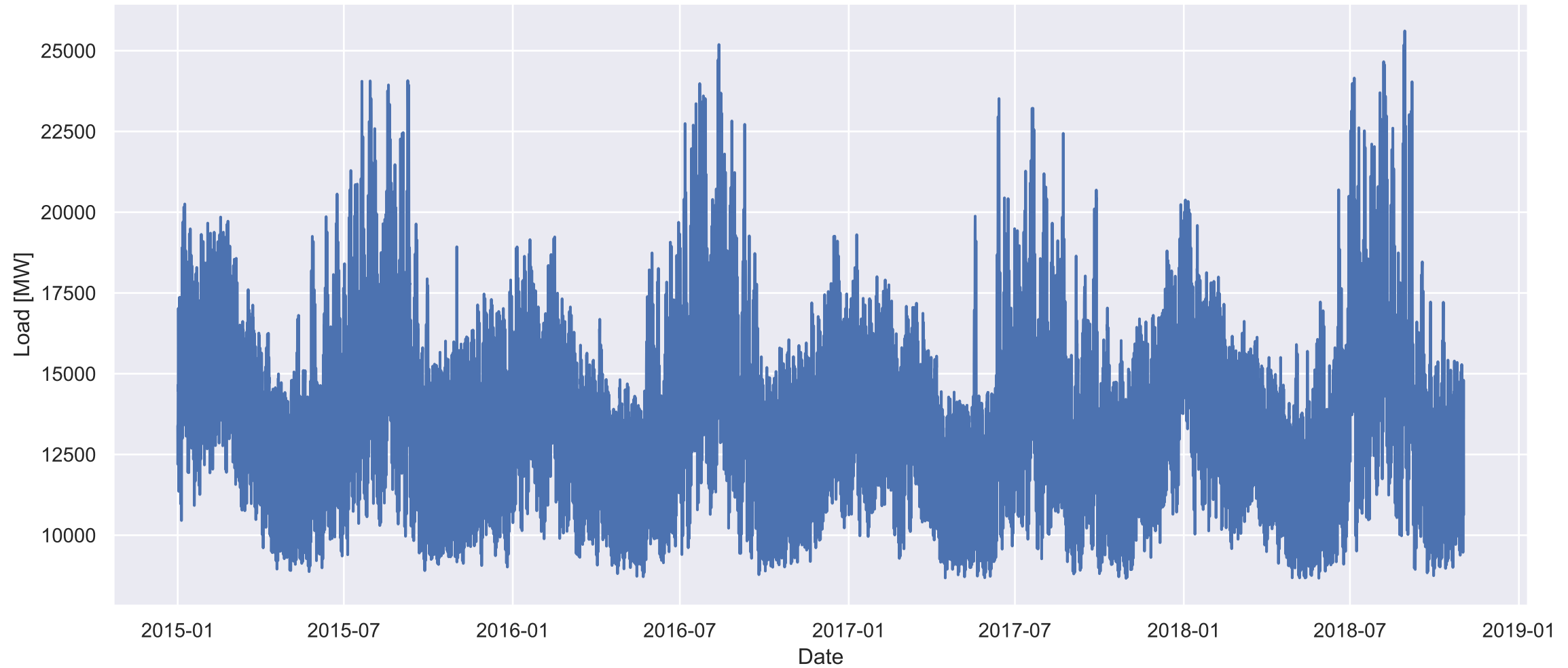
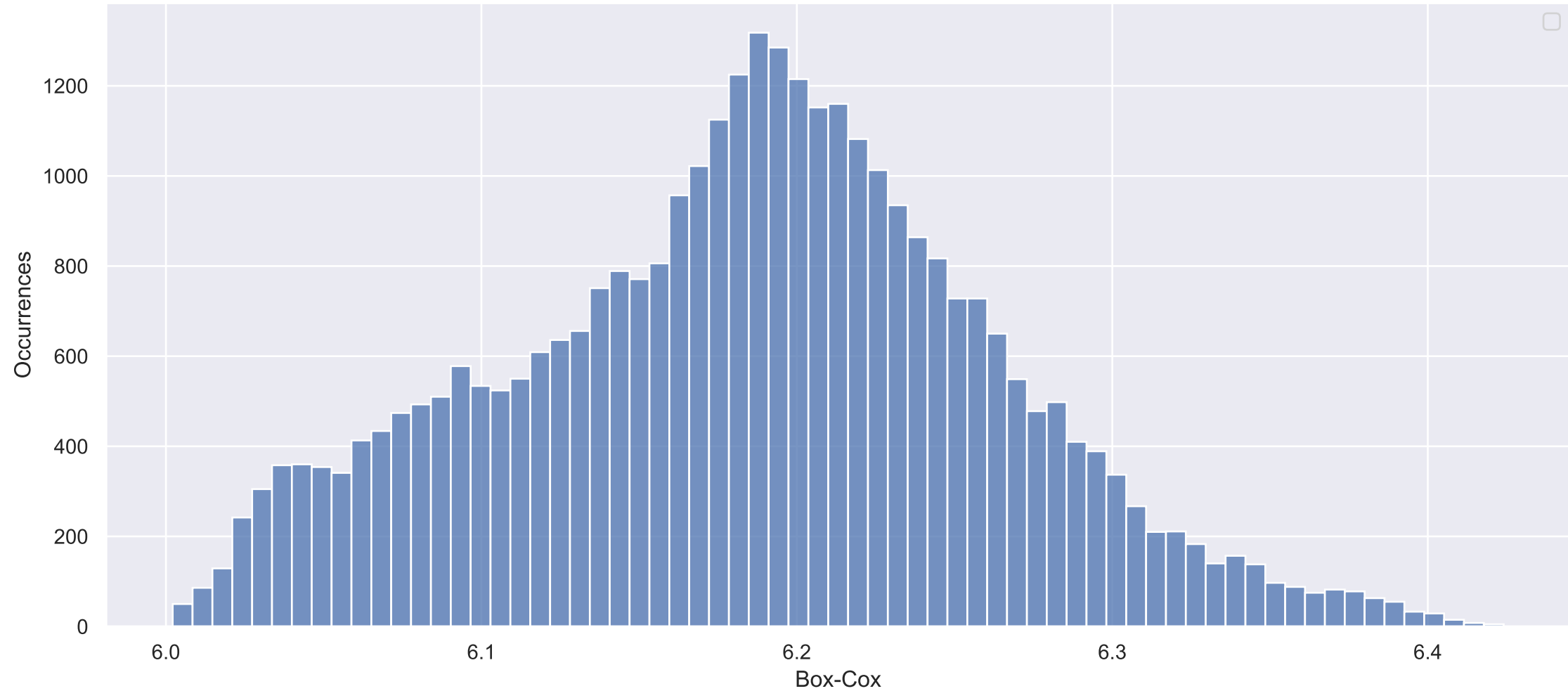


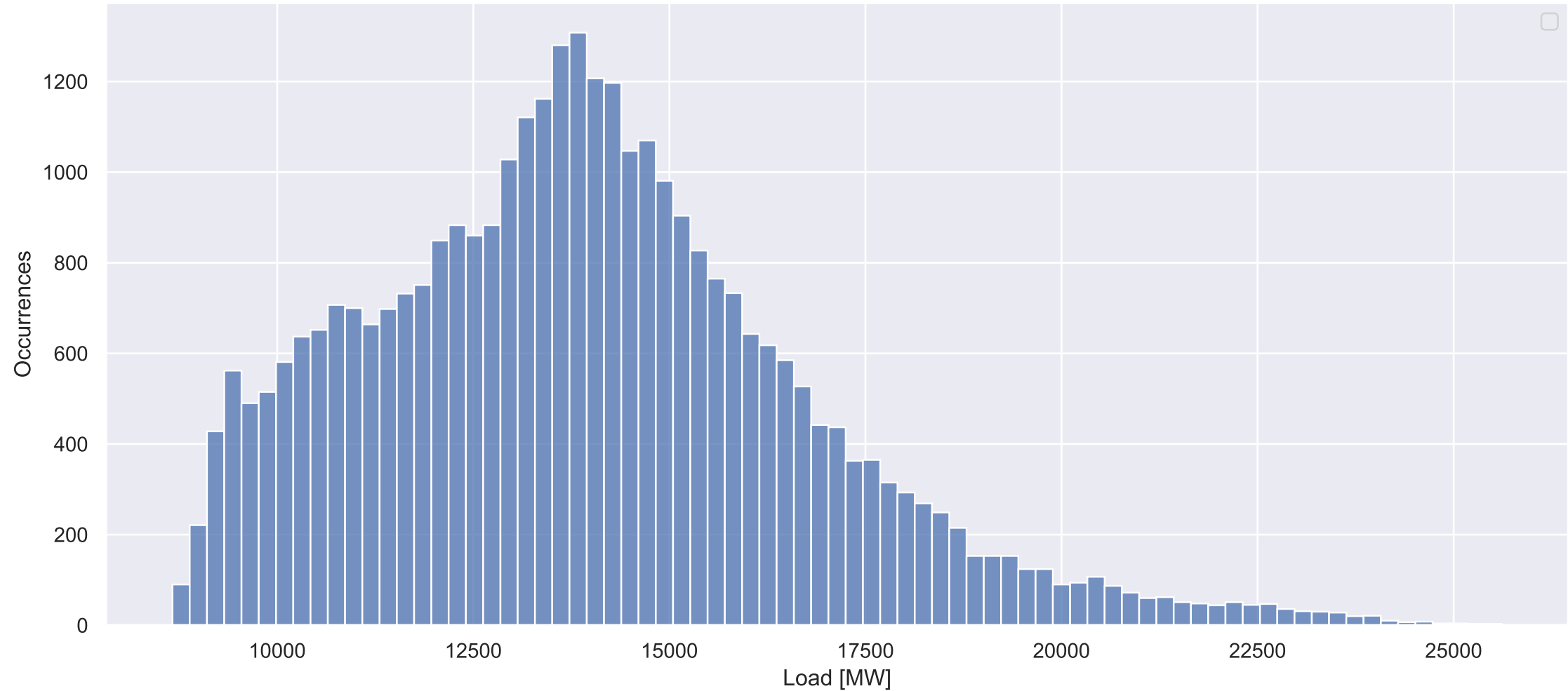
ISONewEngland dataset demand curve



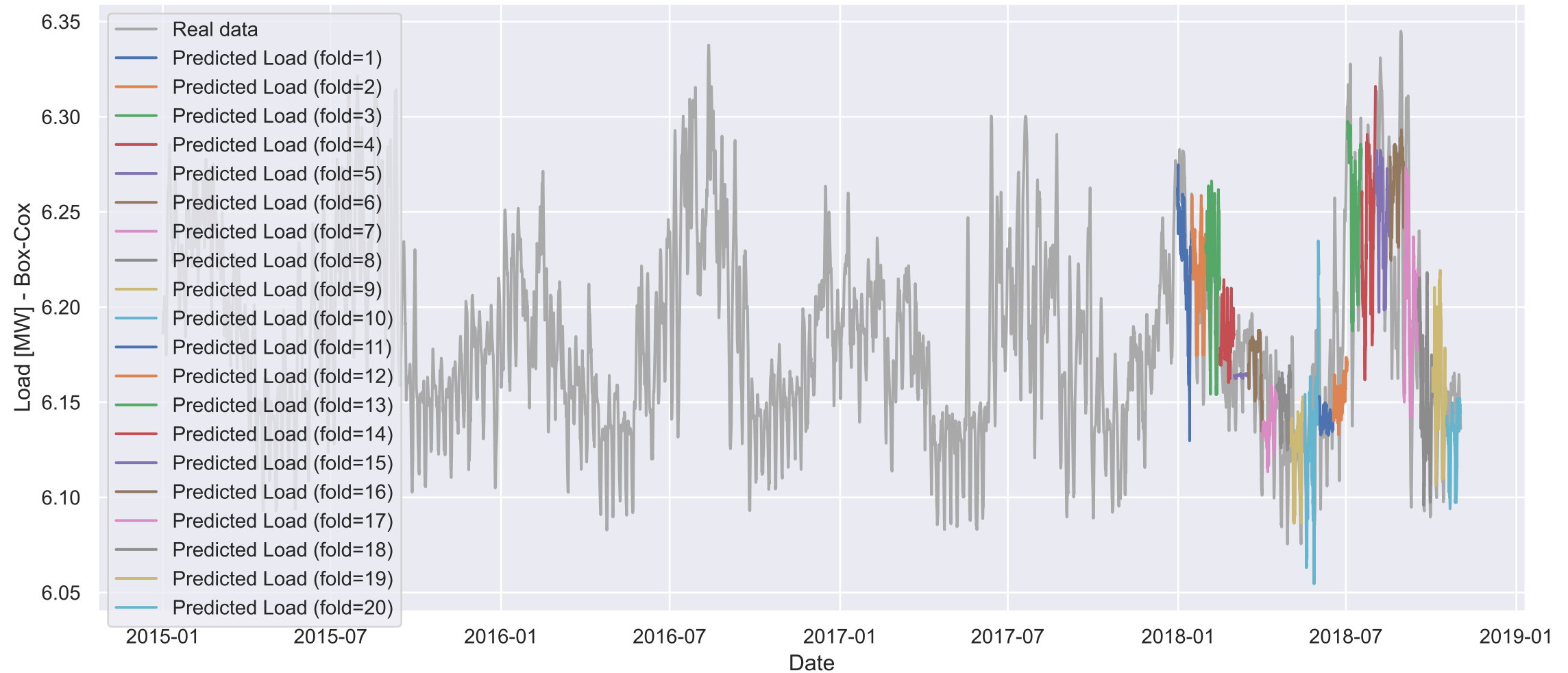
ISONewEngland Demand Histogram



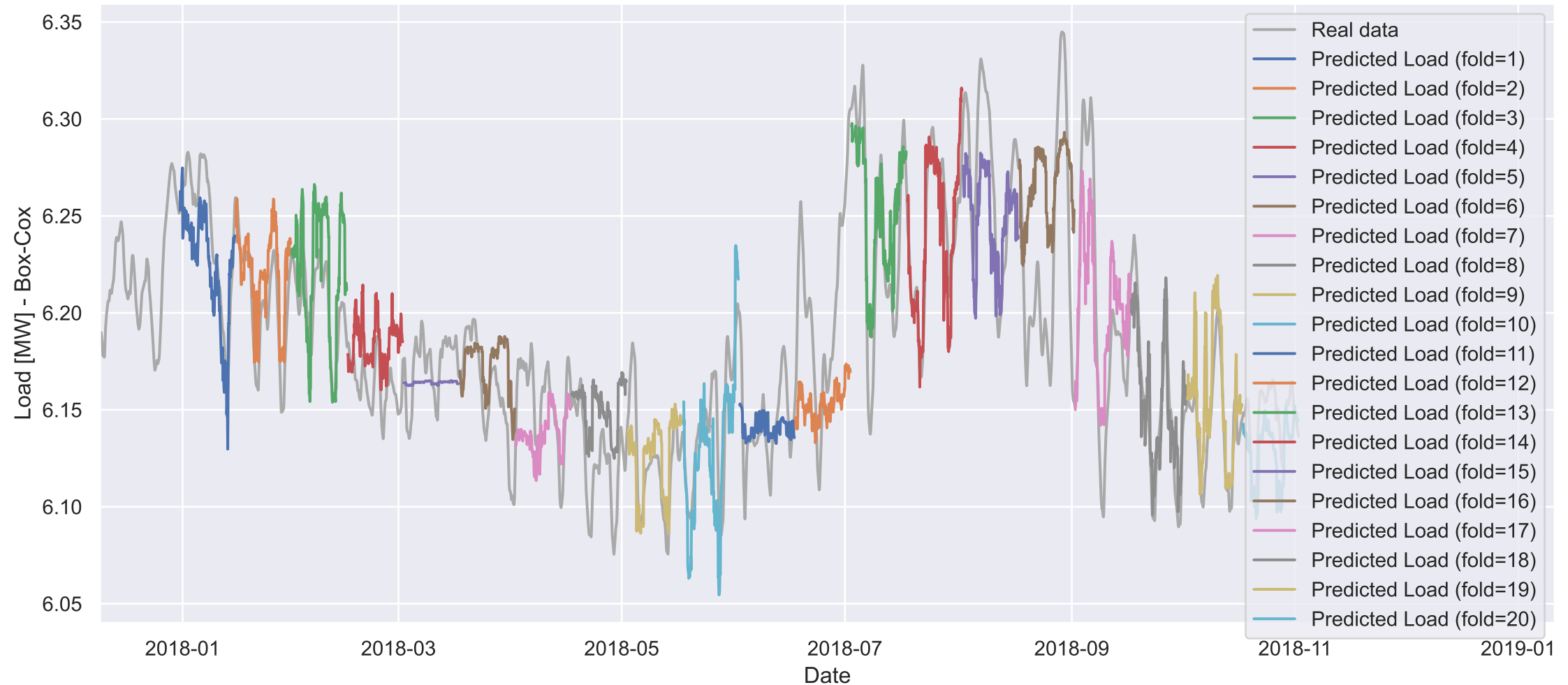
ISONewEngland Demand Histogram



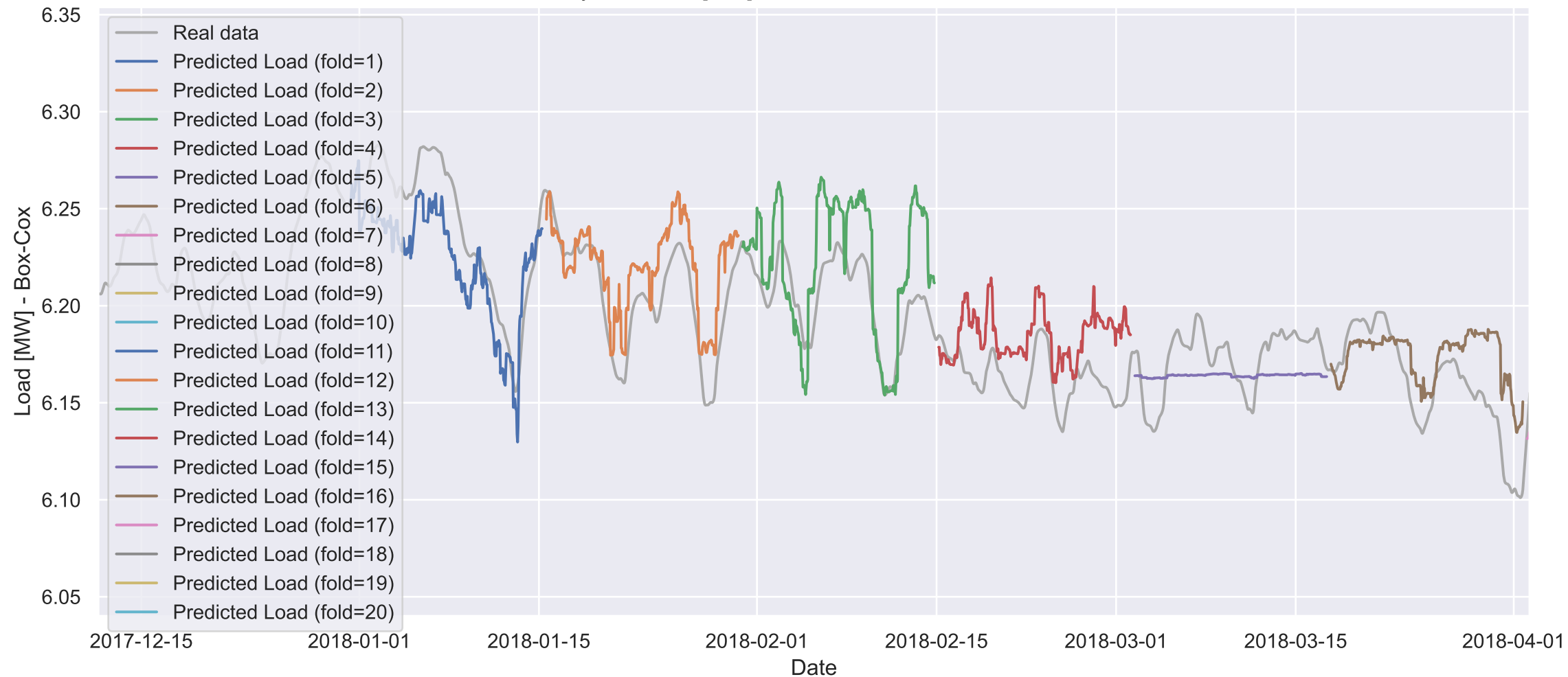
Electricity Prediction [MW] - with Box-Cox Transformation - Trend



Electricity Prediction [MW] - with Box-Cox Transformation - Trend



Electricity Prediction [MW] - with Box-Cox Transformation - Trend



Real data

Predicted Load (fold=1)

Predicted Load (fold=2)

Predicted Load (fold=3)

Predicted Load (fold=4)

Predicted Load (fold=5)

Predicted Load (fold=6)

Predicted Load (fold=7)

Predicted Load (fold=8)

Predicted Load (fold=9)

Predicted Load (fold=10)

Predicted Load (fold=11)

Predicted Load (fold=12)

Predicted Load (fold=13)

Predicted Load (fold=14)

Predicted Load (fold=15)

Predicted Load (fold=16)

Predicted Load (fold=17)

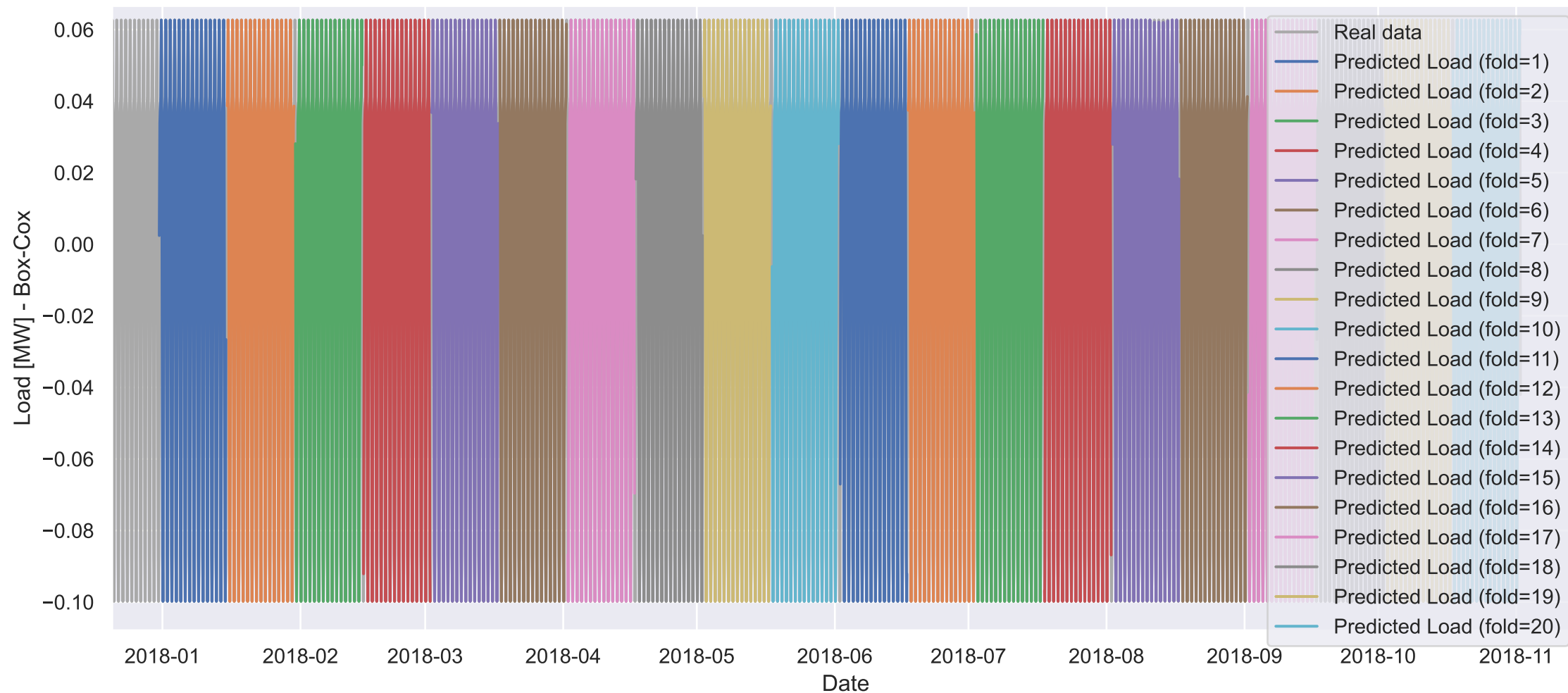
Predicted Load (fold=18)

Predicted Load (fold=19)

Predicted Load (fold=20)

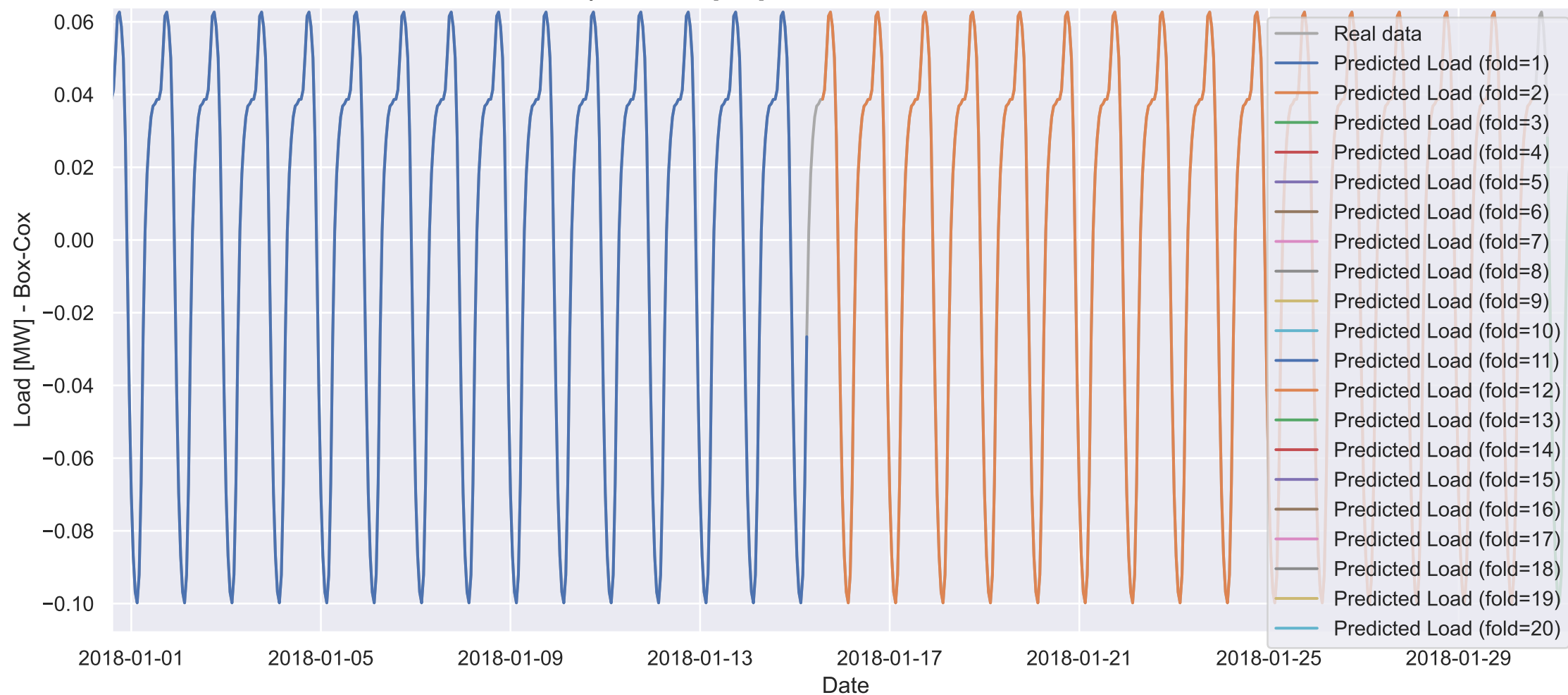
2015-01	2015-07	2016-01	2016-07	2017-01	2017-07	2018-01	2018-07	2019-01
Date								

## Electricity Prediction [MW] - with Box-Cox Transformation - Seasonal

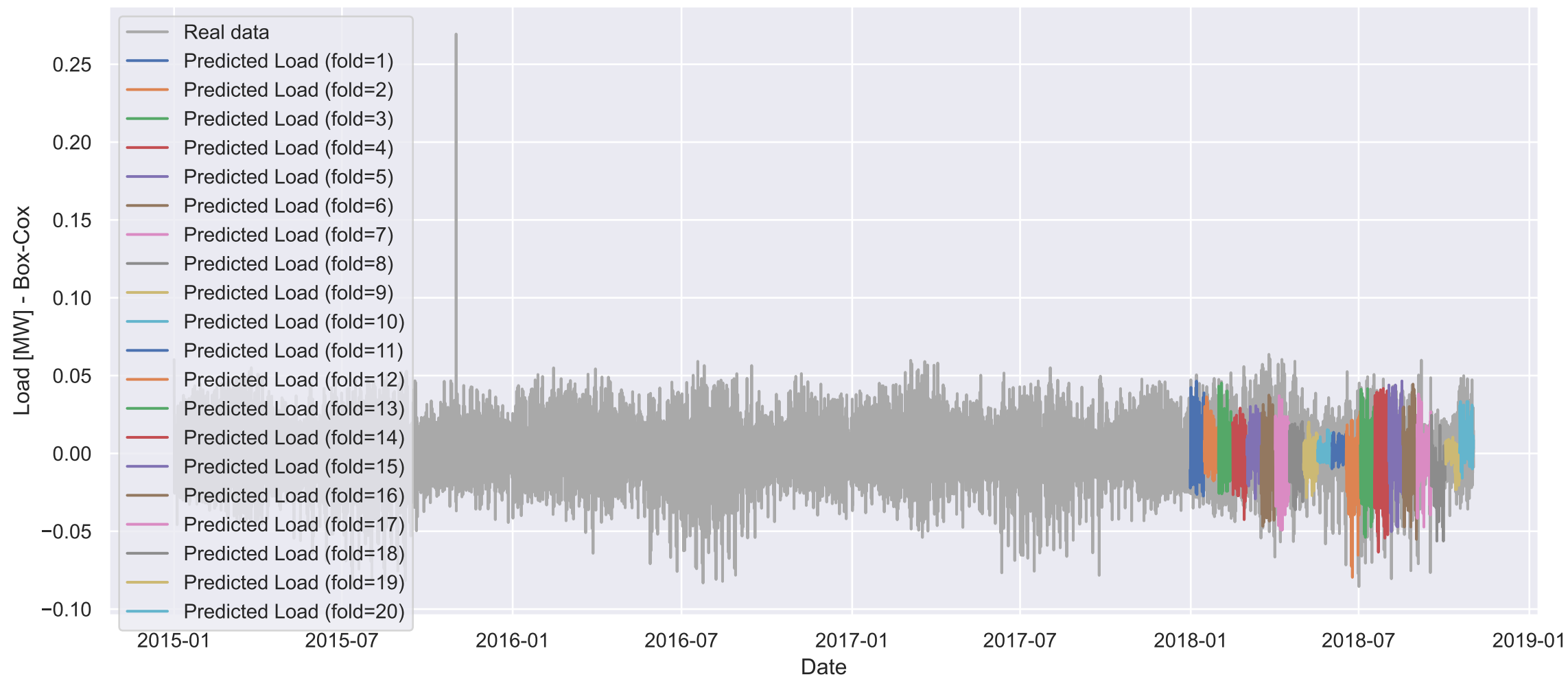




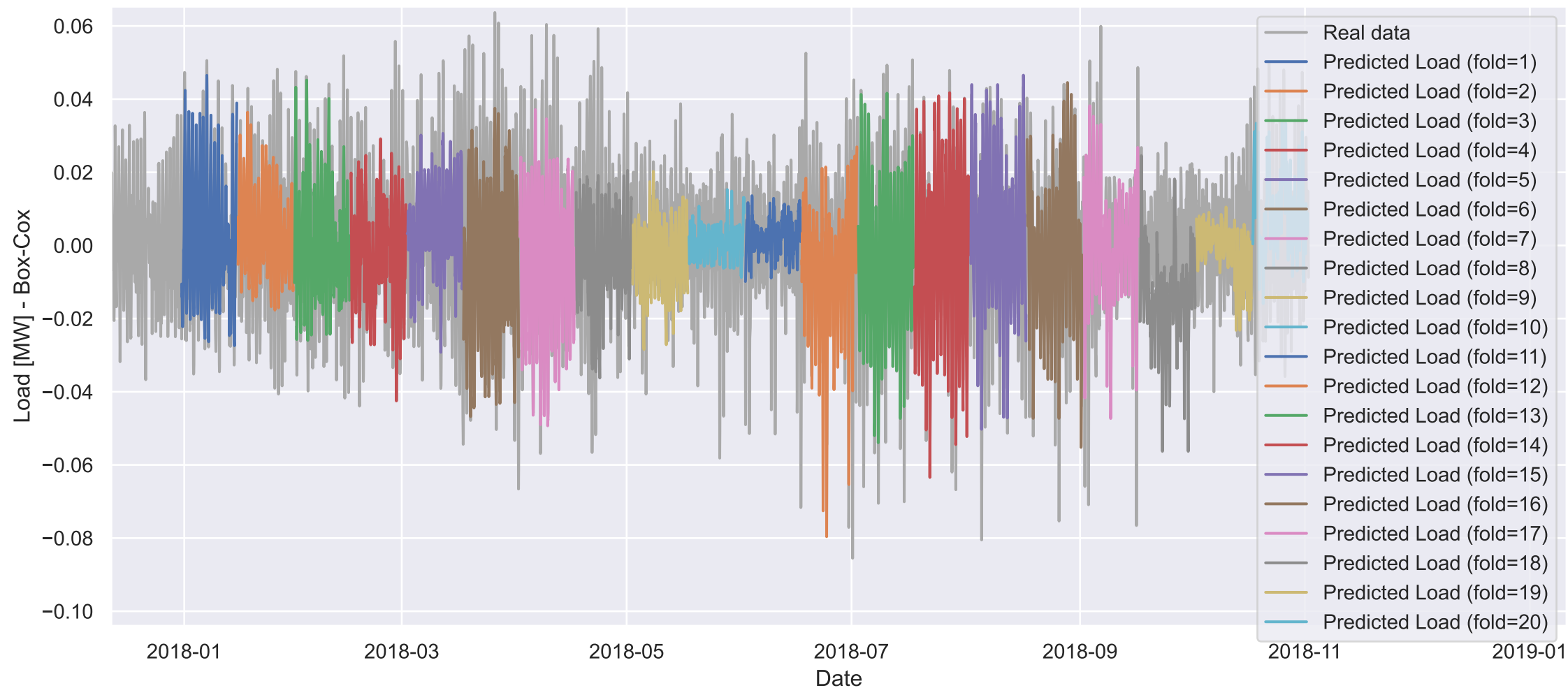
Electricity Prediction [MW] - with Box-Cox Transformation - Seasonal



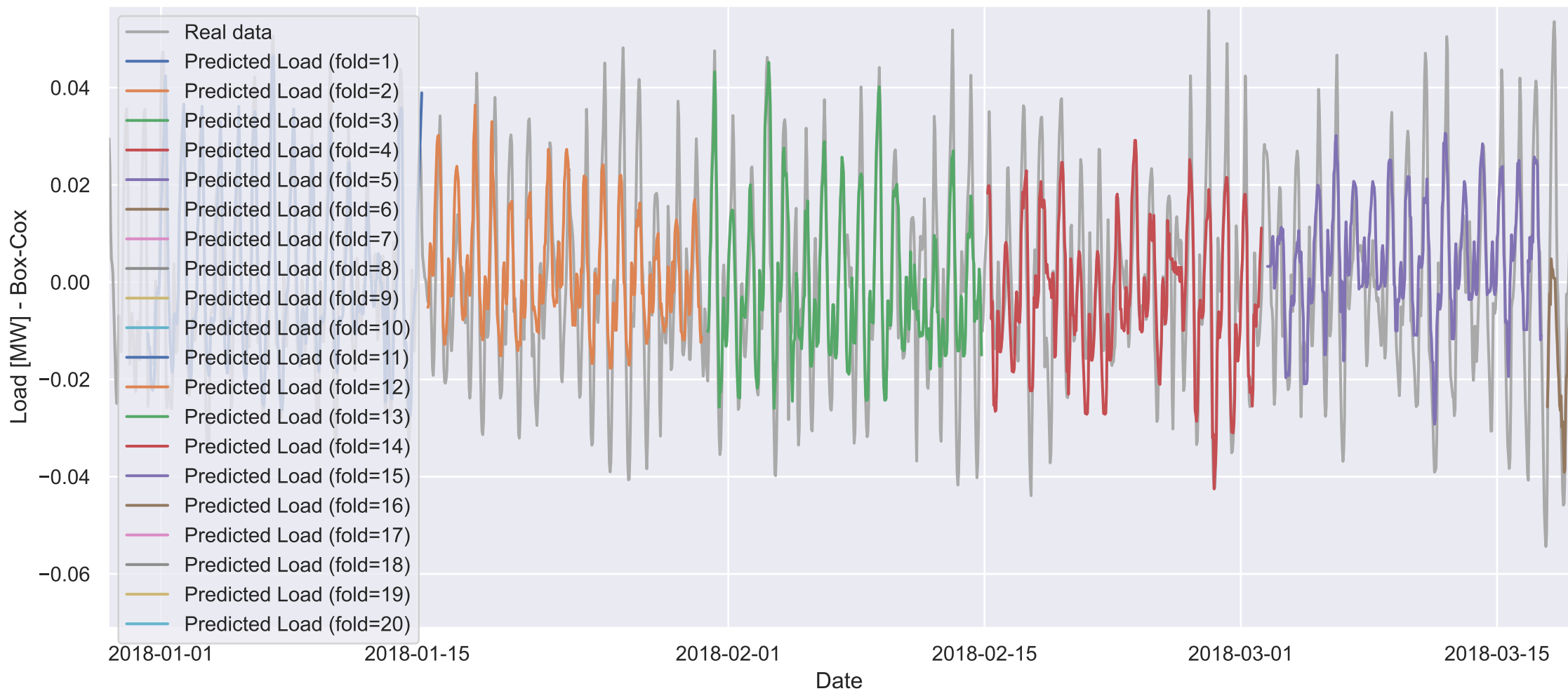
Electricity Prediction [MW] - with Box-Cox Transformation - Residual



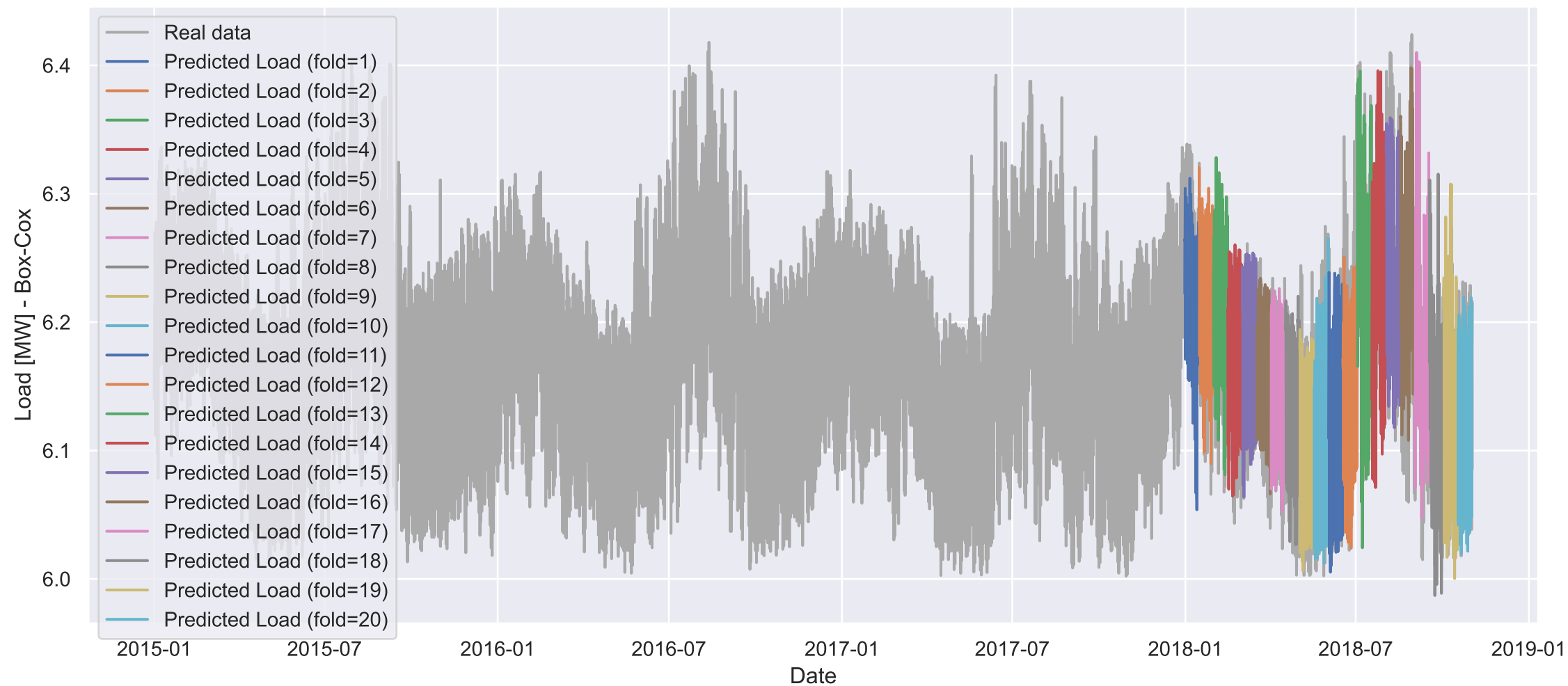
Electricity Prediction [MW] - with Box-Cox Transformation - Residual



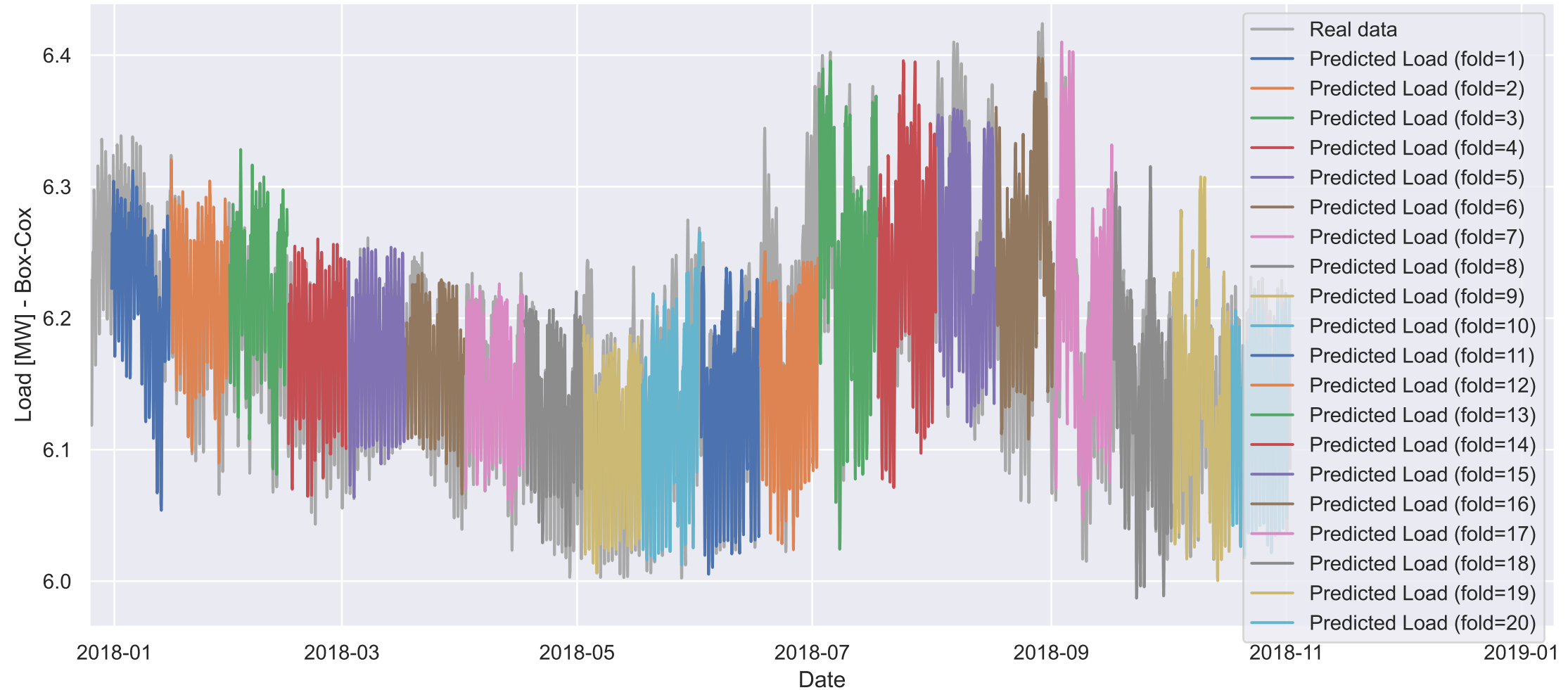
Electricity Prediction [MW] - with Box-Cox Transformation - Residual



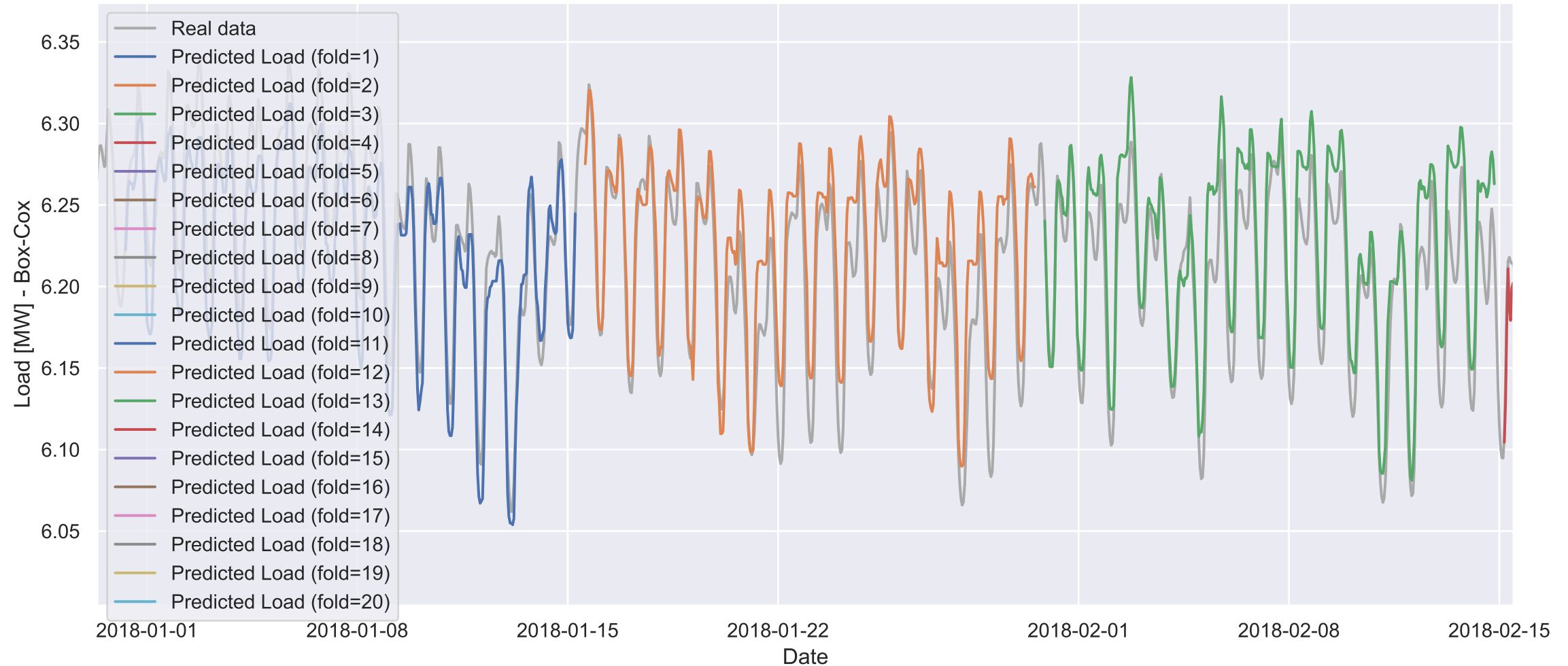
Electricity Prediction [MW] - with Box-Cox Transformation - Observed



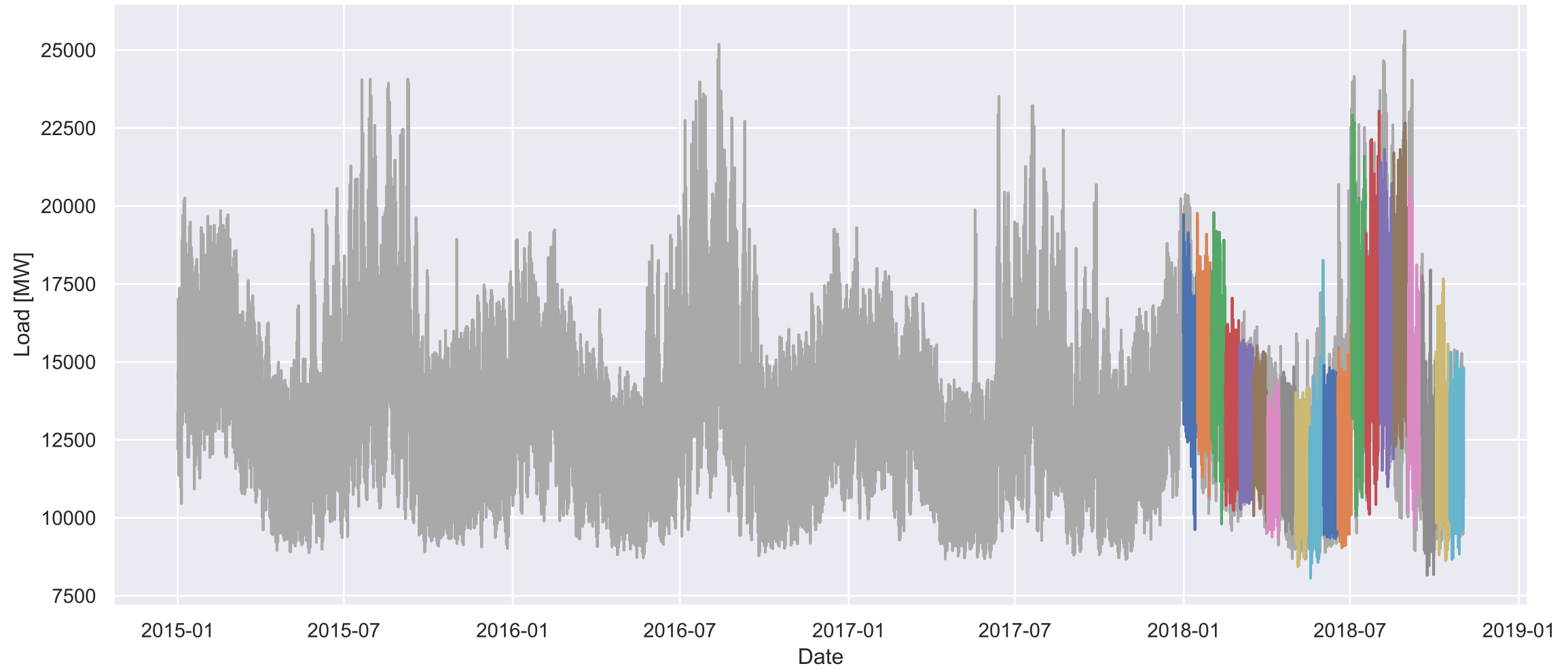
Electricity Prediction [MW] - with Box-Cox Transformation - Observed



Electricity Prediction [MW] - with Box-Cox Transformation - Observed

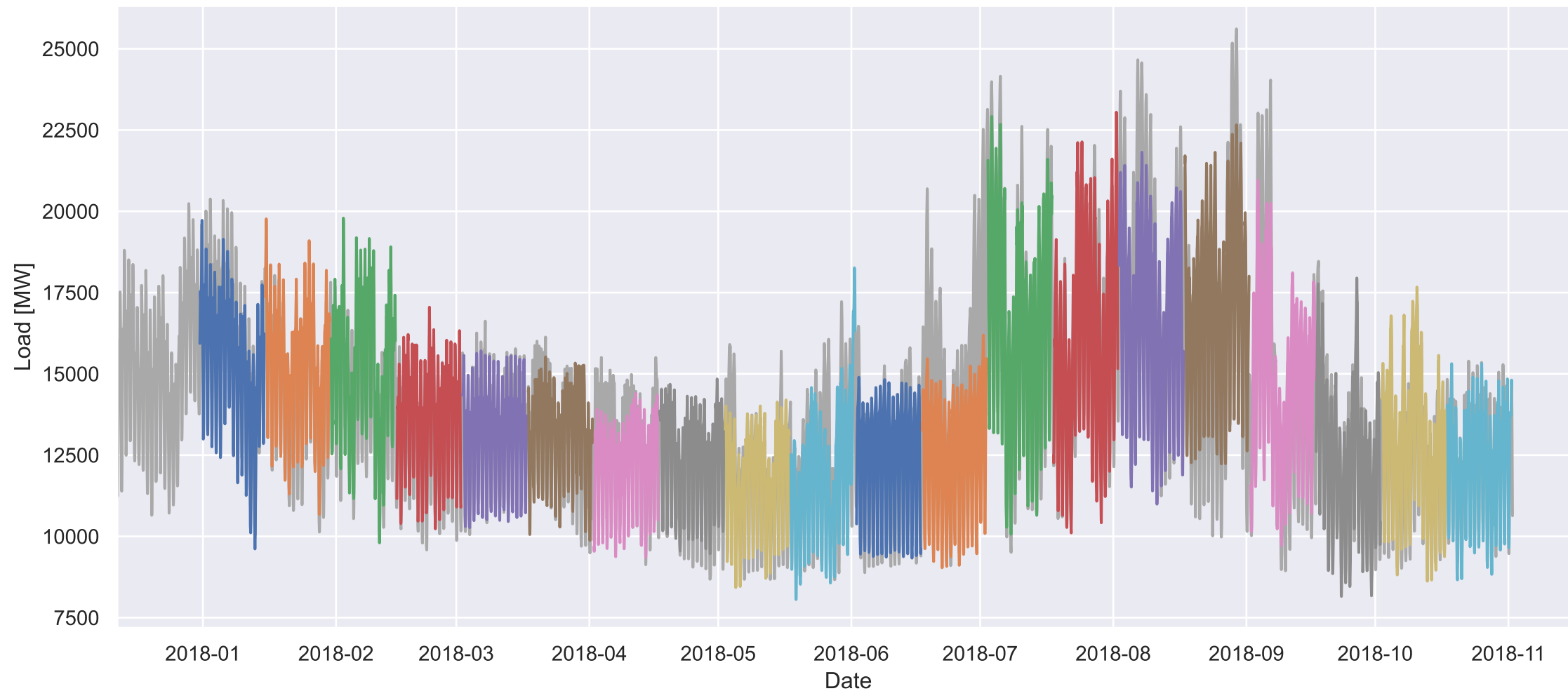


ISONewEngland dataset Load Forecasting - Cross-Validation of 20-fold

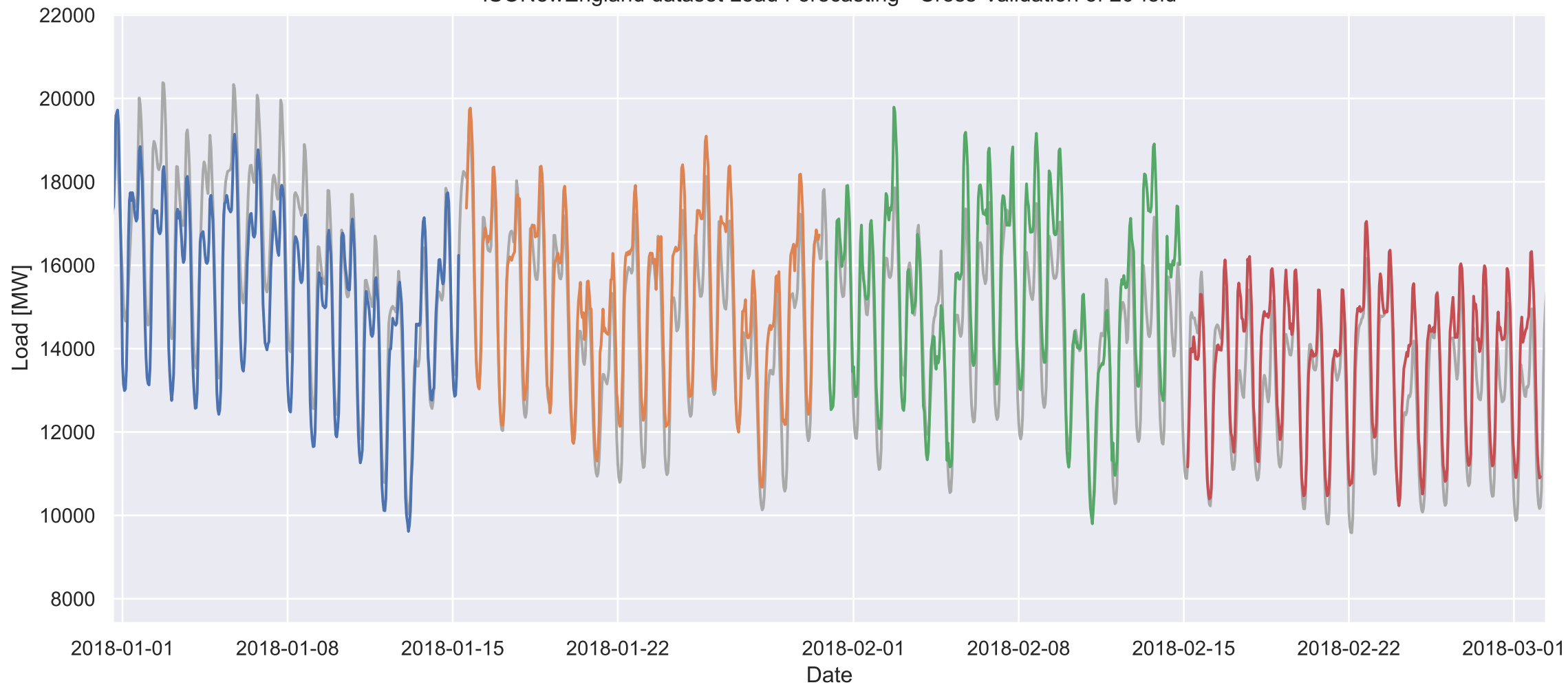




ISONewEngland dataset Load Forecasting - Cross-Validation of 20-fold



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: stl-a  
MODEL: stl-a  
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.  
Seasonal and Trend decomposition using Loess (STL) Decomposition has been  
started 0.080 seconds - Seasonal and Trend decomposition using Loess (STL)  
Decomposition has finished. Load Forecasting algorithm has been started  
CrossValidation has been started  
**Predict 20-folds each by 15.0 days Prediction on decomposed part: Trend**  
Offset has been set by 1095.0 days

```
-----  
Score per fold - Trend -----  
----- > Fold 1 - r2_score_train: 0.89749  
> Fold 1 - r2_score_test: 0.53389  
> Fold 1 - rmse: 0.02412  
> Fold 1 - mae: 0.02141  
> Fold 1 - mape: 0.34251  
> Fold 1 - smape: 0.34318 -----  
----- > Fold 2 - r2_score_train: 0.97225  
> Fold 2 - r2_score_test: 0.44358  
> Fold 2 - rmse: 0.02061  
> Fold 2 - mae: 0.01750  
> Fold 2 - mape: 0.28239  
> Fold 2 - smape: 0.28186 -----  
----- > Fold 3 - r2_score_train: 0.97915  
> Fold 3 - r2_score_test: -0.70679  
> Fold 3 - rmse: 0.02774  
> Fold 3 - mae: 0.02359  
> Fold 3 - mape: 0.37999  
> Fold 3 - smape: 0.37912 -----  
----- > Fold 4 - r2_score_train: 0.98726  
> Fold 4 - r2_score_test: -3.47068  
> Fold 4 - rmse: 0.02576  
> Fold 4 - mae: 0.02274
```

```
> Fold 4 - mape: 0.36914
> Fold 4 - smape: 0.36828 -----
----- > Fold 5 - r2_score_train: 0.15728
> Fold 5 - r2_score_test: -0.22248
> Fold 5 - rmse: 0.01733
> Fold 5 - mae: 0.01582
> Fold 5 - mape: 0.25630
> Fold 5 - smape: 0.25650 -----
----- > Fold 6 - r2_score_train: 0.98885
> Fold 6 - r2_score_test: 0.15949
> Fold 6 - rmse: 0.02392
> Fold 6 - mae: 0.01939
> Fold 6 - mape: 0.31543
> Fold 6 - smape: 0.31477 -----
----- > Fold 7 - r2_score_train: 0.98747
> Fold 7 - r2_score_test: -0.42963
> Fold 7 - rmse: 0.02535
> Fold 7 - mae: 0.02149
> Fold 7 - mape: 0.34883
> Fold 7 - smape: 0.34956 -----
----- > Fold 8 - r2_score_train: 0.77692
> Fold 8 - r2_score_test: -0.73211
> Fold 8 - rmse: 0.03076
> Fold 8 - mae: 0.02686
> Fold 8 - mape: 0.43939
> Fold 8 - smape: 0.43813 -----
----- > Fold 9 - r2_score_train: 0.98571
> Fold 9 - r2_score_test: 0.36091
> Fold 9 - rmse: 0.02101
> Fold 9 - mae: 0.01647
> Fold 9 - mape: 0.26841
> Fold 9 - smape: 0.26853 -----
----- > Fold 10 - r2_score_train: 0.46578
> Fold 10 - r2_score_test: 0.09917
> Fold 10 - rmse: 0.03032
> Fold 10 - mae: 0.02414
> Fold 10 - mape: 0.39280
> Fold 10 - smape: 0.39356 -----
----- > Fold 11 - r2_score_train: 0.35645
> Fold 11 - r2_score_test: 0.19860
> Fold 11 - rmse: 0.01882
> Fold 11 - mae: 0.01402
> Fold 11 - mape: 0.22798
> Fold 11 - smape: 0.22807 -----
----- > Fold 12 - r2_score_train: 0.80270
> Fold 12 - r2_score_test: -0.81892
> Fold 12 - rmse: 0.06292
> Fold 12 - mae: 0.05336
> Fold 12 - mape: 0.85666
> Fold 12 - smape: 0.86157 -----
----- > Fold 13 - r2_score_train: 0.90466
> Fold 13 - r2_score_test: 0.70811
> Fold 13 - rmse: 0.02871
> Fold 13 - mae: 0.02267
```

```

> Fold 13 - mape: 0.36431
> Fold 13 - smape: 0.36364 -----
----- > Fold 14 - r2_score_train: 0.99094
> Fold 14 - r2_score_test: 0.66478
> Fold 14 - rmse: 0.02069
> Fold 14 - mae: 0.01539
> Fold 14 - mape: 0.24636
> Fold 14 - smape: 0.24642 -----
----- > Fold 15 - r2_score_train: 0.94686
> Fold 15 - r2_score_test: 0.23553
> Fold 15 - rmse: 0.03529
> Fold 15 - mae: 0.03103
> Fold 15 - mape: 0.49378
> Fold 15 - smape: 0.49505 -----
----- > Fold 16 - r2_score_train: 0.94276
> Fold 16 - r2_score_test: -0.16576
> Fold 16 - rmse: 0.06240
> Fold 16 - mae: 0.05587
> Fold 16 - mape: 0.89970
> Fold 16 - smape: 0.89564 -----
----- > Fold 17 - r2_score_train: 0.99360
> Fold 17 - r2_score_test: 0.65108
> Fold 17 - rmse: 0.03660
> Fold 17 - mae: 0.03151
> Fold 17 - mape: 0.50714
> Fold 17 - smape: 0.50738 -----
----- > Fold 18 - r2_score_train: 0.92666
> Fold 18 - r2_score_test: 0.80072
> Fold 18 - rmse: 0.01802
> Fold 18 - mae: 0.01511
> Fold 18 - mape: 0.24551
> Fold 18 - smape: 0.24546 -----
----- > Fold 19 - r2_score_train: 0.98068
> Fold 19 - r2_score_test: 0.34728
> Fold 19 - rmse: 0.02201
> Fold 19 - mae: 0.01547
> Fold 19 - mape: 0.25198
> Fold 19 - smape: 0.25136 -----
----- > Fold 20 - r2_score_train: 0.97713
> Fold 20 - r2_score_test: -0.48204
> Fold 20 - rmse: 0.02094
> Fold 20 - mae: 0.01758
> Fold 20 - mape: 0.28583
> Fold 20 - smape: 0.28640 -----
----- Average scores for all folds:
> r2_score_train: 0.85103 (+ 0.23329)
> r2_score_test: -0.09126 (+ 0.92061)
> rmse: 0.02867 (+ 0.01249)
> mae: 0.02407 (+ 0.01132)
> mape: 0.38872 (+ 0.18126)
> smape: 0.38872 (+ 0.18137) -----
----- Load Forecasting algorithm has been started
CrossValidation has been started
Predict 20-folds each by 15.0 days

```

## Prediction on decomposed part: Seasonal

Offset has been set by 1095.0 days -----

Score per fold - Seasonal -----

----- > Fold 1 - r2\_score\_train: 1.00000

> Fold 1 - r2\_score\_test: 1.00000

> Fold 1 - rmse: 0.00001 > Fold 1 - mae: 0.00000

> Fold 1 - mape: 0.01255

> Fold 1 - smape: 0.01255 -----

----- > Fold 2 - r2\_score\_train: 1.00000

> Fold 2 - r2\_score\_test: 1.00000

> Fold 2 - rmse: 0.00001

> Fold 2 - mae: 0.00000

> Fold 2 - mape: 0.00934

> Fold 2 - smape: 0.00934 -----

----- > Fold 3 - r2\_score\_train: 1.00000

> Fold 3 - r2\_score\_test: 1.00000

> Fold 3 - rmse: 0.00001

> Fold 3 - mae: 0.00000

> Fold 3 - mape: 0.00929

> Fold 3 - smape: 0.00929 -----

----- > Fold 4 - r2\_score\_train: 1.00000

> Fold 4 - r2\_score\_test: 1.00000

> Fold 4 - rmse: 0.00001

> Fold 4 - mae: 0.00000

> Fold 4 - mape: 0.01003

> Fold 4 - smape: 0.01003 -----

----- > Fold 5 - r2\_score\_train: 1.00000

> Fold 5 - r2\_score\_test: 1.00000

> Fold 5 - rmse: 0.00001

> Fold 5 - mae: 0.00000 > Fold 5 - mape: 0.01148

> Fold 5 - smape: 0.01148 -----

----- > Fold 6 - r2\_score\_train: 1.00000

> Fold 6 - r2\_score\_test: 1.00000

> Fold 6 - rmse: 0.00001

> Fold 6 - mae: 0.00000

> Fold 6 - mape: 0.01038

> Fold 6 - smape: 0.01038 -----

----- > Fold 7 - r2\_score\_train: 1.00000

> Fold 7 - r2\_score\_test: 1.00000

> Fold 7 - rmse: 0.00001

> Fold 7 - mae: 0.00000

> Fold 7 - mape: 0.01044

> Fold 7 - smape: 0.01044 -----

----- > Fold 8 - r2\_score\_train: 1.00000

> Fold 8 - r2\_score\_test: 1.00000

> Fold 8 - rmse: 0.00001

> Fold 8 - mae: 0.00000

> Fold 8 - mape: 0.00907

> Fold 8 - smape: 0.00907 -----

----- > Fold 9 - r2\_score\_train: 1.00000

> Fold 9 - r2\_score\_test: 1.00000

> Fold 9 - rmse: 0.00001

```
> Fold 9 - mae: 0.00000
> Fold 9 - mape: 0.00886 > Fold 9 - smape: 0.00886 -----
----- > Fold 10 - r2_score_train:
1.00000
> Fold 10 - r2_score_test: 1.00000
> Fold 10 - rmse: 0.00001
> Fold 10 - mae: 0.00000
> Fold 10 - mape: 0.01461
> Fold 10 - smape: 0.01461 -----
----- > Fold 11 - r2_score_train: 1.00000
> Fold 11 - r2_score_test: 1.00000
> Fold 11 - rmse: 0.00001
> Fold 11 - mae: 0.00000
> Fold 11 - mape: 0.01401
> Fold 11 - smape: 0.01401 -----
----- > Fold 12 - r2_score_train: 1.00000
> Fold 12 - r2_score_test: 1.00000
> Fold 12 - rmse: 0.00001
> Fold 12 - mae: 0.00000
> Fold 12 - mape: 0.01085
> Fold 12 - smape: 0.01085 -----
----- > Fold 13 - r2_score_train: 1.00000
> Fold 13 - r2_score_test: 1.00000
> Fold 13 - rmse: 0.00001
> Fold 13 - mae: 0.00001
> Fold 13 - mape: 0.03032 > Fold 13 - smape: 0.03033 -----
----- > Fold 14 - r2_score_train:
1.00000
> Fold 14 - r2_score_test: 1.00000
> Fold 14 - rmse: 0.00001
> Fold 14 - mae: 0.00001
> Fold 14 - mape: 0.02440
> Fold 14 - smape: 0.02439 -----
----- > Fold 15 - r2_score_train: 1.00000
> Fold 15 - r2_score_test: 0.99999
> Fold 15 - rmse: 0.00019
> Fold 15 - mae: 0.00013
> Fold 15 - mape: 0.62688
> Fold 15 - smape: 0.62683 -----
----- > Fold 16 - r2_score_train: 1.00000
> Fold 16 - r2_score_test: 1.00000
> Fold 16 - rmse: 0.00001
> Fold 16 - mae: 0.00001
> Fold 16 - mape: 0.03017
> Fold 16 - smape: 0.03016 -----
----- > Fold 17 - r2_score_train: 1.00000
> Fold 17 - r2_score_test: 1.00000
> Fold 17 - rmse: 0.00001
> Fold 17 - mae: 0.00001
> Fold 17 - mape: 0.01835 > Fold 17 - smape: 0.01835 -----
----- > Fold 18 - r2_score_train:
1.00000
> Fold 18 - r2_score_test: 1.00000
> Fold 18 - rmse: 0.00001
```

```

> Fold 18 - mae: 0.00000
> Fold 18 - mape: 0.00945
> Fold 18 - smape: 0.00945 -----
----- > Fold 19 - r2_score_train: 1.00000
> Fold 19 - r2_score_test: 1.00000
> Fold 19 - rmse: 0.00001
> Fold 19 - mae: 0.00000
> Fold 19 - mape: 0.00928
> Fold 19 - smape: 0.00928 -----
----- > Fold 20 - r2_score_train: 1.00000
> Fold 20 - r2_score_test: 1.00000
> Fold 20 - rmse: 0.00001
> Fold 20 - mae: 0.00000
> Fold 20 - mape: 0.00925
> Fold 20 - smape: 0.00925 -----
----- Average scores for all folds:
> r2_score_train: 1.00000 (+ 0.00000)
> r2_score_test: 1.00000 (+ 0.00000)
> rmse: 0.00002 (+ 0.00004) > mae: 0.00001 (+ 0.00003)
> mape: 0.04445 (+ 0.13378)
> smape: 0.04445 (+ 0.13377) -----
----- Load Forecasting algorithm has been started
CrossValidation has been started
Predict 20-folds each by 15.0 days
Prediction on decomposed part: Residual
Offset has been set by 1095.0 days -----
-----

Score per fold - Residual -----
----- > Fold 1 - r2_score_train: 0.70821
> Fold 1 - r2_score_test: 0.70963
> Fold 1 - rmse: 0.01044
> Fold 1 - mae: 0.00750
> Fold 1 - mape: 182.45047
> Fold 1 - smape: 74.70084 -----
----- > Fold 2 - r2_score_train: 0.93199
> Fold 2 - r2_score_test: 0.52463
> Fold 2 - rmse: 0.01291
> Fold 2 - mae: 0.01049
> Fold 2 - mape: 212.55757
> Fold 2 - smape: 103.07577 -----
----- > Fold 3 - r2_score_train: 0.92460
> Fold 3 - r2_score_test: 0.65534
> Fold 3 - rmse: 0.01171
> Fold 3 - mae: 0.00902
> Fold 3 - mape: 520.40305
> Fold 3 - smape: 88.05086 -----
----- > Fold 4 - r2_score_train: 0.88013
> Fold 4 - r2_score_test: 0.55048
> Fold 4 - rmse: 0.01212
> Fold 4 - mae: 0.00959
> Fold 4 - mape: 261.21841
> Fold 4 - smape: 95.81524 -----
----- > Fold 5 - r2_score_train: 0.85098

```



```
> Fold 5 - r2_score_test: 0.53022
> Fold 5 - rmse: 0.01314
> Fold 5 - mae: 0.01064
> Fold 5 - mape: 237.36214
> Fold 5 - smape: 110.07492 -----
----- > Fold 6 - r2_score_train: 0.89371
> Fold 6 - r2_score_test: 0.66097
> Fold 6 - rmse: 0.01532
> Fold 6 - mae: 0.01171
> Fold 6 - mape: 253.35311
> Fold 6 - smape: 79.78604 -----
----- > Fold 7 - r2_score_train: 0.94182
> Fold 7 - r2_score_test: 0.63594
> Fold 7 - rmse: 0.01348
> Fold 7 - mae: 0.01043
> Fold 7 - mape: 194.78506
> Fold 7 - smape: 90.53398 -----
----- > Fold 8 - r2_score_train: 0.88723
> Fold 8 - r2_score_test: 0.56468
> Fold 8 - rmse: 0.01403
> Fold 8 - mae: 0.01065
> Fold 8 - mape: 179.51935
> Fold 8 - smape: 96.01728 -----
----- > Fold 9 - r2_score_train: 0.88529
> Fold 9 - r2_score_test: -0.02569
> Fold 9 - rmse: 0.01329
> Fold 9 - mae: 0.01046
> Fold 9 - mape: 544.00153
> Fold 9 - smape: 127.23222 -----
----- > Fold 10 - r2_score_train: 0.57260
> Fold 10 - r2_score_test: 0.20127
> Fold 10 - rmse: 0.01318
> Fold 10 - mae: 0.01038
> Fold 10 - mape: 134.91616
> Fold 10 - smape: 136.11612 -----
----- > Fold 11 - r2_score_train: 0.69606
> Fold 11 - r2_score_test: 0.28182
> Fold 11 - rmse: 0.01286
> Fold 11 - mae: 0.00977
> Fold 11 - mape: 153.61881
> Fold 11 - smape: 127.85124 -----
----- > Fold 12 - r2_score_train: 0.94898
> Fold 12 - r2_score_test: 0.41890
> Fold 12 - rmse: 0.01613
> Fold 12 - mae: 0.01294
> Fold 12 - mape: 275.99831
> Fold 12 - smape: 110.96979 -----
----- > Fold 13 - r2_score_train: 0.90701
> Fold 13 - r2_score_test: 0.76693
> Fold 13 - rmse: 0.01194
> Fold 13 - mae: 0.00941
> Fold 13 - mape: 423.46567
> Fold 13 - smape: 78.30281 -----
----- > Fold 14 - r2_score_train: 0.96484
```

```

> Fold 14 - r2_score_test: 0.76526
> Fold 14 - rmse: 0.00969
> Fold 14 - mae: 0.00771
> Fold 14 - mape: 261.24228 > Fold 14 - smape: 77.96181 -----
----- > Fold 15 -
r2_score_train: 0.96891
> Fold 15 - r2_score_test: 0.77927
> Fold 15 - rmse: 0.01030
> Fold 15 - mae: 0.00807
> Fold 15 - mape: 133.26415
> Fold 15 - smape: 80.43921 -----
----- > Fold 16 - r2_score_train: 0.93846
> Fold 16 - r2_score_test: 0.74738
> Fold 16 - rmse: 0.00989
> Fold 16 - mae: 0.00786
> Fold 16 - mape: 354.00958
> Fold 16 - smape: 82.79088 -----
----- > Fold 17 - r2_score_train: 0.96207
> Fold 17 - r2_score_test: 0.58711
> Fold 17 - rmse: 0.01304
> Fold 17 - mae: 0.01036
> Fold 17 - mape: 147.81231
> Fold 17 - smape: 112.08332 -----
----- > Fold 18 - r2_score_train: 0.83428
> Fold 18 - r2_score_test: -1.90160
> Fold 18 - rmse: 0.02122
> Fold 18 - mae: 0.01717 > Fold 18 - mape: 477.17577
> Fold 18 - smape: 135.45567 -----
----- > Fold 19 - r2_score_train: 0.64214
> Fold 19 - r2_score_test: -0.12142
> Fold 19 - rmse: 0.01392
> Fold 19 - mae: 0.01036
> Fold 19 - mape: 301.14880
> Fold 19 - smape: 122.91999 -----
----- > Fold 20 - r2_score_train: 0.76144
> Fold 20 - r2_score_test: -0.01845
> Fold 20 - rmse: 0.01717
> Fold 20 - mae: 0.01368
> Fold 20 - mape: 339.20749
> Fold 20 - smape: 128.67697 -----
----- Average scores for all folds:
> r2_score_train: 0.85504 (+ 0.11368)
> r2_score_test: 0.36563 (+ 0.58696)
> rmse: 0.01329 (+ 0.00264)
> mae: 0.01041 (+ 0.00220)
> mape: 279.37550 (+ 123.90945)
> smape: 102.94275 (+ 20.71257)
-----

```

```

Load Forecasting algorithm has been started CrossValidation has been started
Predict 20-folds each by 15.0 days
Prediction on decomposed part: Observed
Offset has been set by 1095.0 days
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Score per fold - Observed -----
----- > Fold 1 - r2_score_train: 0.95757
> Fold 1 - r2_score_test: 0.81524
> Fold 1 - rmse: 0.02434
> Fold 1 - mae: 0.02152
> Fold 1 - mape: 0.34450
> Fold 1 - smape: 0.34521 -----
----- > Fold 2 - r2_score_train: 0.98880
> Fold 2 - r2_score_test: 0.77648
> Fold 2 - rmse: 0.02639
> Fold 2 - mae: 0.02191
> Fold 2 - mape: 0.35406
> Fold 2 - smape: 0.35320 -----
----- > Fold 3 - r2_score_train: 0.99248
> Fold 3 - r2_score_test: 0.71513
> Fold 3 - rmse: 0.02763
> Fold 3 - mae: 0.02322
> Fold 3 - mape: 0.37414
> Fold 3 - smape: 0.37317 -----
----- > Fold 4 - r2_score_train: 0.98583
> Fold 4 - r2_score_test: 0.71392
> Fold 4 - rmse: 0.02751
> Fold 4 - mae: 0.02317
> Fold 4 - mape: 0.37635
> Fold 4 - smape: 0.37544 -----
----- > Fold 5 - r2_score_train: 0.98725
> Fold 5 - r2_score_test: 0.90823
> Fold 5 - rmse: 0.01493
> Fold 5 - mae: 0.01179
> Fold 5 - mape: 0.19093
> Fold 5 - smape: 0.19073 -----
----- > Fold 6 - r2_score_train: 0.98423
> Fold 6 - r2_score_test: 0.78506
> Fold 6 - rmse: 0.02331
> Fold 6 - mae: 0.01805
> Fold 6 - mape: 0.29386
> Fold 6 - smape: 0.29328 -----
----- > Fold 7 - r2_score_train: 0.98770
> Fold 7 - r2_score_test: 0.90907
> Fold 7 - rmse: 0.01571
> Fold 7 - mae: 0.01237
> Fold 7 - mape: 0.20099
> Fold 7 - smape: 0.20102 -----
----- > Fold 8 - r2_score_train: 0.98497
> Fold 8 - r2_score_test: 0.78714
> Fold 8 - rmse: 0.02524
> Fold 8 - mae: 0.02054
> Fold 8 - mape: 0.33617
> Fold 8 - smape: 0.33537 -----
----- > Fold 9 - r2_score_train: 0.98991
> Fold 9 - r2_score_test: 0.86780
> Fold 9 - rmse: 0.02339
> Fold 9 - mae: 0.01686
> Fold 9 - mape: 0.27441
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> Fold 9 - smape: 0.27491 -----
----- > Fold 10 - r2_score_train: 0.98741
> Fold 10 - r2_score_test: 0.90592
> Fold 10 - rmse: 0.02197
> Fold 10 - mae: 0.01604
> Fold 10 - mape: 0.26063
> Fold 10 - smape: 0.26057 -----
----- > Fold 11 - r2_score_train: 0.98585
> Fold 11 - r2_score_test: 0.89139
> Fold 11 - rmse: 0.02178
> Fold 11 - mae: 0.01710
> Fold 11 - mape: 0.27800
> Fold 11 - smape: 0.27794 -----
----- > Fold 12 - r2_score_train: 0.99164
> Fold 12 - r2_score_test: 0.60604
> Fold 12 - rmse: 0.05134
> Fold 12 - mae: 0.04052
> Fold 12 - mape: 0.64892
> Fold 12 - smape: 0.65225 -----
----- > Fold 13 - r2_score_train: 0.99141
> Fold 13 - r2_score_test: 0.94002
> Fold 13 - rmse: 0.02172
> Fold 13 - mae: 0.01669
> Fold 13 - mape: 0.26790
> Fold 13 - smape: 0.26770 -----
----- > Fold 14 - r2_score_train: 0.98742
> Fold 14 - r2_score_test: 0.95141
> Fold 14 - rmse: 0.01675
> Fold 14 - mae: 0.01315
> Fold 14 - mape: 0.21094
> Fold 14 - smape: 0.21097 -----
----- > Fold 15 - r2_score_train: 0.99113
> Fold 15 - r2_score_test: 0.88921
> Fold 15 - rmse: 0.02627
> Fold 15 - mae: 0.02197
> Fold 15 - mape: 0.34974
> Fold 15 - smape: 0.35049 -----
----- > Fold 16 - r2_score_train: 0.99070
> Fold 16 - r2_score_test: 0.84684
> Fold 16 - rmse: 0.03458
> Fold 16 - mae: 0.02827
> Fold 16 - mape: 0.45620
> Fold 16 - smape: 0.45478 -----
----- > Fold 17 - r2_score_train: 0.97974
> Fold 17 - r2_score_test: 0.91583
> Fold 17 - rmse: 0.02631
> Fold 17 - mae: 0.02147
> Fold 17 - mape: 0.34659
> Fold 17 - smape: 0.34622 -----
----- > Fold 18 - r2_score_train: 0.98684
> Fold 18 - r2_score_test: 0.91249
> Fold 18 - rmse: 0.02164
> Fold 18 - mae: 0.01718
> Fold 18 - mape: 0.27920
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> Fold 18 - smape: 0.27925 -----
----- > Fold 19 - r2_score_train: 0.98737
> Fold 19 - r2_score_test: 0.79024
> Fold 19 - rmse: 0.03011
> Fold 19 - mae: 0.02293
> Fold 19 - mape: 0.37309
> Fold 19 - smape: 0.37226 -----
----- > Fold 20 - r2_score_train: 0.99265
> Fold 20 - r2_score_test: 0.87477
> Fold 20 - rmse: 0.01976
> Fold 20 - mae: 0.01593
> Fold 20 - mape: 0.25912
> Fold 20 - smape: 0.25958 -----
----- Average scores for all folds:
> r2_score_train: 0.98655 (+ 0.00733)
> r2_score_test: 0.84011 (+ 0.08759)
> rmse: 0.02503 (+ 0.00762)
> mae: 0.02003 (+ 0.00623)
> mape: 0.32379 (+ 0.09946)
> smape: 0.32372 (+ 0.09984) -----
----- Join all decomposed y predictions
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: 0.79503 > Fold 1 - rmse: 1007.65869
> Fold 1 - mae: 871.65180
> Fold 1 - mape: 5.37268
> Fold 1 - smape: 5.53821 -----
----- > Fold 2 - r2_score_train: 0.00000
> Fold 2 - r2_score_test: 0.80462
> Fold 2 - rmse: 891.28081
> Fold 2 - mae: 745.32323
> Fold 2 - mape: 5.29755
> Fold 2 - smape: 5.10833 -----
----- > Fold 3 - r2_score_train: 0.00000
> Fold 3 - r2_score_test: 0.63504
> Fold 3 - rmse: 1110.34962
> Fold 3 - mae: 915.72899
> Fold 3 - mape: 6.30235
> Fold 3 - smape: 6.07034 -----
----- > Fold 4 - r2_score_train: 0.00000
> Fold 4 - r2_score_test: 0.70636
> Fold 4 - rmse: 885.88356
> Fold 4 - mae: 746.19836
> Fold 4 - mape: 5.82939
> Fold 4 - smape: 5.61406 -----
----- > Fold 5 - r2_score_train: 0.00000
> Fold 5 - r2_score_test: 0.84953 > Fold 5 - rmse: 629.55721
> Fold 5 - mae: 505.78161
> Fold 5 - mape: 3.75364

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> Fold 5 - smape: 3.77826 -----
----- > Fold 6 - r2_score_train: 0.00000
> Fold 6 - r2_score_test: 0.71868
> Fold 6 - rmse: 851.54401
> Fold 6 - mae: 665.41314
> Fold 6 - mape: 5.28086
> Fold 6 - smape: 5.15126 -----
----- > Fold 7 - r2_score_train: 0.00000
> Fold 7 - r2_score_test: 0.59789
> Fold 7 - rmse: 1030.88943
> Fold 7 - mae: 856.70482
> Fold 7 - mape: 6.50263
> Fold 7 - smape: 6.74966 -----
----- > Fold 8 - r2_score_train: 0.00000
> Fold 8 - r2_score_test: 0.71147
> Fold 8 - rmse: 843.59753
> Fold 8 - mae: 696.49948
> Fold 8 - mape: 6.16053
> Fold 8 - smape: 5.89126 -----
----- > Fold 9 - r2_score_train: 0.00000
> Fold 9 - r2_score_test: 0.82328 > Fold 9 - rmse: 787.34762
> Fold 9 - mae: 569.06267
> Fold 9 - mape: 4.69026
> Fold 9 - smape: 4.75837 -----
----- > Fold 10 - r2_score_train: 0.00000
> Fold 10 - r2_score_test: 0.74865
> Fold 10 - rmse: 1106.92461
> Fold 10 - mae: 839.76960
> Fold 10 - mape: 6.49548
> Fold 10 - smape: 6.67366 -----
----- > Fold 11 - r2_score_train: 0.00000
> Fold 11 - r2_score_test: 0.84535
> Fold 11 - rmse: 784.63929
> Fold 11 - mae: 582.87702
> Fold 11 - mape: 4.65570
> Fold 11 - smape: 4.62697 -----
----- > Fold 12 - r2_score_train: 0.00000
> Fold 12 - r2_score_test: 0.28784
> Fold 12 - rmse: 2562.86444
> Fold 12 - mae: 2103.90795
> Fold 12 - mape: 13.35575
> Fold 12 - smape: 14.59603 -----
----- > Fold 13 - r2_score_train: 0.00000 > Fold 13 -
r2_score_test: 0.88791
> Fold 13 - rmse: 1224.55248
> Fold 13 - mae: 949.99197
> Fold 13 - mape: 5.95232
> Fold 13 - smape: 5.82206 -----
----- > Fold 14 - r2_score_train: 0.00000
> Fold 14 - r2_score_test: 0.92013
> Fold 14 - rmse: 864.91402
> Fold 14 - mae: 641.12758
> Fold 14 - mape: 3.96662
> Fold 14 - smape: 4.00082 -----
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----- > Fold 15 - r2_score_train: 0.00000
> Fold 15 - r2_score_test: 0.80567
> Fold 15 - rmse: 1563.78279
> Fold 15 - mae: 1281.10957
> Fold 15 - mape: 6.98311
> Fold 15 - smape: 7.21130 -----
----- > Fold 16 - r2_score_train: 0.00000
> Fold 16 - r2_score_test: 0.59195
> Fold 16 - rmse: 2361.67290
> Fold 16 - mae: 2085.32937
> Fold 16 - mape: 14.19087
> Fold 16 - smape: 13.15857 -----
----- > Fold 17 - r2_score_train: 0.00000
> Fold 17 - r2_score_test: 0.80996
> Fold 17 - rmse: 1533.11111
> Fold 17 - mae: 1216.13266
> Fold 17 - mape: 7.95960
> Fold 17 - smape: 7.98046 -----
----- > Fold 18 - r2_score_train: 0.00000
> Fold 18 - r2_score_test: 0.86774
> Fold 18 - rmse: 850.26692
> Fold 18 - mae: 688.48777
> Fold 18 - mape: 5.33904
> Fold 18 - smape: 5.50246 -----
----- > Fold 19 - r2_score_train: 0.00000
> Fold 19 - r2_score_test: 0.80211
> Fold 19 - rmse: 894.40227
> Fold 19 - mae: 667.00323
> Fold 19 - mape: 5.34571
> Fold 19 - smape: 5.16979 -----
----- > Fold 20 - r2_score_train: 0.00000
> Fold 20 - r2_score_test: 0.89104
> Fold 20 - rmse: 555.47845
> Fold 20 - mae: 416.01898
> Fold 20 - mape: 3.32281
> Fold 20 - smape: 3.38771 -----
-----

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#### **Average scores for all folds:**

```

> r2_score_train: 0.00000 (+ 0.00000)
> r2_score_test: 0.75501 (+ 0.14130)
> rmse: 1117.03589 (+ 512.32052)
> mae: 902.20599 (+ 448.23738)
> mape: 6.33784 (+ 2.70654)
> smape: 6.33948 (+ 2.75031)
-----

```

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--- 44.273 seconds --- the end of the file.

```