

Epoch 9: ReduceLROnPlateau reducing learning rate to 0.0005000000237487257.

**19/19** ————— **1s** 26ms/step - loss: 0.2178 - val\_loss: 0.4228 -  
learning\_rate: 0.0010

Epoch 10/300

**19/19** ————— **1s** 34ms/step - loss: 0.2387 - val\_loss: 0.4180 -  
learning\_rate: 5.0000e-04

Epoch 11/300

**19/19** ————— **1s** 45ms/step - loss: 0.2064 - val\_loss: 0.3867 -  
learning\_rate: 5.0000e-04

Epoch 12/300

**19/19** ————— **1s** 43ms/step - loss: 0.2452 - val\_loss: 0.4237 -  
learning\_rate: 5.0000e-04

Epoch 13/300

**19/19** ————— **1s** 37ms/step - loss: 0.2147 - val\_loss: 0.4240 -  
learning\_rate: 5.0000e-04

Epoch 14/300

**19/19** ————— **1s** 52ms/step - loss: 0.2045 - val\_loss: 0.4126 -  
learning\_rate: 5.0000e-04

Epoch 15/300

**17/19** ————— **0s** 31ms/step - loss: 0.2006

Epoch 15: ReduceLROnPlateau reducing learning rate to 0.0002500000118743628.

**19/19** ————— **1s** 33ms/step - loss: 0.2026 - val\_loss: 0.4076 -  
learning\_rate: 5.0000e-04

Epoch 16/300

**19/19** ————— **1s** 26ms/step - loss: 0.2094 - val\_loss: 0.3994 -  
learning\_rate: 2.5000e-04

Epoch 17/300

**19/19** ————— **1s** 25ms/step - loss: 0.2062 - val\_loss: 0.4089 -  
learning\_rate: 2.5000e-04

Epoch 18/300

**19/19** ————— **0s** 25ms/step - loss: 0.1999 - val\_loss: 0.4176 -  
learning\_rate: 2.5000e-04

VAL — MAE: 420.08 | RMSE: 623.47 | MAPE: 33.33%

VAL (accuracy-optimized) — thr: 499.056 | Acc: 96.15% | F1: 0.98 | P: 0.96 | R: 1.00

Confusion matrix [TN FP; FN TP]:

```
[[ 0  1]
 [ 0 25]]
```

VAL (optimal-F1) — thr: 499.056 | Acc: 96.15% | F1: 0.98

Epoch 1/20

**20/20** ————— **4s** 20ms/step - loss: 0.3959

Epoch 2/20

**20/20** ————— **0s** 21ms/step - loss: 0.2975

Epoch 3/20

**20/20** ————— **0s** 19ms/step - loss: 0.2975

Epoch 4/20

**20/20** ————— **0s** 21ms/step - loss: 0.2795

Epoch 5/20

**20/20** ————— **1s** 27ms/step - loss: 0.2681

Epoch 6/20

**20/20** ————— **1s** 33ms/step - loss: 0.2641

Epoch 7/20

**20/20** ————— **1s** 31ms/step - loss: 0.2601

Epoch 8/20

**20/20** ————— **1s** 32ms/step - loss: 0.2614

Epoch 9/20

**20/20** ————— **1s** 25ms/step - loss: 0.2406

Epoch 10/20

**20/20** ————— **0s** 20ms/step - loss: 0.2262

Epoch 11/20

**20/20** ————— **1s** 20ms/step - loss: 0.2403

Epoch 12/20

**20/20** ————— **0s** 20ms/step - loss: 0.2224

Epoch 13/20

**20/20** ————— **0s** 19ms/step - loss: 0.2193

Epoch 14/20

**20/20** ————— **0s** 20ms/step - loss: 0.2113

Epoch 15/20

**20/20** ————— **0s** 19ms/step - loss: 0.1940

Epoch 16/20

**20/20** ————— **0s** 19ms/step - loss: 0.2003

Epoch 17/20

**20/20** ————— **0s** 20ms/step - loss: 0.1882

Epoch 18/20

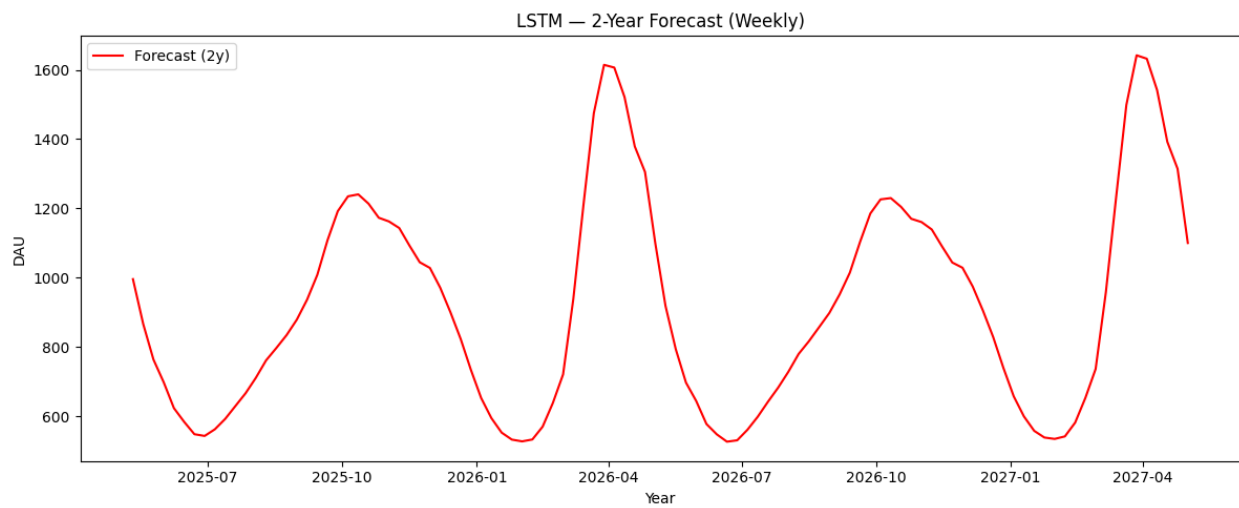
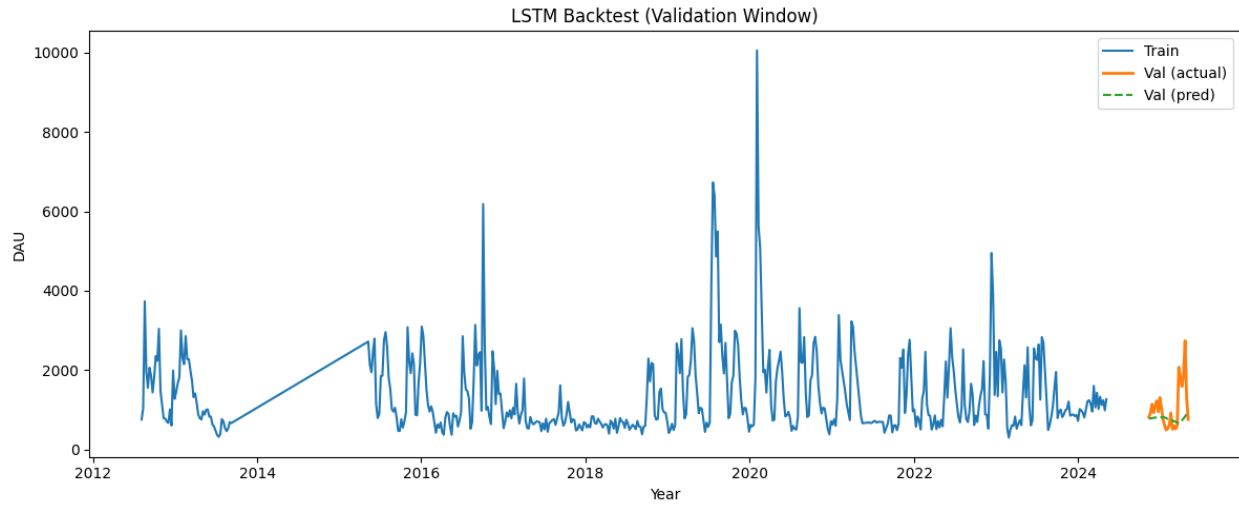
**20/20** ————— **0s** 20ms/step - loss: 0.2163

Epoch 19/20

**20/20** ————— **0s** 20ms/step - loss: 0.1888

Epoch 20/20

**20/20** ————— **1s** 19ms/step - loss: 0.2076



► Validation (fixed TRAIN-median threshold)

Threshold: 1003.513

Accuracy : 57.69%

F1 Score : 0.00

Precision: 0.00

Recall : 0.00

Confusion matrix [TN FP; FN TP]:

[[15 0]

[11 0]]

► Validation (accuracy-optimized threshold)

Threshold: 499.056

Accuracy : 96.15%

F1 Score : 0.98

Precision: 0.96

Recall : 1.00

Confusion matrix [TN FP; FN TP]:

[[ 0 1]

[ 0 25]]