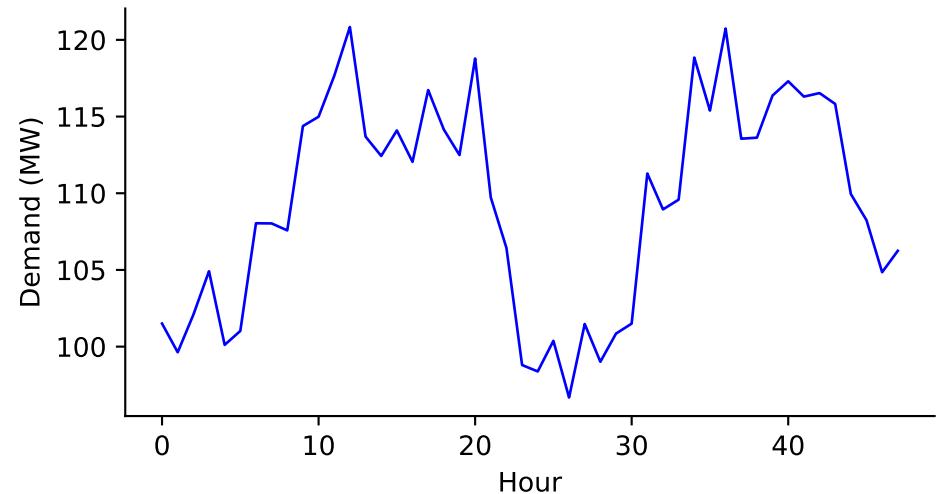
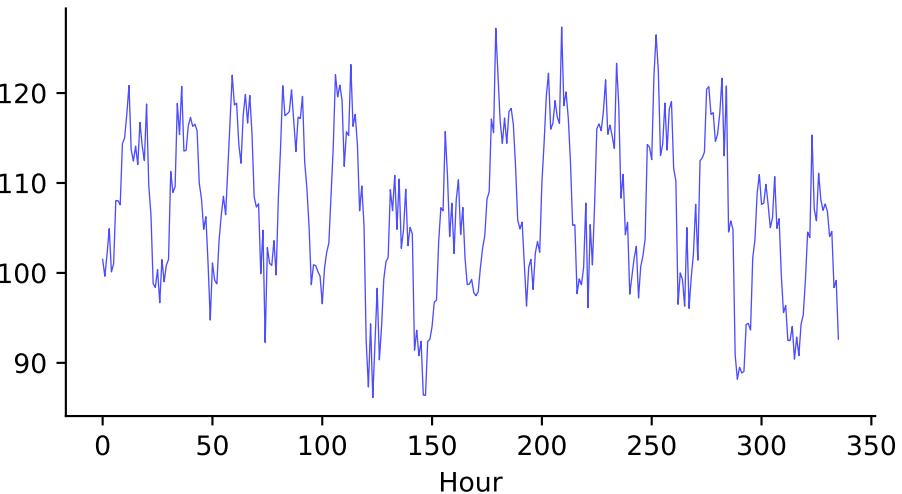


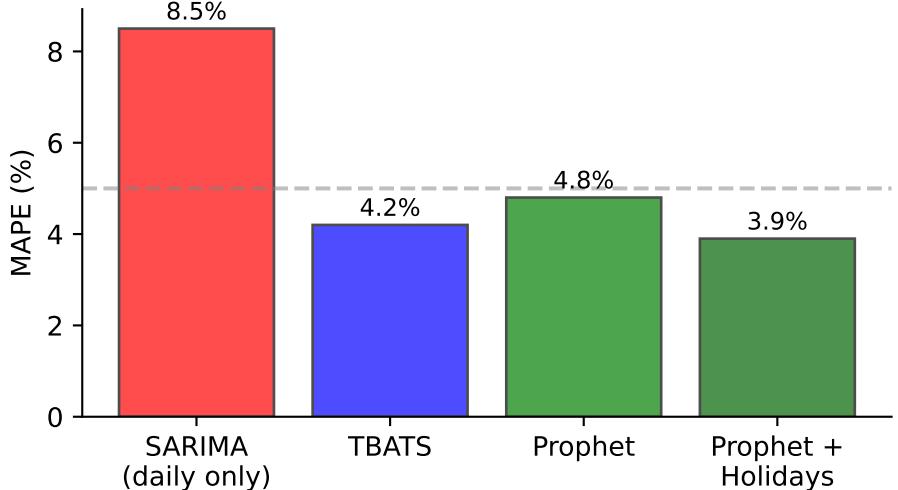
First 2 Days: Daily Pattern Visible



Full 2 Weeks: Weekly Pattern Visible



Model Comparison: Energy Demand



#### Key Insights:

1. SARIMA with  $s=24$  misses weekly pattern  
→ Higher error (MAPE = 8.5%)
2. TBATS and Prophet capture both daily AND weekly seasonality  
→ Much better (MAPE  $\sim 4\text{-}5\%$ )
3. Prophet + holidays adds value when special days matter  
→ Best result (MAPE = 3.9%)

Conclusion: Multiple seasonality models significantly outperform single-seasonality SARIMA!