Update on Inputs for Upcoming December FPR/ELCC Run

RAAS

September 30, 2024

Patricio Rocha-Garrido, Principal Engineer

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Overview

- The December FPR/ELCC run will calculate planning parameters (ELCC Class Ratings, AUCAP, FPR) for the following auctions
  - 2025/26 3IA
  - 2027/28 BRA

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Binning Methodology Update

- Temperature Humidity Index (THI) data from 2023/24 DY has been rolled in
- In addition, historical THI data has been re-weighted to account for relative load changes within the PJM footprint
  - The RTO THI values used in the binning methodology are calculated using load-weighted data
- The seasonal bins in the previous ELCC run were as follows:
  - Winter: 32 bins, from min0 (coldest) through min31 (warmest); after merging due to small sample sizes the bins range from min5 (coldest) through min29 (warmest)
  - Summer: 20 bins, from max16 (coldest) through max35 (warmest); after merging due to small sample sizes the bins range from max19 (coldest) through max34 (warmest)

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Binning Methodology Update

- Using the **updated** RTO THI values, the (pre-merging) bins are:
  - Winter: 32 bins, from min0 (coldest) through min31 (warmest)
  - Summer: 20 bins, from max16 (coldest) through max35 (warmest);
- Total number of (pre-merging) bins remains the same. Some historical observations may have been shifted to a different bin due to updated load-weights and rolling in 2023/24 data

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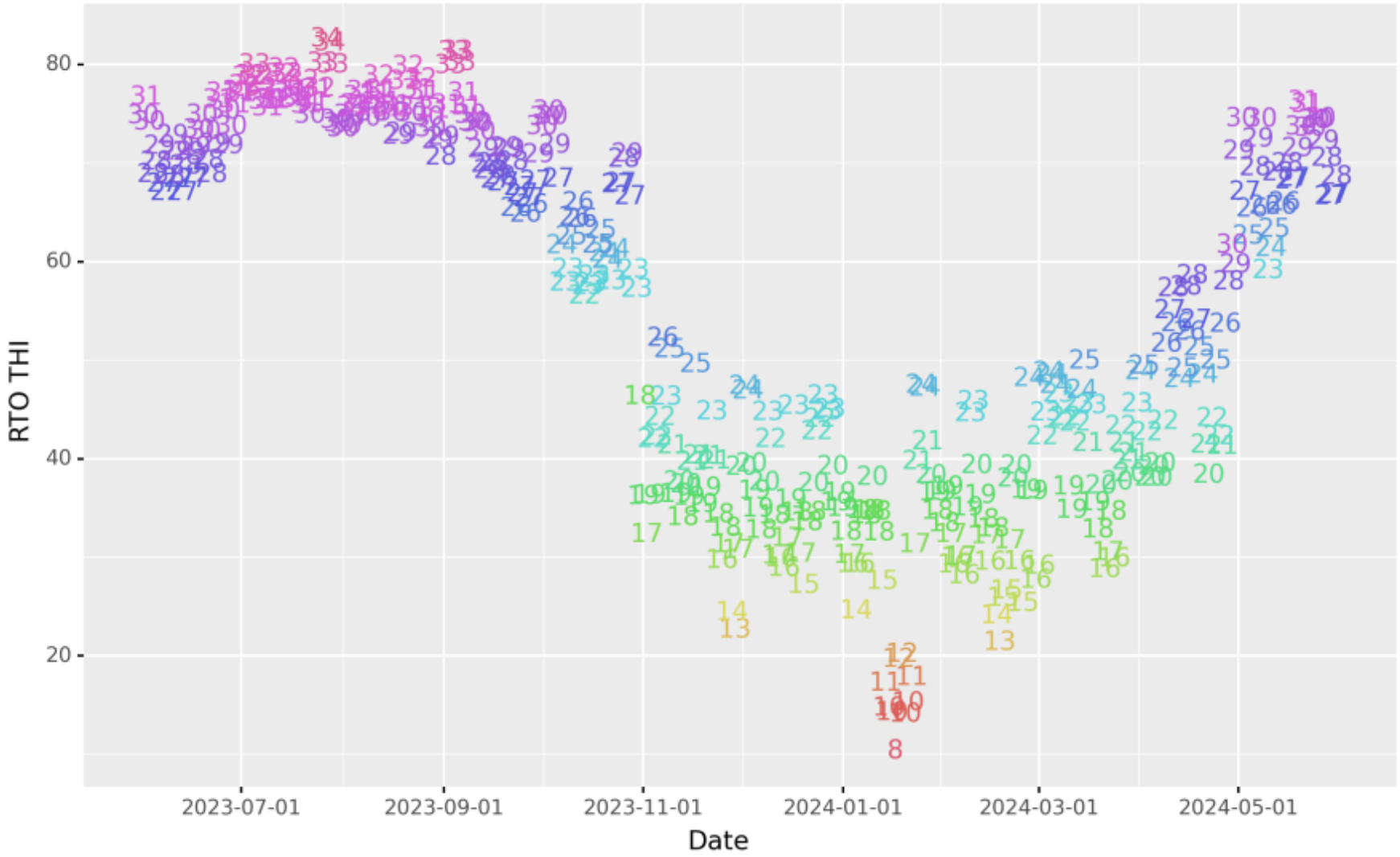
2023/24 RTO THI Data



Number in graph shows bin membership.

For example, 8 at the bottom of graph means that that day is in the bin min8

Coldest observation of 23/24 is in bin min8.

Warmest observations of 23/24 are in bin max34

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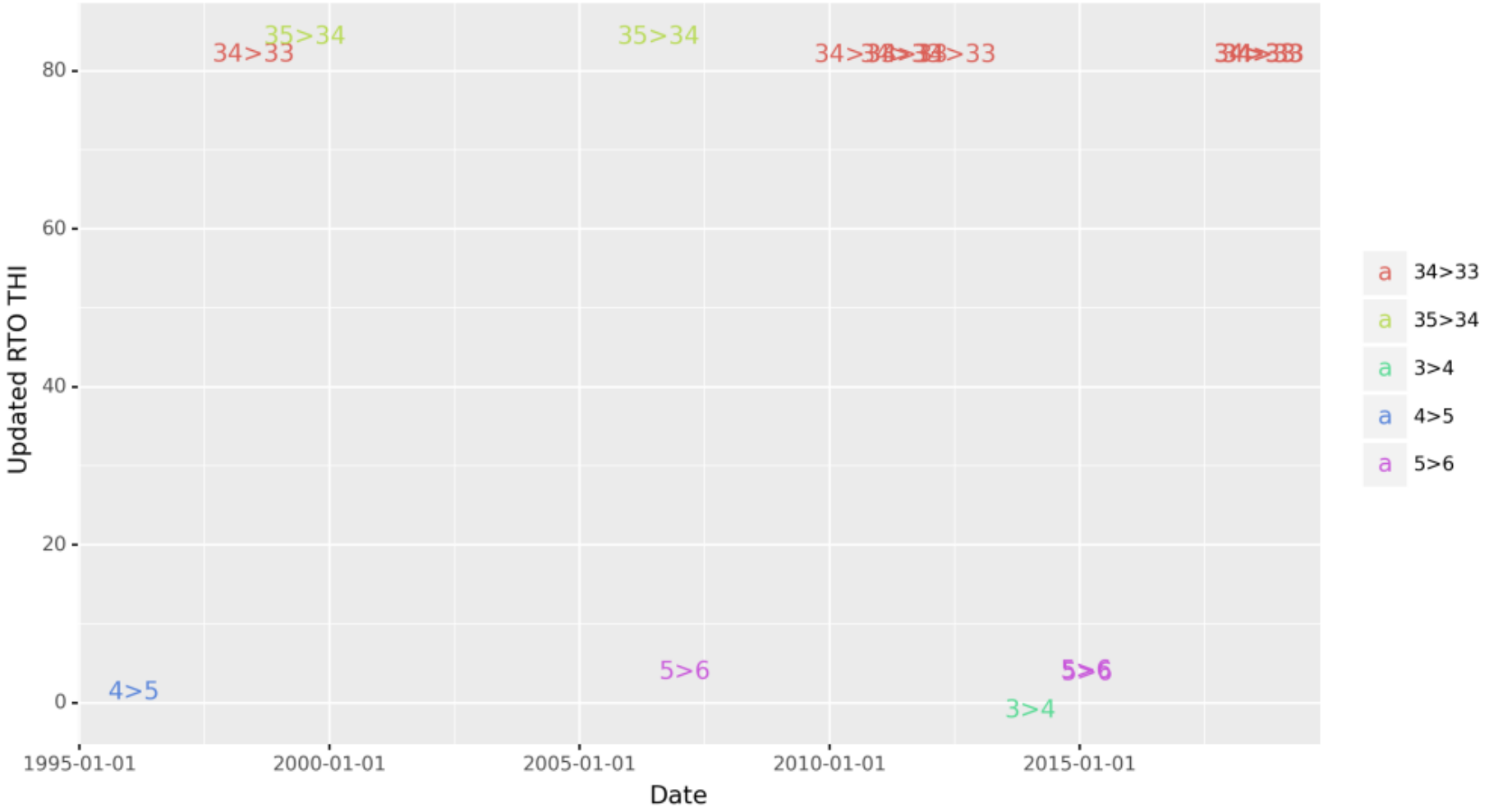
RTO THI Changes in Extreme Bins



Due to new data distribution **a few warm observations shifted to the contiguous less warm bin** (from max34 to max33 and from max35 to max34)

Also, **a few cold observations shifted to the contiguous less cold bin** (from min3 to min4, from min4 to min5, and from min5 to min6)

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Merging to derive the extreme bins

- Following the same merging scheme used in the previous ELCC run with the updated RTO THI data produces the following:
  - Winter:
    - Merging min0, min1, min2, min3, min4, min5 results in 18 observations, 3 less than in previous ELCC run
    - The observations that got dropped are: 2007-02-06, 2015-02-16, 2015-02-24. There were no additions
    - The above means that the coldest bin has 7 observations post June 1st, 2012 (in the previous run, it had 9)

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Merging to derive the extreme bins

- Summer:
  - Merging max35 with max34 results in 79 observations, seven less than in the previous ELCC run
  - The observations that got dropped are nine: 1998-06-25, 2010-07-07, 2011-06-08, 2011-07-19, 2012-07-05, 2018-07-03, 2018-07-04, 2018-08-27, 2018-09-03.
  - There were two additions: 2023-07-27, 2023-07-28
  - The above means that the warmest bin has 28 observations post June 1st, 2012 (in the previous run, it had 31)

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Forced Outage for Unlimited Resources and Availability for Variable Resources - Update

- Forced Outage (for Unlimited Resources) and Availability data (for Variable Resources) from the 2023/24 Delivery Year will be rolled in
- The following graphs are preliminary because we still do not know the composition of the expected portfolio for 25/26 3IA and 27/28 BRA runs
  - Furthermore, the graphs only consider existing units; also, the respective CIRs and deliverability levels (used to cap hourly output) are those used in the run for the 26/27 BRA (including transitional CIRs)
- As seen from the RTO THI data, the two warmest days in 23/24 fall in the max34 bin while the coldest day falls in the min8 bin. These days are:
  - Warmest: 2023-07-27, 2023-07-28
  - Coldest: 2024-01-17

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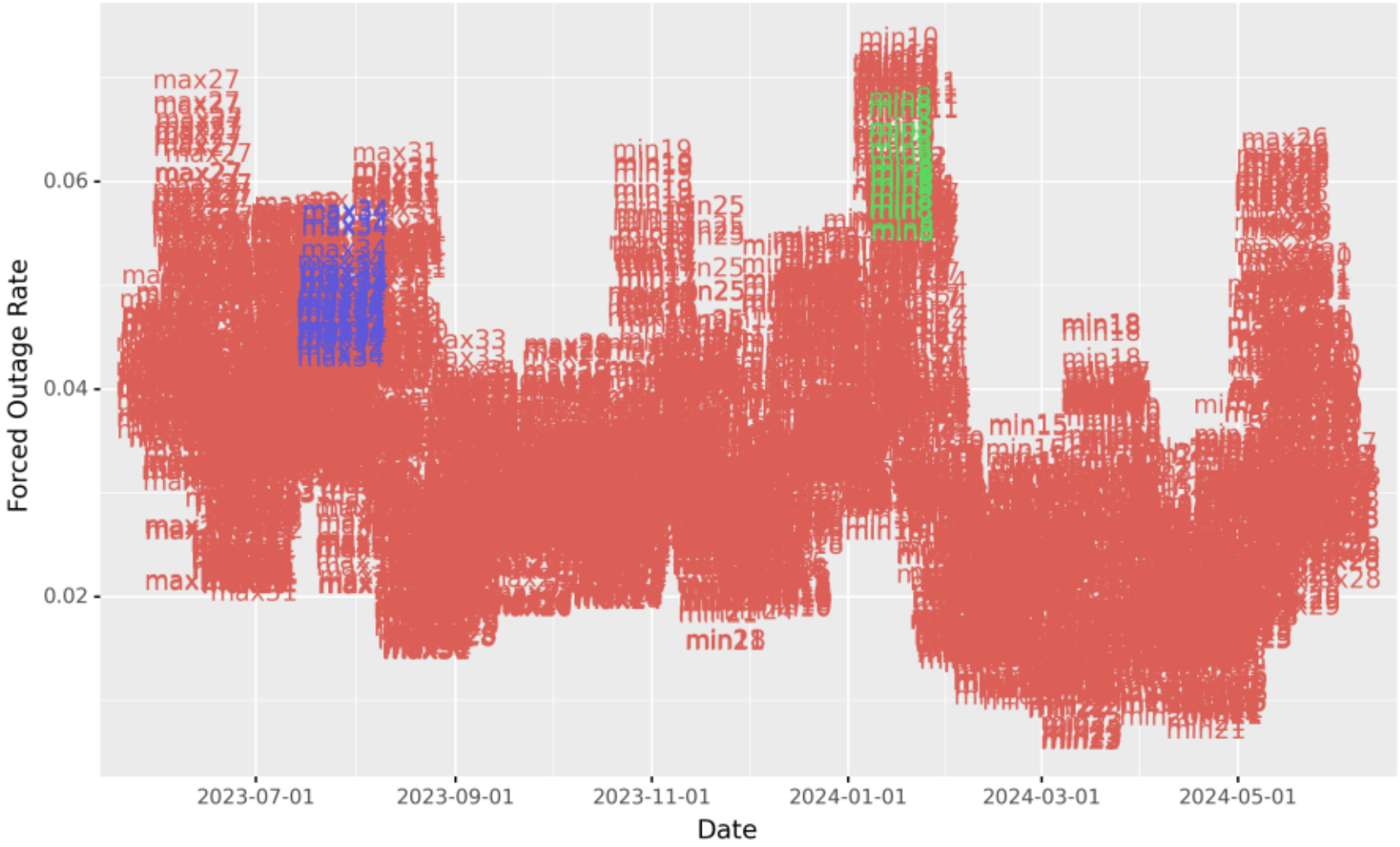
Preliminary Forced Outages 23/24 DY
All Unlimited ELCC Classes



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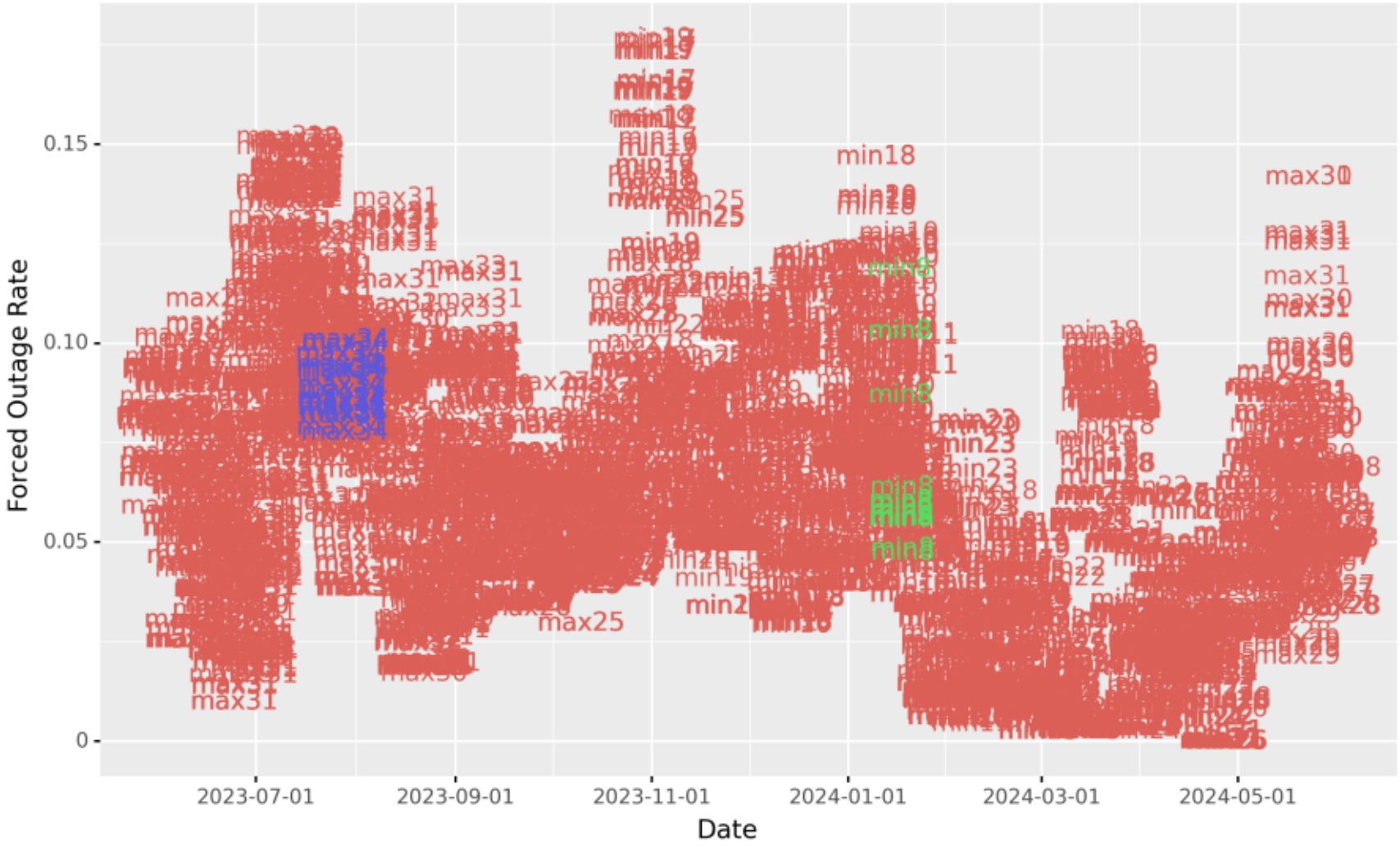
Preliminary Forced Outages 23/24 DY
Coal ELCC Class



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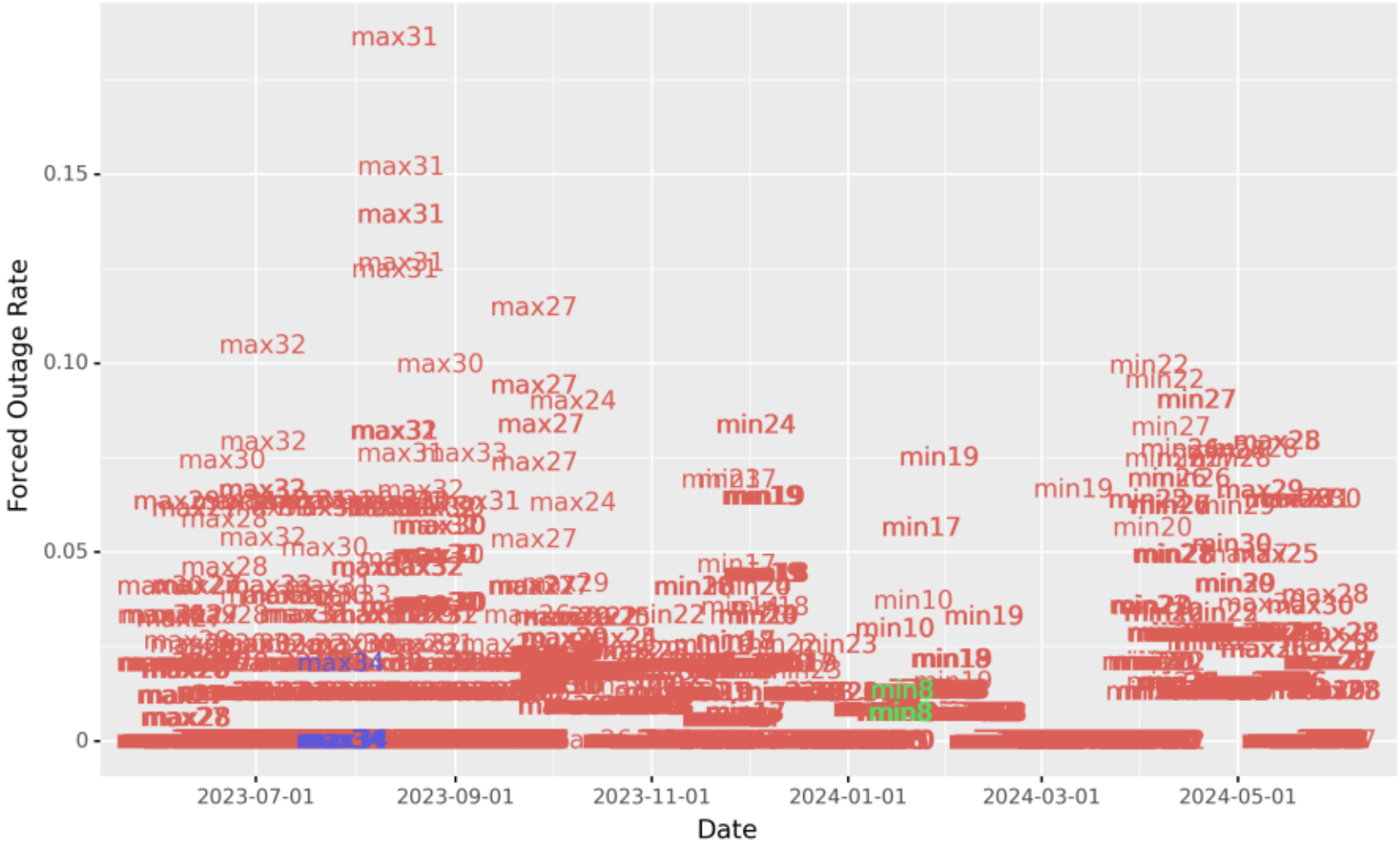
Preliminary Forced Outages 23/24 DY
Diesel Utility ELCC Class



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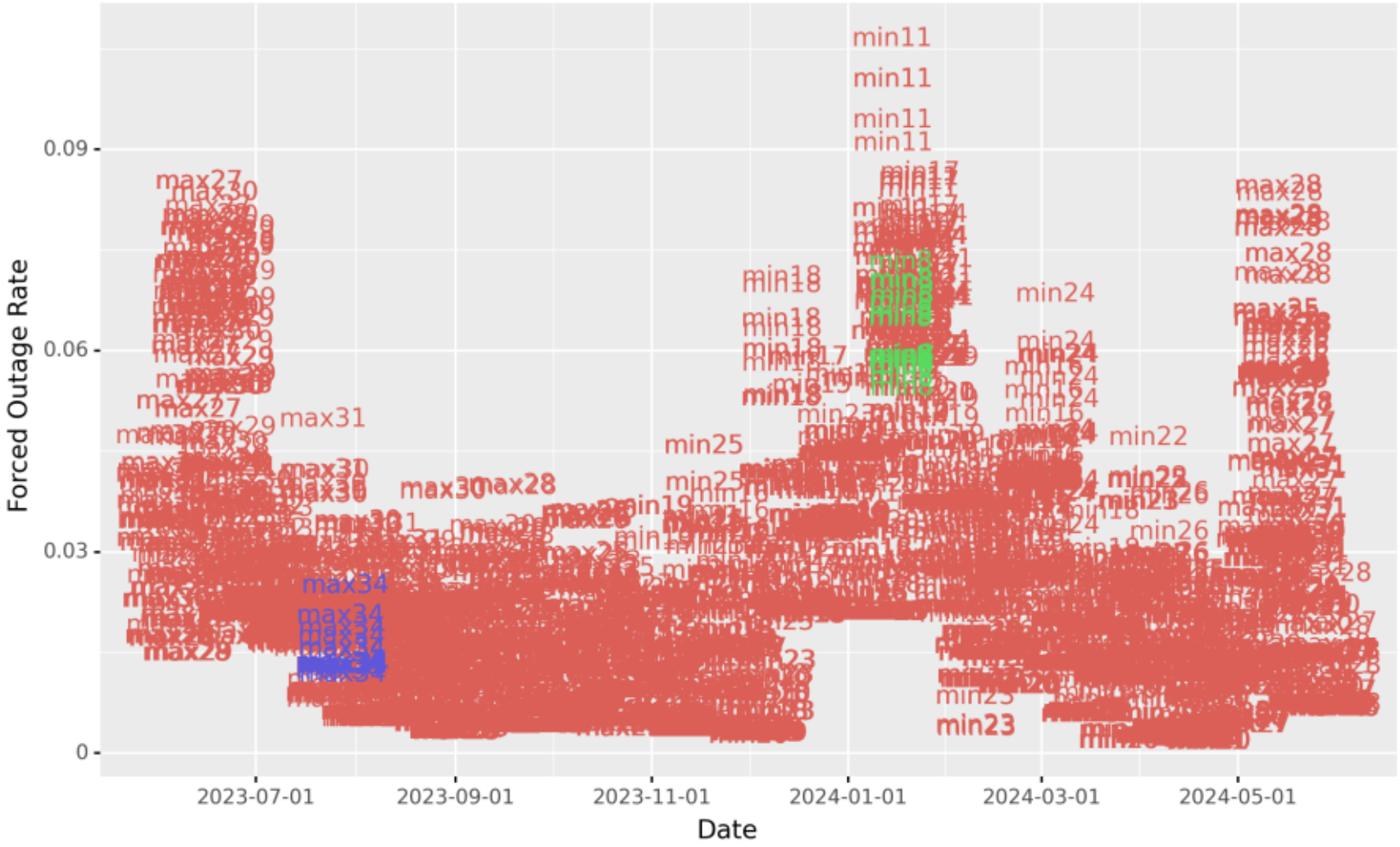
Preliminary Forced Outages 23/24 DY
Gas Combined Cycle ELCC Class



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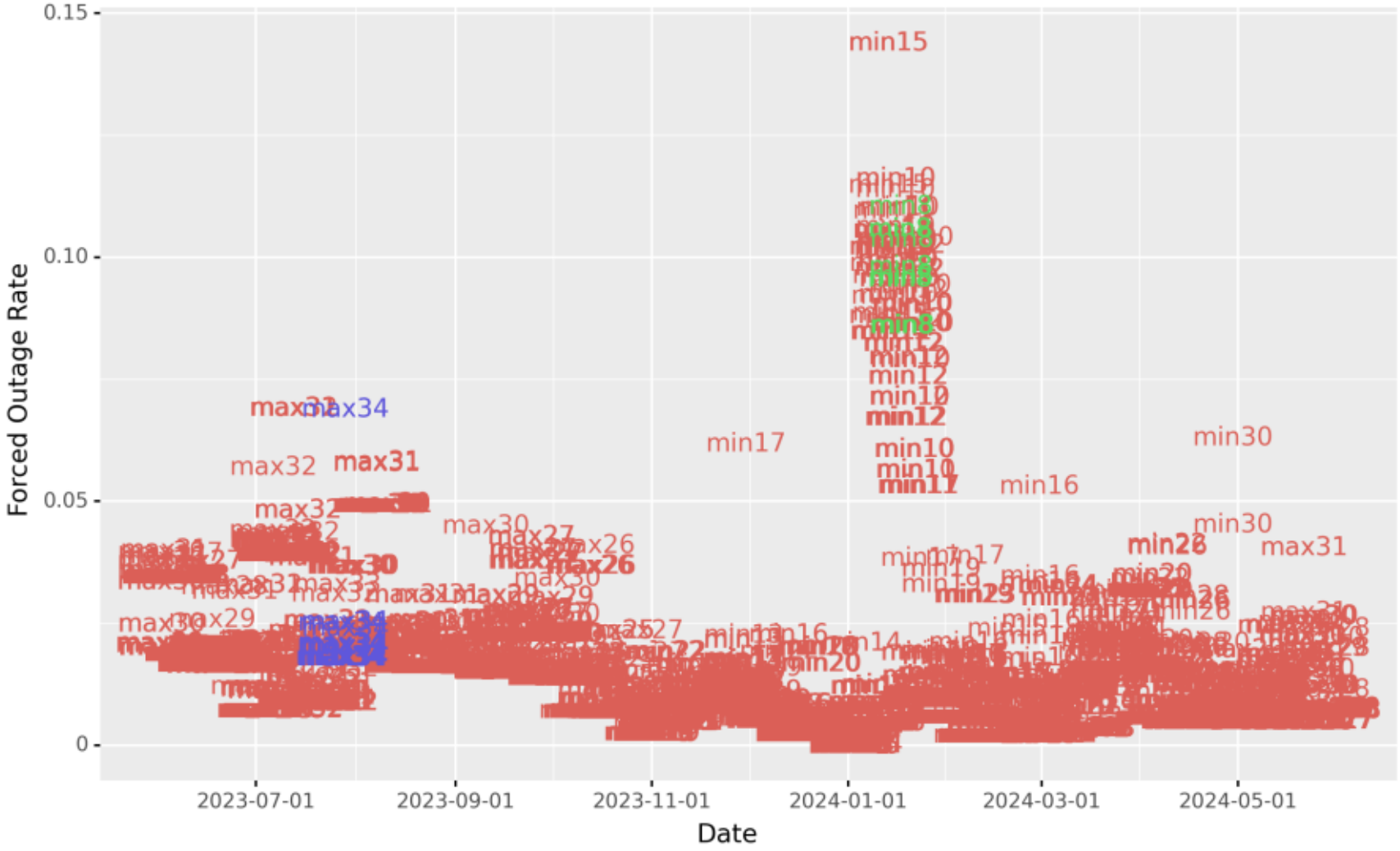
Preliminary Forced Outages 23/24 DY
Gas Combustion Turbine ELCC Class



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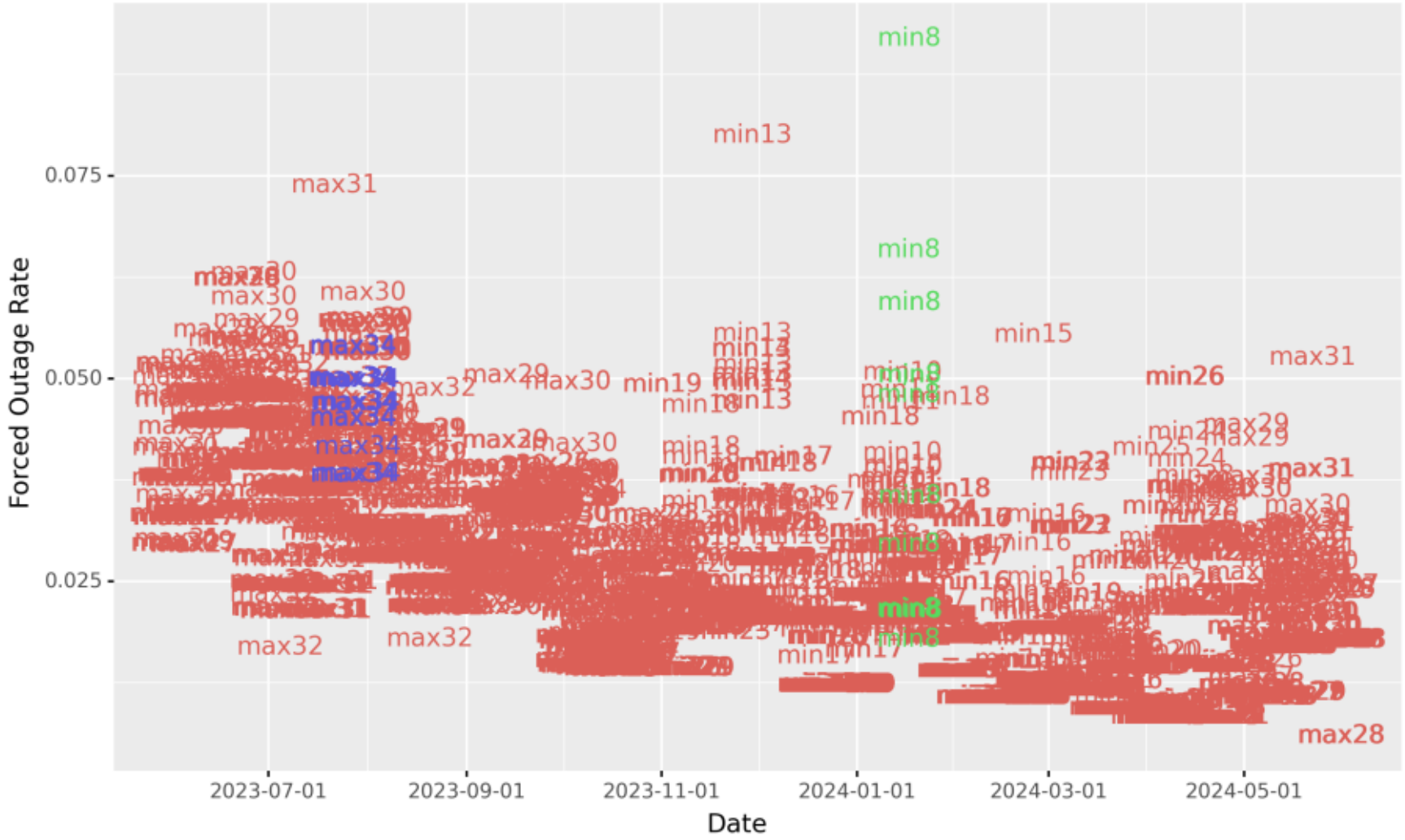
Preliminary Forced Outages 23/24 DY
Gas Combustion Turbine Dual ELCC Class



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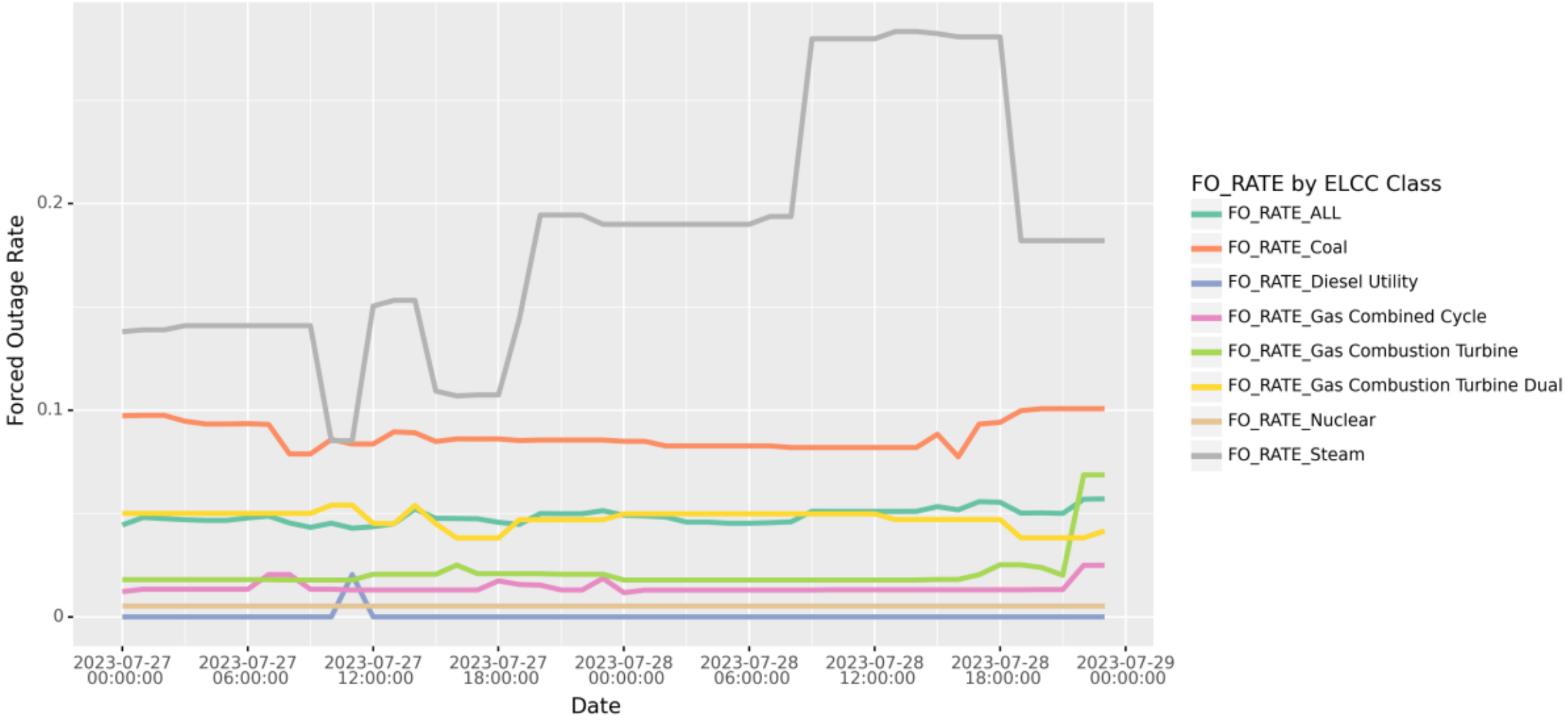
Forced Outage Rate for Unlimited Classes on Warmest Days of 2023/24



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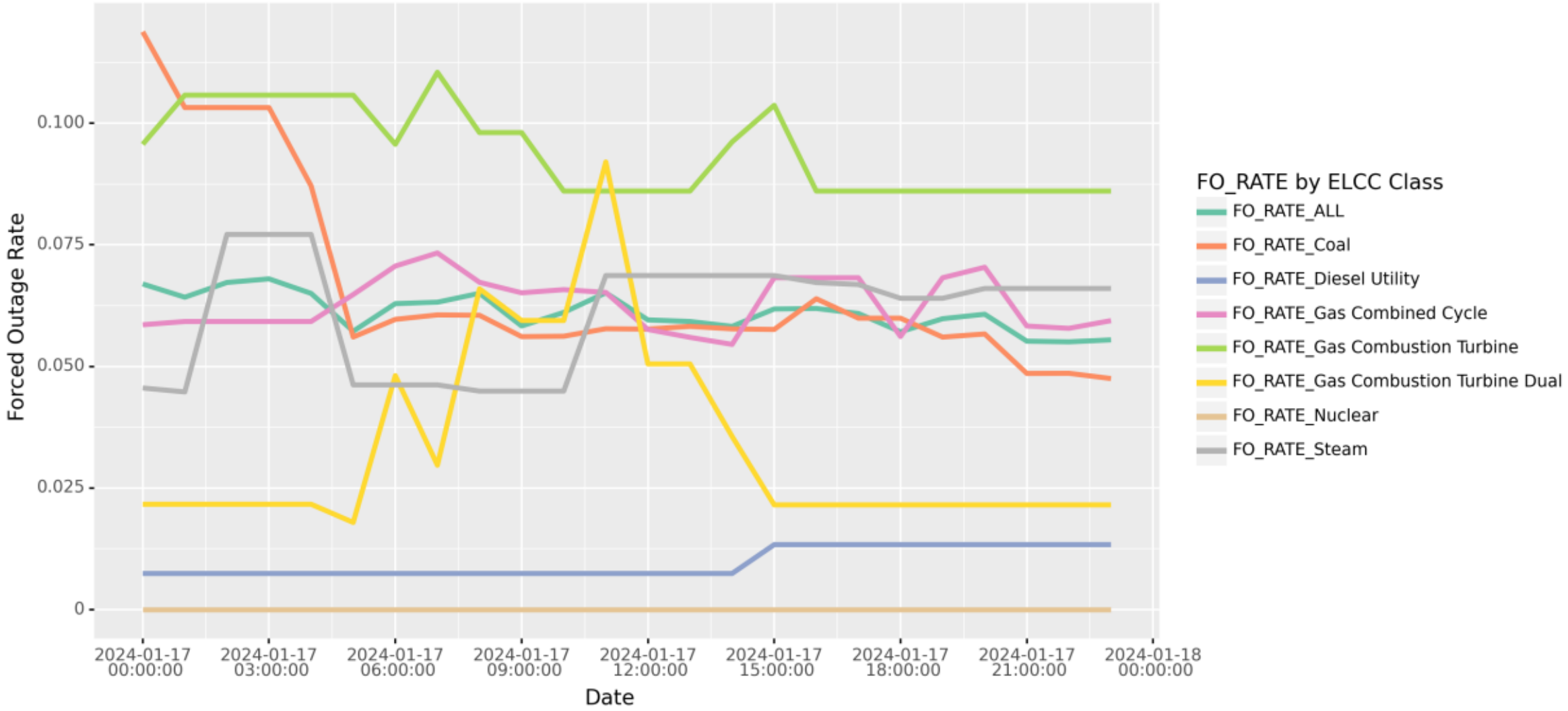
Forced Outage Rate for Unlimited Classes on Coldest Day of 2023/24



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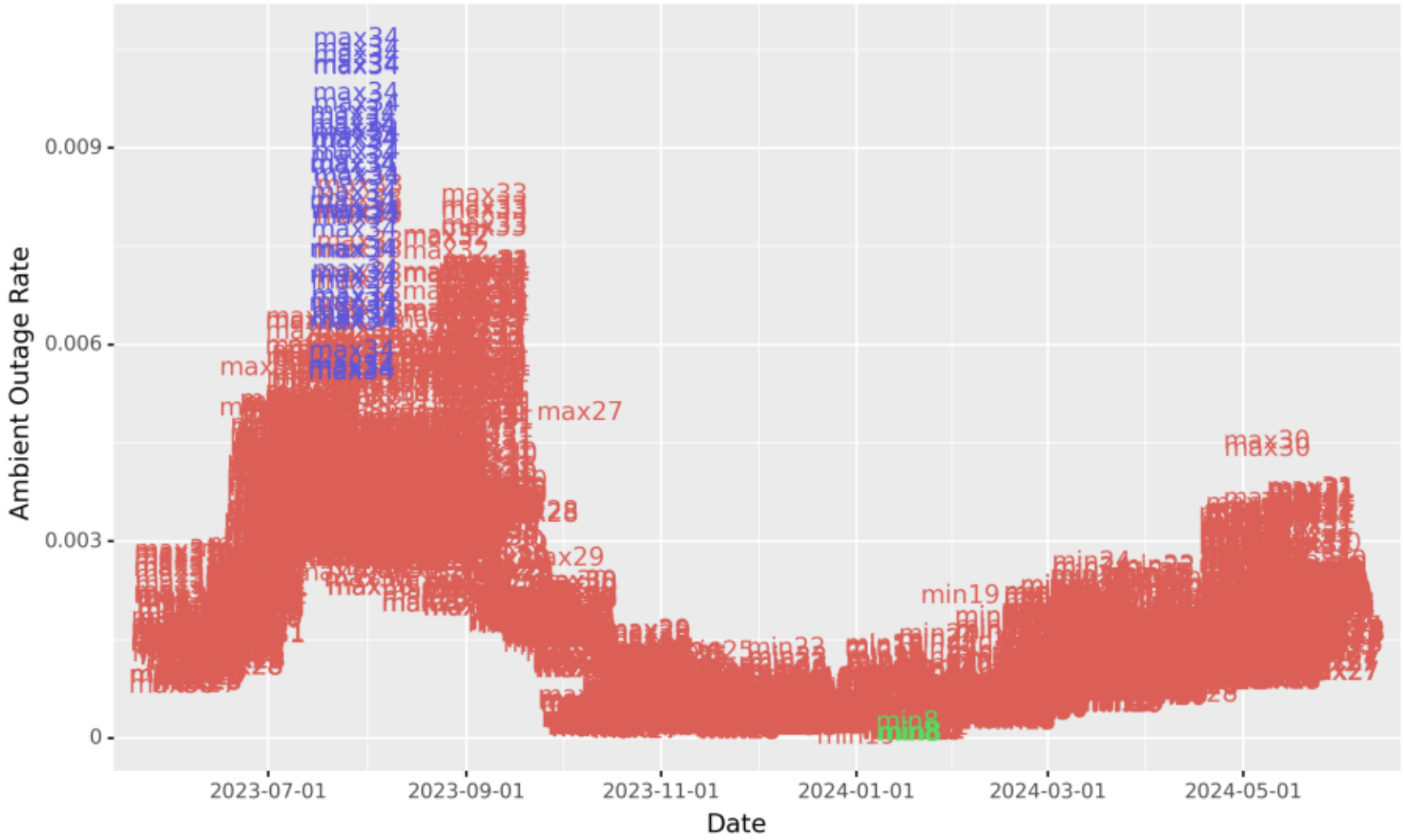
Preliminary Ambient Derates 23/24 DY
All Unlimited ELCC Classes



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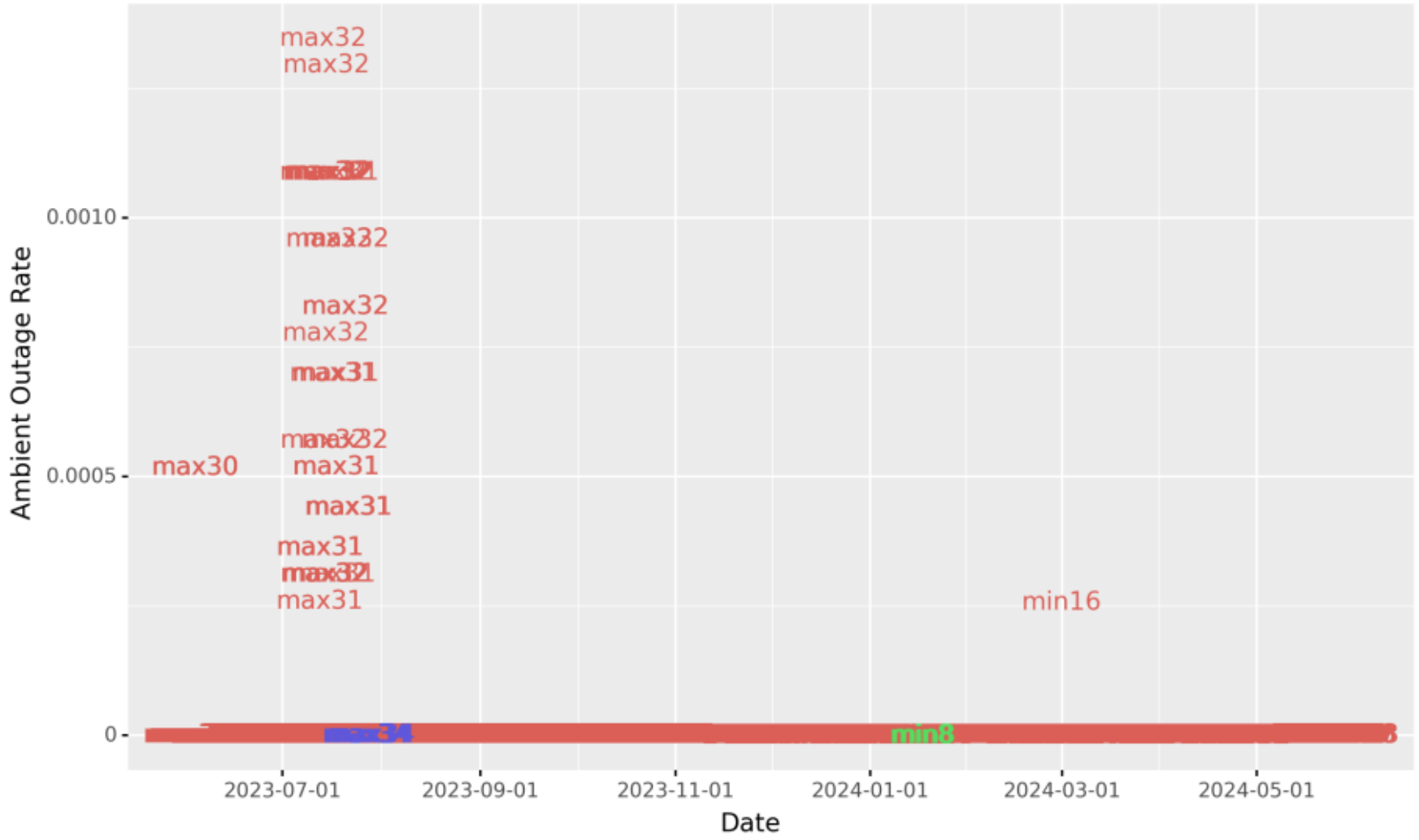
Preliminary Ambient Derates 23/24 DY Coal ELCC Class



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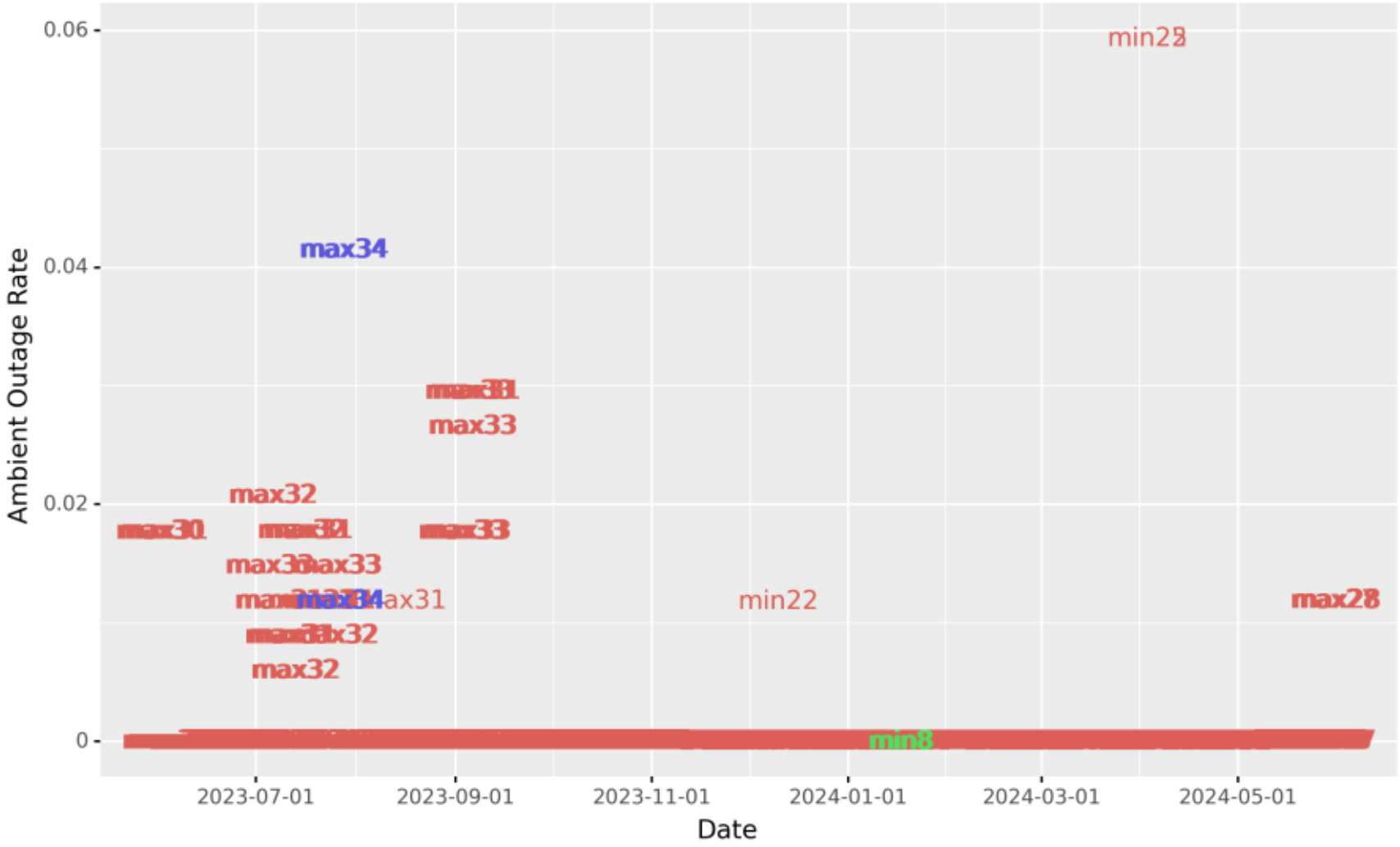
Preliminary Ambient Derates 23/24 DY
Diesel Utility ELCC Class



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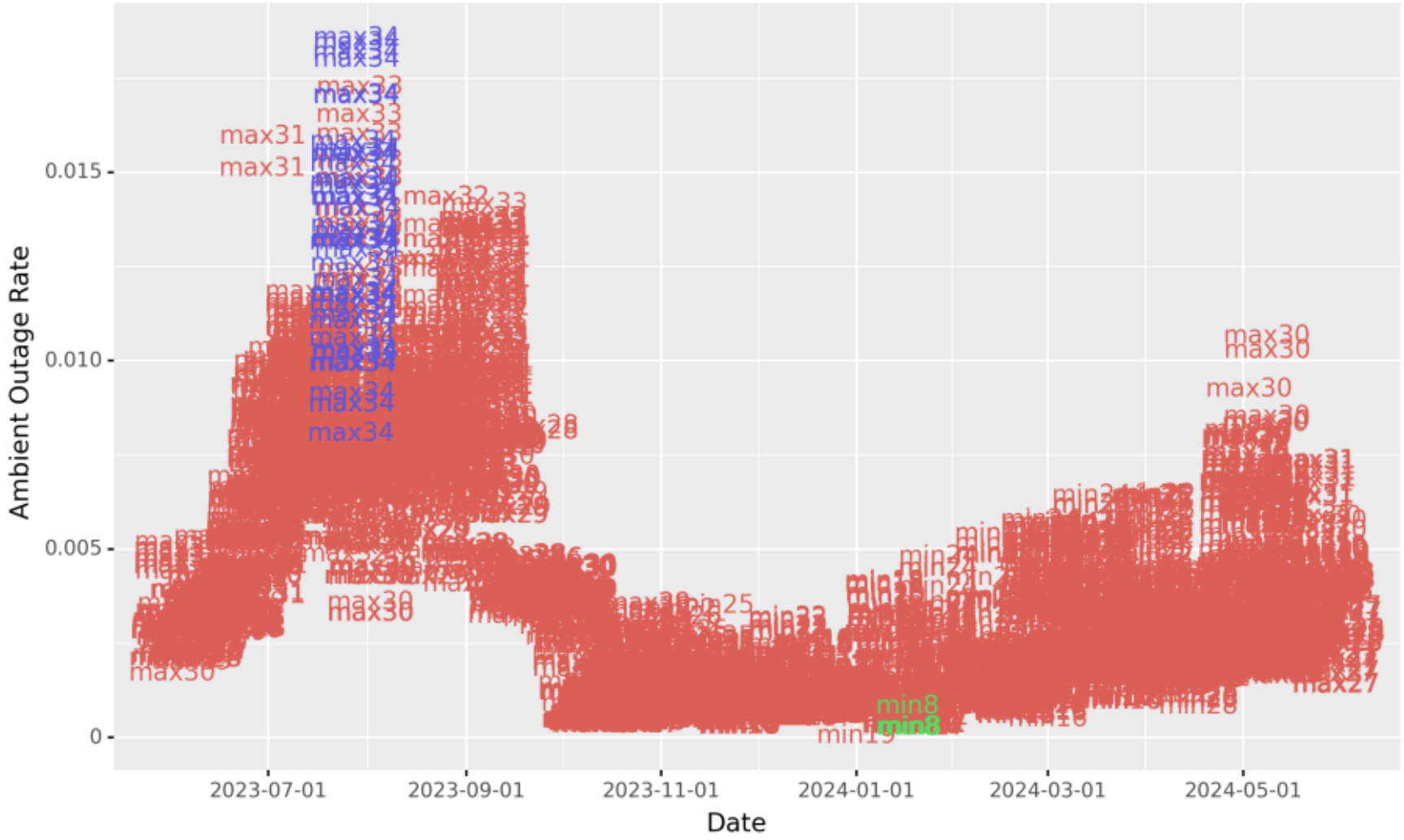
Preliminary Ambient Derates 23/24 DY
Gas Combined Cycle ELCC Class



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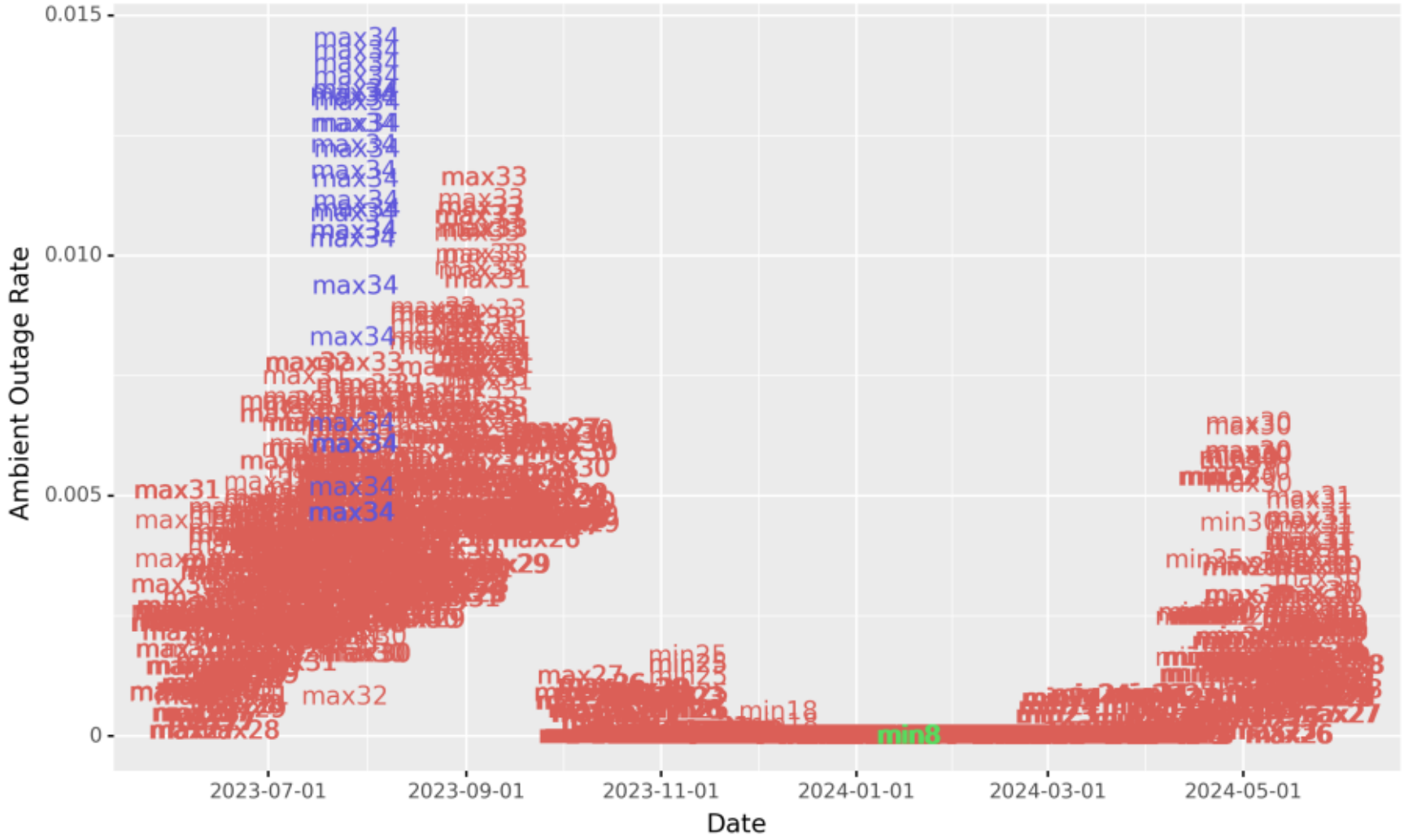
Preliminary Ambient Derates 23/24 DY Gas Combustion Turbine ELCC Class



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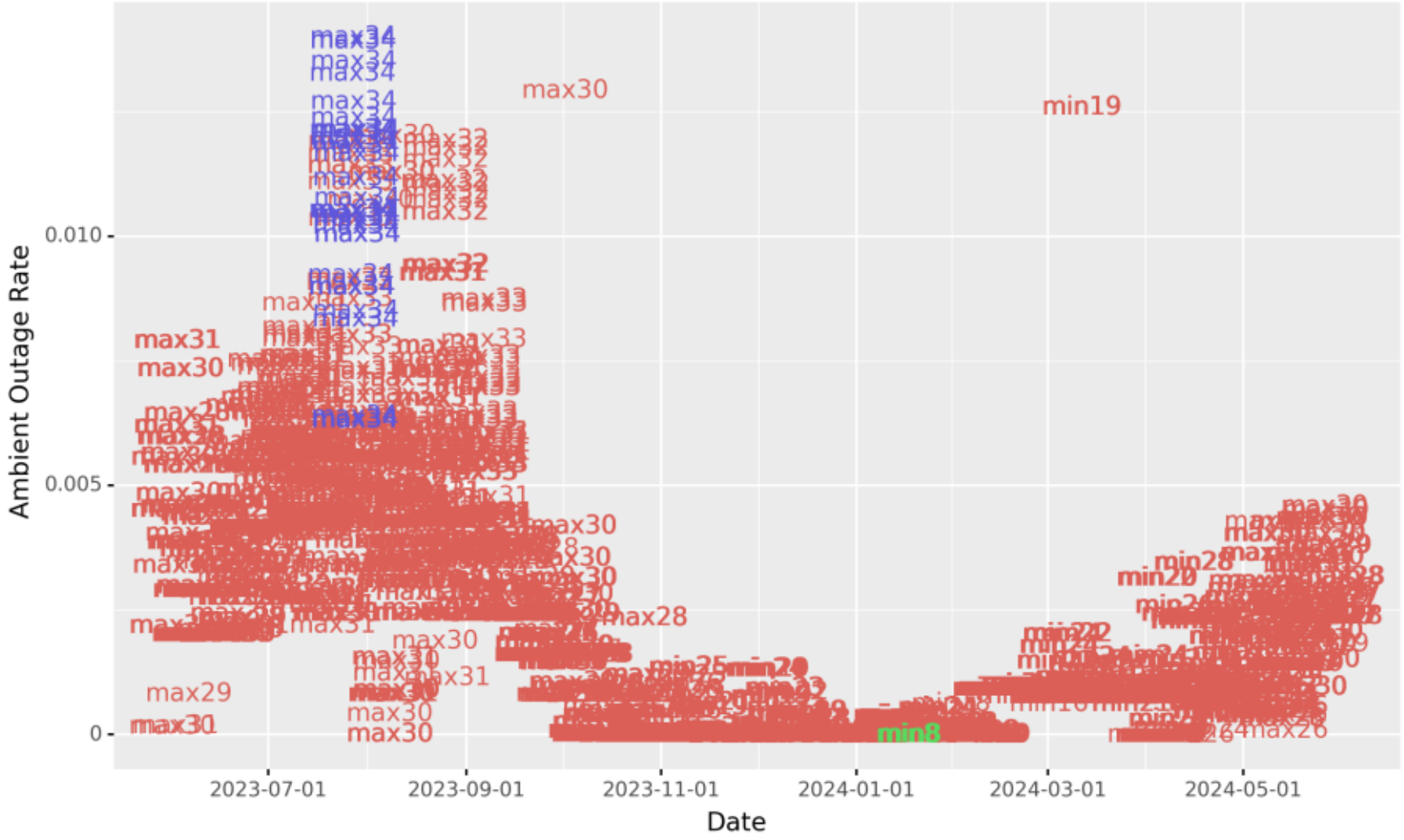
Preliminary Ambient Derates 23/24 DY
Gas Combustion Turbine Dual ELCC Class



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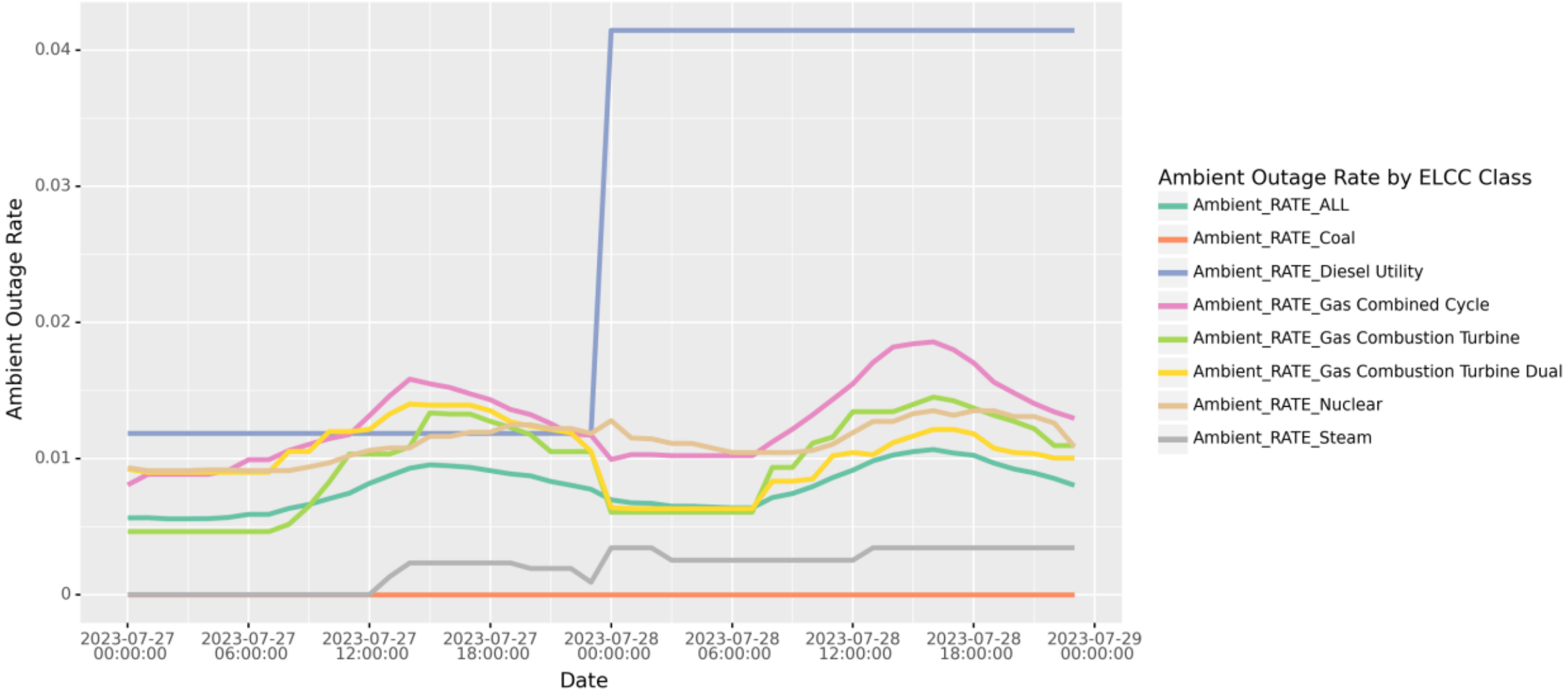
Ambient Derates for Unlimited Classes on Warmest Days of 2023/24



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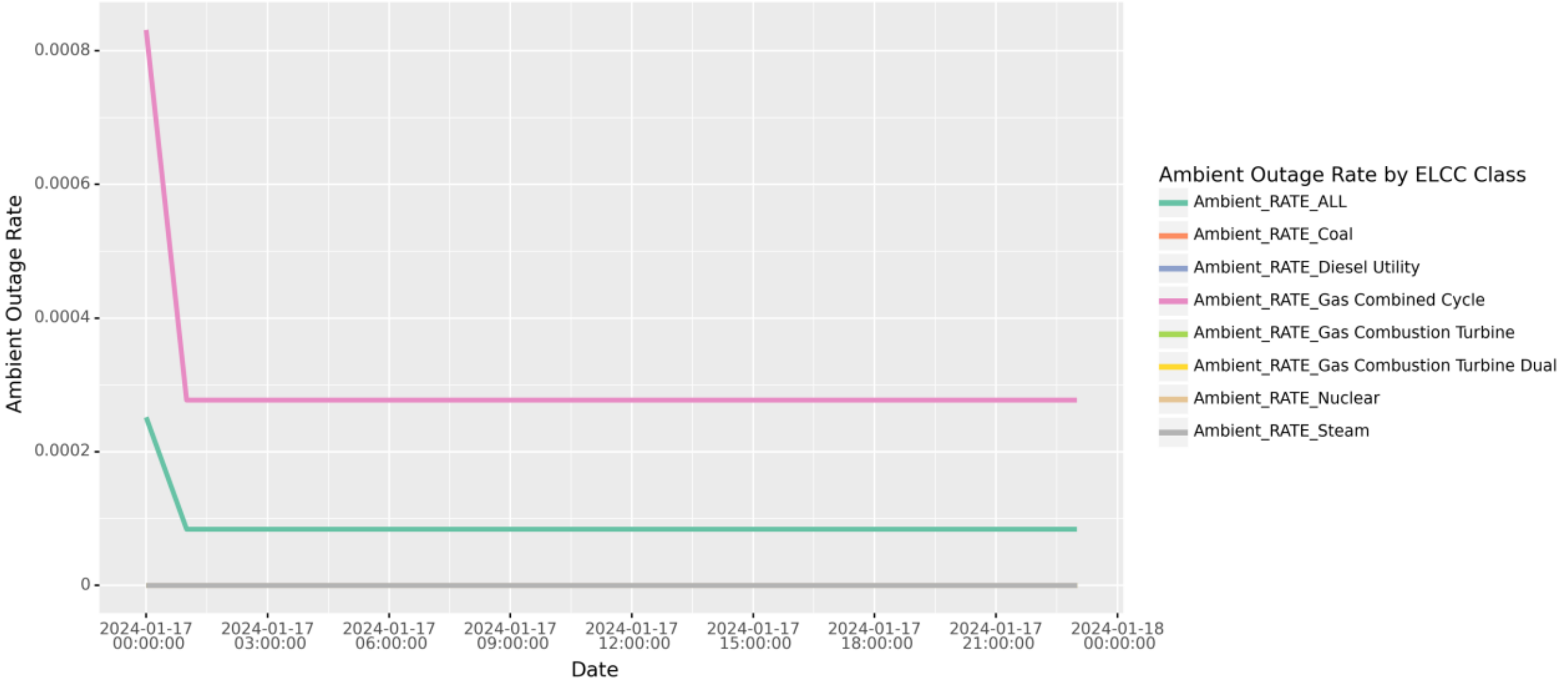
Ambient Derates for Unlimited Classes on Coldest Day of 2023/24



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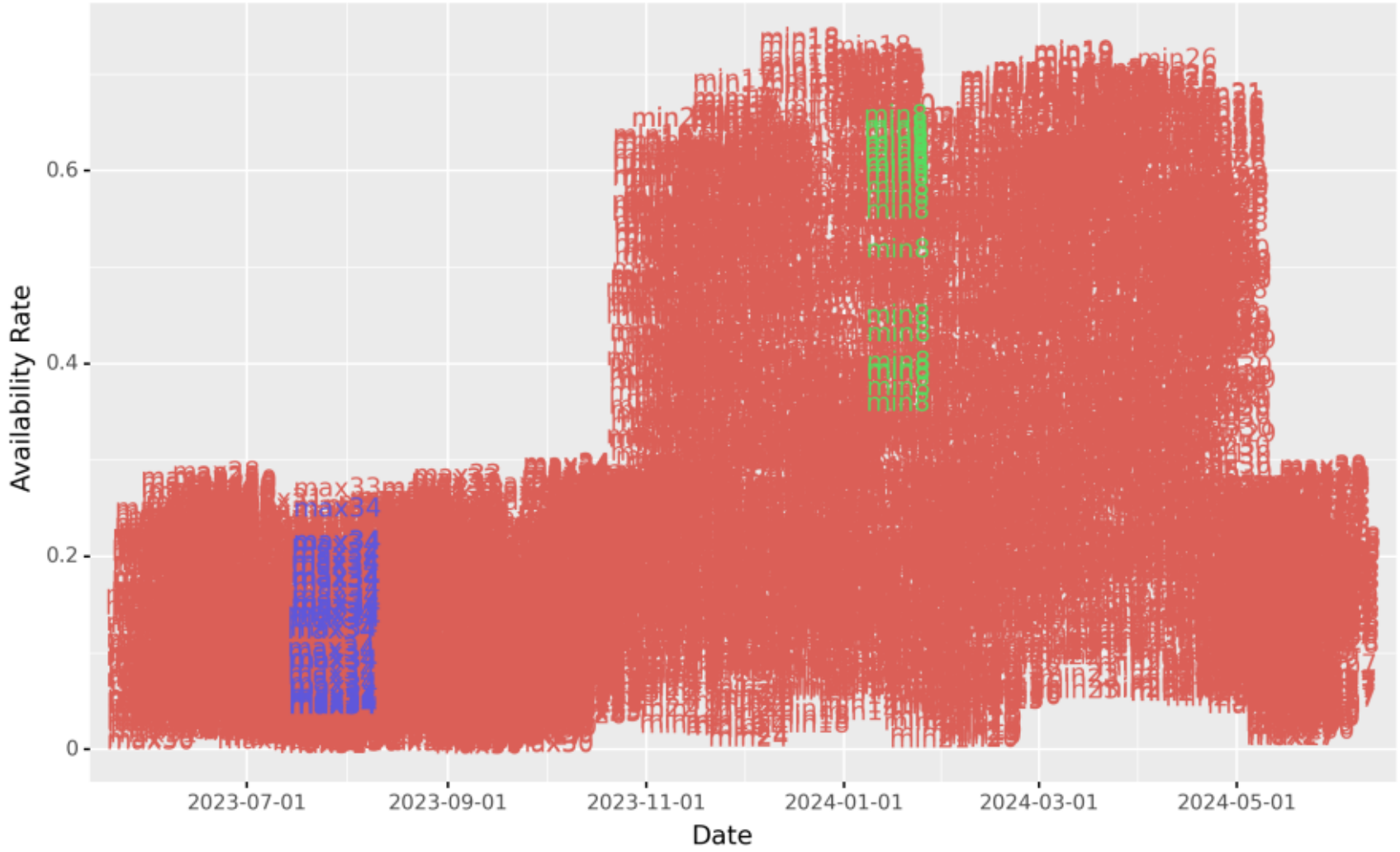
Preliminary Availability Rate 23/24 DY Onshore Wind ELCC Class



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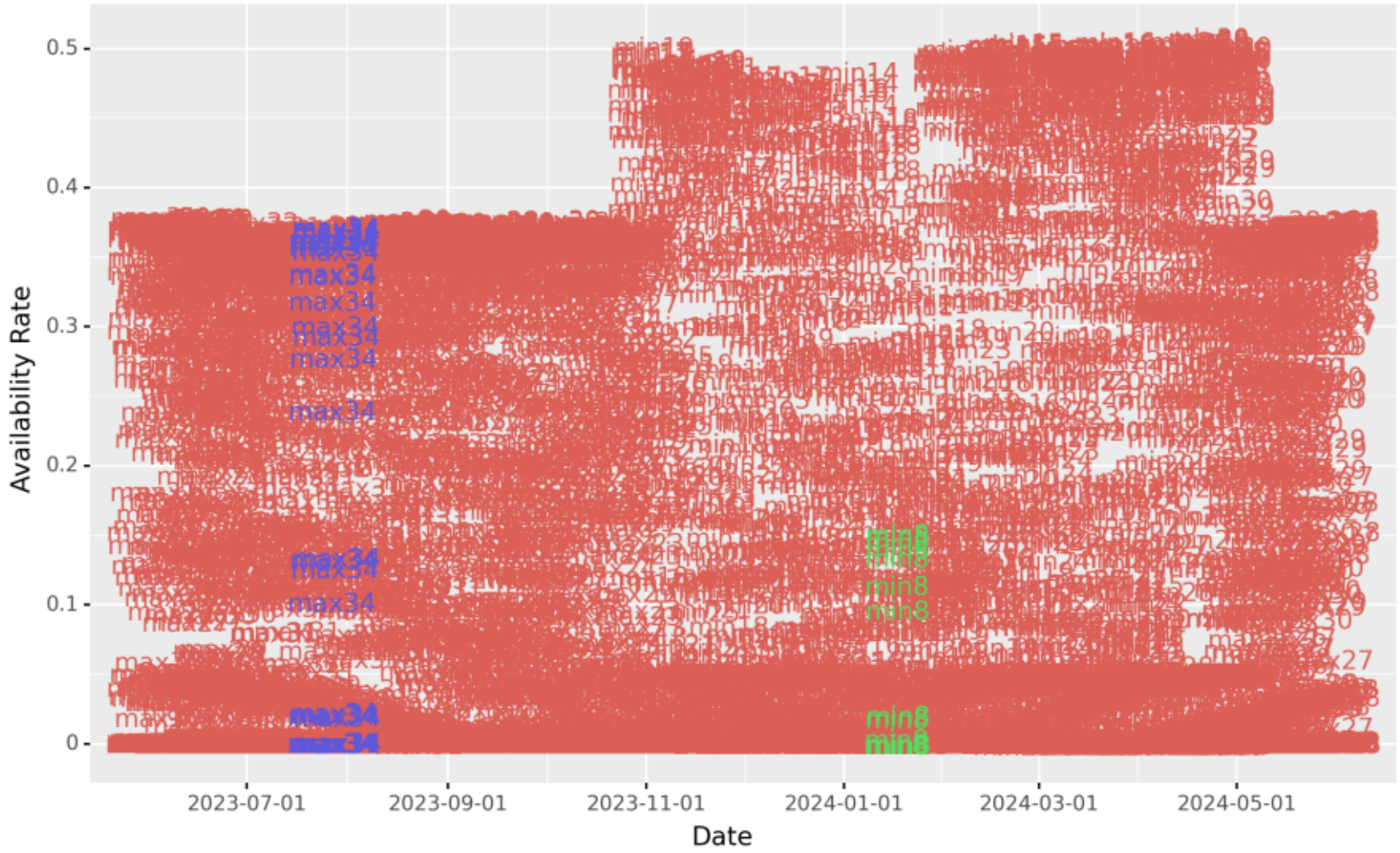
Preliminary Availability Rate 23/24 DY
Solar Fixed ELCC Class



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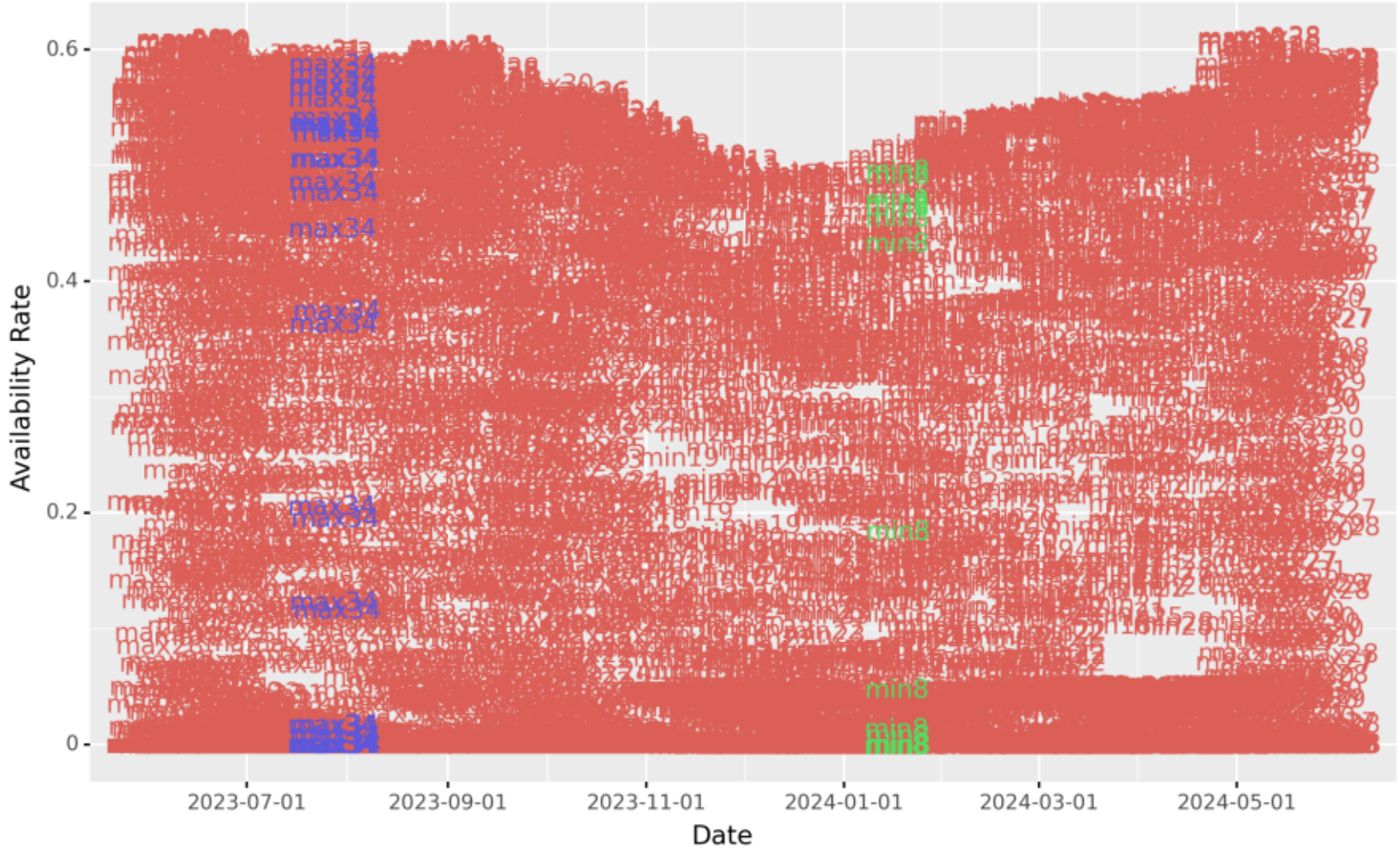
Preliminary Availability Rate 23/24 DY
Solar Tracking ELCC Class



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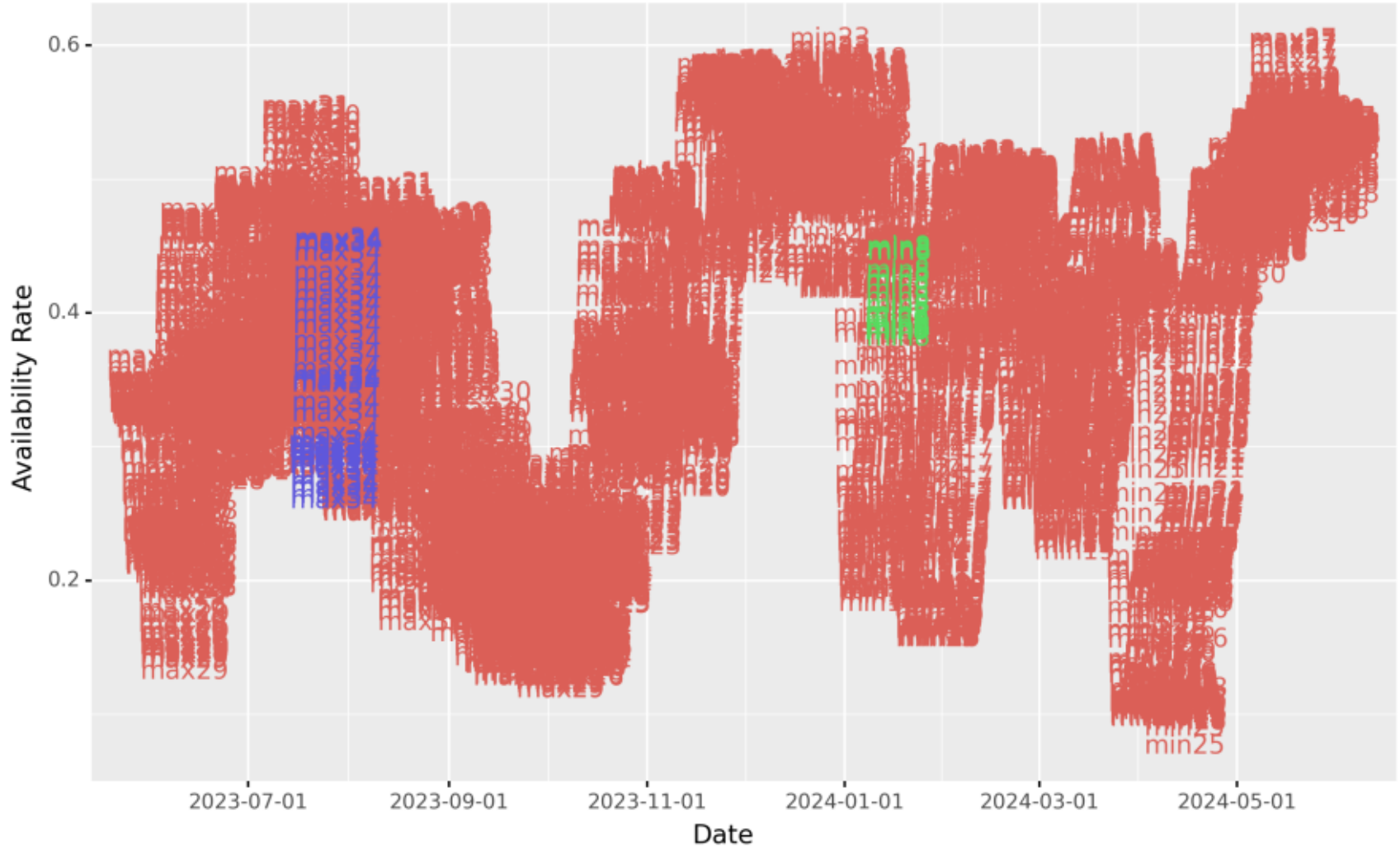
Preliminary Availability Rate 23/24 DY
Hydro Intermittent ELCC Class



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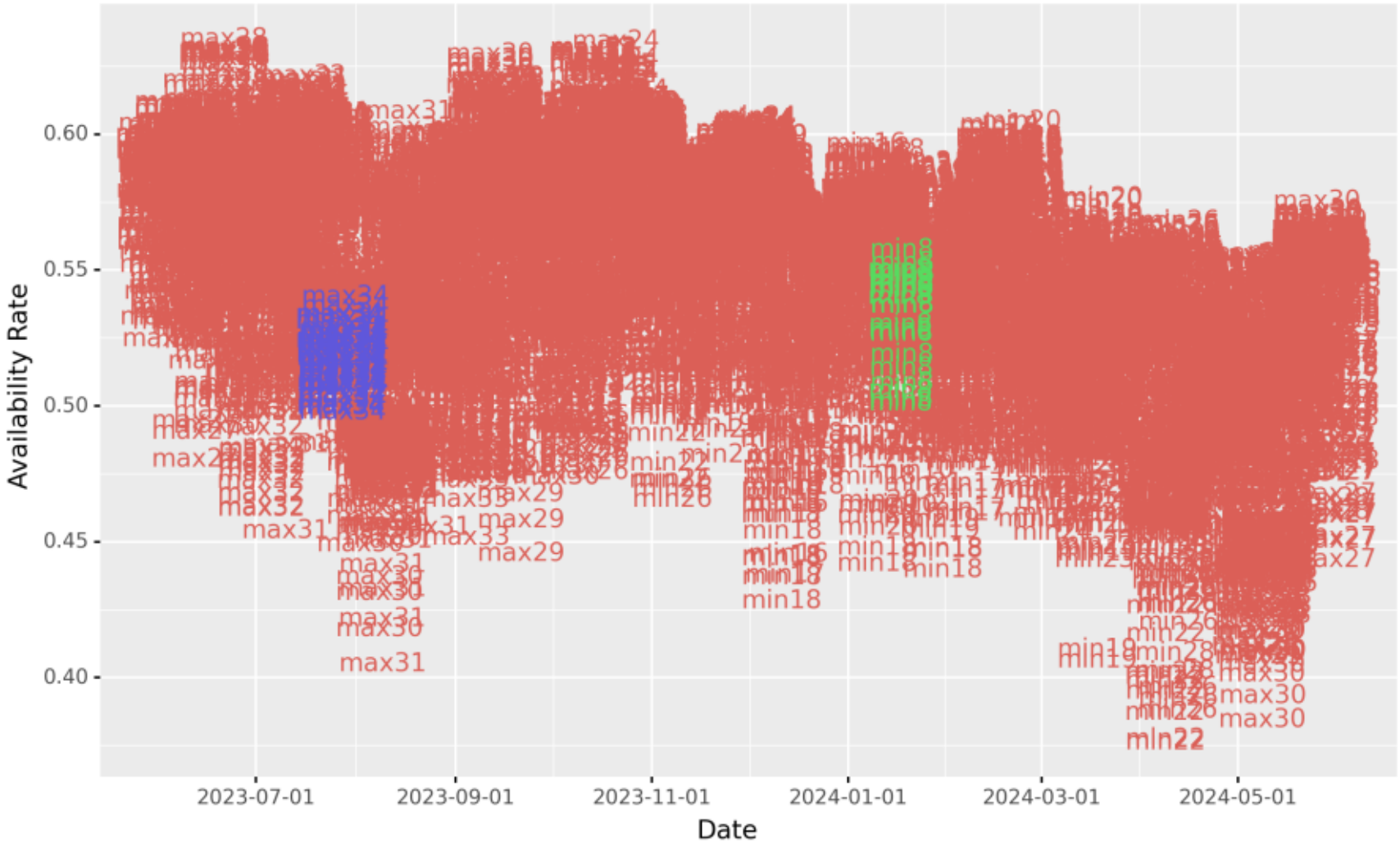
Preliminary Availability Rate 23/24 DY
Landfill Intermittent ELCC Class



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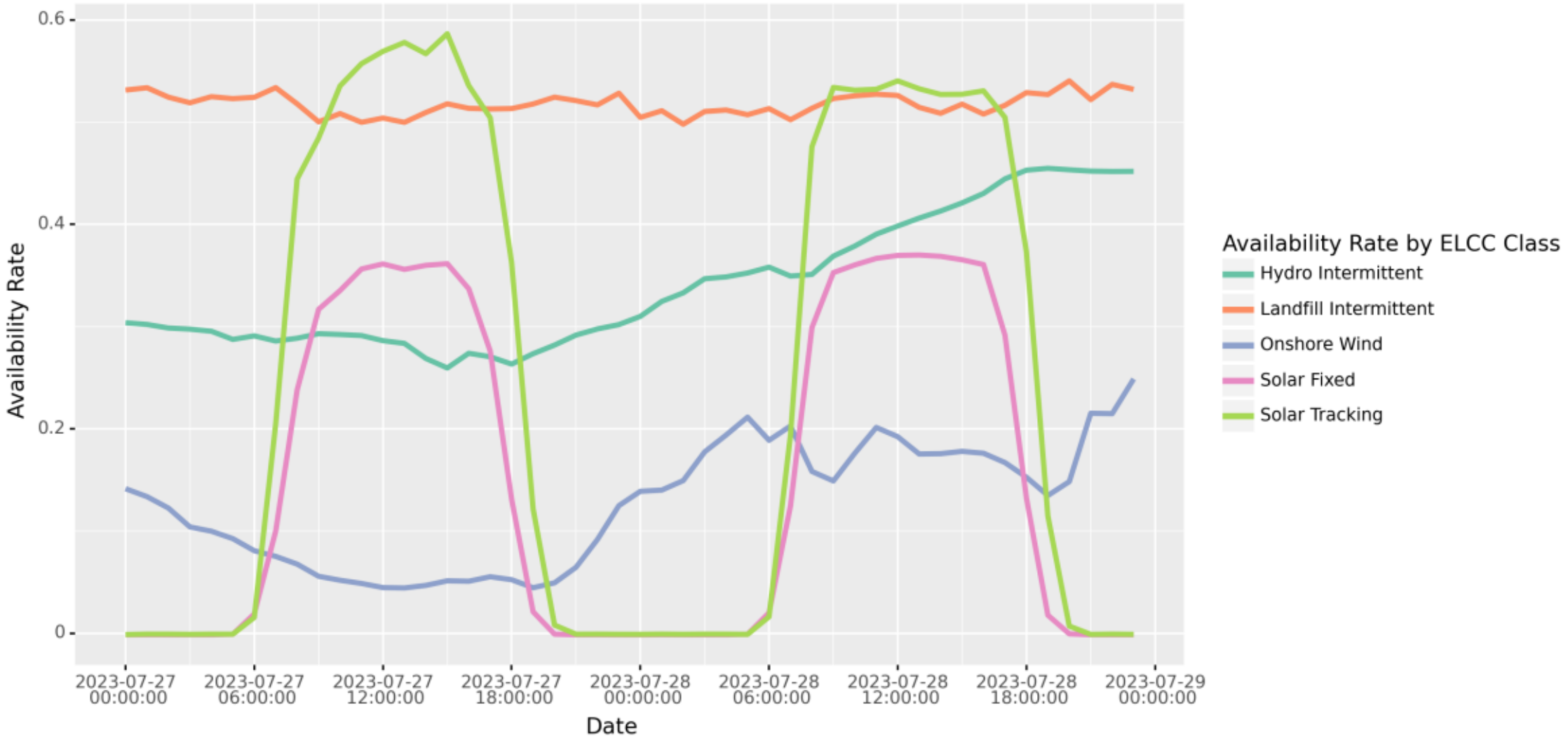
Availability Rates for Variable Classes on Warmest Days of 2023/24



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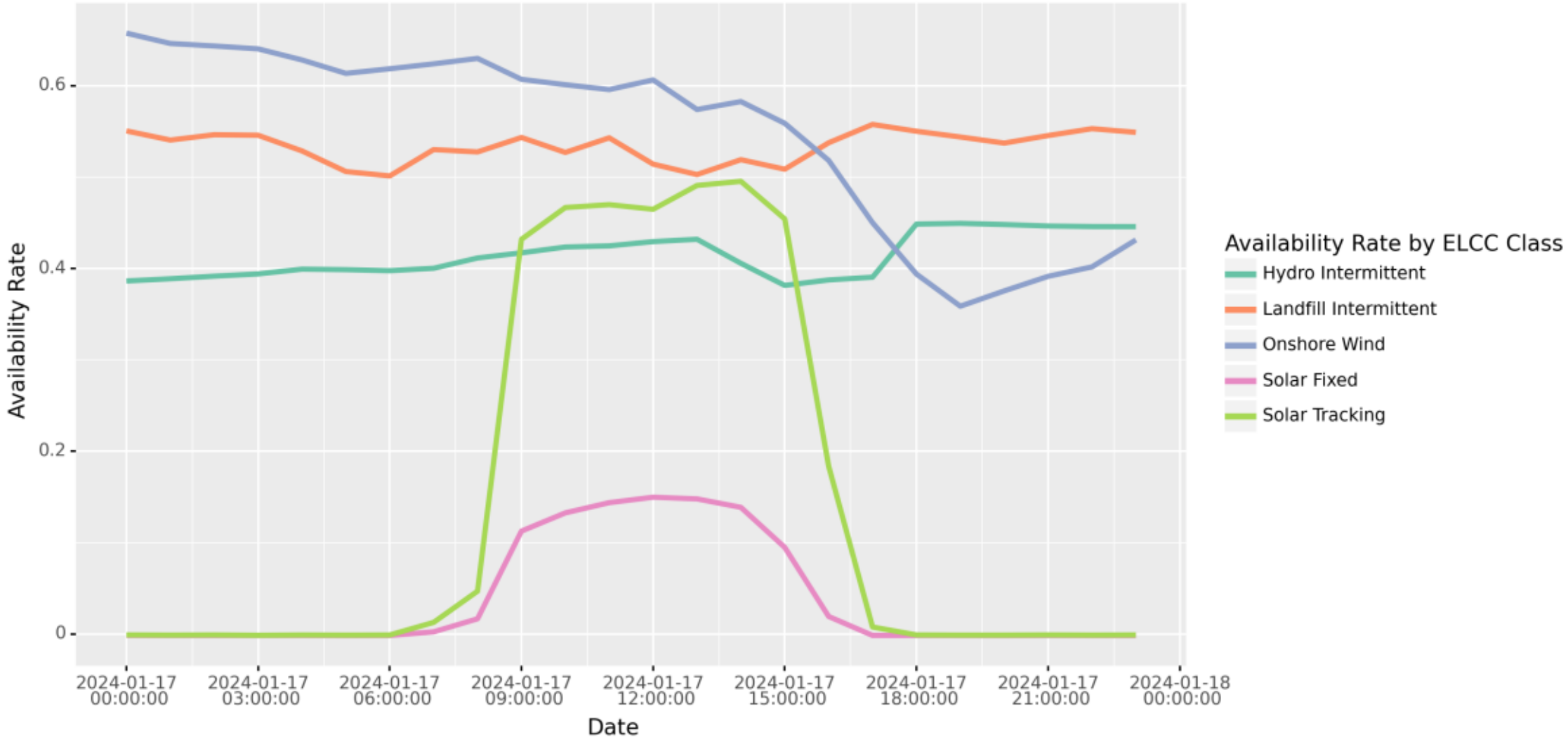
Availability Rates for Variable Classes on Coldest Day of 2023/24



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Contact

SME/Presenter:
Patricio Rocha-Garrido
Patricio.Rocha-Garrido@pjm.com

Chair:
Dean Manno
Dean.Manno@pjm.com

Secretary:
Jason Quevada
Jason.Quevada@pjm.com

Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com

Update on Upcoming December FPR/ELCC Run

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