Performance Scoring

#	Design Components	Status Quo	PJM/IMM
16	Components of performance scoring and weighting	Units measured on a composite performance score = 1/3 accuracy + 1/3 delay + 1/3 precision (deviation)	Performance score = precision score
16C	Precision calculation	The absolute error between the signal at t0 and the response at t10	The lowest of the absolute error between the signal at t0 and the response at t0 and t10. The denominator in the precision calculation will be an average of the regulation award and the absolute average hourly signal

Performance Score Calculation:

Status Quo: Perf Score $= \frac{1}{3}*$Accuracy $+ \frac{1}{3}*$Delay $+ \frac{1}{3}*$Precision

Proposed: Perf Score = Precision

Precision: *The instantaneous error between the control signal and the regulating unit's response*

Signal   Response
  t0   ----------   t0
t+10sec ----------→ t+10sec
t+20sec ----------→ t+20sec
t+30sec ----------→ t+30sec
t+40sec ----------→ t+40sec
t+50sec ----------→ t+50sec
   .   .
   .   .
   .   .
t+5min   t+5min
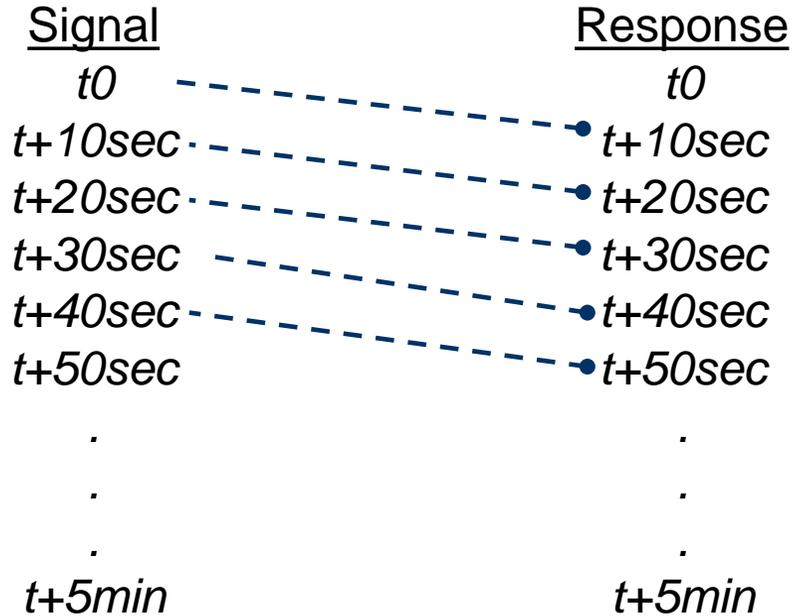
Interval Precision Score:

$$1- \frac{Response - Signal}{Hourly\ Average\ Signal}$$

Hourly Precision Score:

Avg ABS(*Interval Precision Score*)

Precision: *The instantaneous error between the control signal and the regulating unit's response*

Signal   Response

t0   t0
t+10sec   t+10sec
t+20sec   t+20sec
t+30sec   t+30sec
t+40sec   t+40sec
t+50sec   t+50sec
.   .
.   .
.   .
t+5min   t+5min
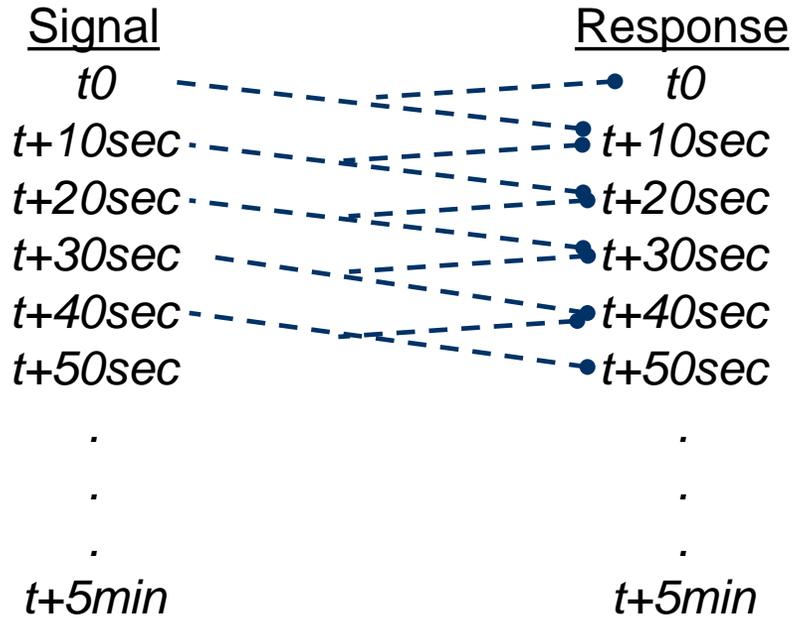
Interval Precision Score:

$$1\text{- MIN}_{\text{t0-t10}} \frac{Response - Signal}{(0.5 * Hourly\ Average\ Signal + 0.5 * AREG)}$$

Hourly Precision Score:

Avg ABS($Interval\ Precision\ Score$)
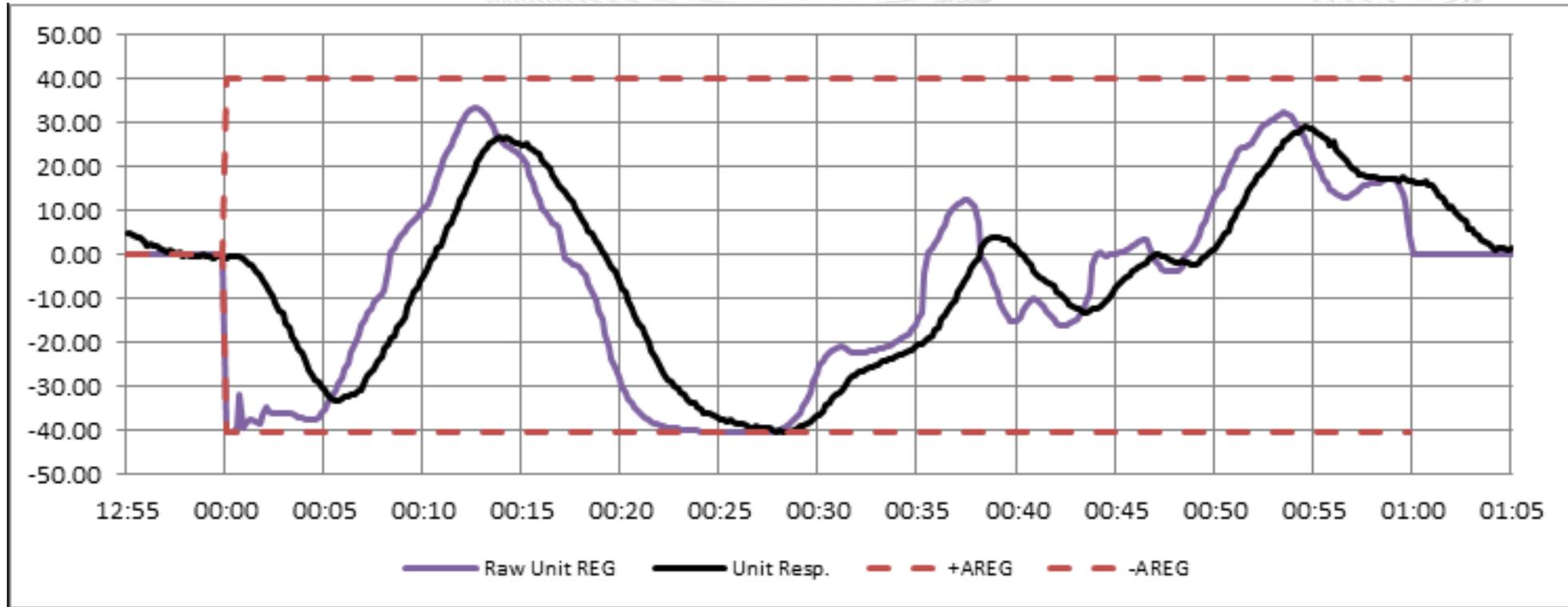
- Average Abs Signal = 20.7, AREG = 40.2
- Status Quo Precision = 55%, Performance = 77%
- Proposed Precision = 68%
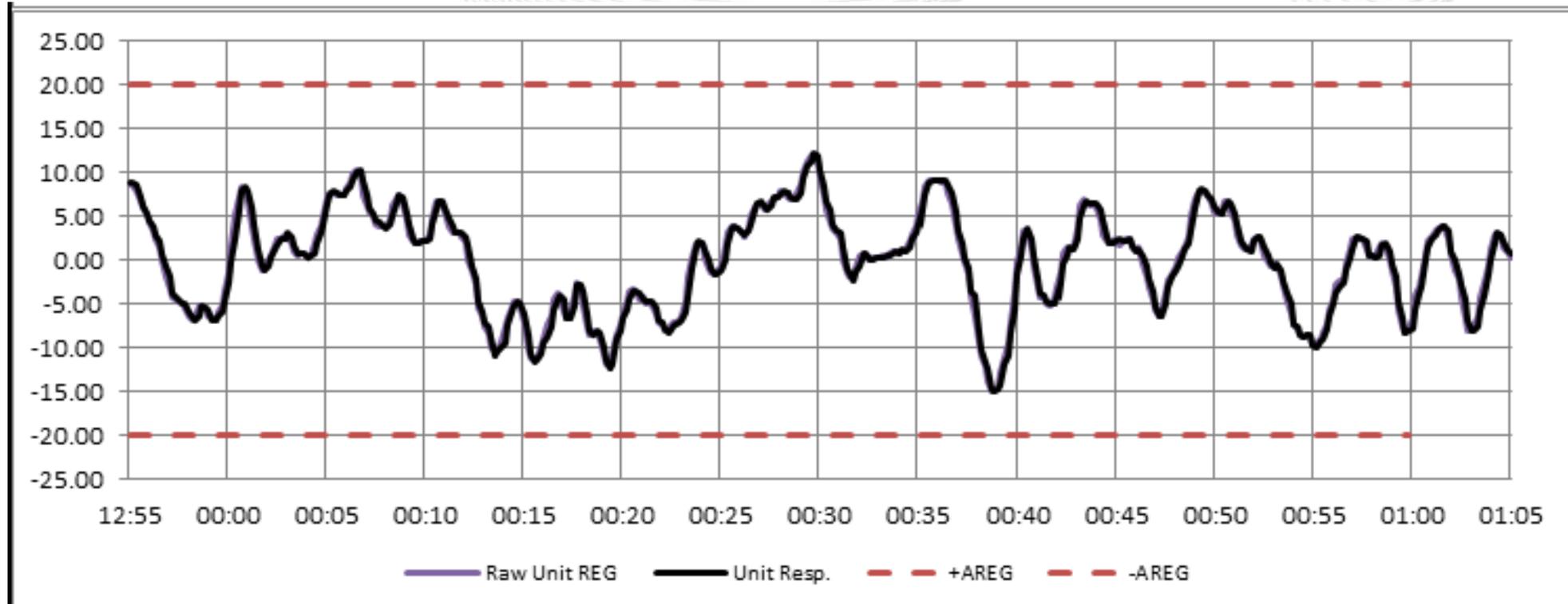
- Average Abs Signal = 4.8, AREG = 20
- Status Quo Precision = 92%, Performance = 97%
- Proposed Precision = 97%