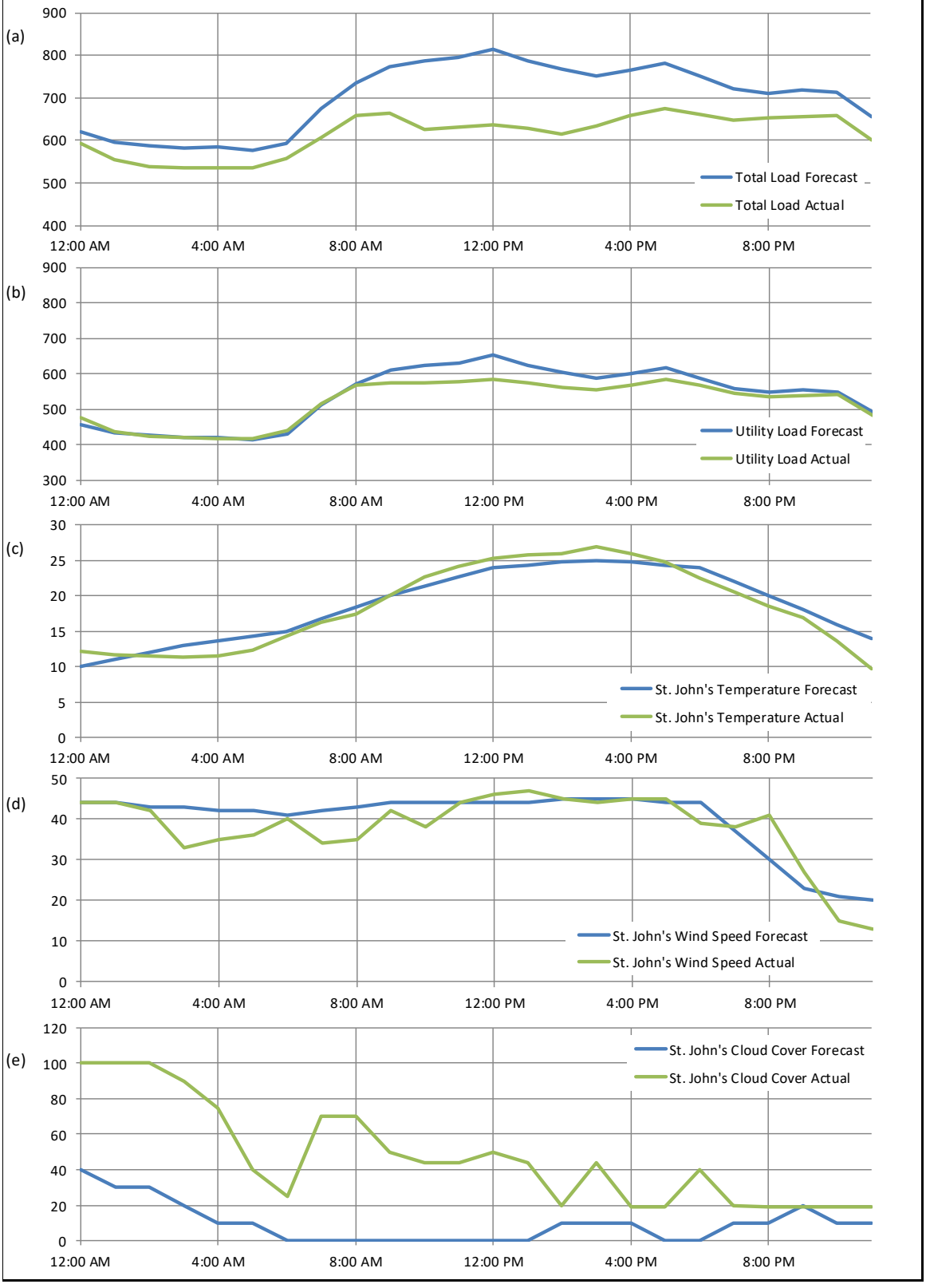

Figure 14 Accuracy Analysis - Jun 09, 2021

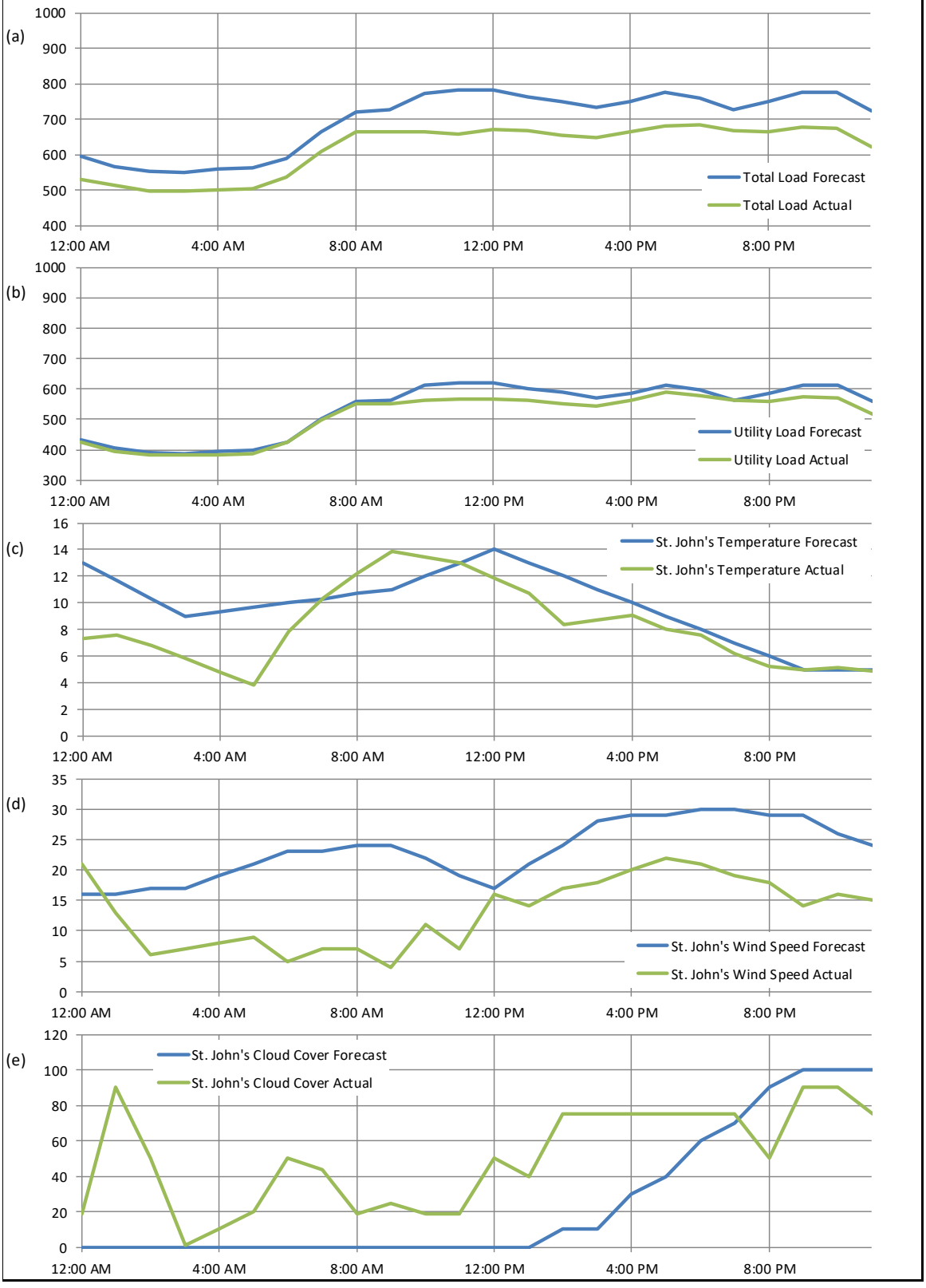

Figure 15 Accuracy Analysis - Jun 29, 2021

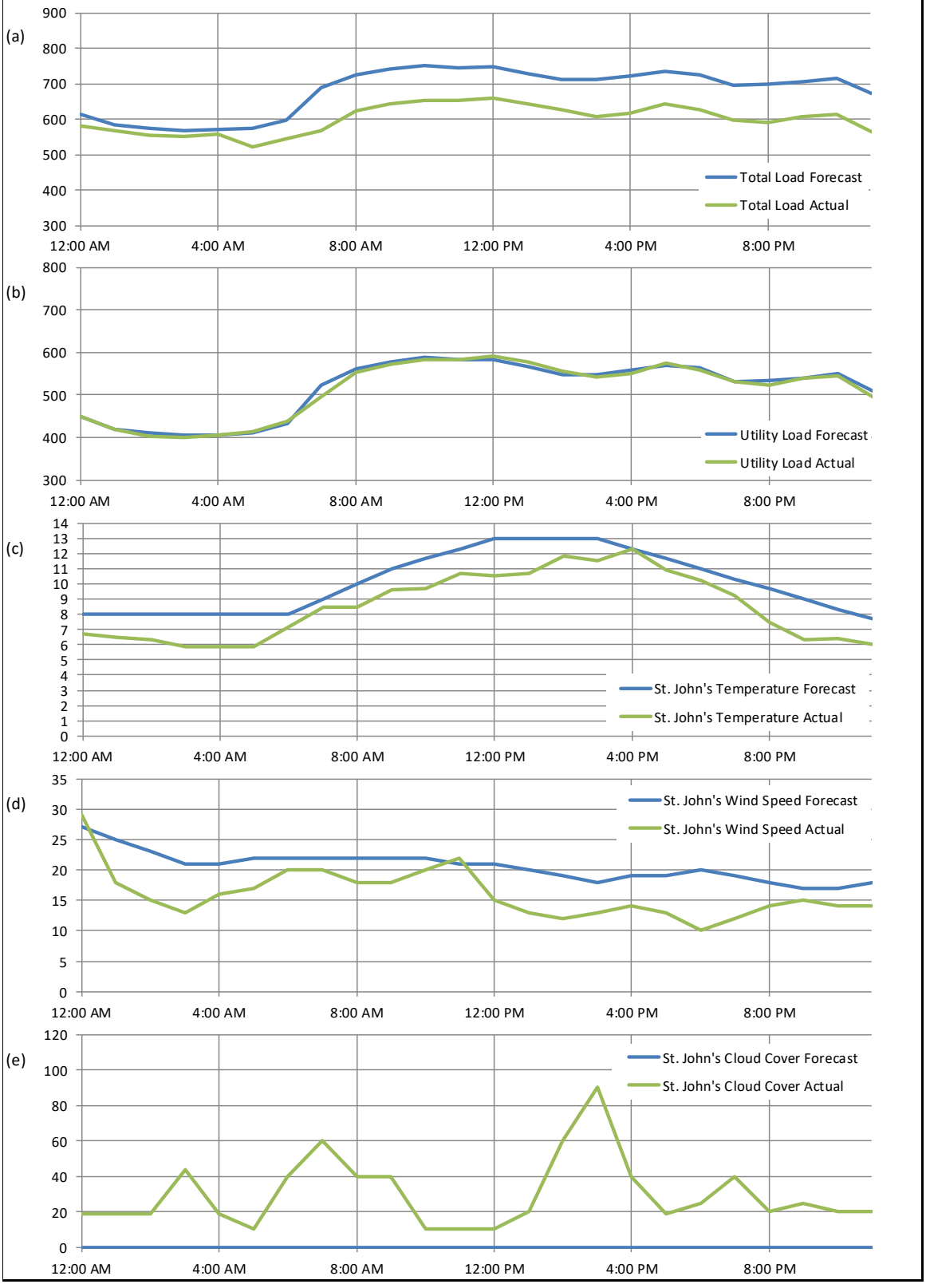

Figure 16 Accuracy Analysis - Jul 08, 2021

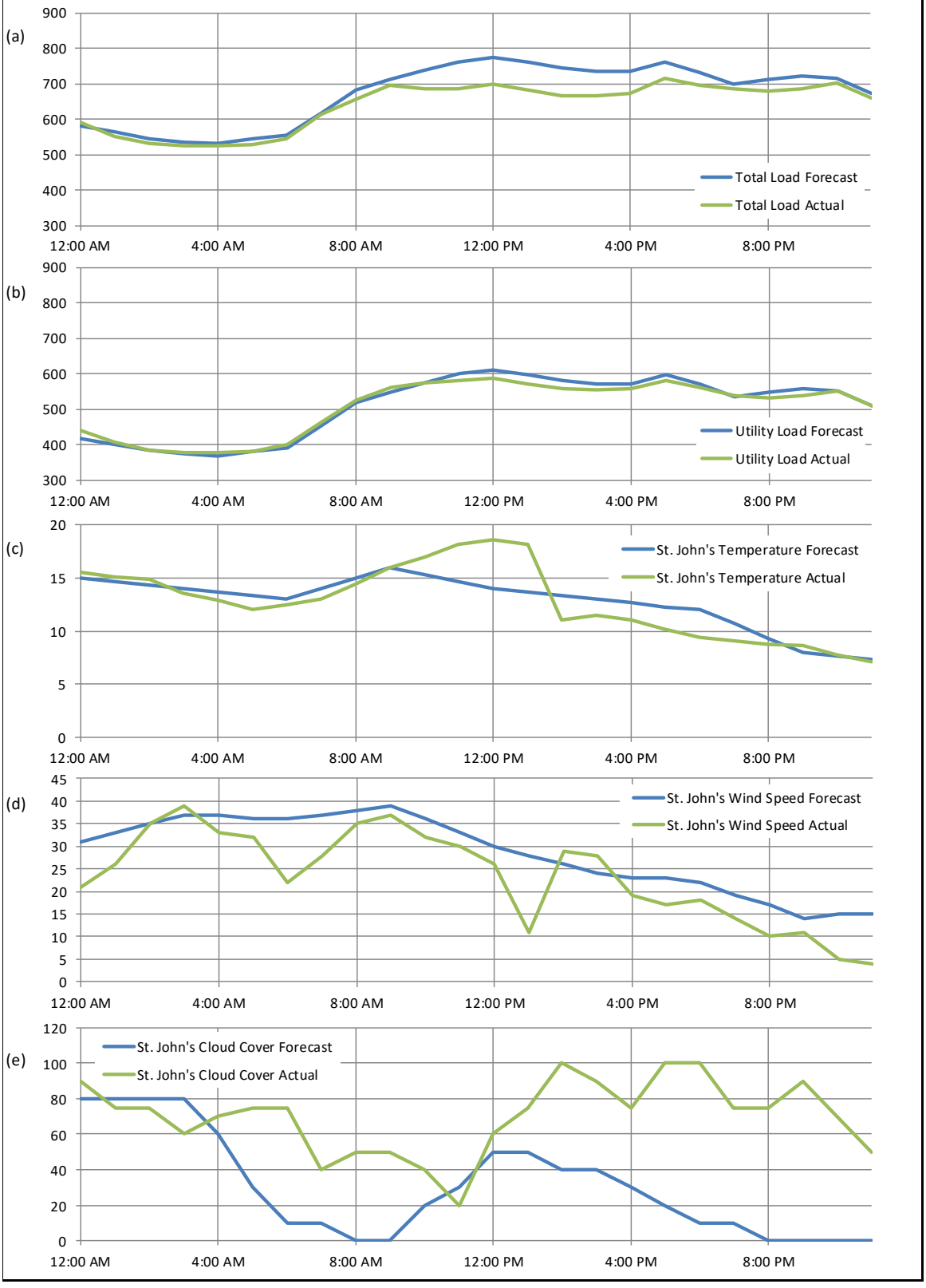

Figure 17 Accuracy Analysis - Jul 15, 2021

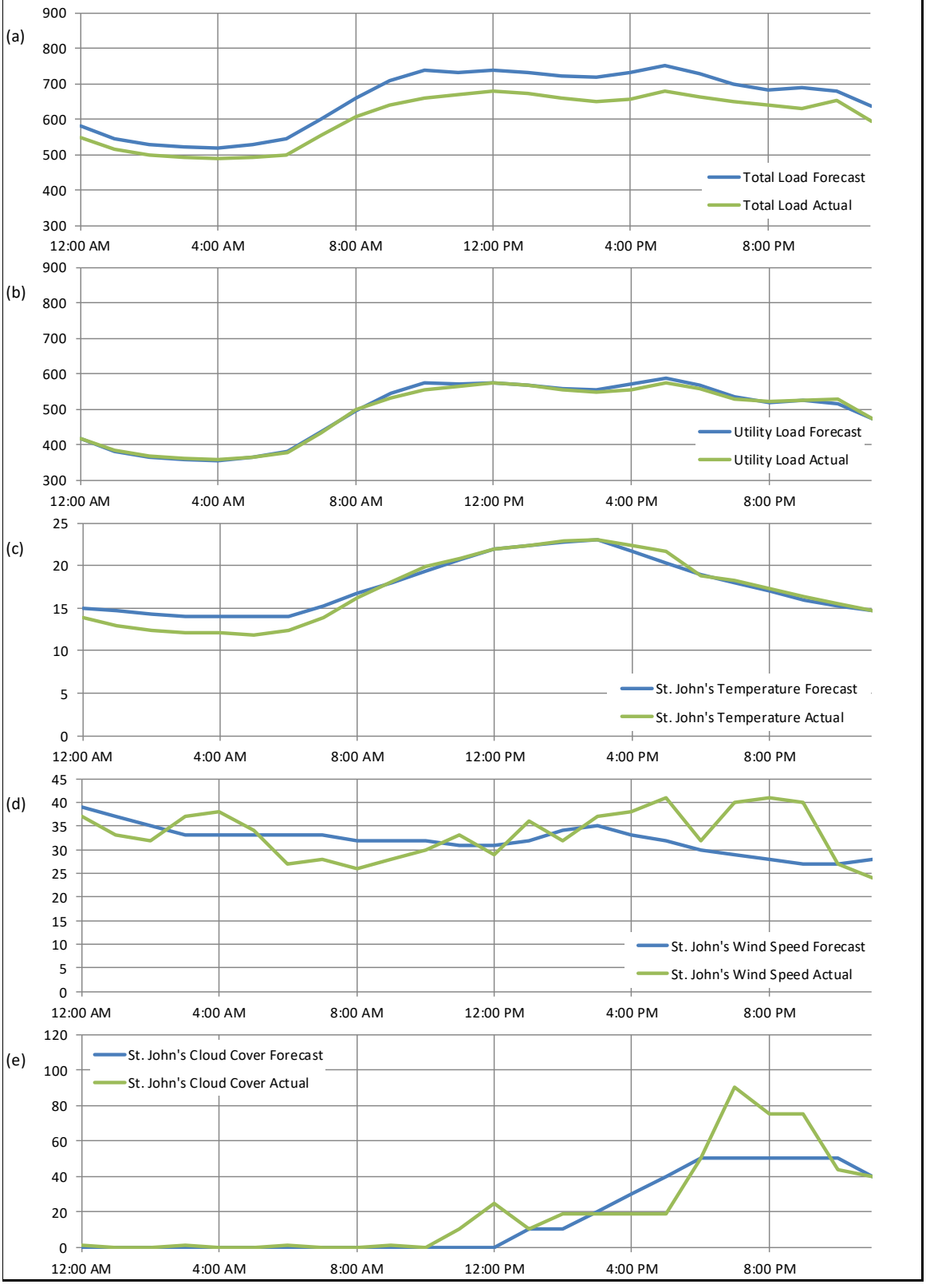

Figure 18 Accuracy Analysis - Jul 24, 2021

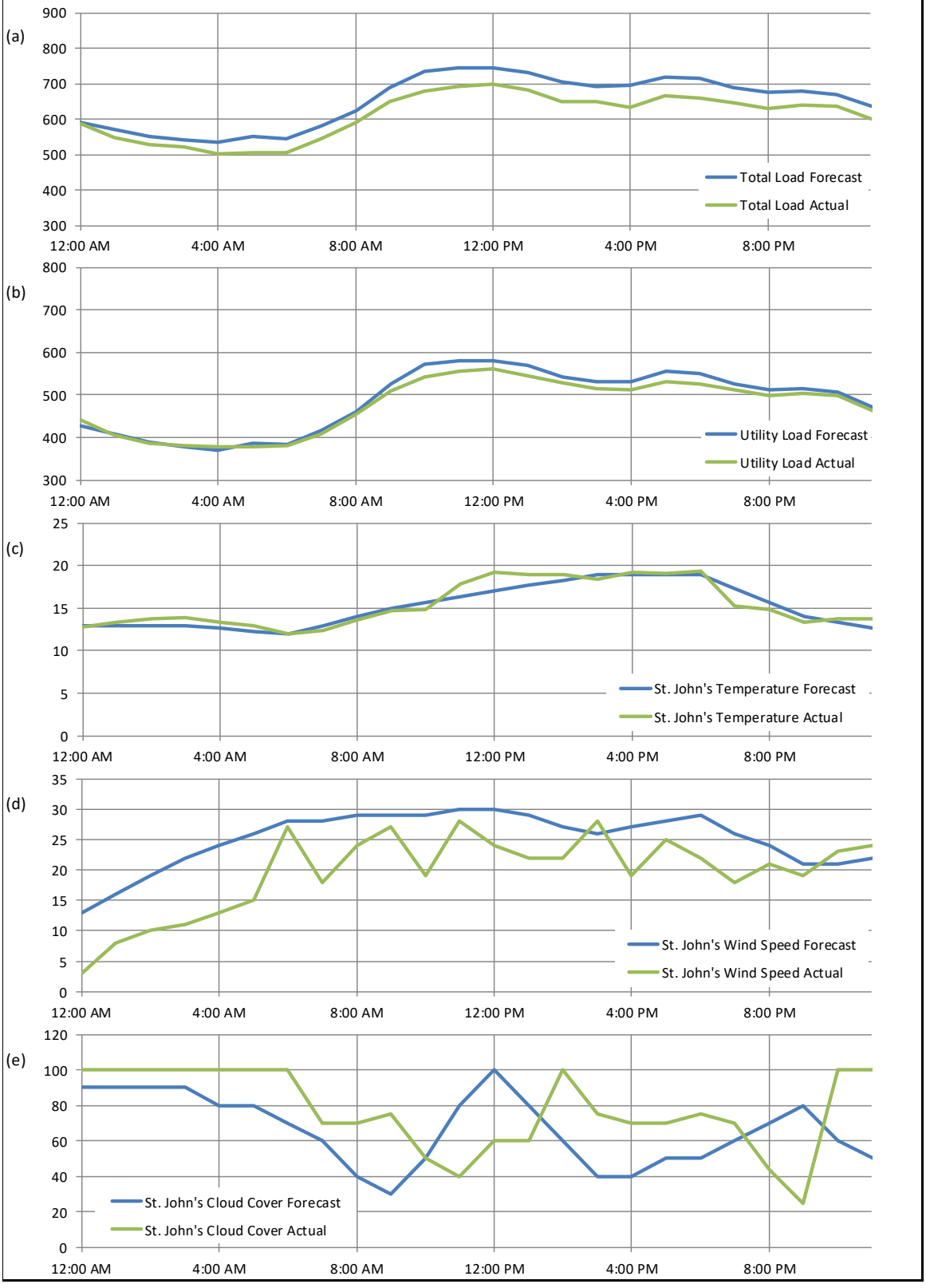

Figure 19 Accuracy Analysis - Aug 10, 2021

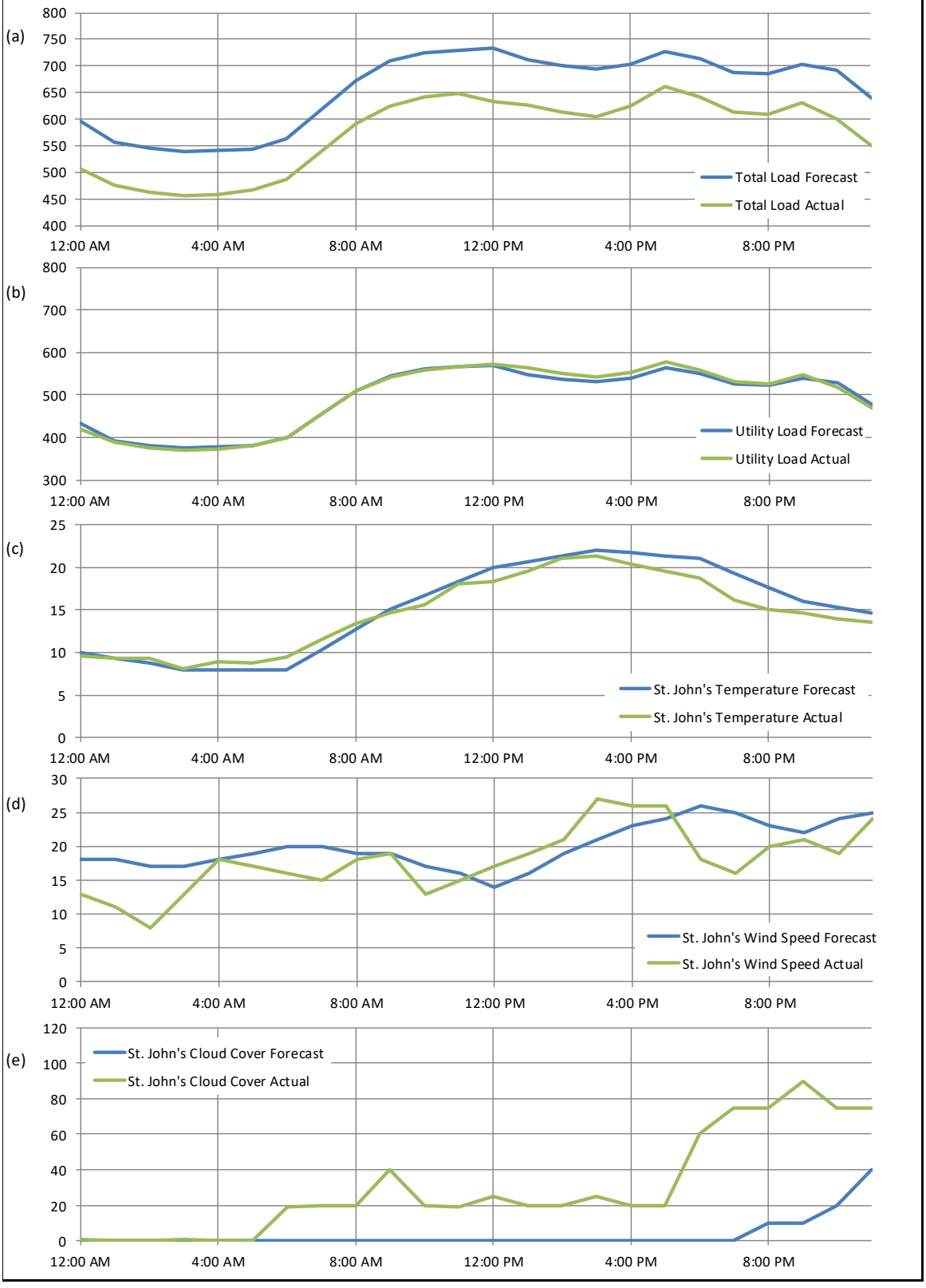

Figure 20 Accuracy Analysis - Aug 19, 2021

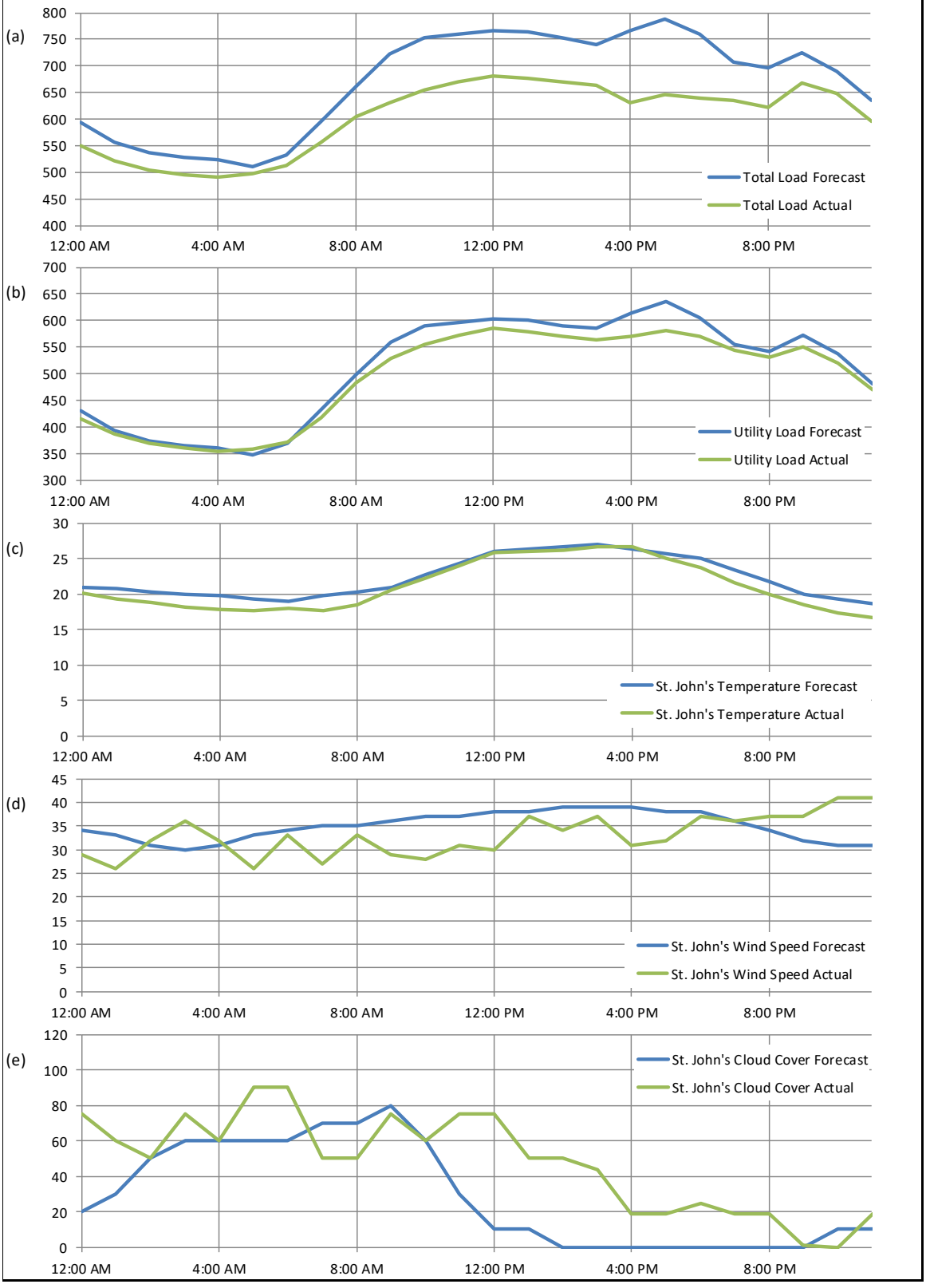

Figure 21 Accuracy Analysis - Aug 22, 2021

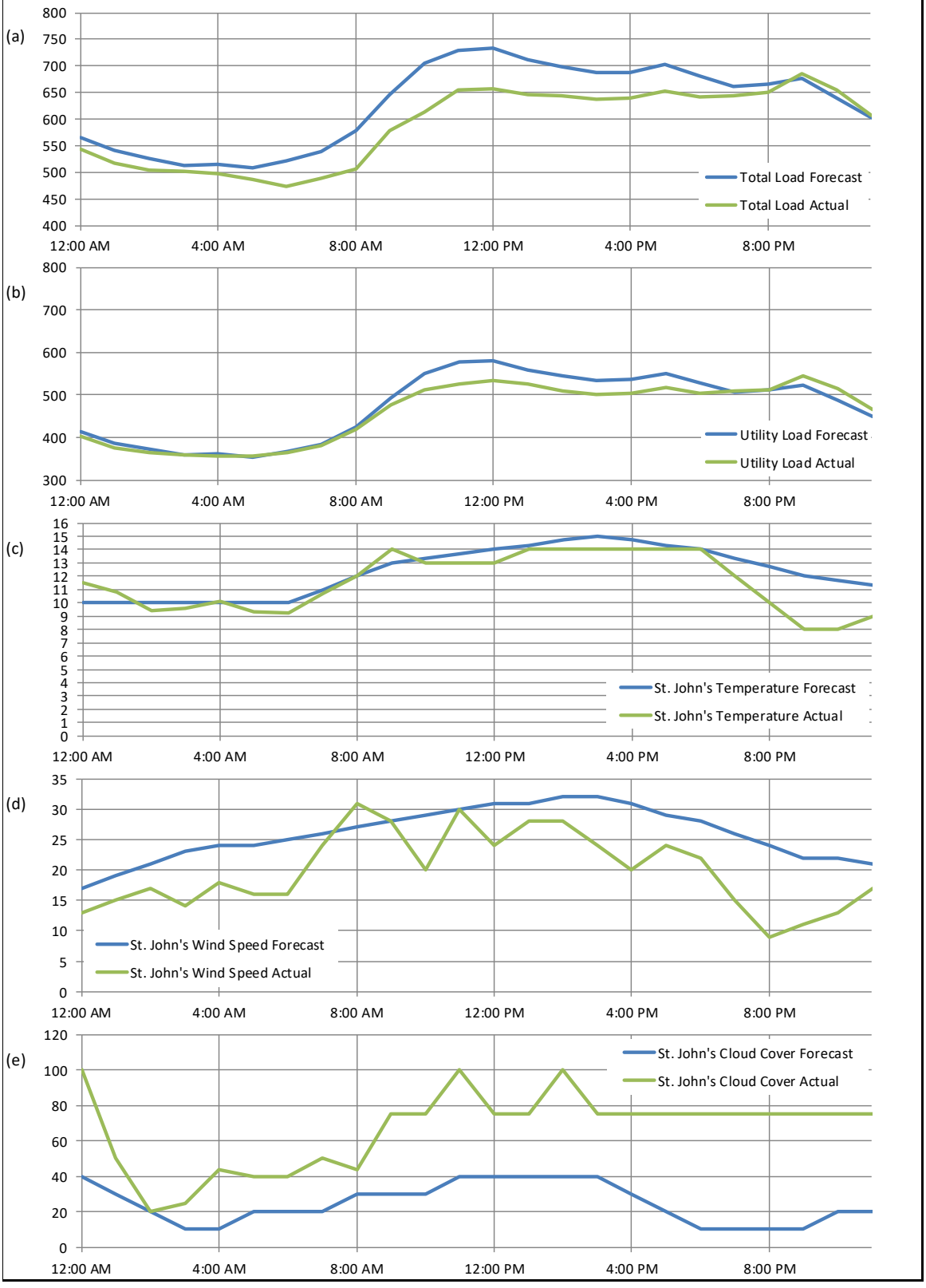

Figure 22 Accuracy Analysis - Sep 05, 2021

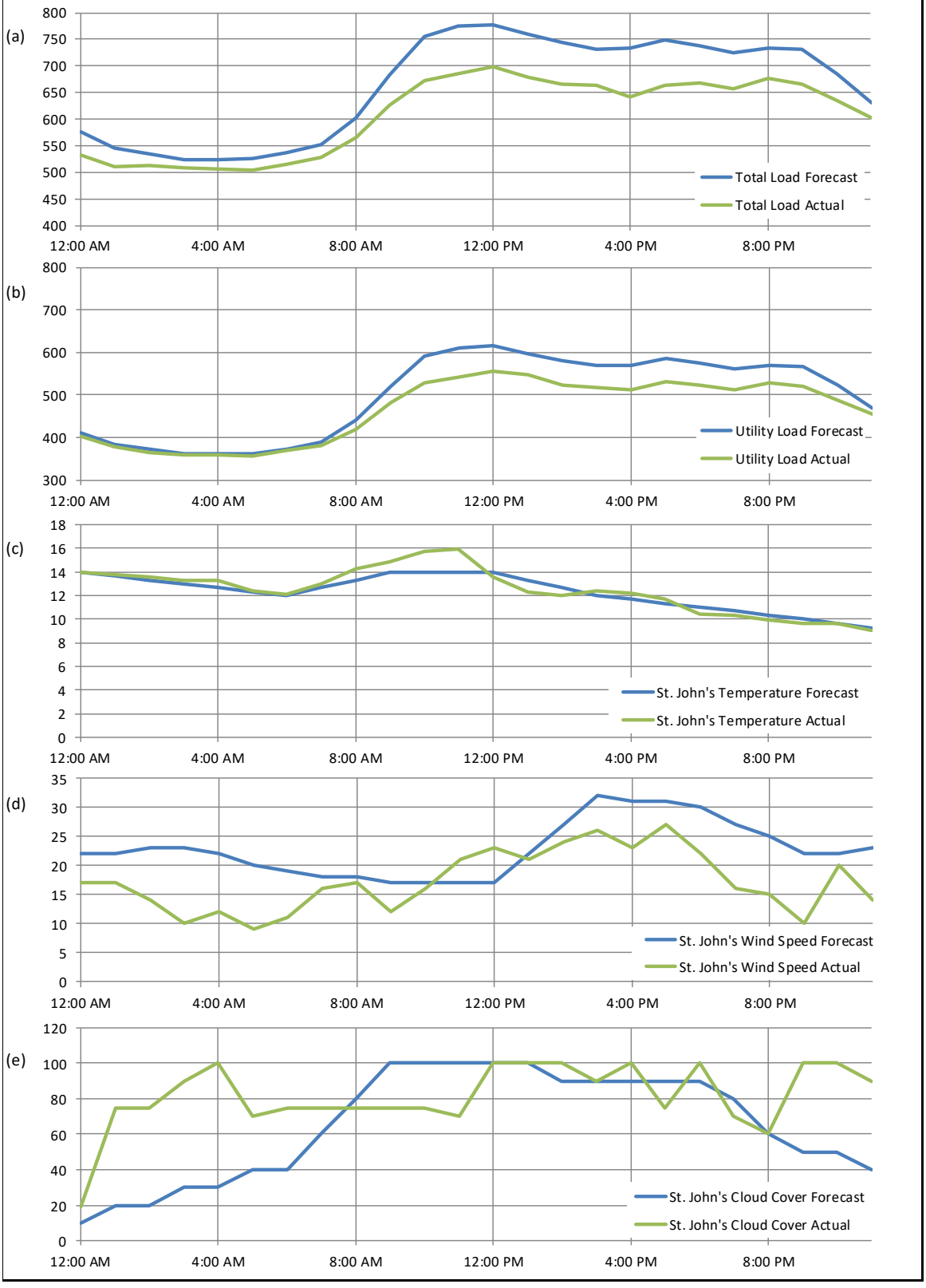

Figure 23 Accuracy Analysis - Sep 11, 2021

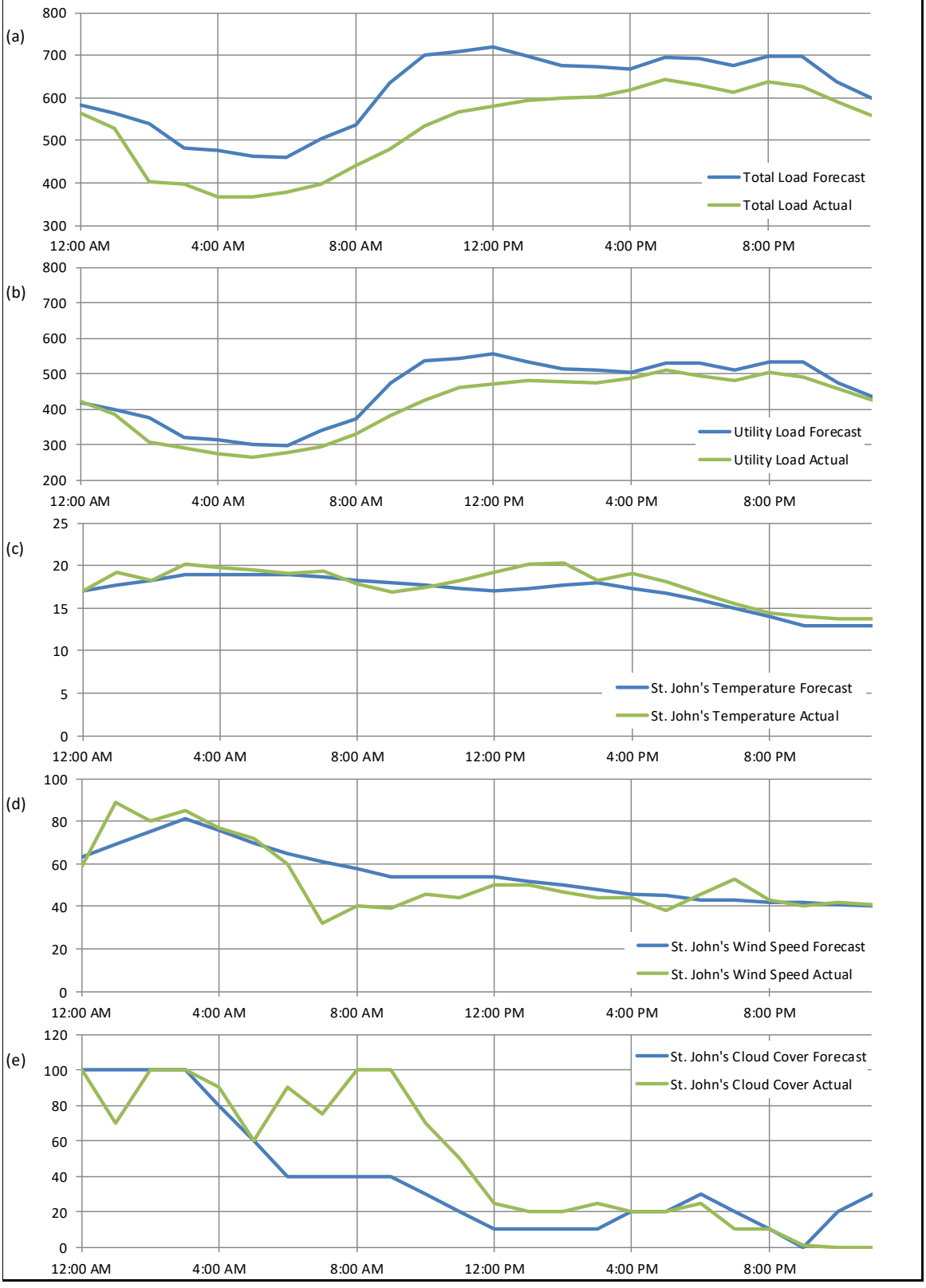

Figure 24 Accuracy Analysis - Sep 14, 2021

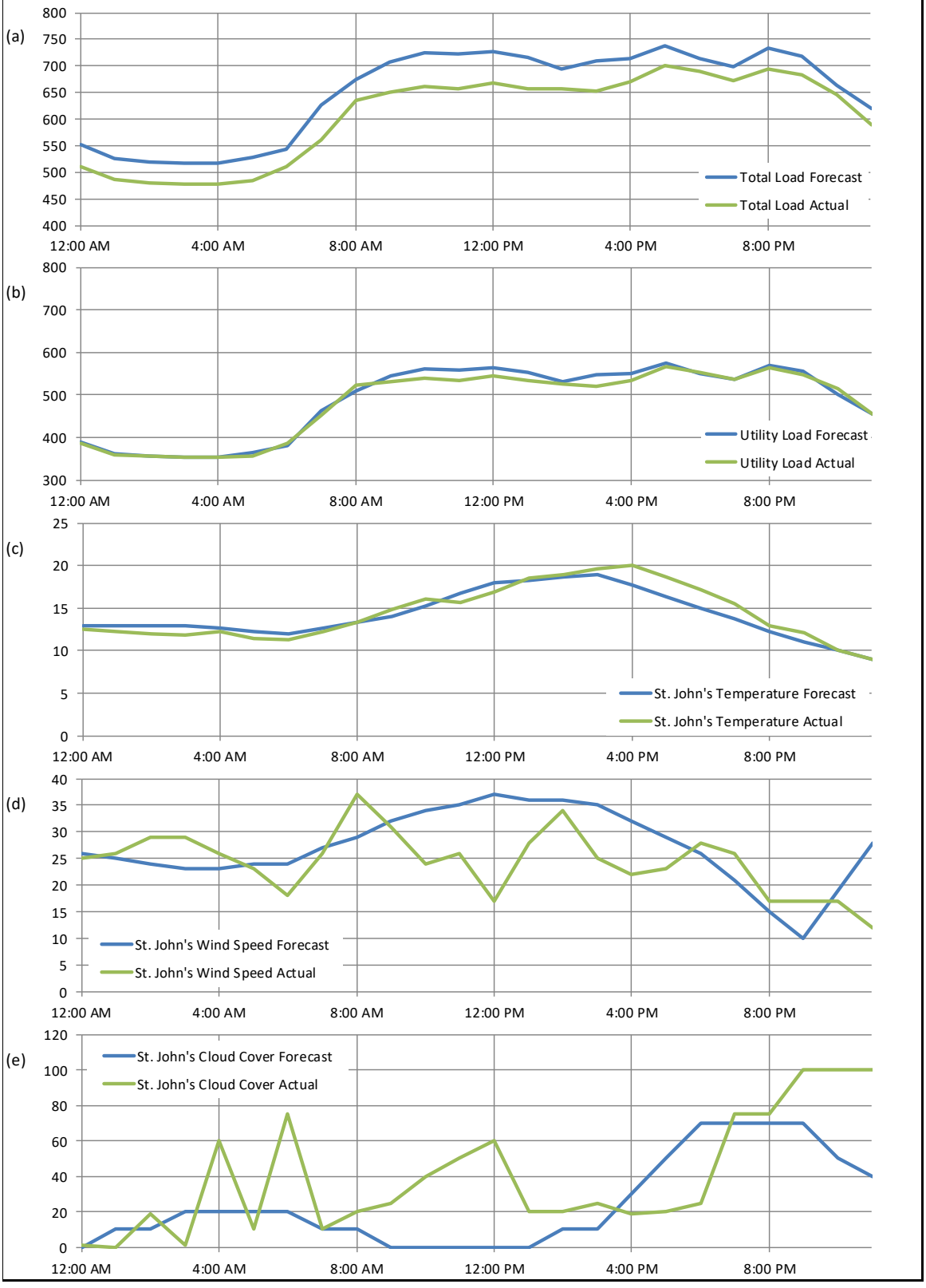

Figure 25 Accuracy Analysis - Oct 09, 2021

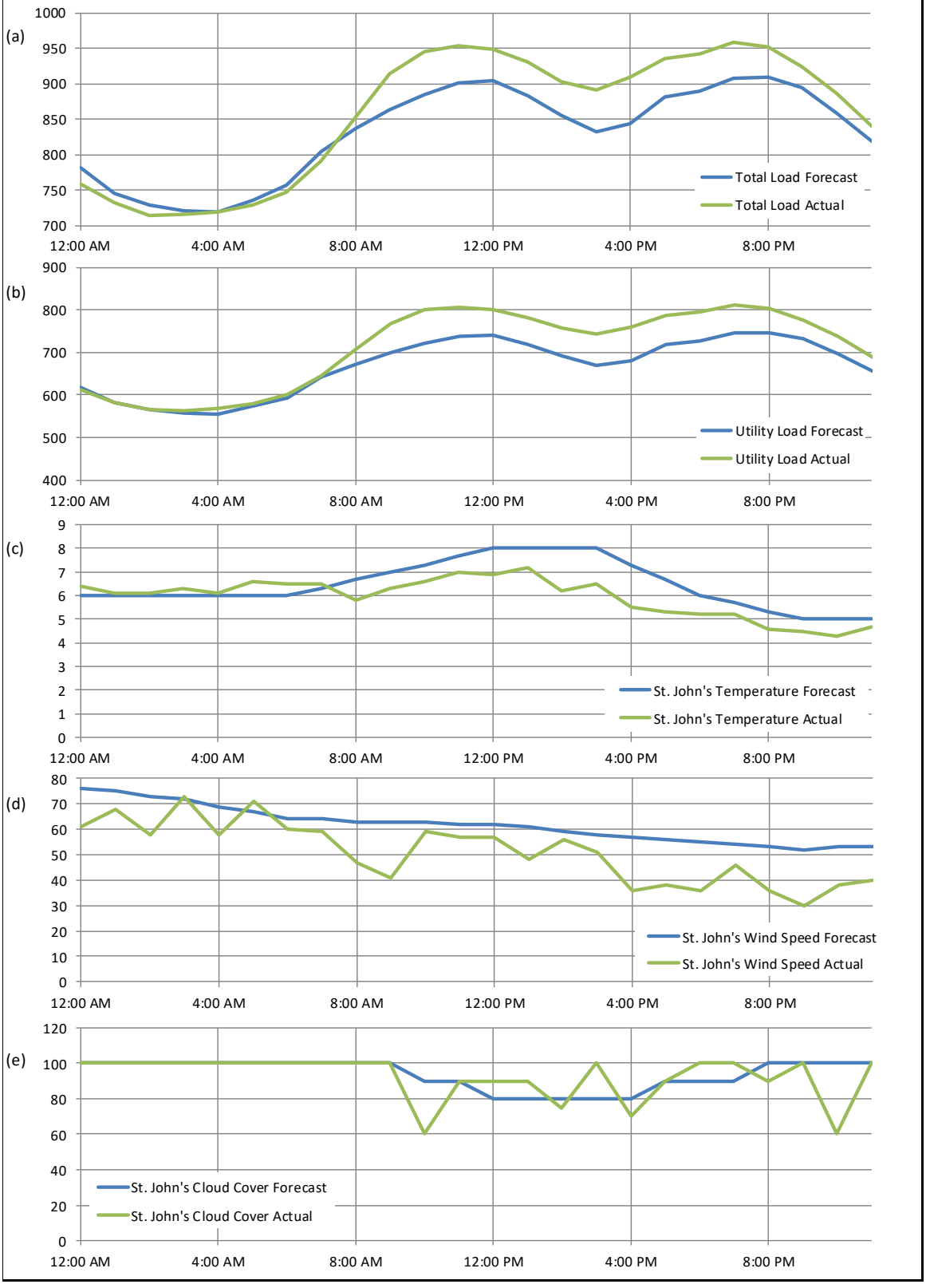

Figure 26 Accuracy Analysis - Oct 10, 2021

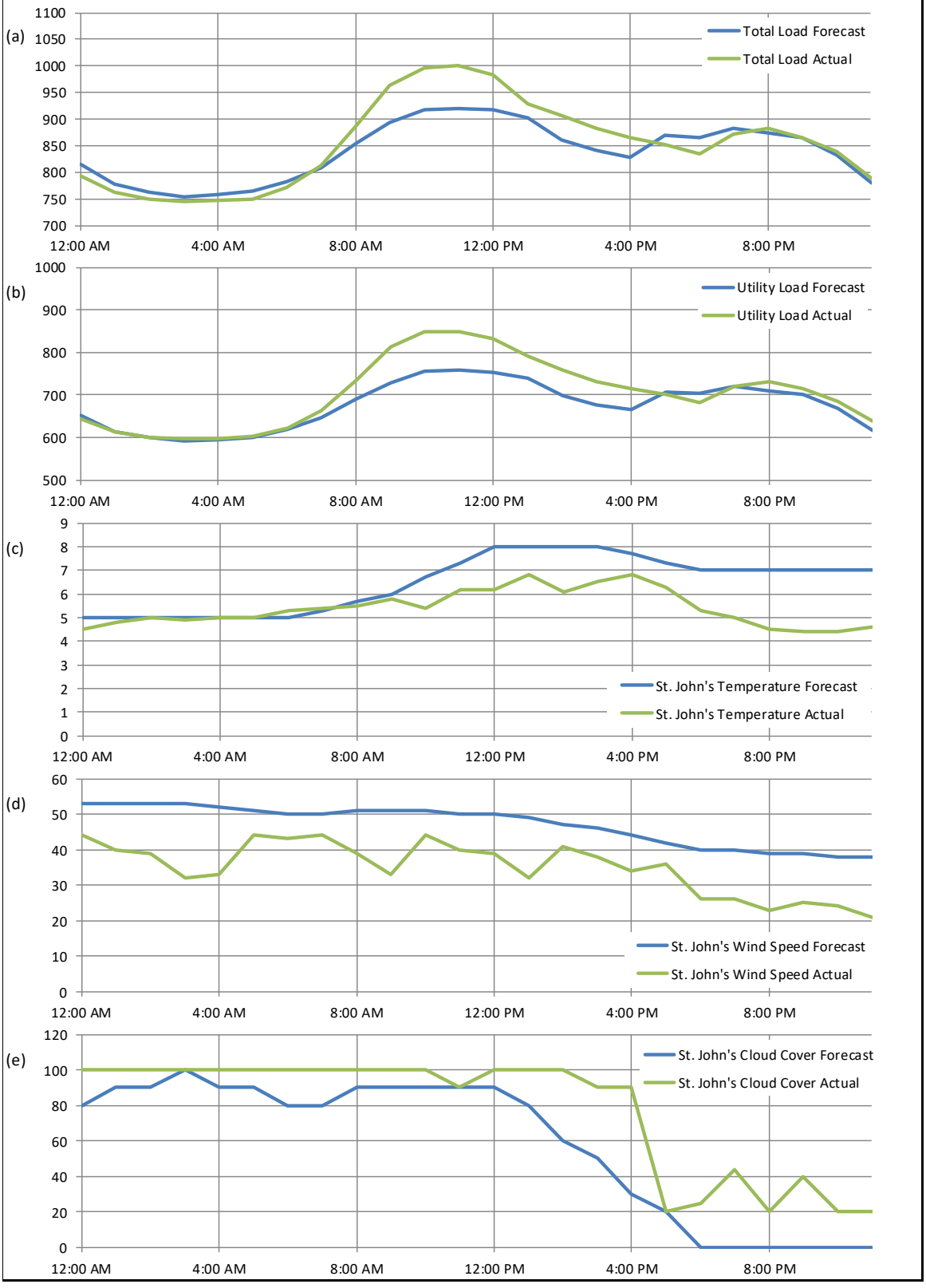

Figure 27 Accuracy Analysis - Nov 13, 2021

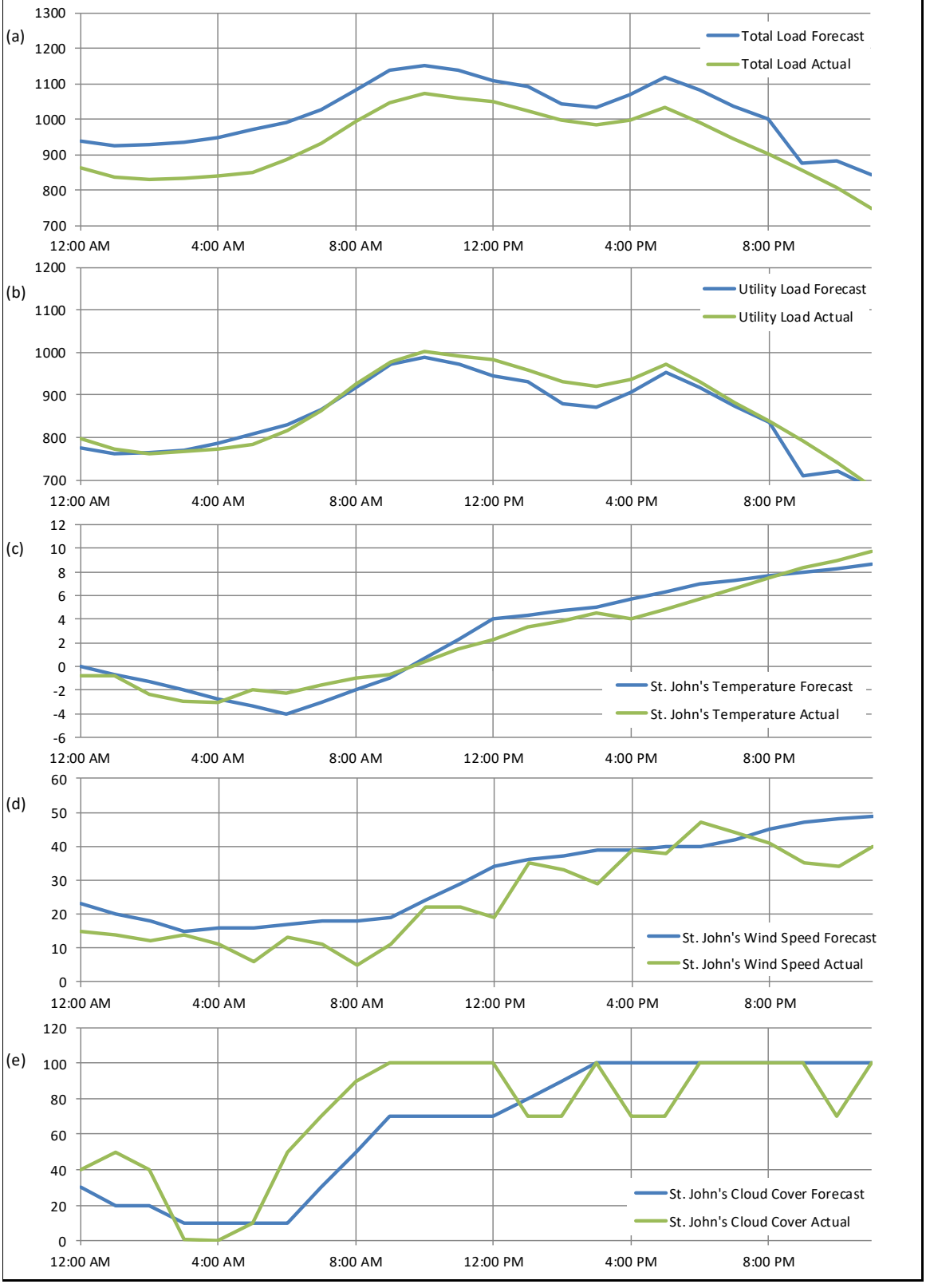

Figure 28 Accuracy Analysis - Nov 17, 2021

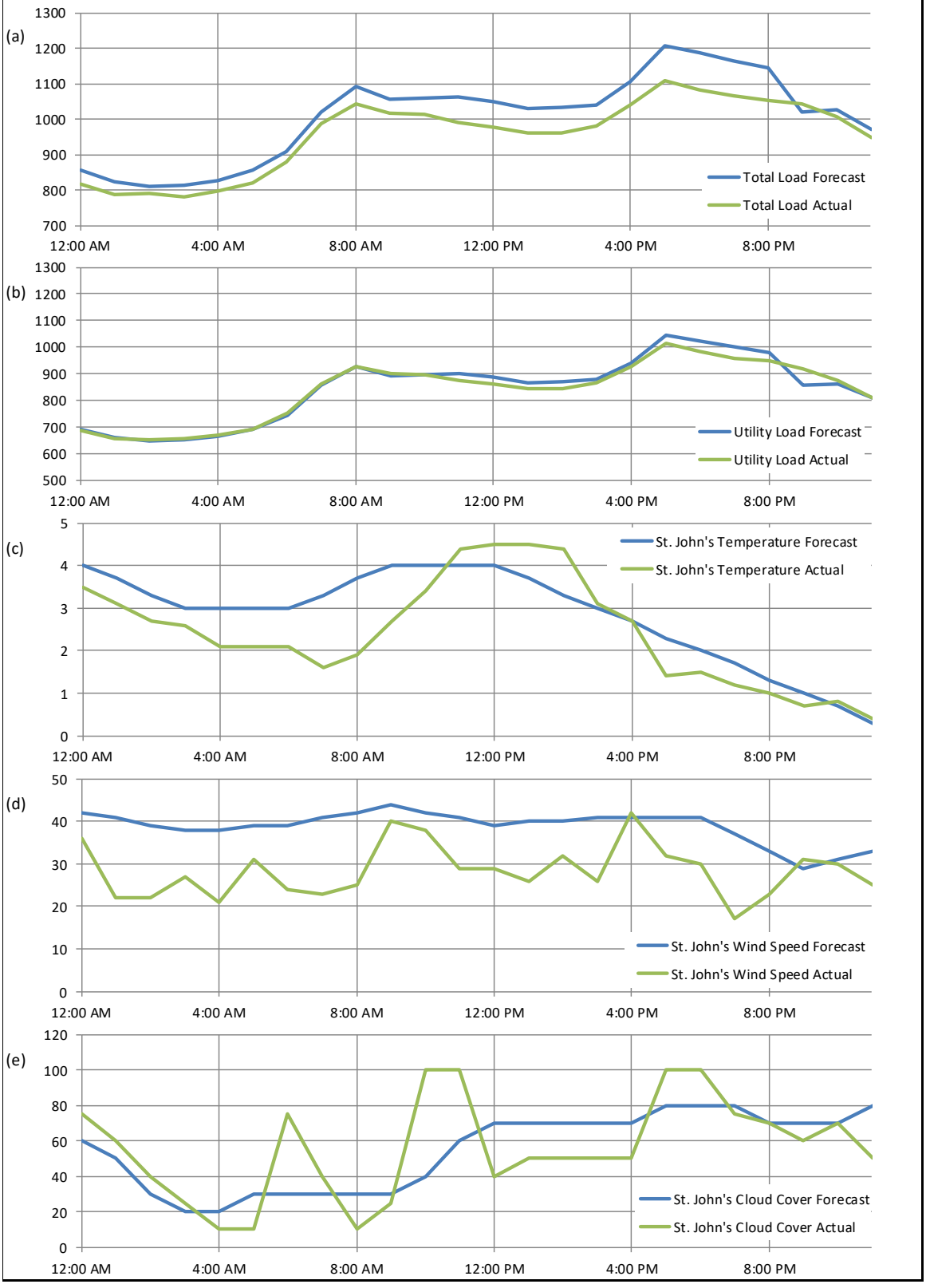

Figure 29 Accuracy Analysis - Nov 27, 2021

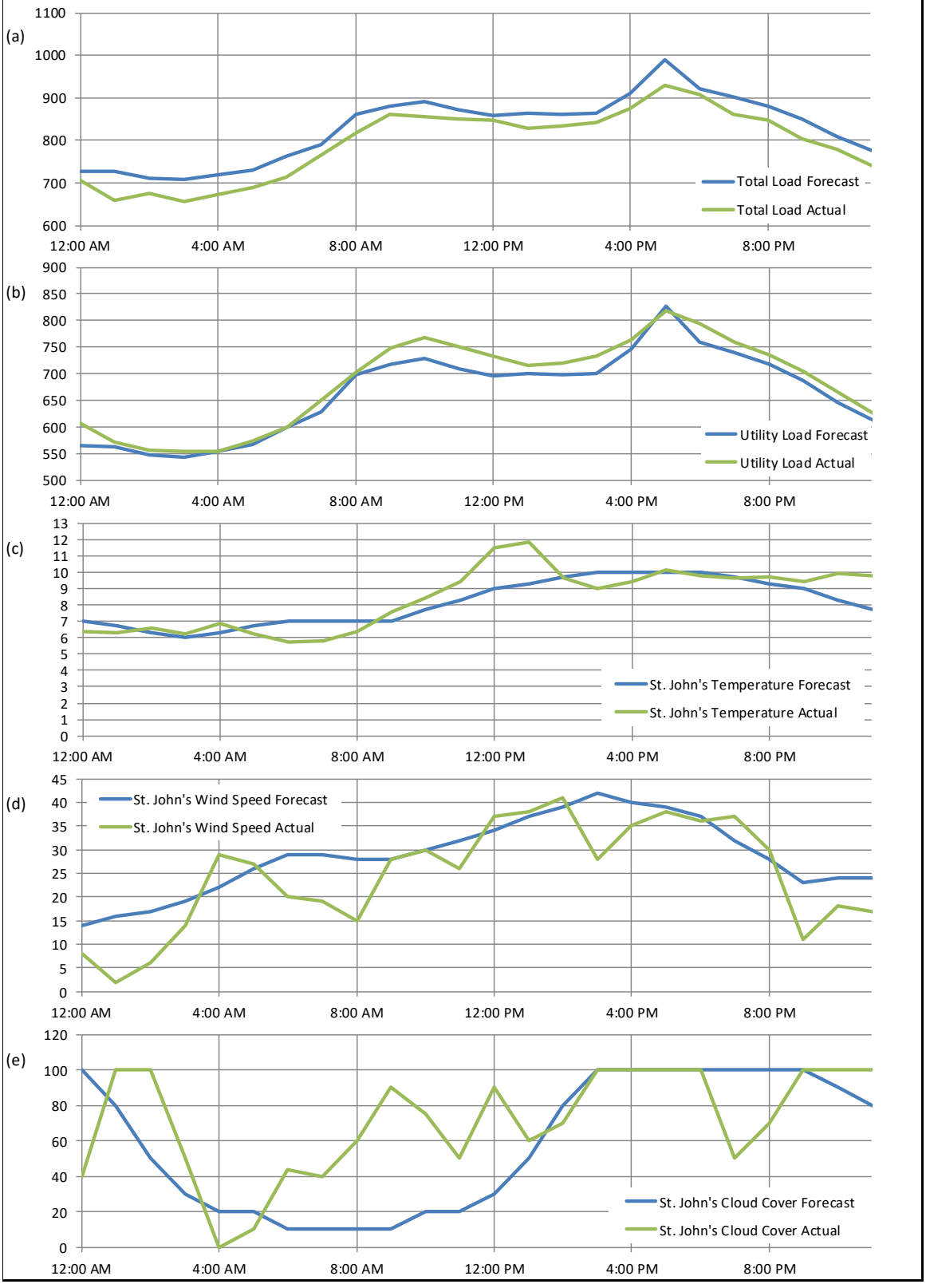

Figure 30 Accuracy Analysis - Dec 07, 2021

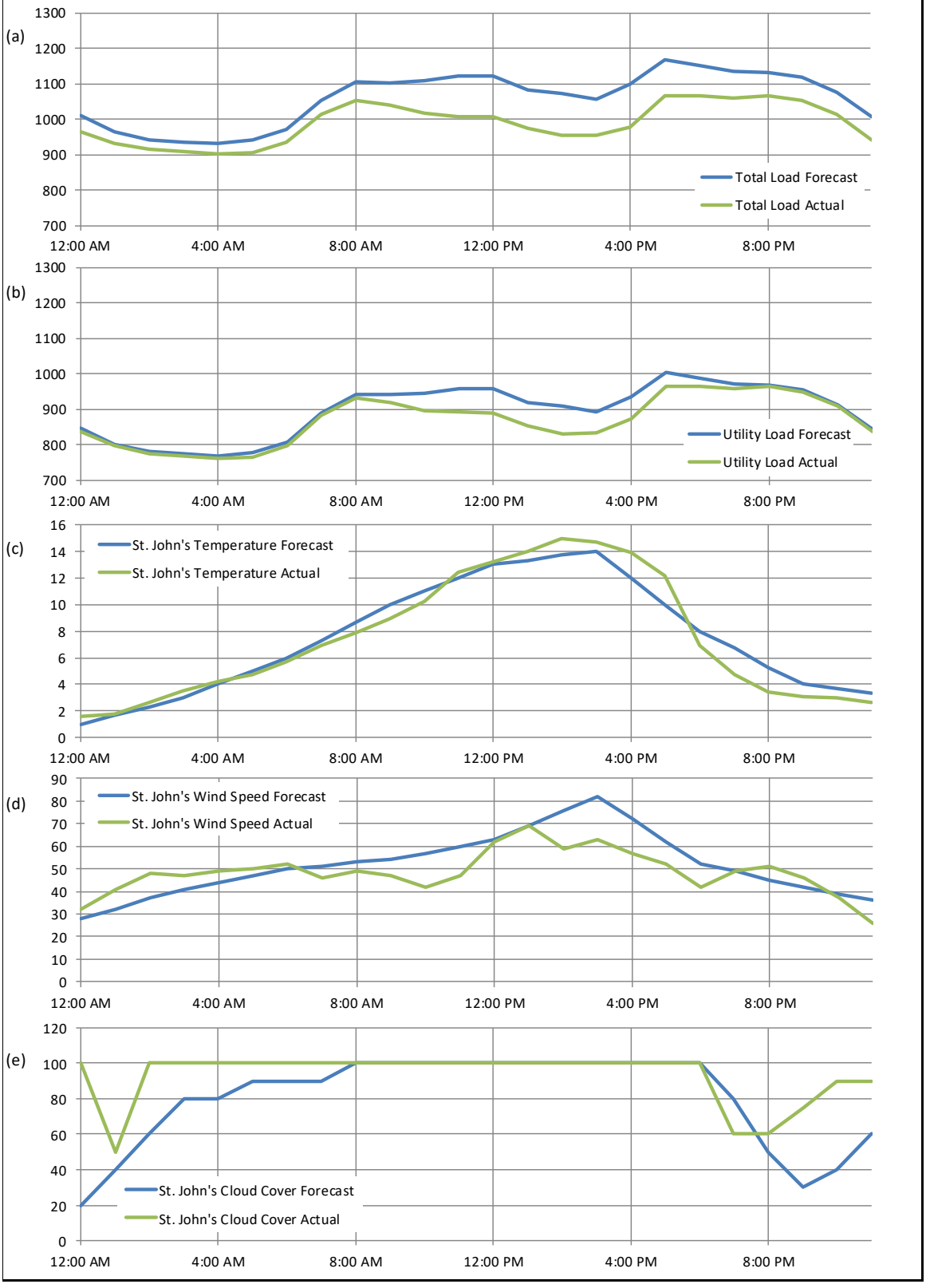

Figure 31 Accuracy Analysis - Dec 12, 2021

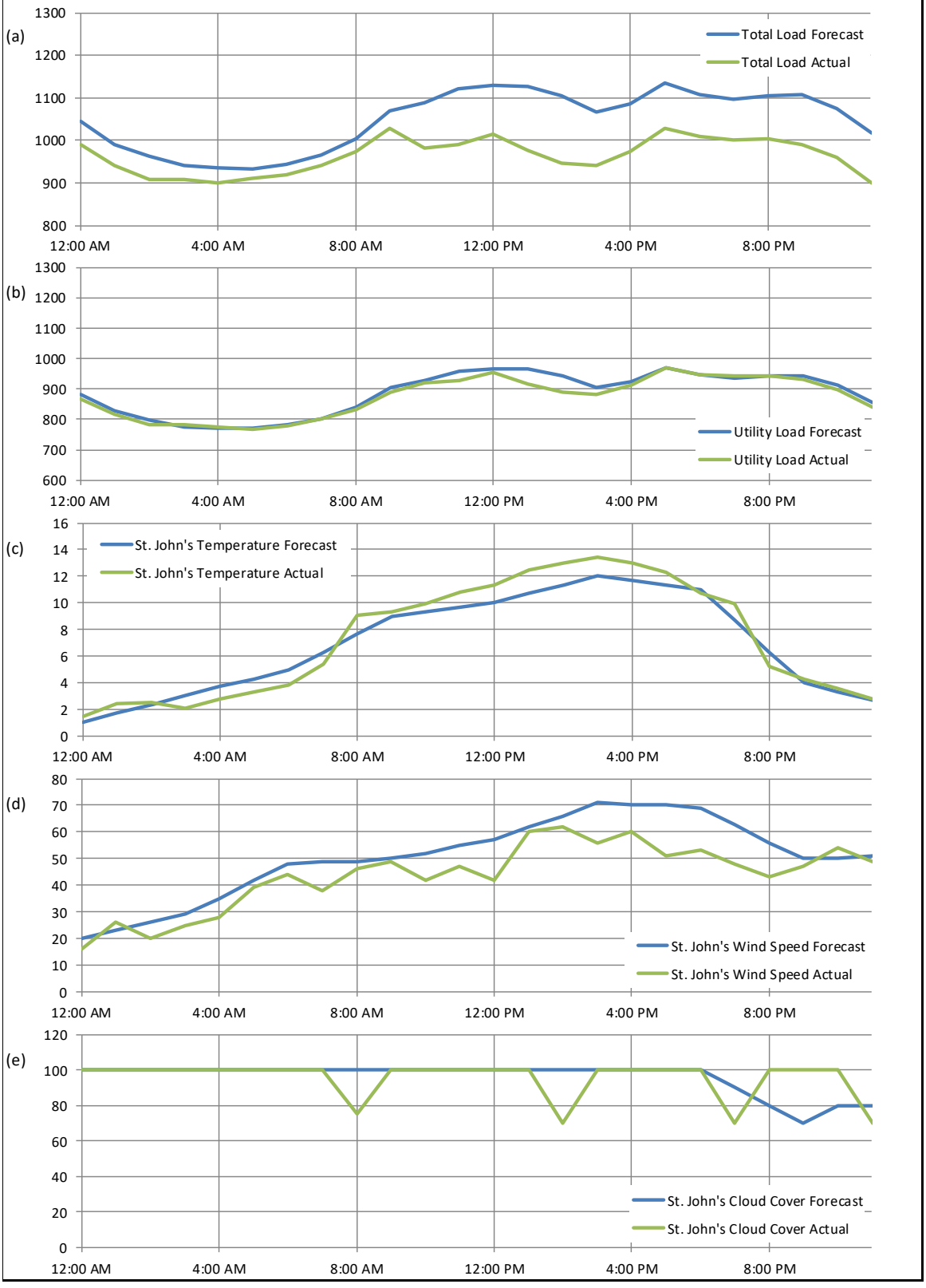

Figure 32 Accuracy Analysis - Dec 18, 2021