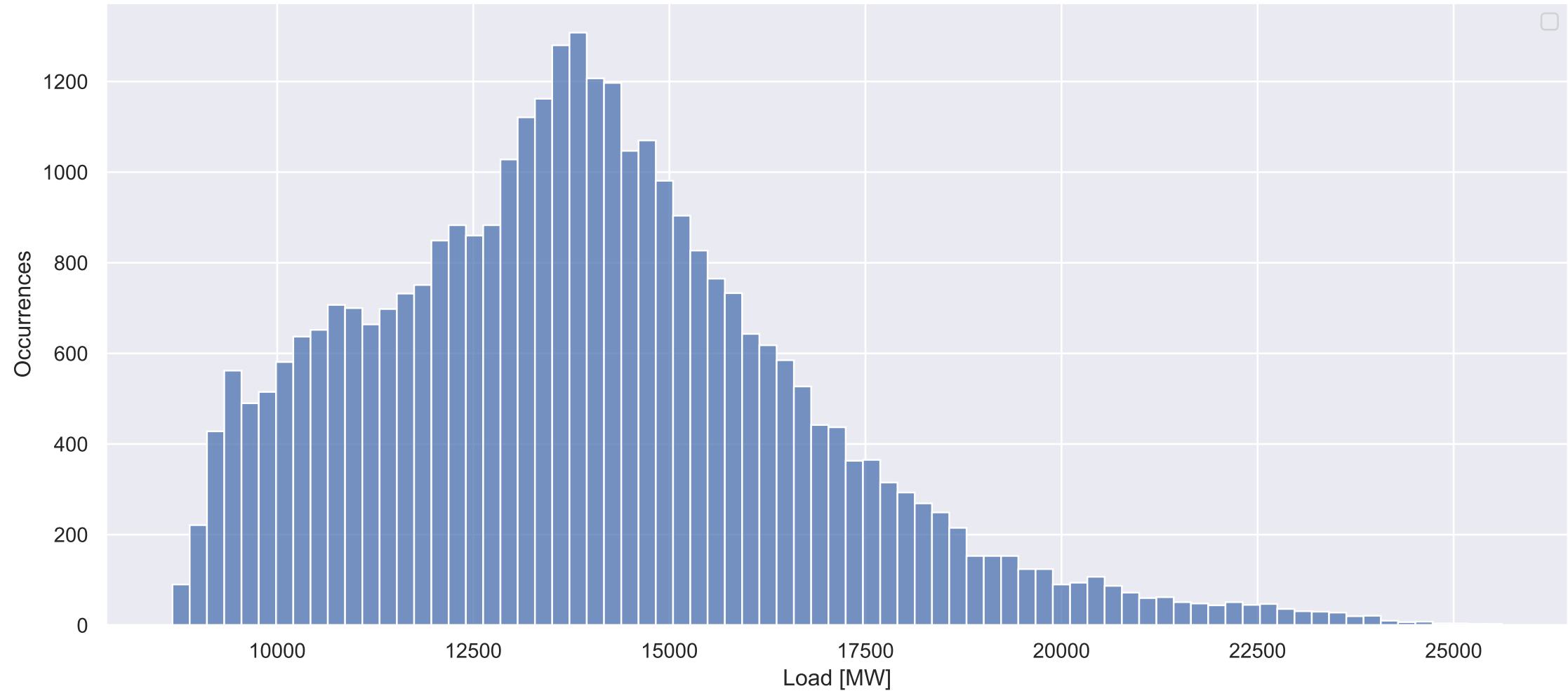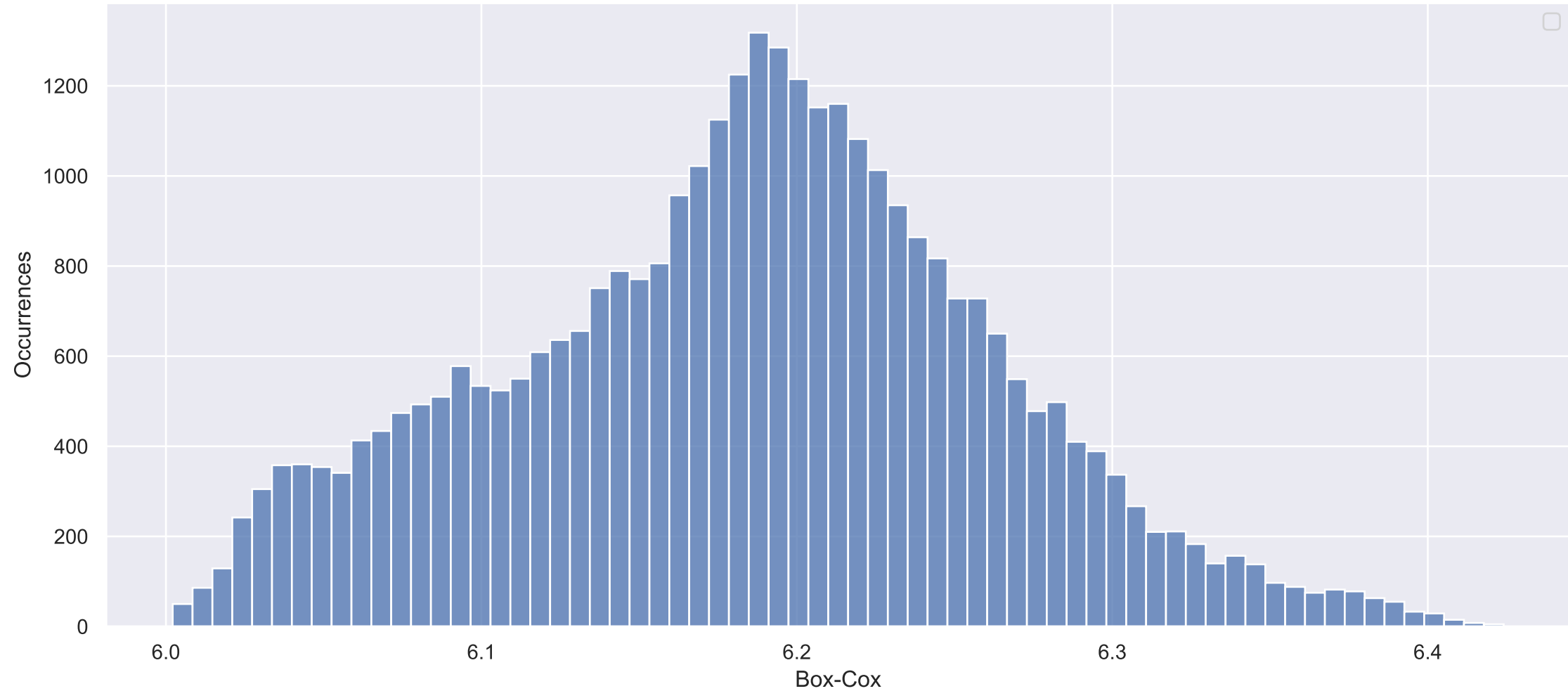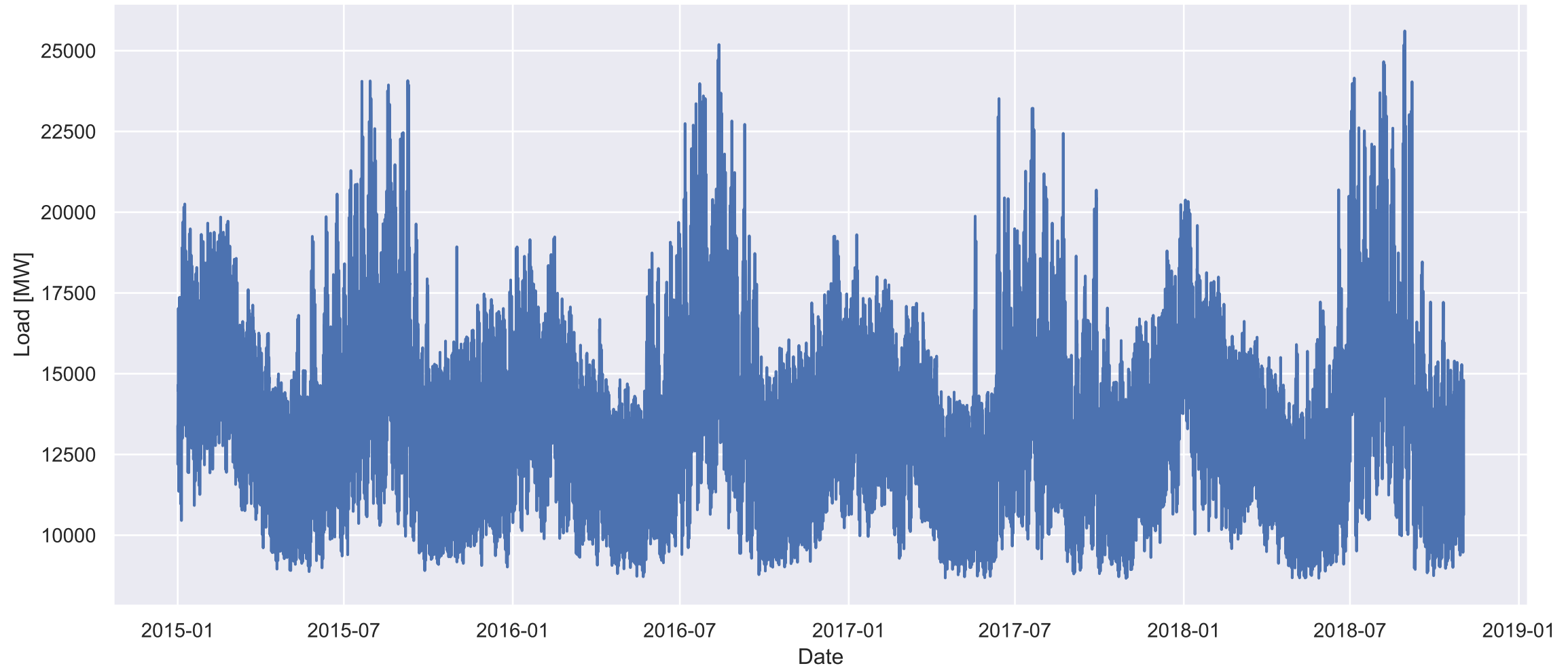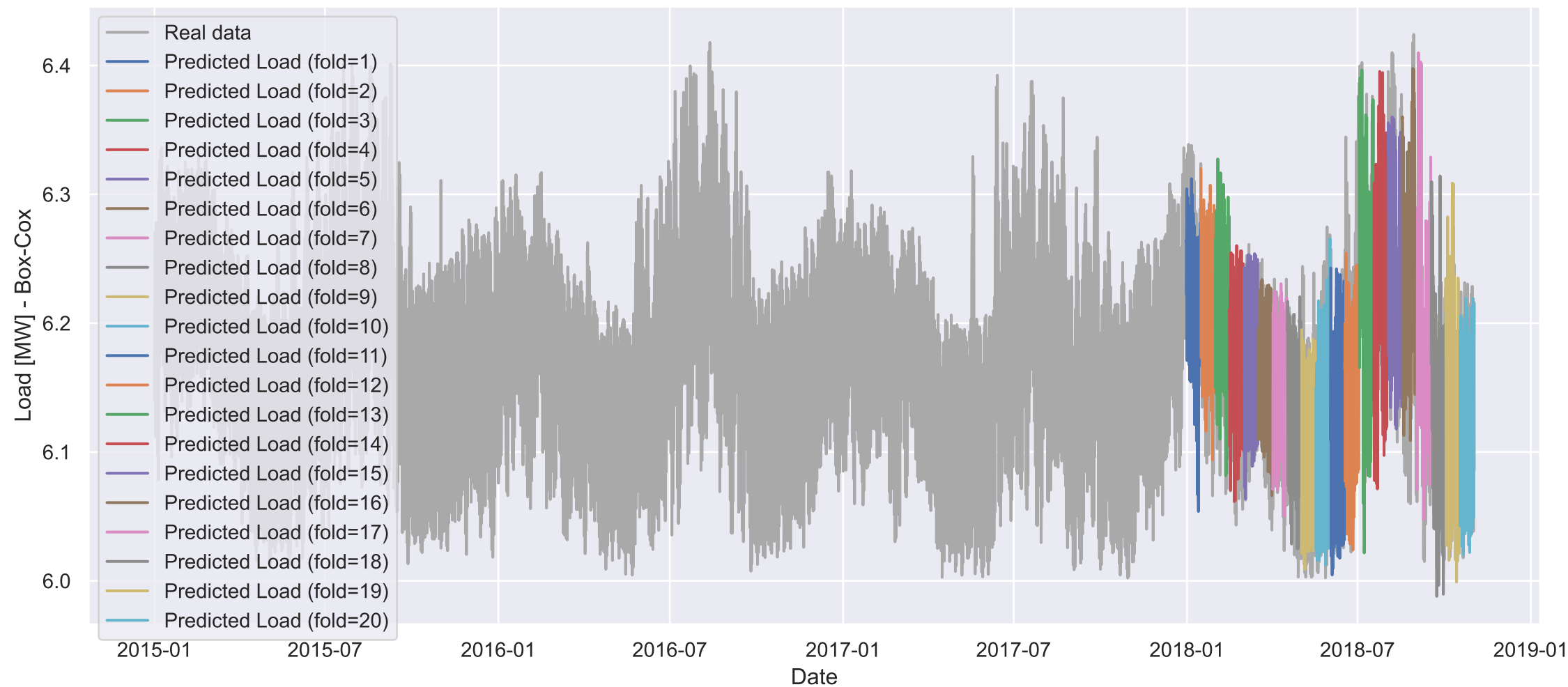ISONewEngland Demand Histogram
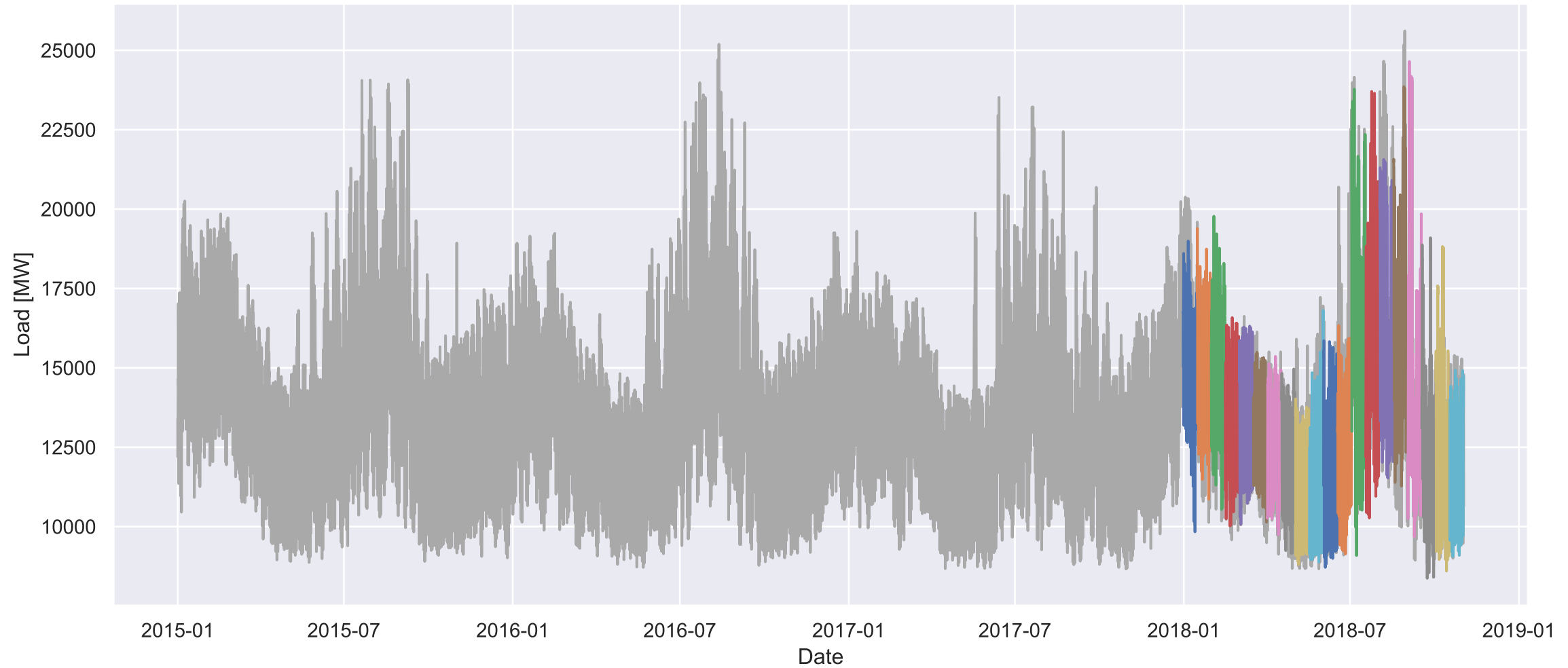
ISONewEngland Demand Histogram
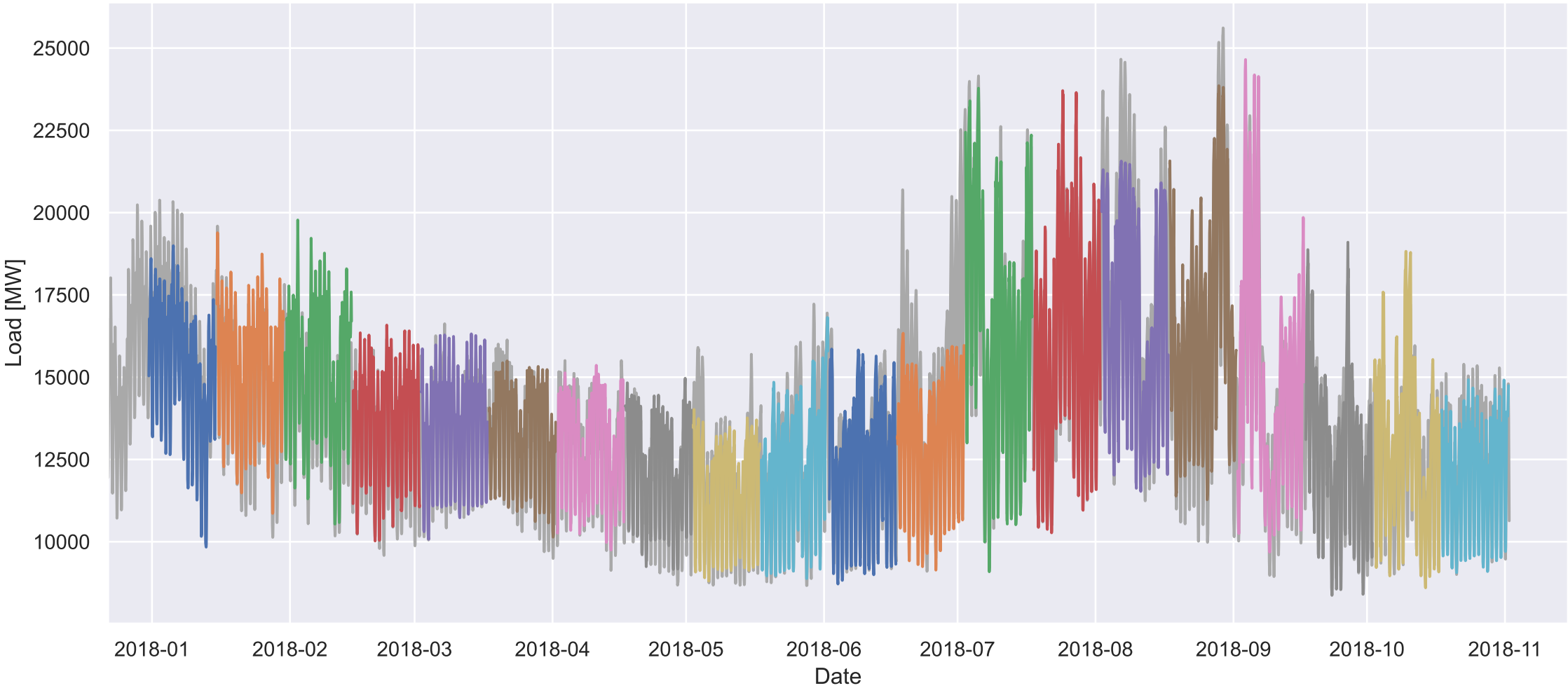
ISONewEngland dataset demand curve

Electricity Prediction [MW] - with Box-Cox Transformation

ISONewEngland dataset Load Forecasting - Cross-Validation of 20-fold

ISONewEngland dataset Load Forecasting - Cross-Validation of 20-fold

ISONewEngland dataset Load Forecasting - Cross-Validation of 20-fold
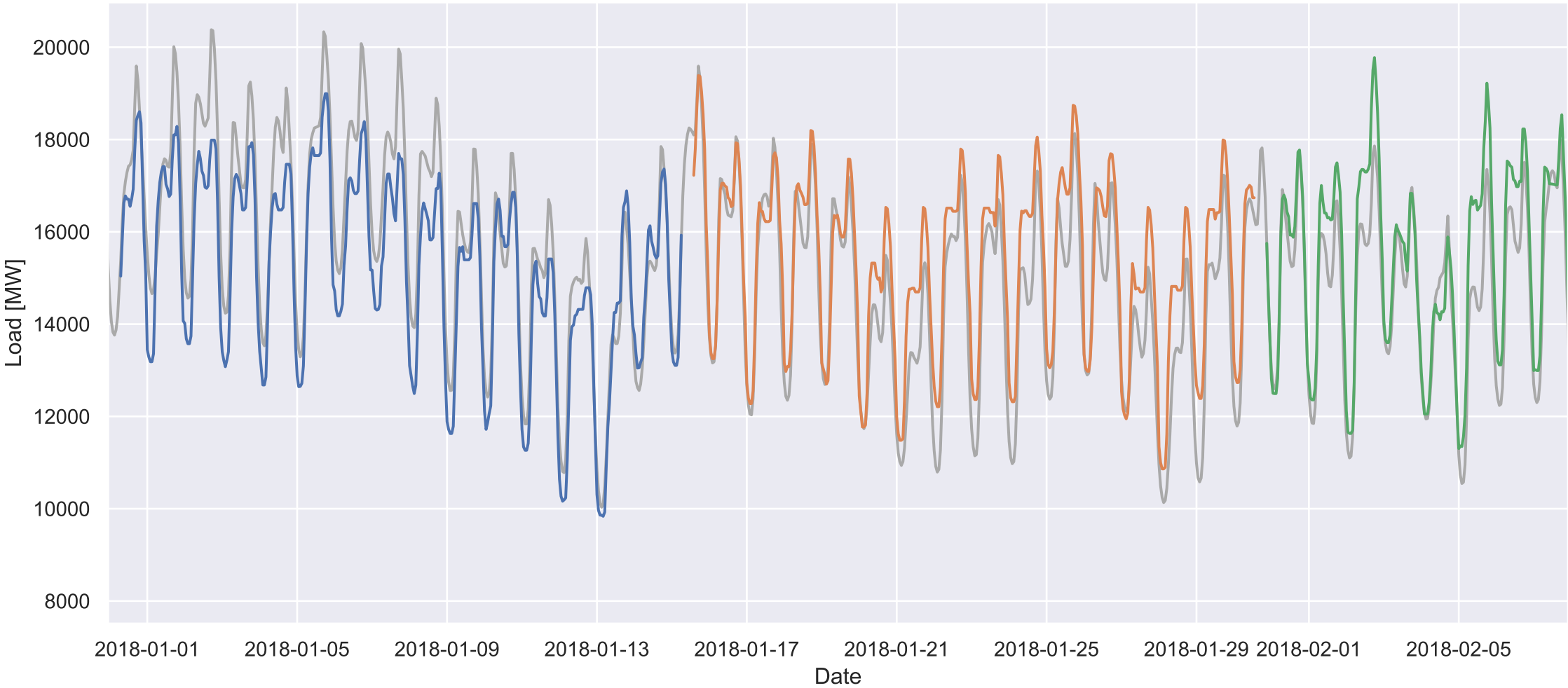
Dataset: ISONewEngland
Years: ['2015', '2016', '2017', '2018']
CrossValidation: True
KFOLD: 20
OFFSET: 26280
FORECASTDAYS: 15
NMODES: 5
MODE: none
MODEL: none
BOXCOX: True
ALGORITHM: ensemble
Time Series Regression - Load forecasting using ensemble algorithms Dataset
import has been started
Data cleaning function has been started
Feature engineering has been started
Adding date components (year, month, day, holidays and weekdays) to input
data Adding bridge days (Mondays / Fridays) to the Holiday column
Plot Histogram
No handles with labels found to put in legend.
Box-Cox transformation
Plot Histogram after Box-Cox Transformation
No handles with labels found to put in legend.
Load Forecasting algorithm has been started
CrossValidation has been started
Predict 20-folds each by 15.0 days
Prediction on decomposed part: DEMAND
Offset has been set by 1095.0 days

Score per fold - DEMAND

```
------------ > Fold 1 - r2_score_train: 0.95757
> Fold 1 - r2_score_test: 0.81522
> Fold 1 - rmse: 0.02434
> Fold 1 - mae: 0.02152
> Fold 1 - mape: 1.02434
> Fold 1 - smape: 1.02737 -----------------------------------------------------
-------------------- > Fold 2 - r2_score_train: 0.98844
> Fold 2 - r2_score_test: 0.75899
> Fold 2 - rmse: 0.02740
> Fold 2 - mae: 0.02271
> Fold 2 - mape: 1.00155
> Fold 2 - smape: 0.99817 -----------------------------------------------------
-------------------- > Fold 3 - r2_score_train: 0.99239
> Fold 3 - r2_score_test: 0.73968
> Fold 3 - rmse: 0.02642
> Fold 3 - mae: 0.02186
> Fold 3 - mape: 1.01947
> Fold 3 - smape: 1.01625 -----------------------------------------------------
-------------------- > Fold 4 - r2_score_train: 0.98594
> Fold 4 - r2_score_test: 0.70778
> Fold 4 - rmse: 0.02781
> Fold 4 - mae: 0.02343
> Fold 4 - mape: 0.97139
> Fold 4 - smape: 0.96844 -----------------------------------------------------
-------------------- > Fold 5 - r2_score_train: 0.98731
> Fold 5 - r2_score_test: 0.90773
> Fold 5 - rmse: 0.01497
> Fold 5 - mae: 0.01183
> Fold 5 - mape: 0.90650
> Fold 5 - smape: 0.90554 -----------------------------------------------------
-------------------- > Fold 6 - r2_score_train: 0.98410
> Fold 6 - r2_score_test: 0.79413
> Fold 6 - rmse: 0.02282
> Fold 6 - mae: 0.01756
> Fold 6 - mape: 0.87581
> Fold 6 - smape: 0.87420 -----------------------------------------------------
-------------------- > Fold 7 - r2_score_train: 0.98751
> Fold 7 - r2_score_test: 0.89622
> Fold 7 - rmse: 0.01679
> Fold 7 - mae: 0.01363
> Fold 7 - mape: 0.91553
> Fold 7 - smape: 0.91503 -----------------------------------------------------
-------------------- > Fold 8 - r2_score_train: 0.98508
> Fold 8 - r2_score_test: 0.78896
> Fold 8 - rmse: 0.02513
> Fold 8 - mae: 0.02048
> Fold 8 - mape: 1.03664
> Fold 8 - smape: 1.03369 -----------------------------------------------------
-------------------- > Fold 9 - r2_score_train: 0.98974
> Fold 9 - r2_score_test: 0.86798
> Fold 9 - rmse: 0.02338
> Fold 9 - mae: 0.01679
> Fold 9 - mape: 1.10343
> Fold 9 - smape: 1.10484 -----------------------------------------------------
```

```
-------------------- > Fold 10 - r2_score_train: 0.98818
> Fold 10 - r2_score_test: 0.90440
> Fold 10 - rmse: 0.02215
> Fold 10 - mae: 0.01629
> Fold 10 - mape: 1.28145
> Fold 10 - smape: 1.28182 -----------------------------------------------------
-------------------- > Fold 11 - r2_score_train: 0.98657
> Fold 11 - r2_score_test: 0.88583
> Fold 11 - rmse: 0.02233
> Fold 11 - mae: 0.01746
> Fold 11 - mape: 1.24287
> Fold 11 - smape: 1.24285 -----------------------------------------------------
-------------------- > Fold 12 - r2_score_train: 0.99164
> Fold 12 - r2_score_test: 0.61517
> Fold 12 - rmse: 0.05074
> Fold 12 - mae: 0.04001
> Fold 12 - mape: 1.43085
> Fold 12 - smape: 1.43936 ----------------------------------------------------
-------------------- > Fold 13 - r2_score_train: 0.99113
> Fold 13 - r2_score_test: 0.94206
> Fold 13 - rmse: 0.02135
> Fold 13 - mae: 0.01635
> Fold 13 - mape: 1.63190
> Fold 13 - smape: 1.63089 ----------------------------------------------------
-------------------- > Fold 14 - r2_score_train: 0.98774
> Fold 14 - r2_score_test: 0.95177
> Fold 14 - rmse: 0.01669
> Fold 14 - mae: 0.01307
> Fold 14 - mape: 1.46515
> Fold 14 - smape: 1.46513 ----------------------------------------------------
-------------------- > Fold 15 - r2_score_train: 0.99093
> Fold 15 - r2_score_test: 0.89140
> Fold 15 - rmse: 0.02601
> Fold 15 - mae: 0.02171
> Fold 15 - mape: 1.42090
> Fold 15 - smape: 1.42437 ----------------------------------------------------
-------------------- > Fold 16 - r2_score_train: 0.99088
> Fold 16 - r2_score_test: 0.84290
> Fold 16 - rmse: 0.03503
> Fold 16 - mae: 0.02861
> Fold 16 - mape: 1.53504
> Fold 16 - smape: 1.52940 ----------------------------------------------------
-------------------- > Fold 17 - r2_score_train: 0.97988
> Fold 17 - r2_score_test: 0.92088
> Fold 17 - rmse: 0.02550
> Fold 17 - mae: 0.02075
> Fold 17 - mape: 1.63249
> Fold 17 - smape: 1.63010 ----------------------------------------------------
-------------------- > Fold 18 - r2_score_train: 0.98663
> Fold 18 - r2_score_test: 0.91178
> Fold 18 - rmse: 0.02172
> Fold 18 - mae: 0.01717
> Fold 18 - mape: 1.36626
> Fold 18 - smape: 1.36679 ----------------------------------------------------
```

```
--------------------- > Fold 19 - r2_score_train: 0.98681
> Fold 19 - r2_score_test: 0.79144
> Fold 19 - rmse: 0.03002
> Fold 19 - mae: 0.02289
> Fold 19 - mape: 1.33095
> Fold 19 - smape: 1.32812 -------------------------------------------------------
--------------------- > Fold 20 - r2_score_train: 0.99257
> Fold 20 - r2_score_test: 0.87653
> Fold 20 - rmse: 0.01962
> Fold 20 - mae: 0.01581
> Fold 20 - mape: 1.04425
> Fold 20 - smape: 1.04624 -------------------------------------------------
--------------------- Average scores for all folds:
> r2_score_train: 0.98655 (+ 0.00731)
> r2_score_test: 0.84054 (+ 0.08535)
> rmse: 0.02501 (+ 0.00748)
> mae: 0.02000 (+ 0.00609)
> mape: 1.21184 (+ 0.24456)
> smape: 1.21143 (+ 0.24491) -------------------------------------------------
----------------------- Join all decomposed y predictions
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation
Inverse Box-Cox transformation Inverse Box-Cox transformation
Print and plot the results
OFFSET has been set by 1095.0 days ---------------------------------------------
--------------------------- Score per fold - kfold_0 ---------------------
-------------------------------------------------- > Fold 1 -
r2_score_train: 0.00000
> Fold 1 - r2_score_test: 0.79644
> Fold 1 - rmse: 1004.18808
> Fold 1 - mae: 873.37345
> Fold 1 - mape: 5.37603
> Fold 1 - smape: 5.55200 -------------------------------------------------------
--------------------- > Fold 2 - r2_score_train: 0.00000
> Fold 2 - r2_score_test: 0.75891
> Fold 2 - rmse: 990.07405
> Fold 2 - mae: 840.75133
> Fold 2 - mape: 6.05935
```

```
> Fold 2 - smape: 5.80961 ---------------------------------------------------------
------------------- > Fold 3 - r2_score_train: 0.00000
> Fold 3 - r2_score_test: 0.66943
> Fold 3 - rmse: 1056.74533
> Fold 3 - mae: 856.26373
> Fold 3 - mape: 5.85855
> Fold 3 - smape: 5.62155 ---------------------------------------------------------
------------------- > Fold 4 - r2_score_train: 0.00000
> Fold 4 - r2_score_test: 0.67106
> Fold 4 - rmse: 937.62087
> Fold 4 - mae: 790.96549
> Fold 4 - mape: 6.18166
> Fold 4 - smape: 5.94701 ---------------------------------------------------------
------------------- > Fold 5 - r2_score_train: 0.00000
> Fold 5 - r2_score_test: 0.89527
> Fold 5 - rmse: 525.20886
> Fold 5 - mae: 412.37958
> Fold 5 - mape: 3.06504
> Fold 5 - smape: 3.01367 ---------------------------------------------------------
------------------- > Fold 6 - r2_score_train: 0.00000
> Fold 6 - r2_score_test: 0.79096
> Fold 6 - rmse: 734.04673
> Fold 6 - mae: 571.43422
> Fold 6 - mape: 4.58218
> Fold 6 - smape: 4.44305 ---------------------------------------------------------
------------------- > Fold 7 - r2_score_train: 0.00000
> Fold 7 - r2_score_test: 0.88658
> Fold 7 - rmse: 547.48699
> Fold 7 - mae: 440.70205
> Fold 7 - mape: 3.46310
> Fold 7 - smape: 3.44646 ---------------------------------------------------------
------------------- > Fold 8 - r2_score_train: 0.00000
> Fold 8 - r2_score_test: 0.77040
> Fold 8 - rmse: 752.53814
> Fold 8 - mae: 613.30502
> Fold 8 - mape: 5.33612
> Fold 8 - smape: 5.14086 ---------------------------------------------------------
------------------- > Fold 9 - r2_score_train: 0.00000
> Fold 9 - r2_score_test: 0.83770
> Fold 9 - rmse: 754.54640
> Fold 9 - mae: 513.50306
> Fold 9 - mape: 4.10683
> Fold 9 - smape: 4.22115 ---------------------------------------------------------
------------------- > Fold 10 - r2_score_train: 0.00000
> Fold 10 - r2_score_test: 0.88756
> Fold 10 - rmse: 740.36443
> Fold 10 - mae: 532.53248
> Fold 10 - mape: 4.13327
> Fold 10 - smape: 4.12037 --------------------------------------------------------
------------------- > Fold 11 - r2_score_train: 0.00000
> Fold 11 - r2_score_test: 0.86404
> Fold 11 - rmse: 735.68231
> Fold 11 - mae: 563.20826
> Fold 11 - mape: 4.44189
```

```
> Fold 11 - smape: 4.41154 --------------------------------------------------
--------------------- > Fold 12 - r2_score_train: 0.00000
> Fold 12 - r2_score_test: 0.52547
> Fold 12 - rmse: 2092.03070
> Fold 12 - mae: 1539.17699
> Fold 12 - mape: 9.47864
> Fold 12 - smape: 10.23856 ------------------------------------------------
--------------------- > Fold 13 - r2_score_train: 0.00000
> Fold 13 - r2_score_test: 0.94141
> Fold 13 - rmse: 885.33405
> Fold 13 - mae: 674.18704
> Fold 13 - mape: 4.28349
> Fold 13 - smape: 4.21736 --------------------------------------------------
--------------------- > Fold 14 - r2_score_train: 0.00000
> Fold 14 - r2_score_test: 0.94918
> Fold 14 - rmse: 689.89833
> Fold 14 - mae: 539.02364
> Fold 14 - mape: 3.36910
> Fold 14 - smape: 3.37258 --------------------------------------------------
--------------------- > Fold 15 - r2_score_train: 0.00000
> Fold 15 - r2_score_test: 0.88086
> Fold 15 - rmse: 1224.45885
> Fold 15 - mae: 986.75794
> Fold 15 - mape: 5.46577
> Fold 15 - smape: 5.65056 --------------------------------------------------
--------------------- > Fold 16 - r2_score_train: 0.00000
> Fold 16 - r2_score_test: 0.86723
> Fold 16 - rmse: 1347.15065
> Fold 16 - mae: 1122.58646
> Fold 16 - mape: 7.73156
> Fold 16 - smape: 7.34430 --------------------------------------------------
--------------------- > Fold 17 - r2_score_train: 0.00000
> Fold 17 - r2_score_test: 0.92143
> Fold 17 - rmse: 985.74251
> Fold 17 - mae: 780.26846
> Fold 17 - mape: 5.39406
> Fold 17 - smape: 5.30747 --------------------------------------------------
--------------------- > Fold 18 - r2_score_train: 0.00000
> Fold 18 - r2_score_test: 0.90438
> Fold 18 - rmse: 722.97354
> Fold 18 - mae: 558.66393
> Fold 18 - mape: 4.33530
> Fold 18 - smape: 4.33994 --------------------------------------------------
--------------------- > Fold 19 - r2_score_train: 0.00000
> Fold 19 - r2_score_test: 0.72271
> Fold 19 - rmse: 1058.72941
> Fold 19 - mae: 762.63776 > Fold 19 - mape: 6.01563
> Fold 19 - smape: 5.79547 --------------------------------------------------
--------------------- > Fold 20 - r2_score_train: 0.00000
> Fold 20 - r2_score_test: 0.86849
> Fold 20 - rmse: 610.23742
> Fold 20 - mae: 487.78179
> Fold 20 - mape: 3.87837
> Fold 20 - smape: 3.98116 --------------------------------------------------
```

```
-------------------- Average scores for all folds:
> r2_score_train: 0.00000 (+ 0.00000)
> r2_score_test: 0.82048 (+ 0.10552)
> rmse: 919.75288 (+ 342.28417)
> mae: 722.97513 (+ 264.05832)
> mape: 5.12780 (+ 1.50202)
> smape: 5.09873 (+ 1.56983)

---  12.489 seconds --- the end of the file.
```