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# DESC Technical Work group

## Seasonal Normal Review: Use of CCM Increments

**30 July 2014**

# Background

- Current Seasonal Normal Basis (SNCWV) introduced in October 2010
  - Incorporated some outputs from Met Office EP2 Project – used estimated climate change increments
- UNC now states SNCWV should be based on output derived from ‘Climate Change Methodology’ (CCM)
- Requested outputs of CCM Project (*updated*)
  - 50+ years hourly historic data adjusted for estimated impacts of climate change v base year 2011/12
  - Predicted hourly average values for Gas Years 2012 to 2025
  - Predicted hourly increments – difference between base year and forecast year
- Stakeholder meeting on Nov 25th agreed how the outputs will be used in defining SNCWV for G.Yr 2015 onwards

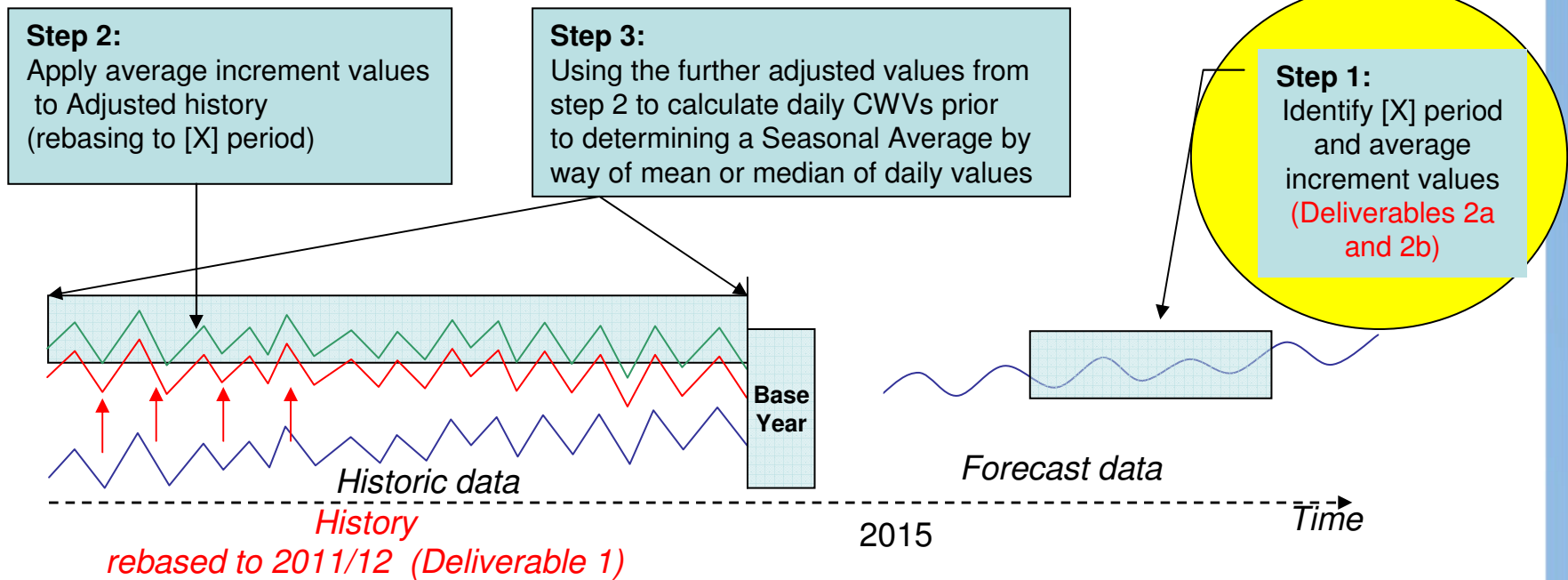
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# Use of Project Deliverables

Not to Scale, for illustration only



## Deliverables:

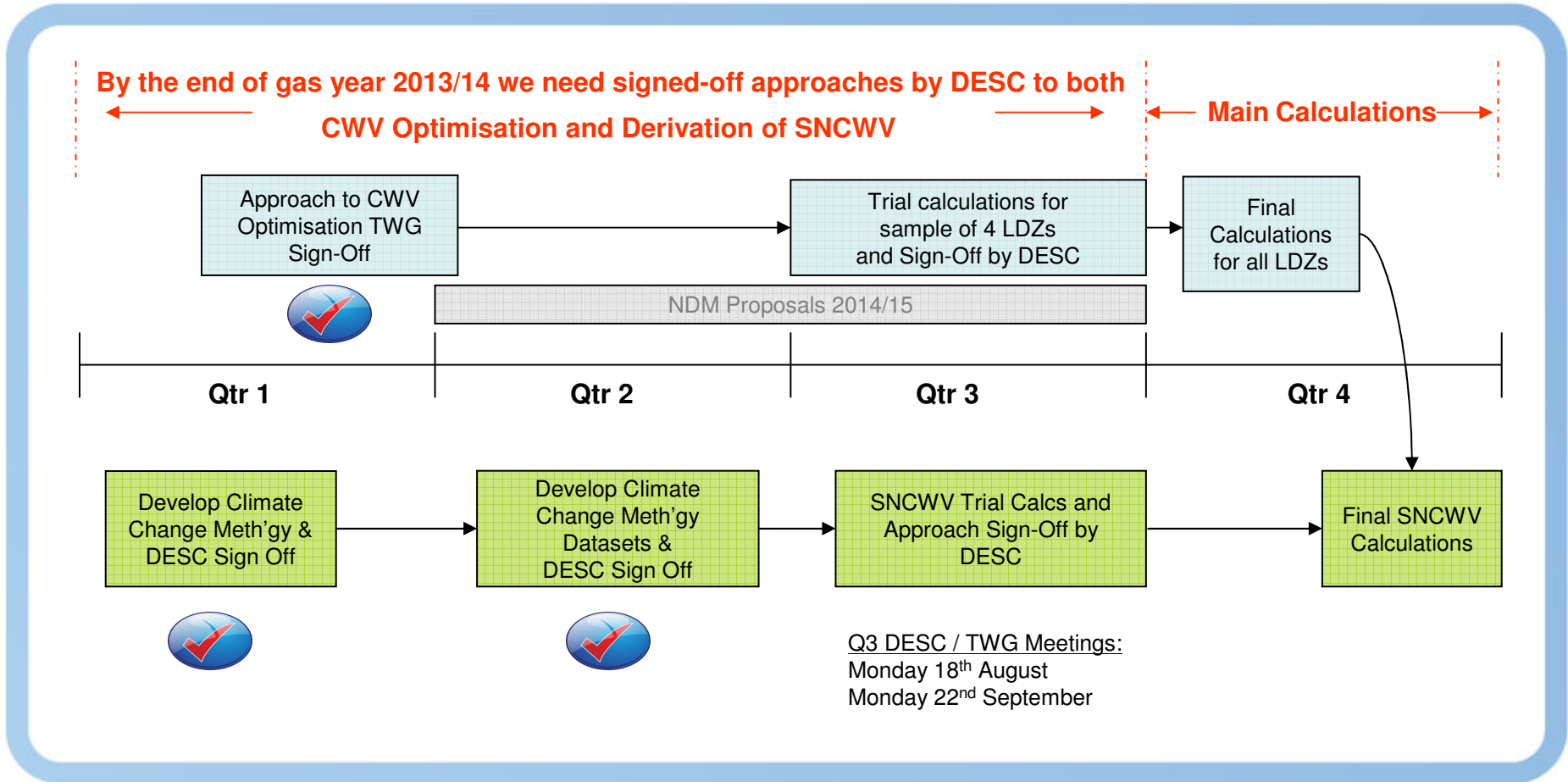
- 1) An adjusted view of historic hourly weather datasets (derived from WSSM) reflecting estimated impacts of climate change based on results from base year 2011/12
- 2)
  - a) Predicted hourly climatological average values for period 1<sup>st</sup> October 2012 to 30<sup>th</sup> September 2025 based on predicted impact of climate change trends for future period
  - b) Predicted hourly increments values – difference between predicted hourly climatological average values (i.e. from 2a) and base year (2011/12) averages

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# Seasonal Normal Review & CWV Optimisation Timeline



**KEY:**

CWV Optimisation

Derivation of SNCWV

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# Seasonal Normal Review – Q3 Objectives

- Proposed plan for developing Seasonal Normal approach document
- Follow agreed approach for using CCM output:
  - Identify [x] period and average increment values
  - Apply increments to adjusted history
  - Using adjusted history with increments applied calculate a set of daily CWVs for period 1<sup>st</sup> October 1960 to 30<sup>th</sup> September 2012
    - Q. SNCWV will be calculated using history no later than 30/09/2012?
  - During Q3 this will be done using EXISTING parameters
  - Select the Mean or Median for determining daily CWV values
  - Performed for 4 Trial LDZs ?
- Review shape and confirm level of smoothing (if required)
- Document the approach to deriving the new Seasonal Normal basis and obtain DESC sign-off

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## Identify [X] period and Average Increment values

- Following DESC's approval of the CCM datasets, attention can be drawn to using the data in the derivation of Seasonal Normal
- Xoserve have reviewed the data for 4 LDZs, namely those selected by TWG for the CWV Optimisation trial analysis - SC, NE, WM and SW
- To assist in the decision making of “selecting [x] period for averaging the increment values”, the predicted hourly climatological average values (deliverable 2a) have been used, referred to as ‘Projections’
- The ‘Projections’ will not be used in the calculation of the SNCWV, however they are being used to help determine which period should be used when applying the increment values

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## Identify [X] period and Average Increment values

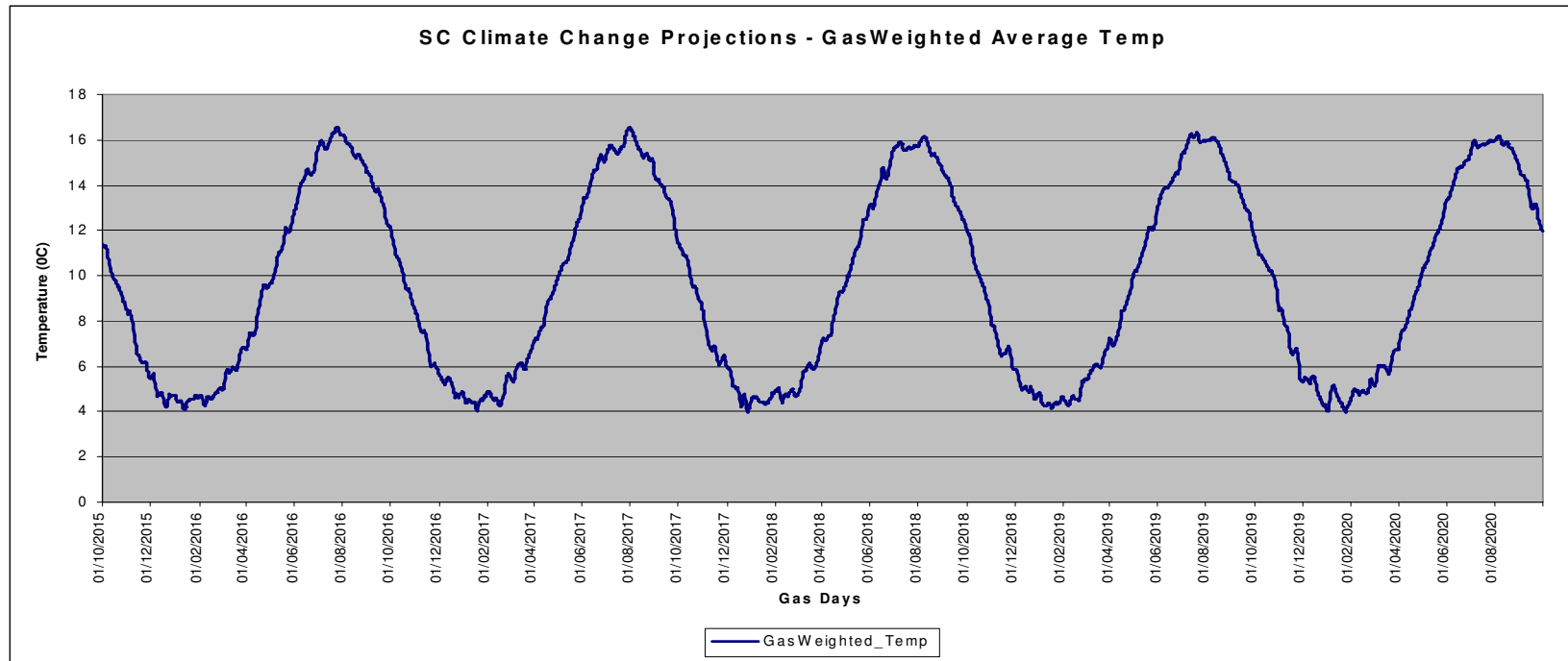
- Data files used for analysis :  
*Temperature\_WeatherStationID\_Projections\_2012\_2025.txt*
- The 2 hourly timeslots used in the Actual Temperature (AT) calculation within the CWV formula have been selected with the appropriate weighting then applied in order to derive a 'Gas Weighted' daily average temperature
- Met Office supplied data at GMT, analysis at this stage has not corrected this to 'local time', the conversion will need to happen for the 'real' analysis

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# SC Projections – ‘Gas Weighted’ Avge. Daily Temp



- Gas Years 2015 to 2019

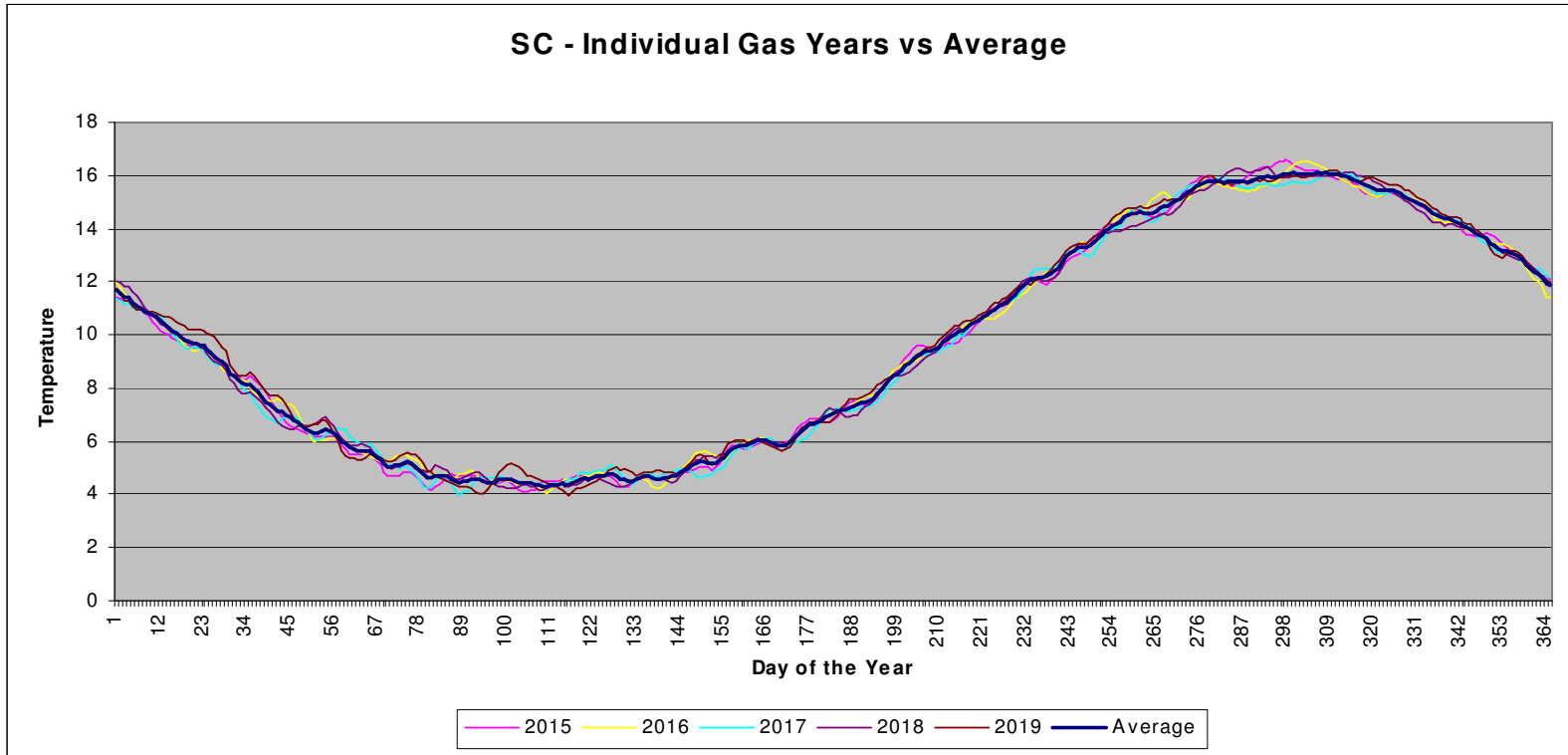
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# SC Projections – Gas Years vs Avge. Profile

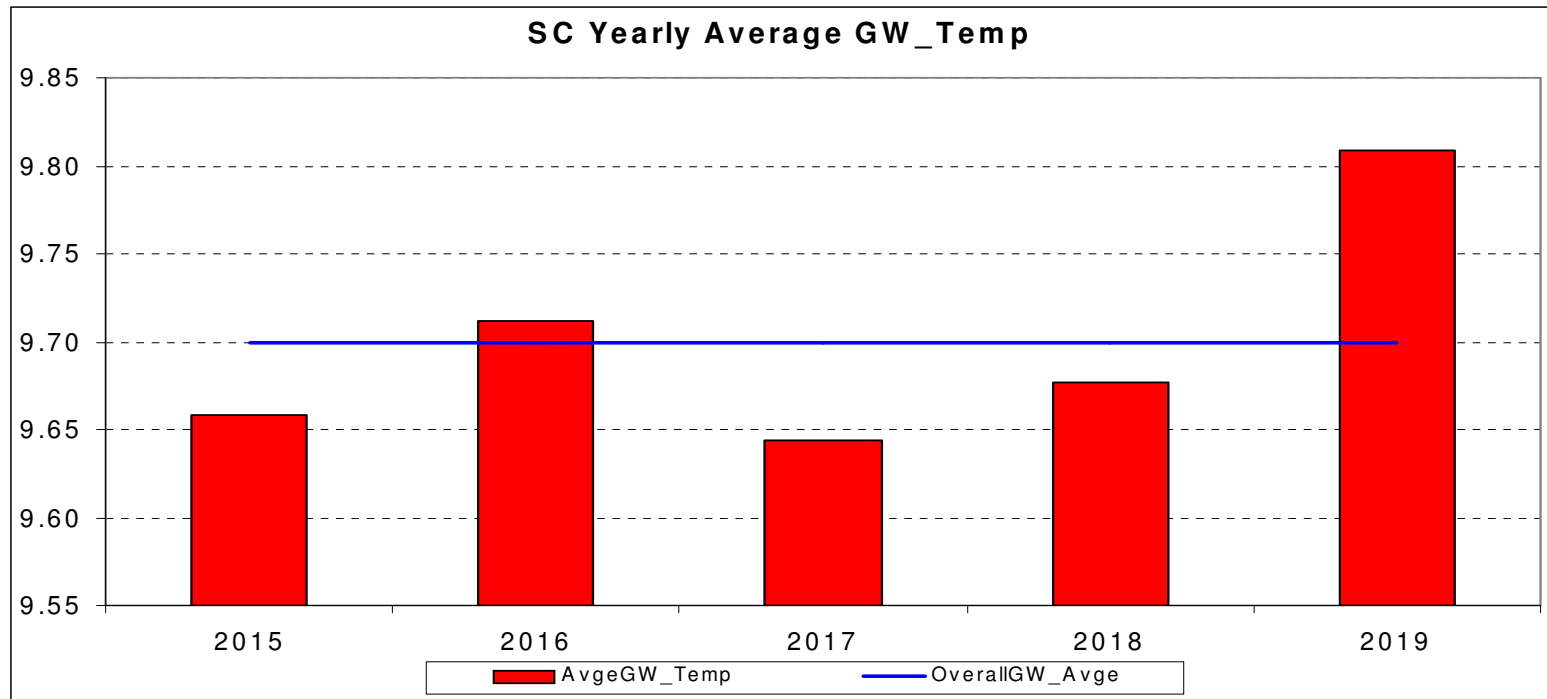


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## SC Projections – ‘Gas Weighted’ Avge. Annual Temp



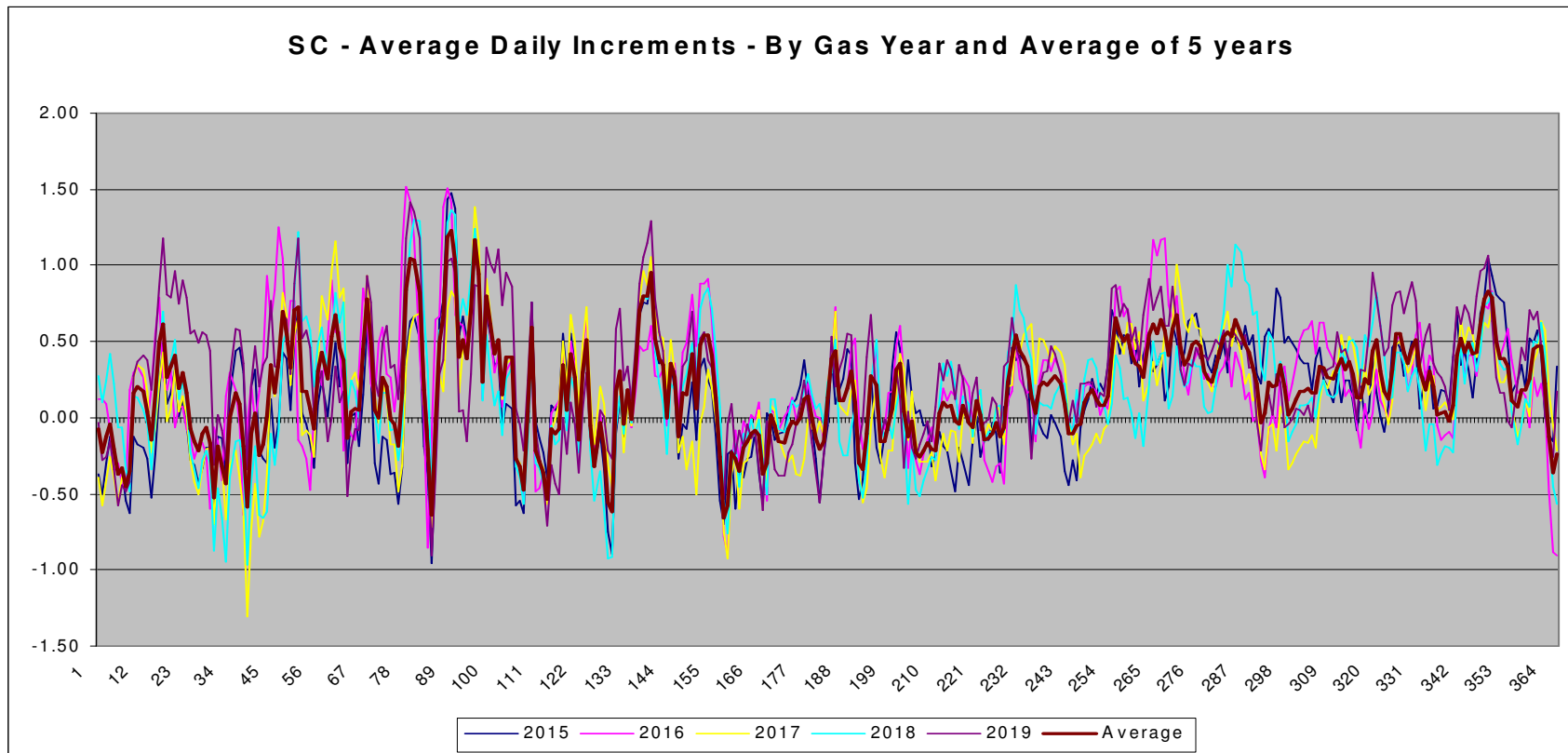
- Gas Years 2015 to 2019 and Overall Average

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# SC Increments – Gas Years vs Avge. Profile



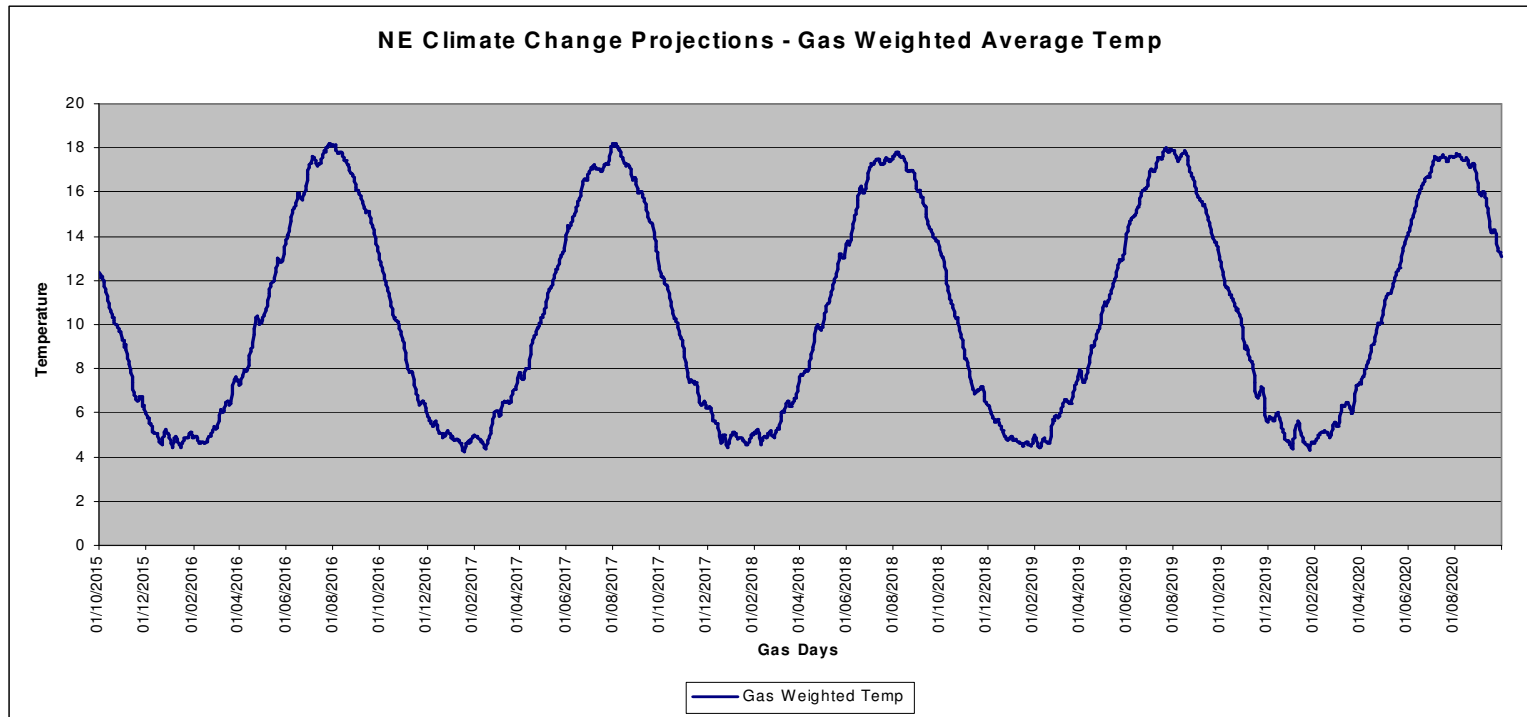
- Note: Hourly increments will be applied to the adjusted history

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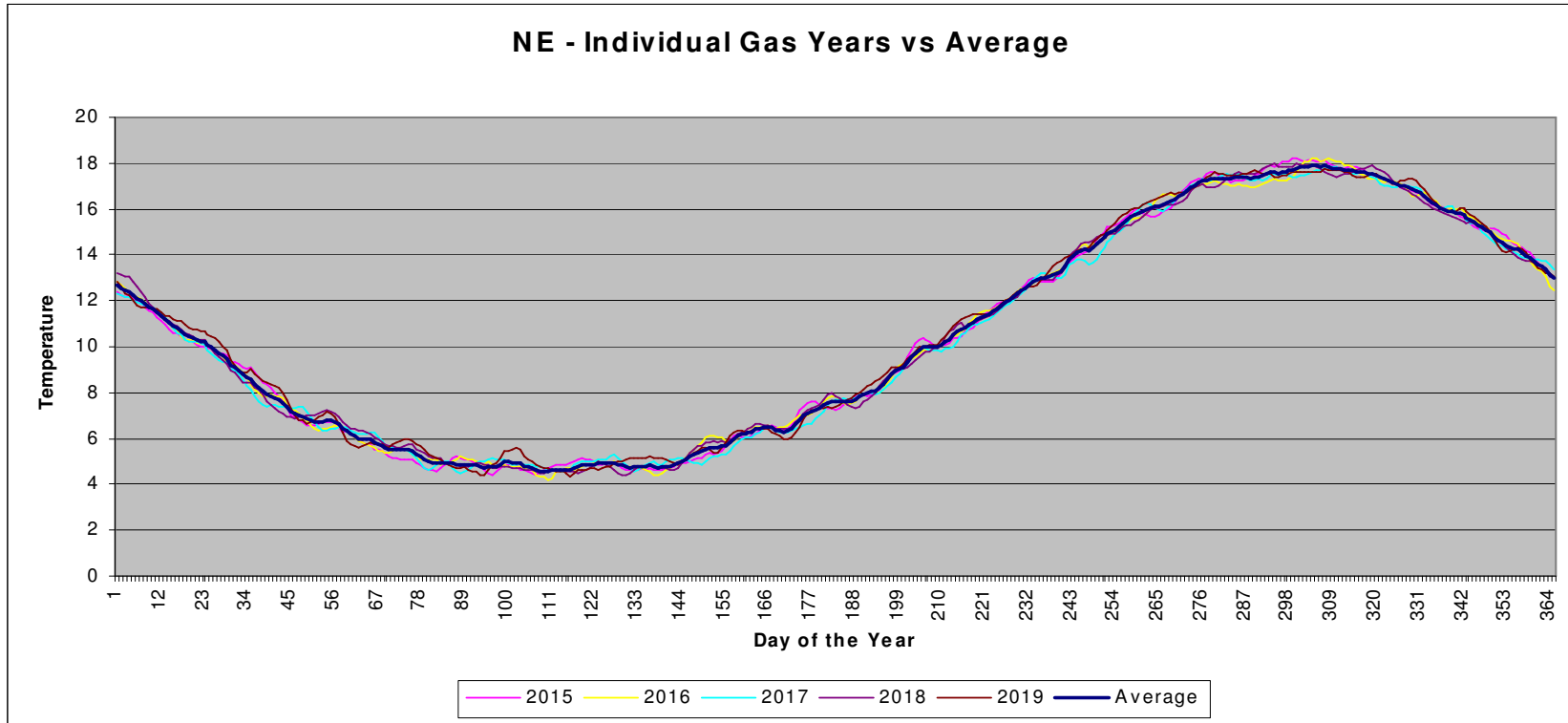


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# NE Projections – ‘Gas Weighted’ Avge. Daily Temp



# NE Projections – Gas Years vs Avge. Profile

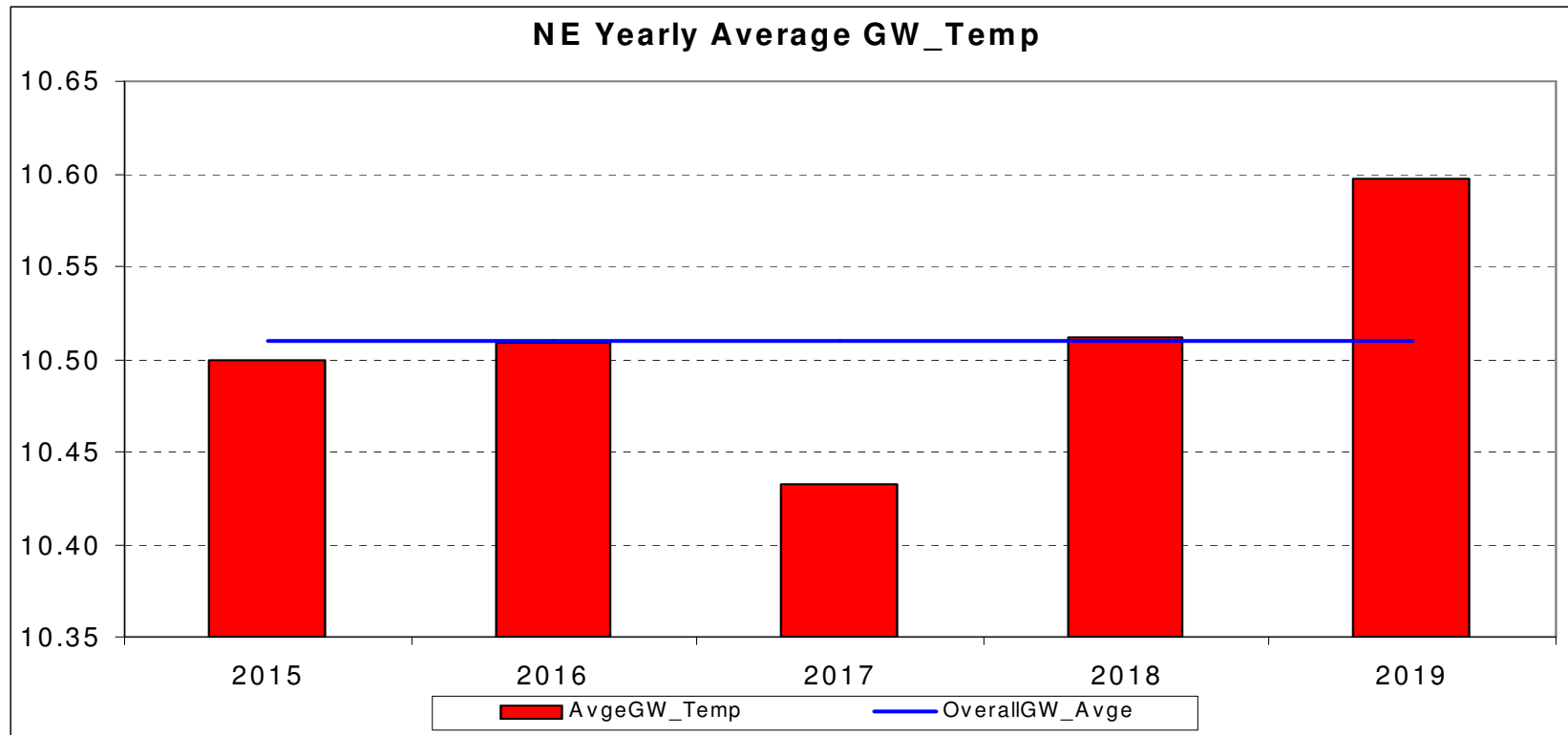


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## NE Projections – ‘Gas Weighted’ Avge. Annual Temp

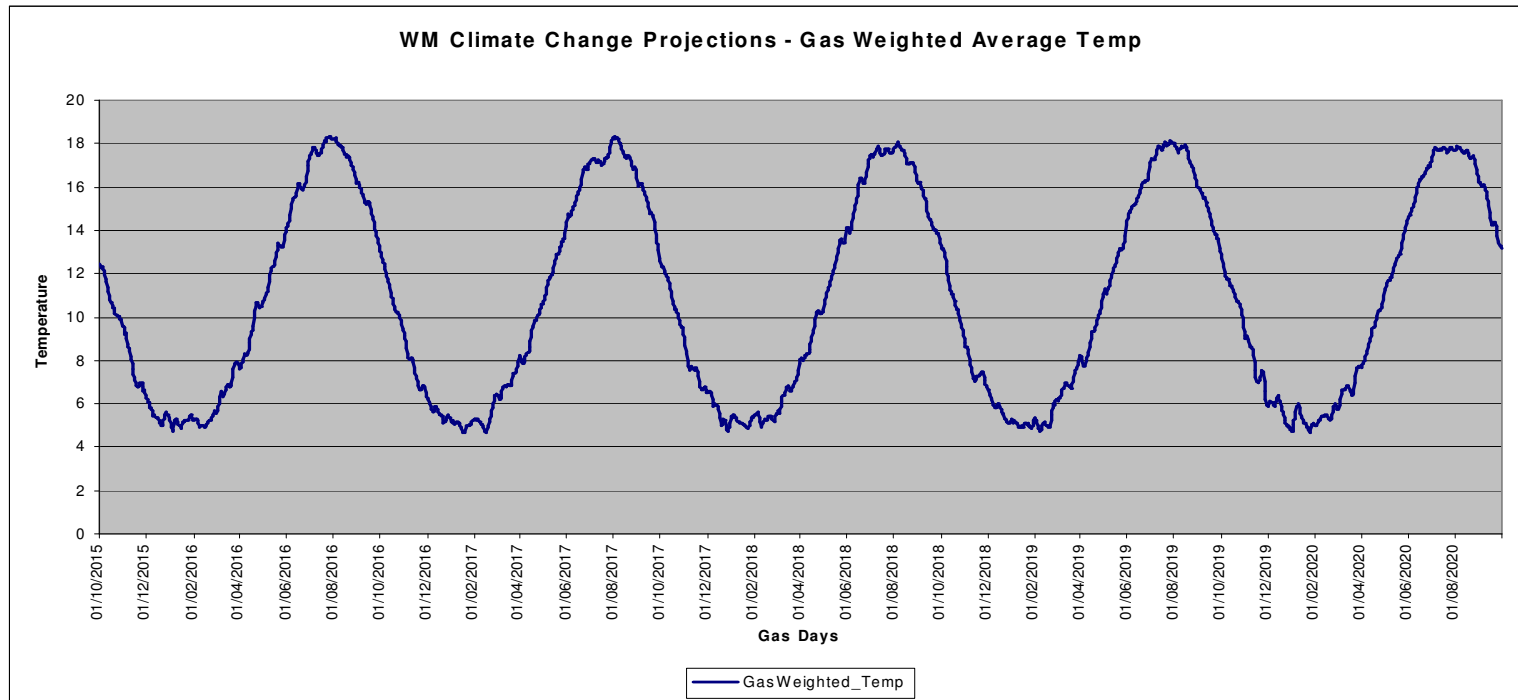


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# WM Projections – ‘Gas Weighted’ Avge. Daily Temp

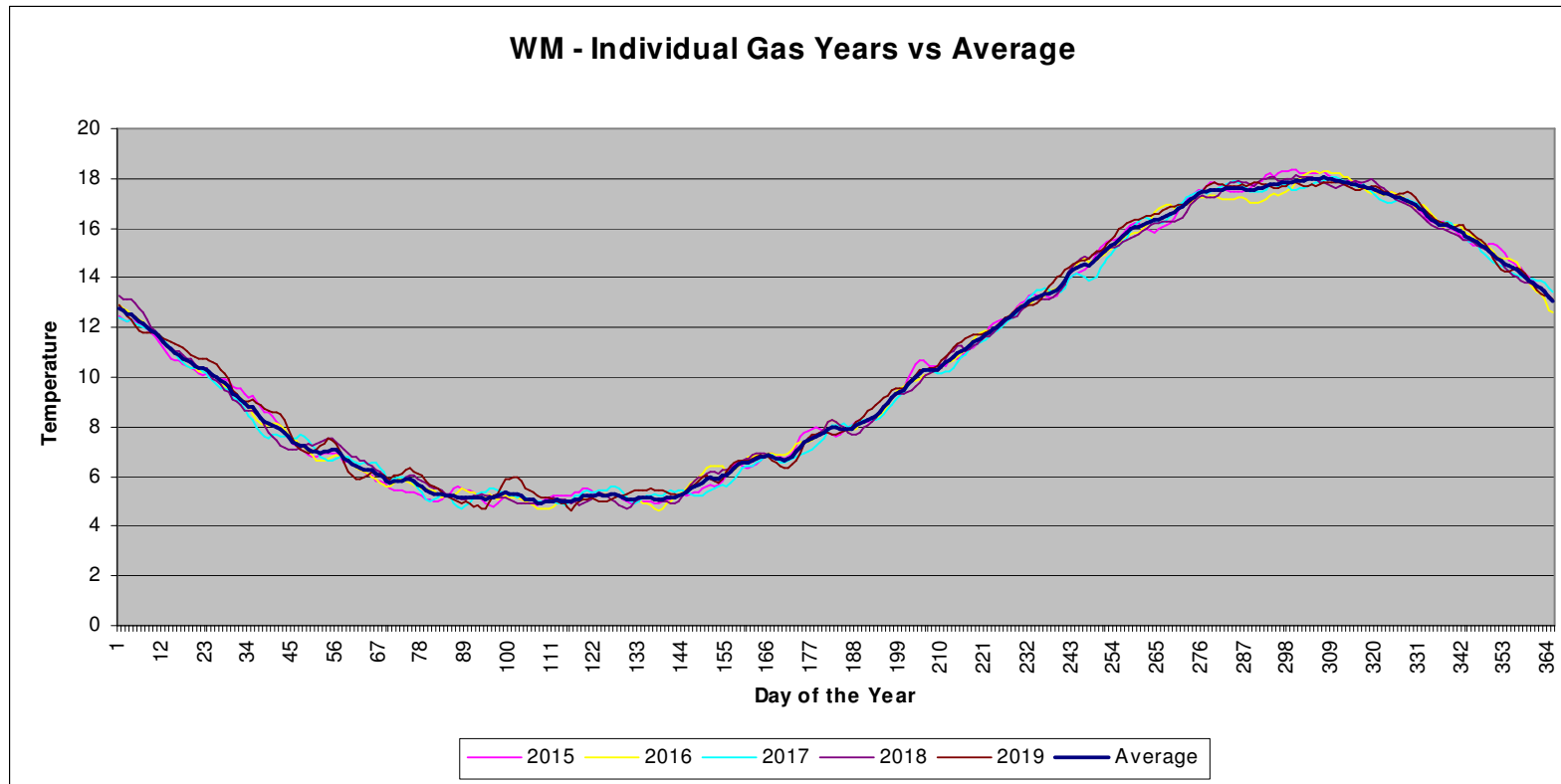


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# WM Projections – Gas Years vs Avge. Profile



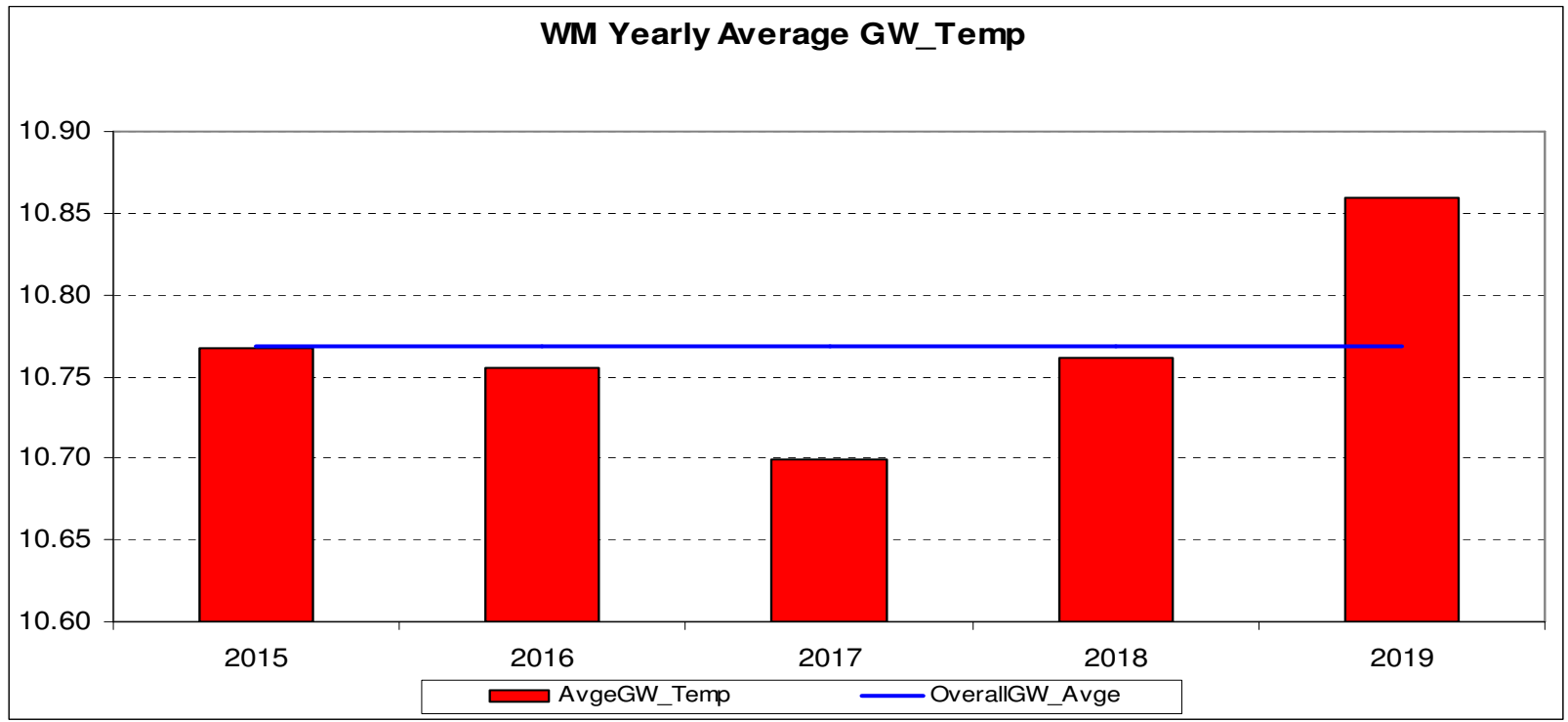
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# WM Projections – ‘Gas Weighted’ Avge. Annual Temp

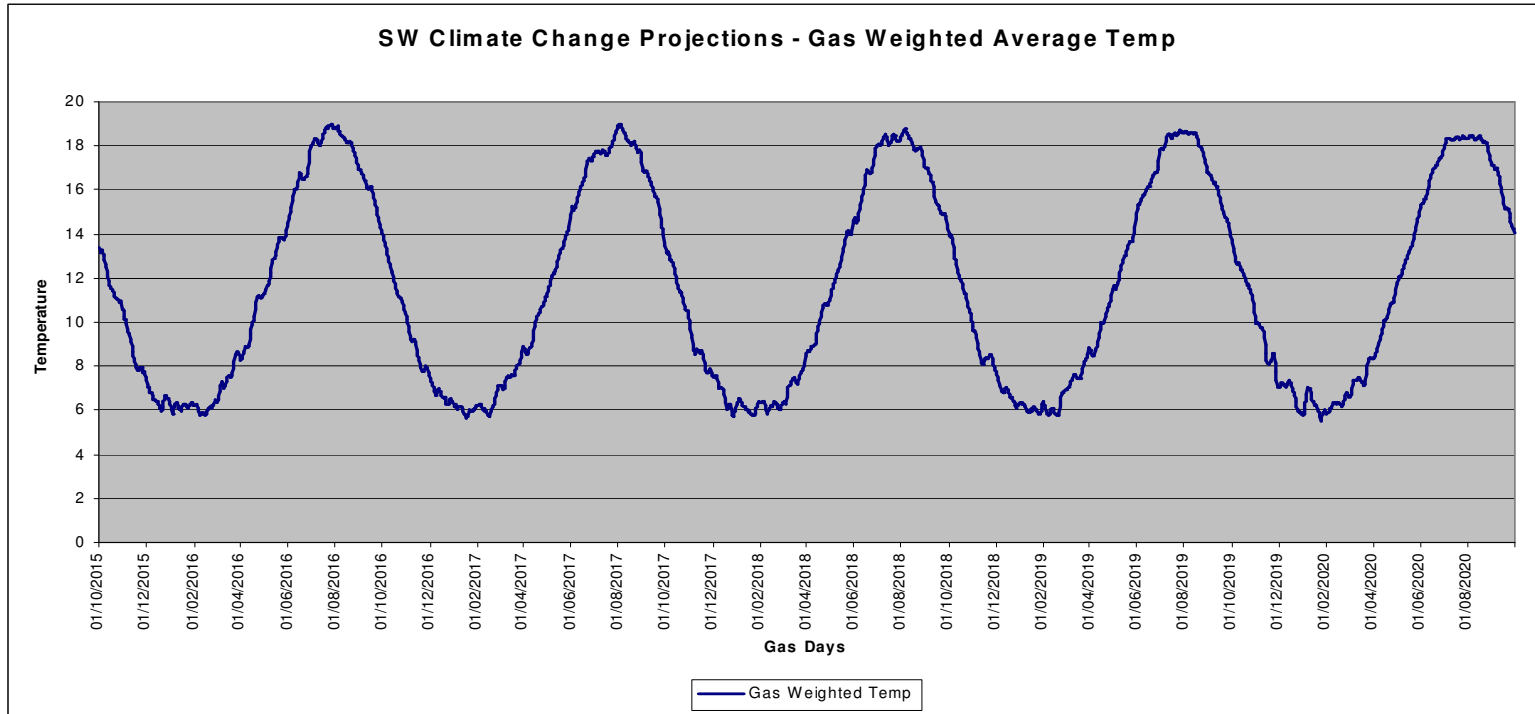


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# SW Projections – ‘Gas Weighted’ Avge. Daily Temp

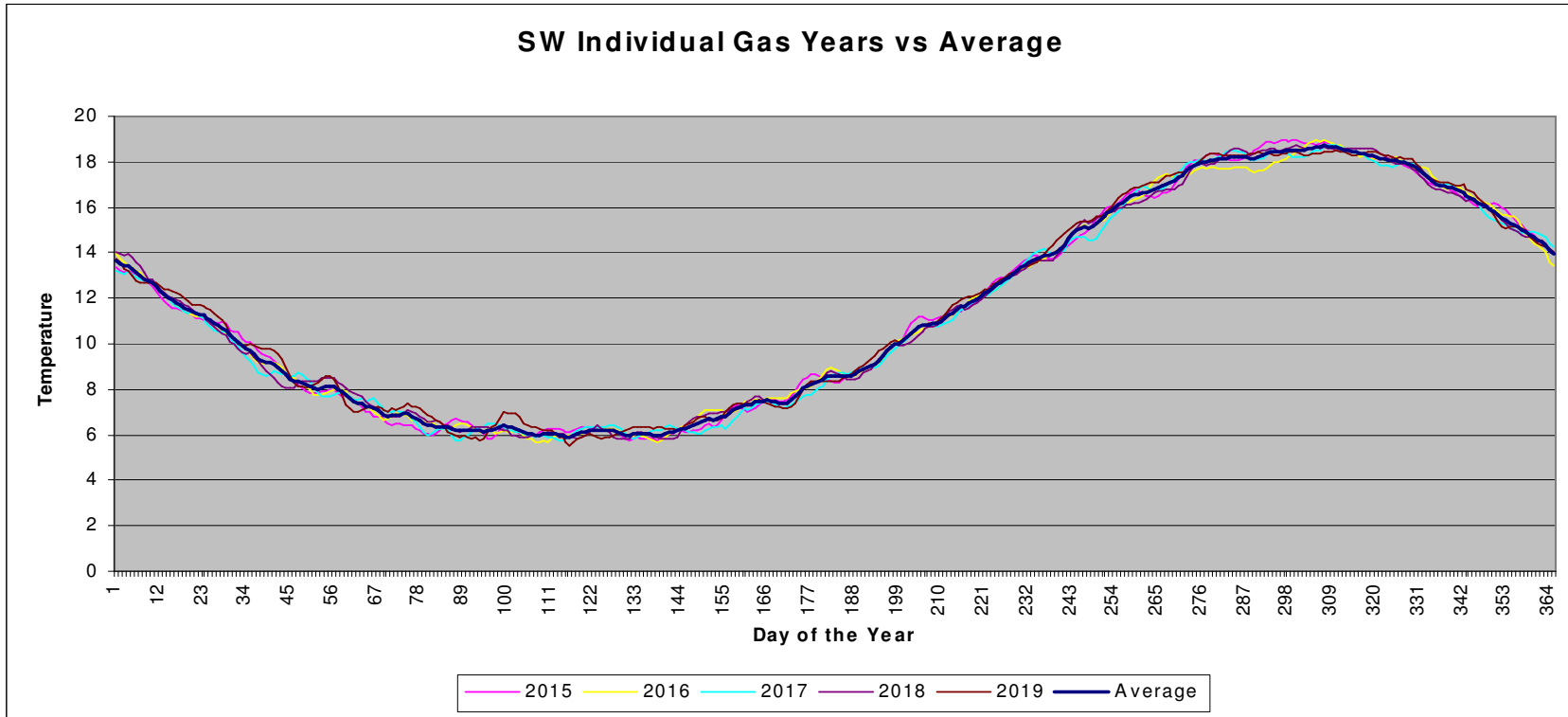


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# SW Projections – Gas Years vs Avge. Profile

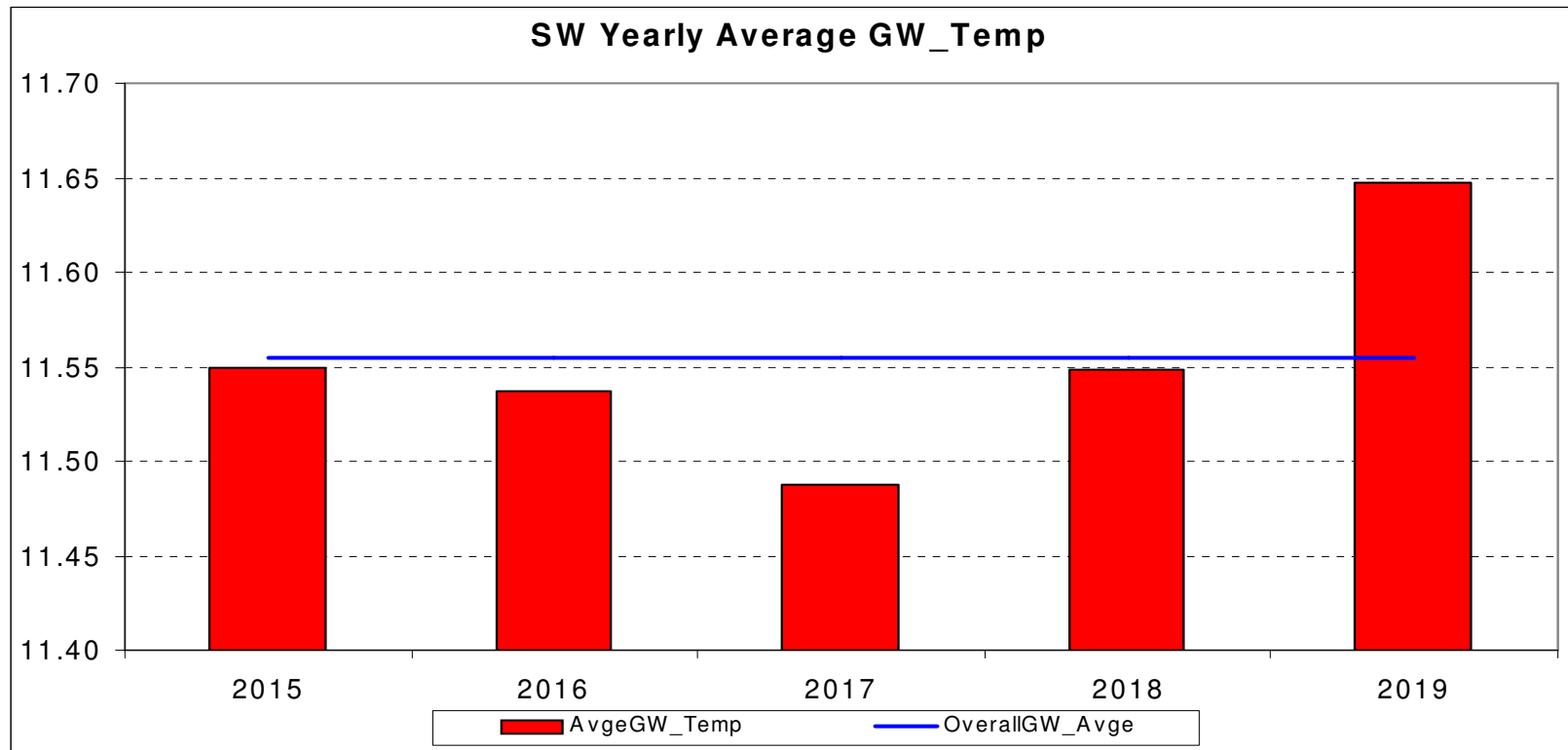


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## SW Projections – ‘Gas Weighted’ Avge. Annual Temp



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# Options & Next Steps

- Does the analysis carried out provide enough information to select [x] period for averaging the increments ? What, if any, additional information could be supplied ?
- No obvious individual year selection, perhaps best to use average of all 5 years ?
- Hopefully reach decision on [x] period today in order that they can be applied
- DESC / TWG Meetings in August & September to progress both CWV Optimisation and Seasonal Normal Review, along with adhoc correspondence to assist in decision making

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