Our observations on improving the CWV definition

Improving CWV

During the July 2018 DESC meeting we presented evidence that the CWV definition can be improved by the inclusion of solar.

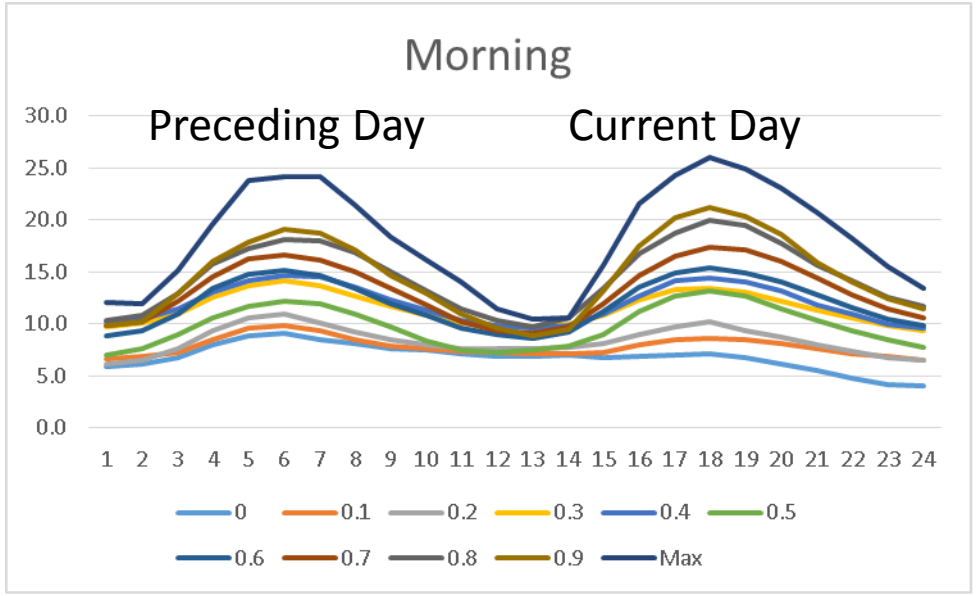
It also suggested an amended CWV definition SCWV = CWV + Solar Term.

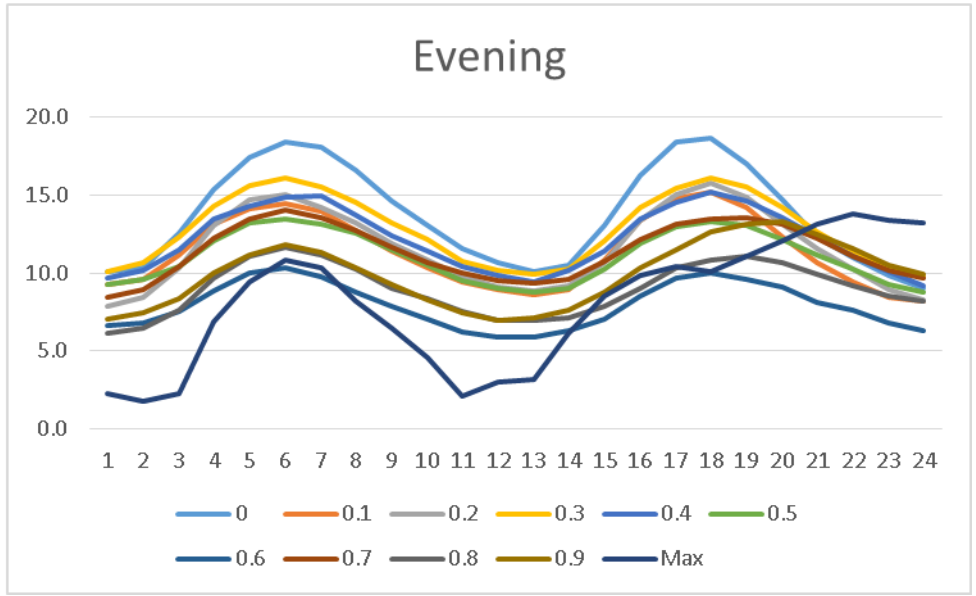
Additional analysis by EON has also confirmed that rainfall has an impact.

e.g. “For LDZ EM the R2 improved from 0.9788 to 0.9798. In MAPE terms this improved from 4.70% to 4.47%.”

Our Observations

- Two days of similar CWV have very different demands. Related to the diurnal shape of temperature.
- Simple measure of diurnal temperature shape calculated and each day place into 10 equal groups - deciles.



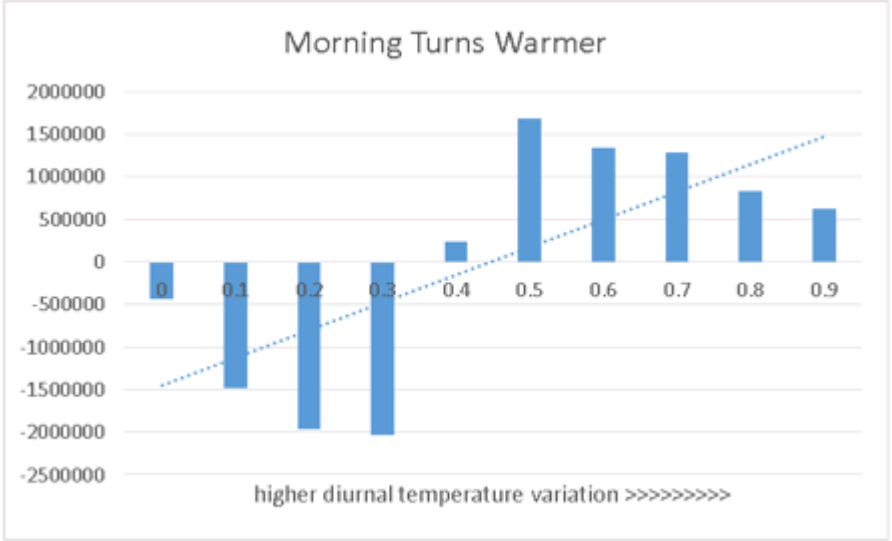


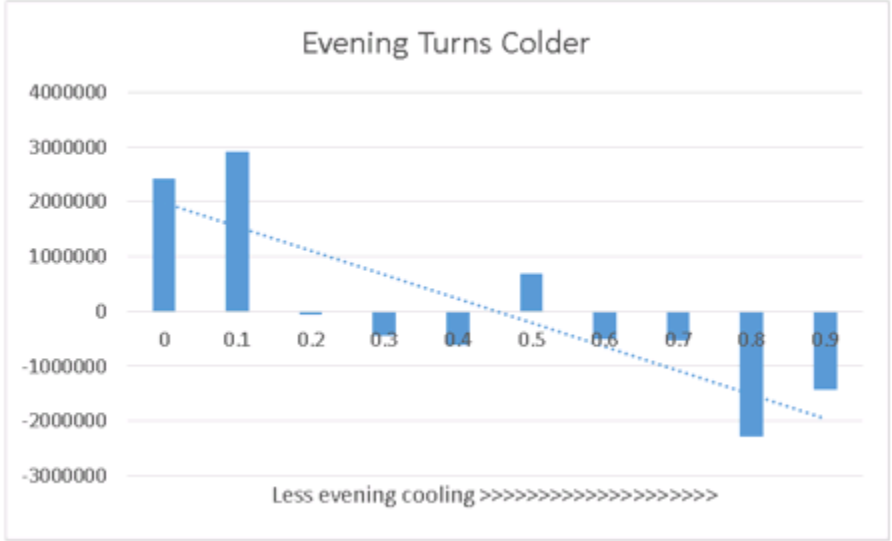
Correlation with Error

The average error was measured for each decile, against optimised CWV

Morning: As the diurnal temperature profile increases – CWV tends to over forecast demand (CWV is too cold) . High diurnal temperature days have high solar.

Evening: As the diurnal temperature profile increases – CWV tends to under forecast demand (CWV is too warm). Evening weights thought to be too high.





Next Steps

- Improving the CWV optimisation tool to help analysis of outlier days.
- Further analysis on wind direction and rainfall & the design of the solar variable.
- Further analysis on weights.