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# DESC Technical Work group

## Seasonal Normal Review: Use of CCM Increments

**18 August 2014**

# Summary of Updates

- Presentation from 30<sup>th</sup> July forms the basis of this presentation
- Slides 3, 4, 5 and 7 – same slides but retained to provide background for any new reader
- Slides 6, and 8 - revised with updated words shown in red font
- Slides 9 onwards - new material with results reflecting DESC's request for additional analysis

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# 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

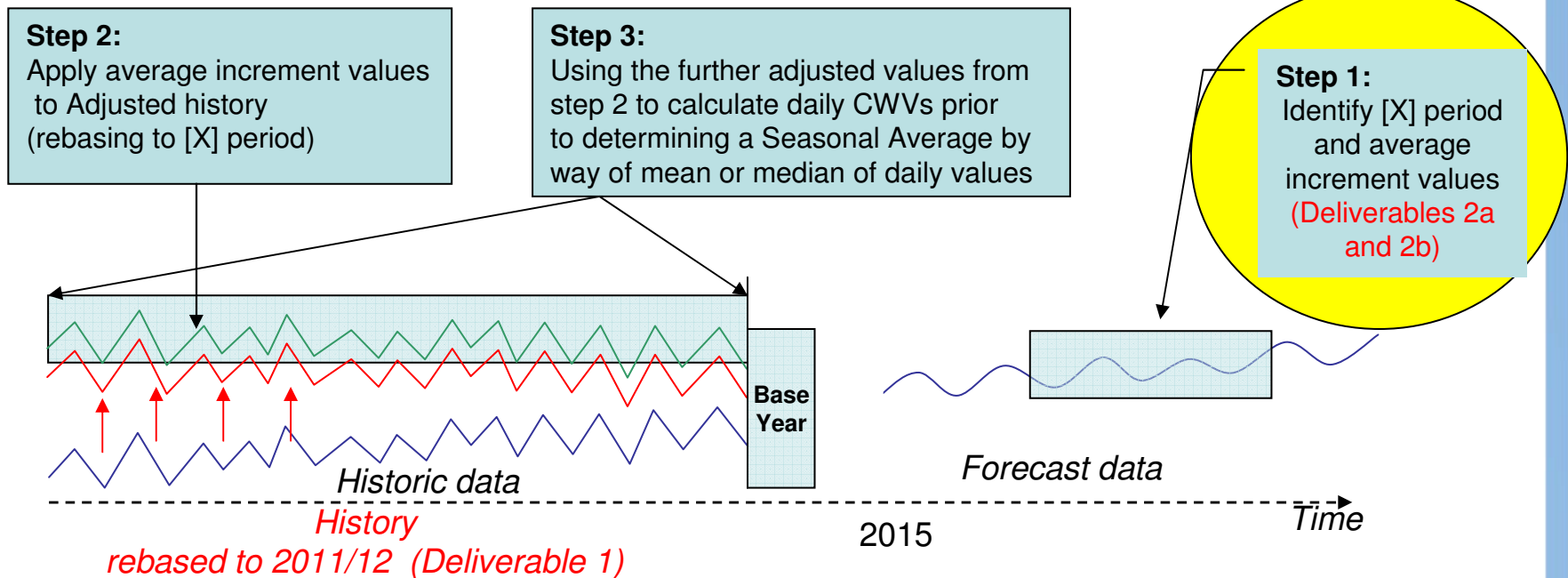
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# Use of Project Deliverables

Not to Scale, for illustration only



## Deliverables:

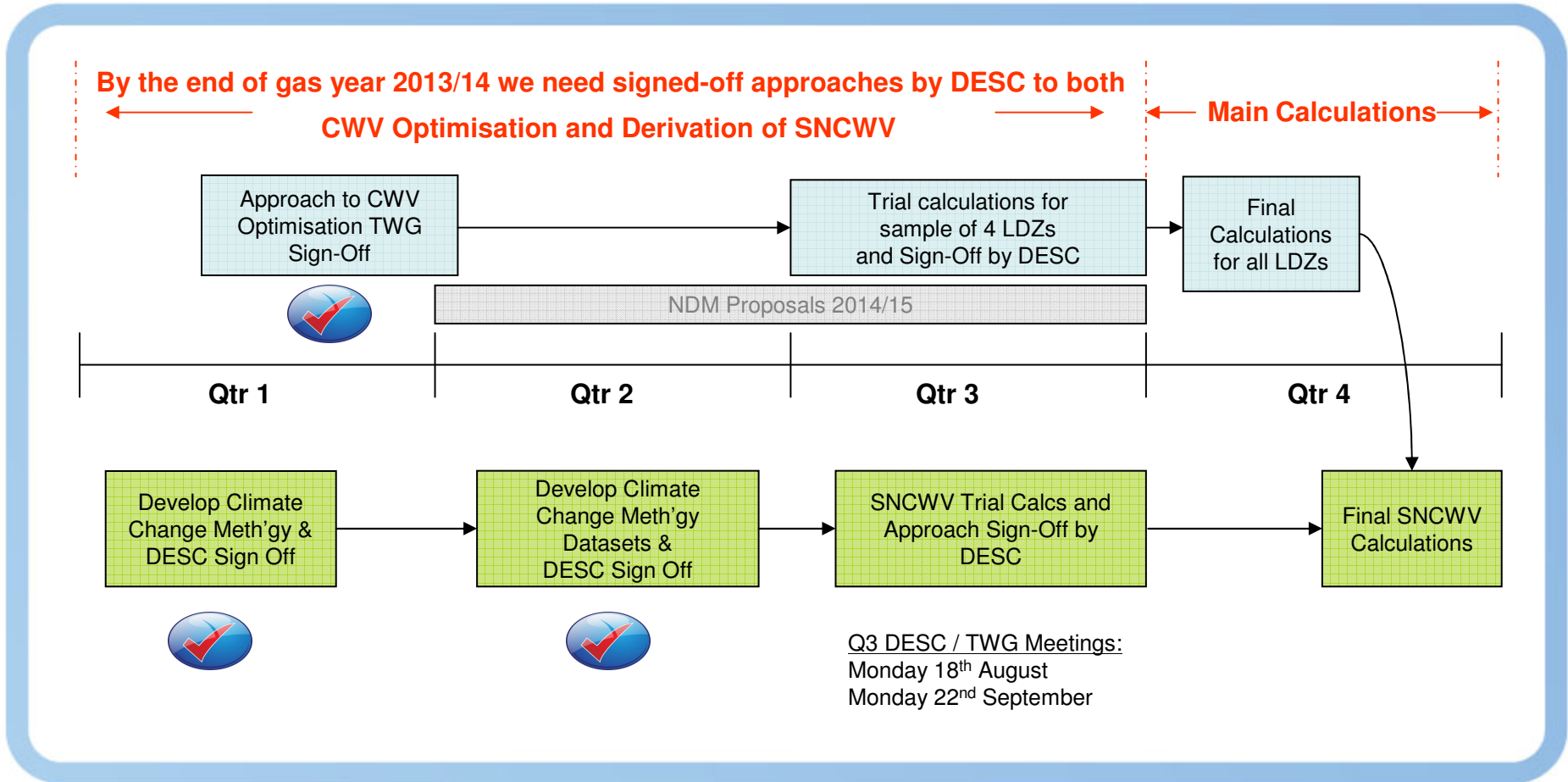
- 1) An adjusted view of historic hourly weather datasets (derived from WSSM) reflecting estimated impacts of climate change based on results from base year 2011/12
- 2)
  - a) Predicted hourly climatological average values for period 1<sup>st</sup> October 2012 to 30<sup>th</sup> September 2025 based 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?  
A: DESC agreed this was correct at 30<sup>th</sup> July 2014 meeting
  - 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 Met Office supplied data at GMT, prior to use in the analysis all relevant records have been corrected to 'local time'
- Note: Further to the agreement made at DESC on 30<sup>th</sup> July, the twelve 2 hourly timeslots for temperature observations, used in this analysis, started at 5am and ended at 3am
- 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

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## Identify [X] period and Average Increment values

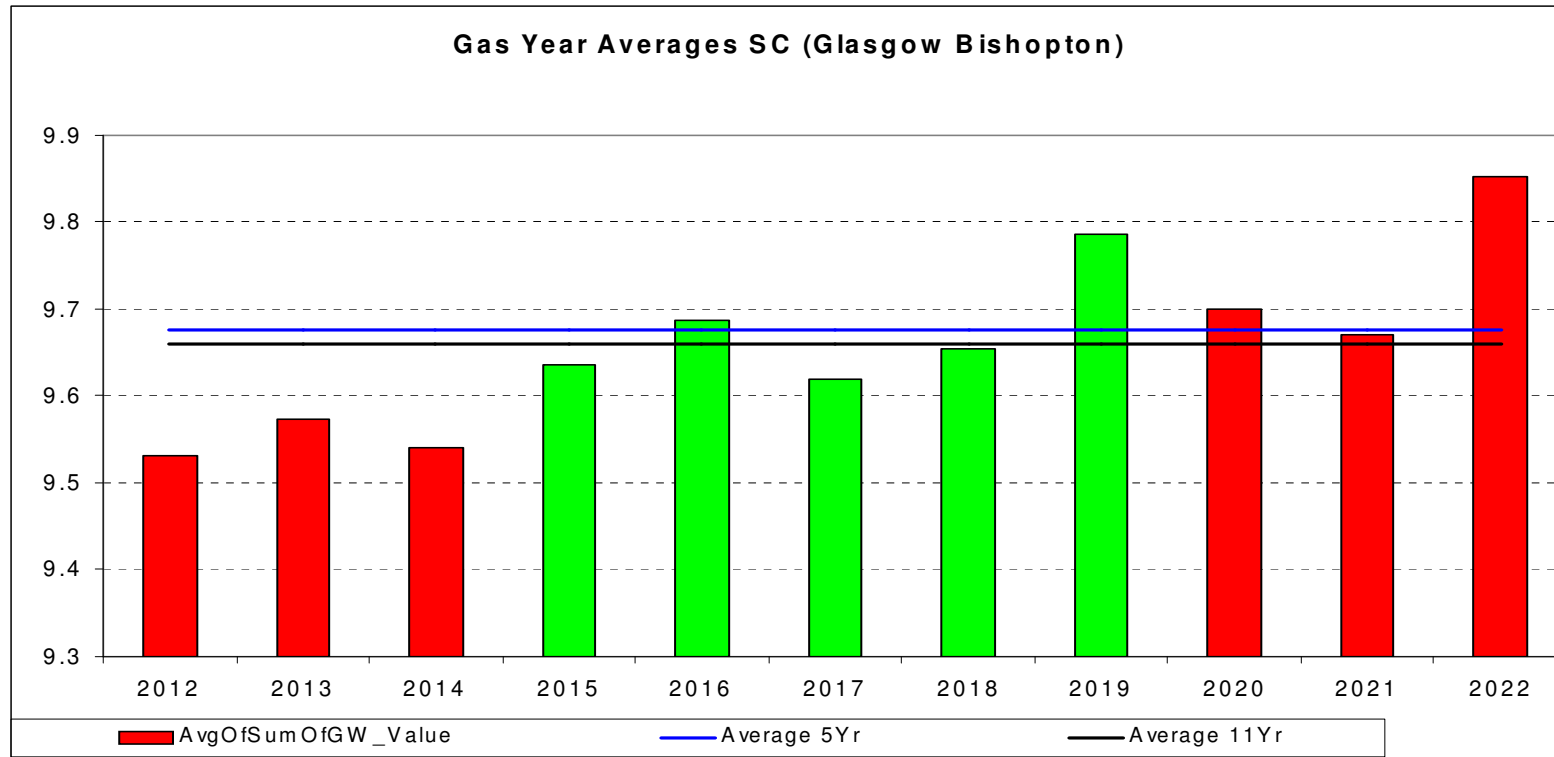
- Following the DESC TWG meeting on 30<sup>th</sup> July it was requested additional analysis be carried out to assist in the decision making, namely:
  - Widen the period reviewed to 3 years either side of target 5 years (2015 to 2019) i.e. 11 years of 2012 to 2022
  - Continue with the average annual temperature chart and the daily average profile chart
  - In addition perform Winter and Summer analysis
    - Winter (October to March) and Summer (April to September)
  - Perform all of above for at least the 4 Trial LDZs – SC, NE, WM & SW

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



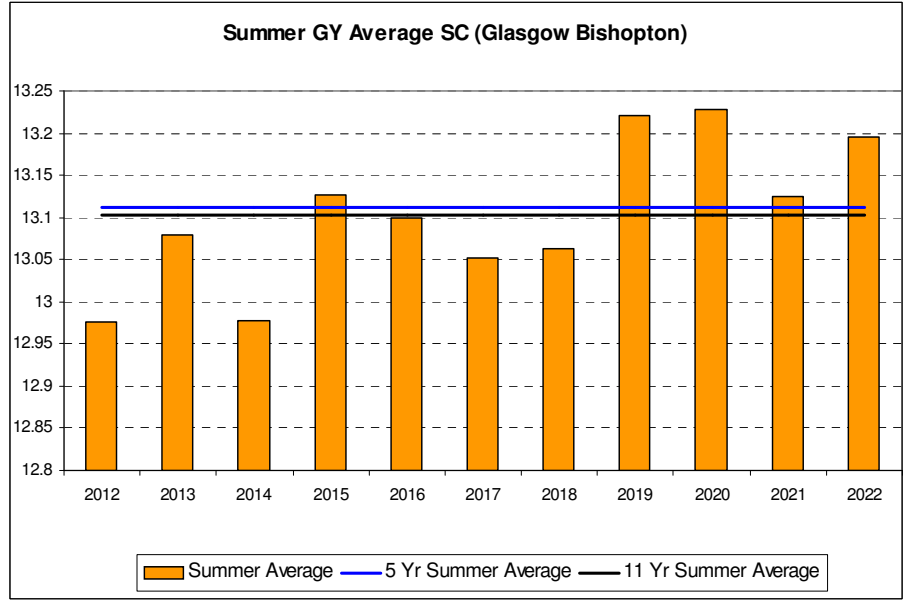
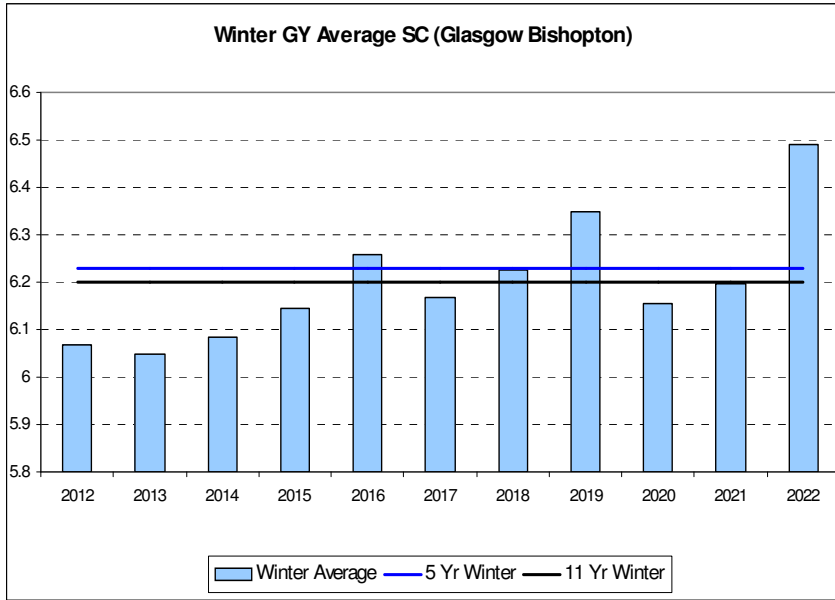
- Years highlighted green represent the 5 gas years SNCWV is expected to apply for

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# SC Temp. Proj. – Winter and Summer Annual Avge.



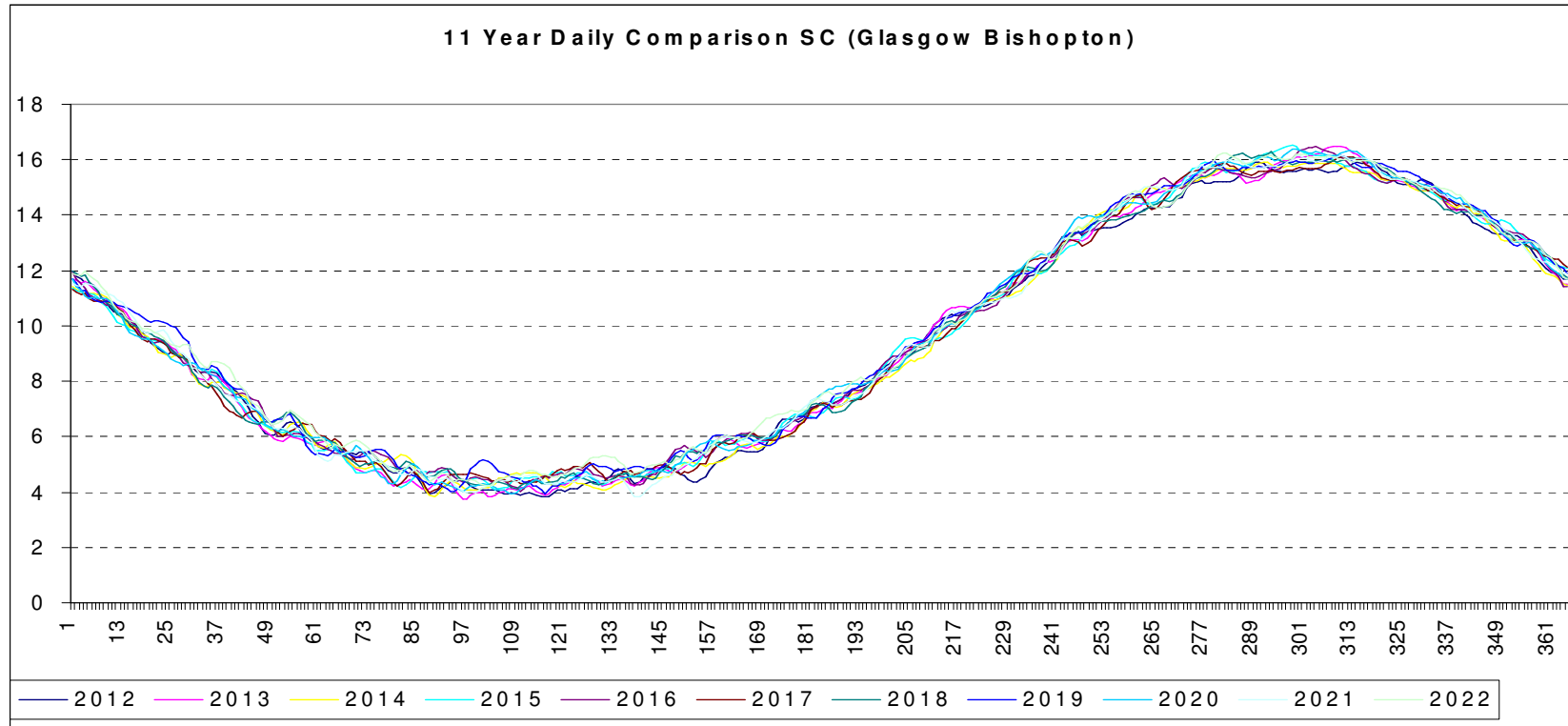
Gas Year	Compared to 5 Yr Avge.		
	Annual	Winter	Summer
2015	0.04	0.09	-0.01
2016	-0.01	-0.03	0.01
2017	0.06	0.06	0.06
2018	0.02	0.00	0.05
2019	-0.11	-0.12	-0.11

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# SC Temp. Proj. – Individual Gas Years Avg. Profile

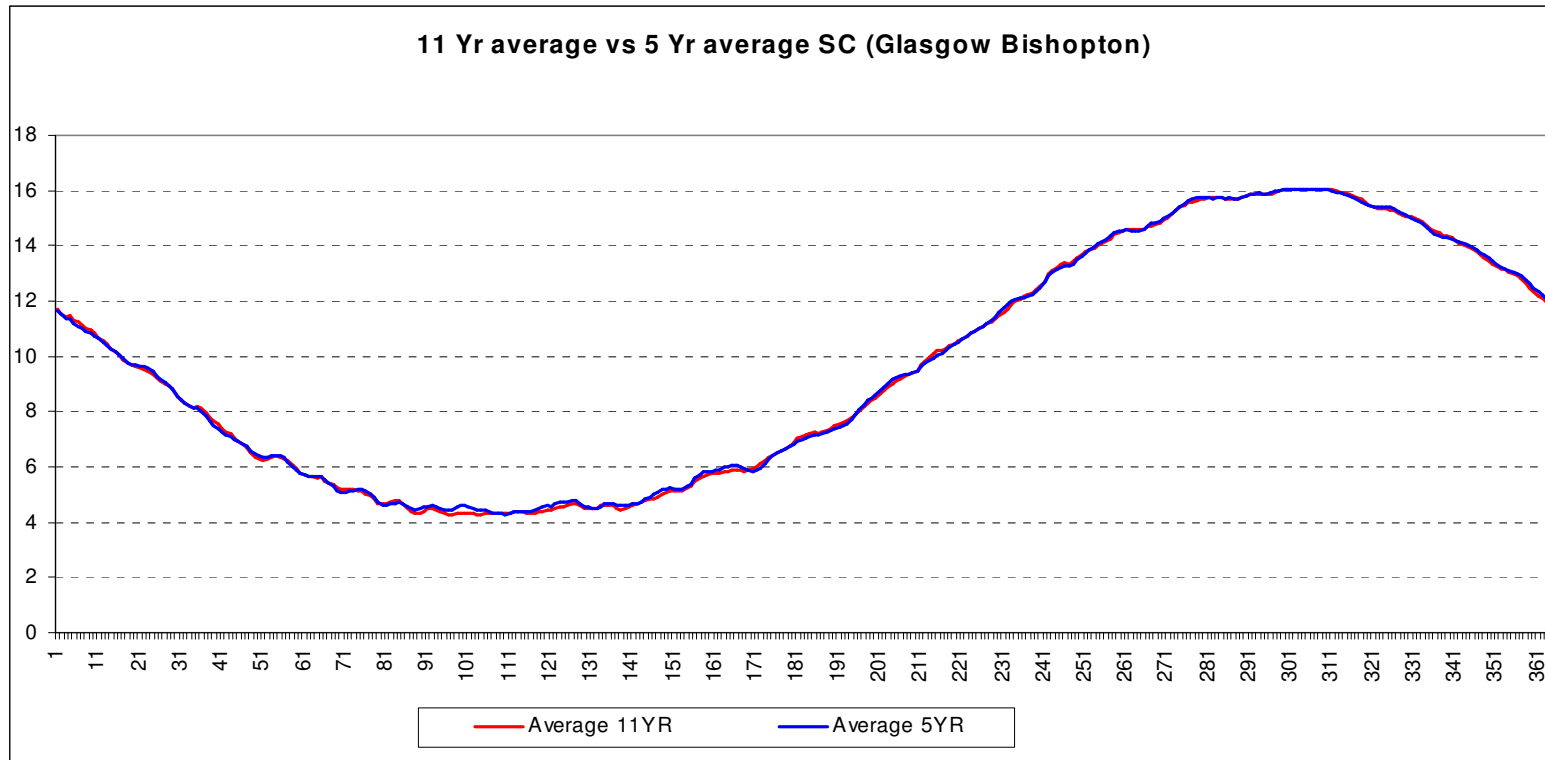


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# SC Temp. Proj. – 5 and 11 Years Avg. Profile

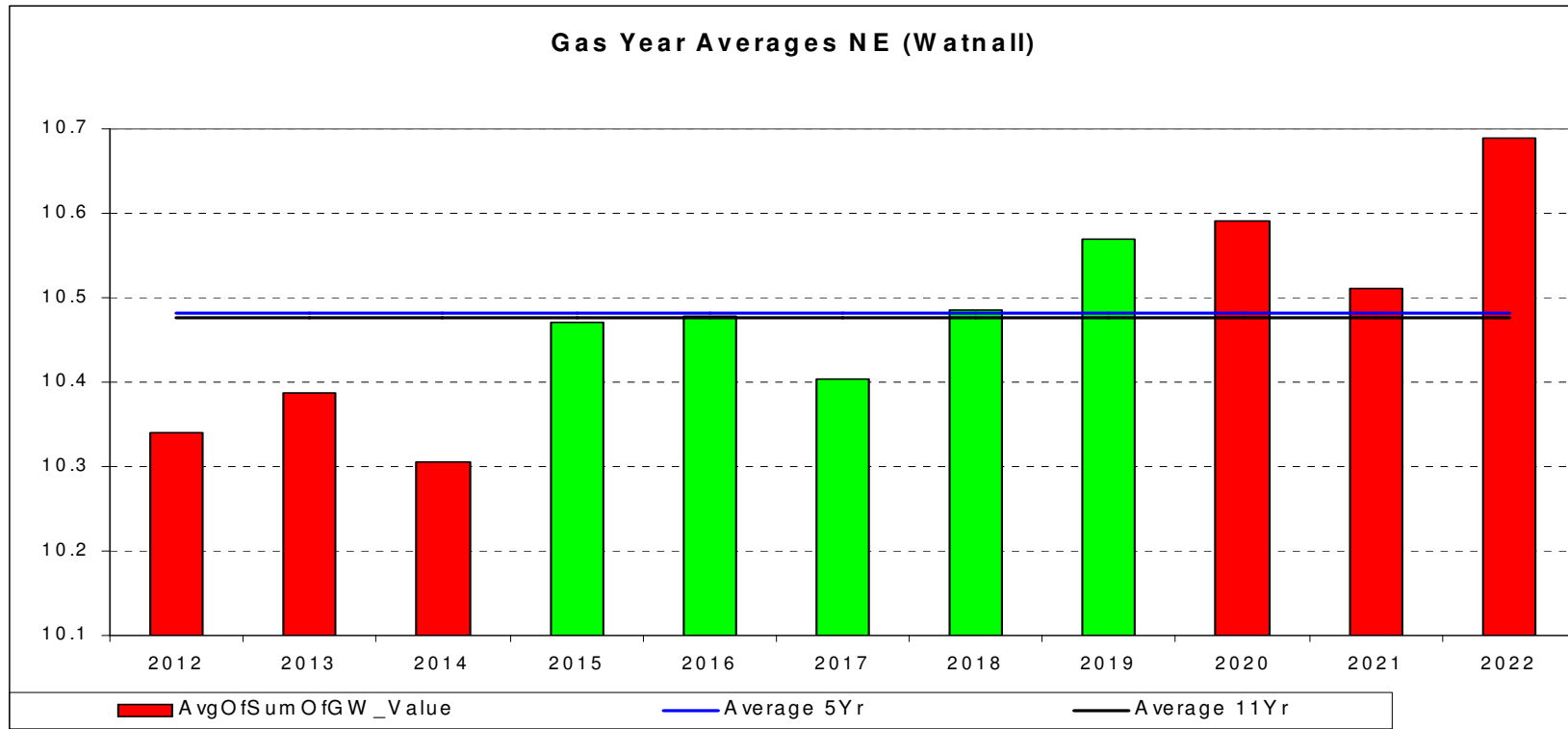


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## NE Temp. Proj. – ‘Gas Weighted’ Annual Avge.



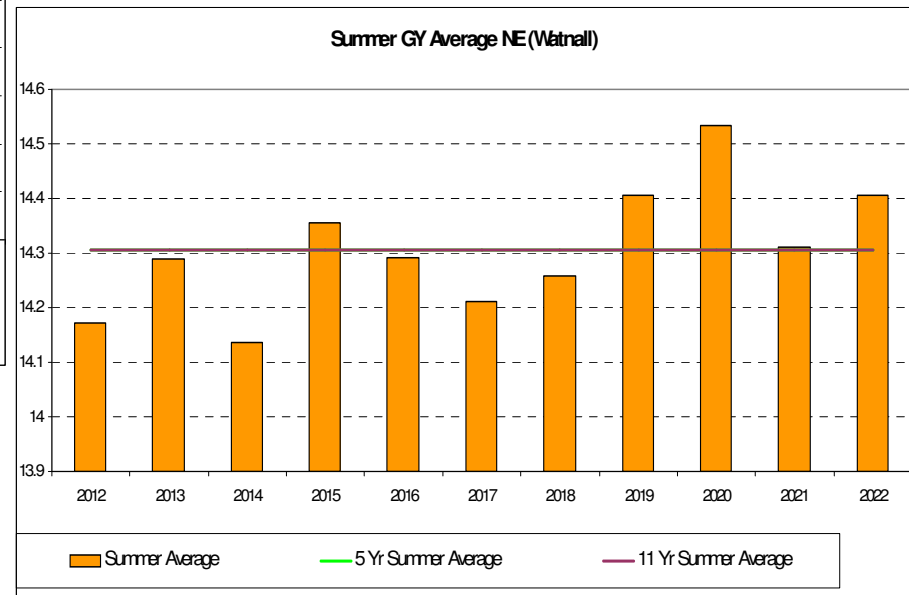
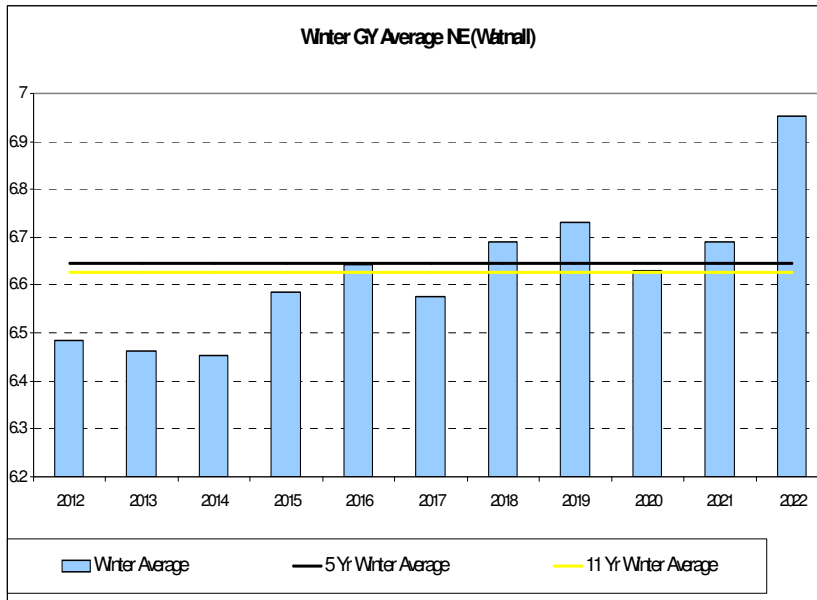
- Years highlighted green represent the 5 gas years SNCWV is expected to apply for

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# NE Temp. Proj. – Winter and Summer Annual Avge.



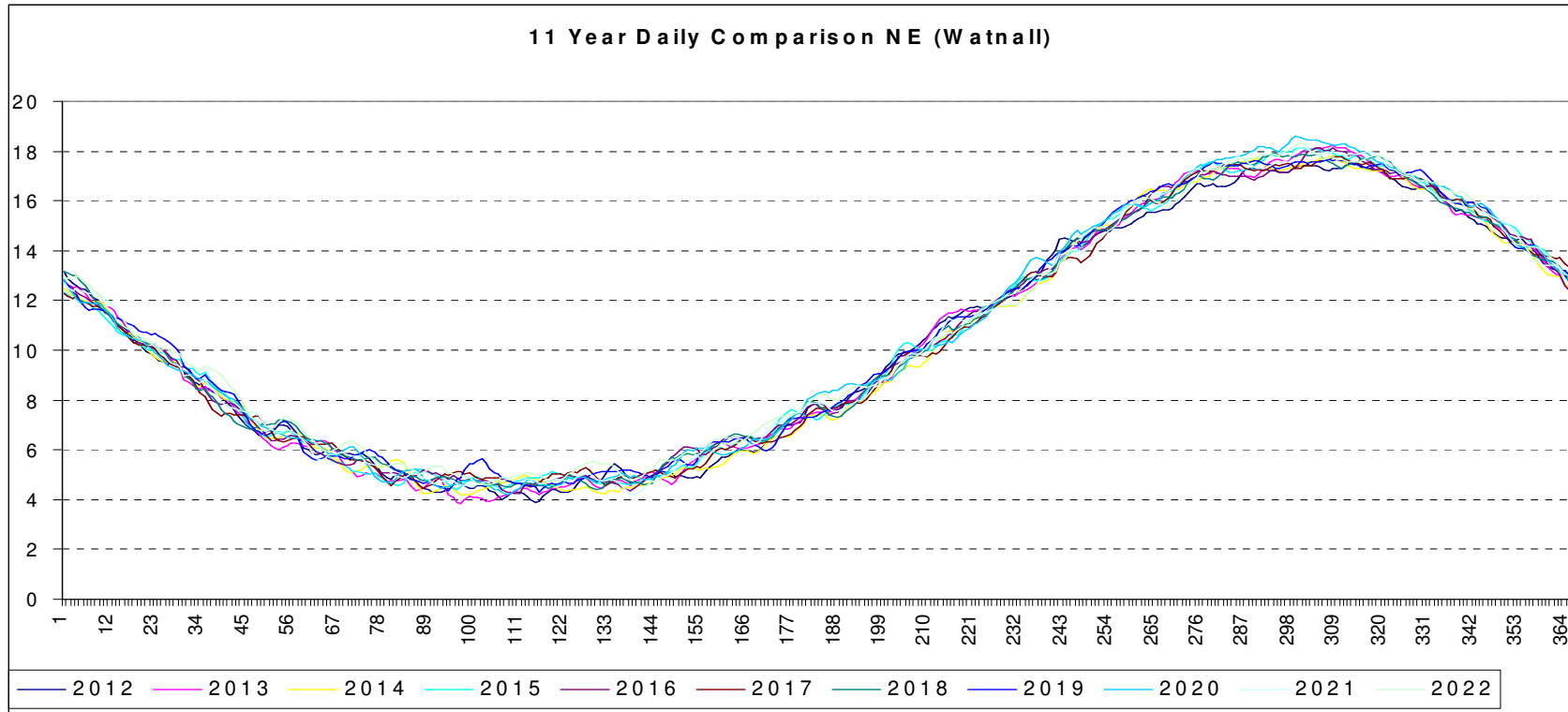
Gas Year	Compared to 5 Yr Avge.		
	Annual	Winter	Summer
2015	0.01	0.06	-0.05
2016	0.00	0.00	0.01
2017	0.08	0.07	0.09
2018	0.00	-0.05	0.05
2019	-0.09	-0.09	-0.10

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# NE Temp. Proj. – Individual Gas Years Avg. Profile



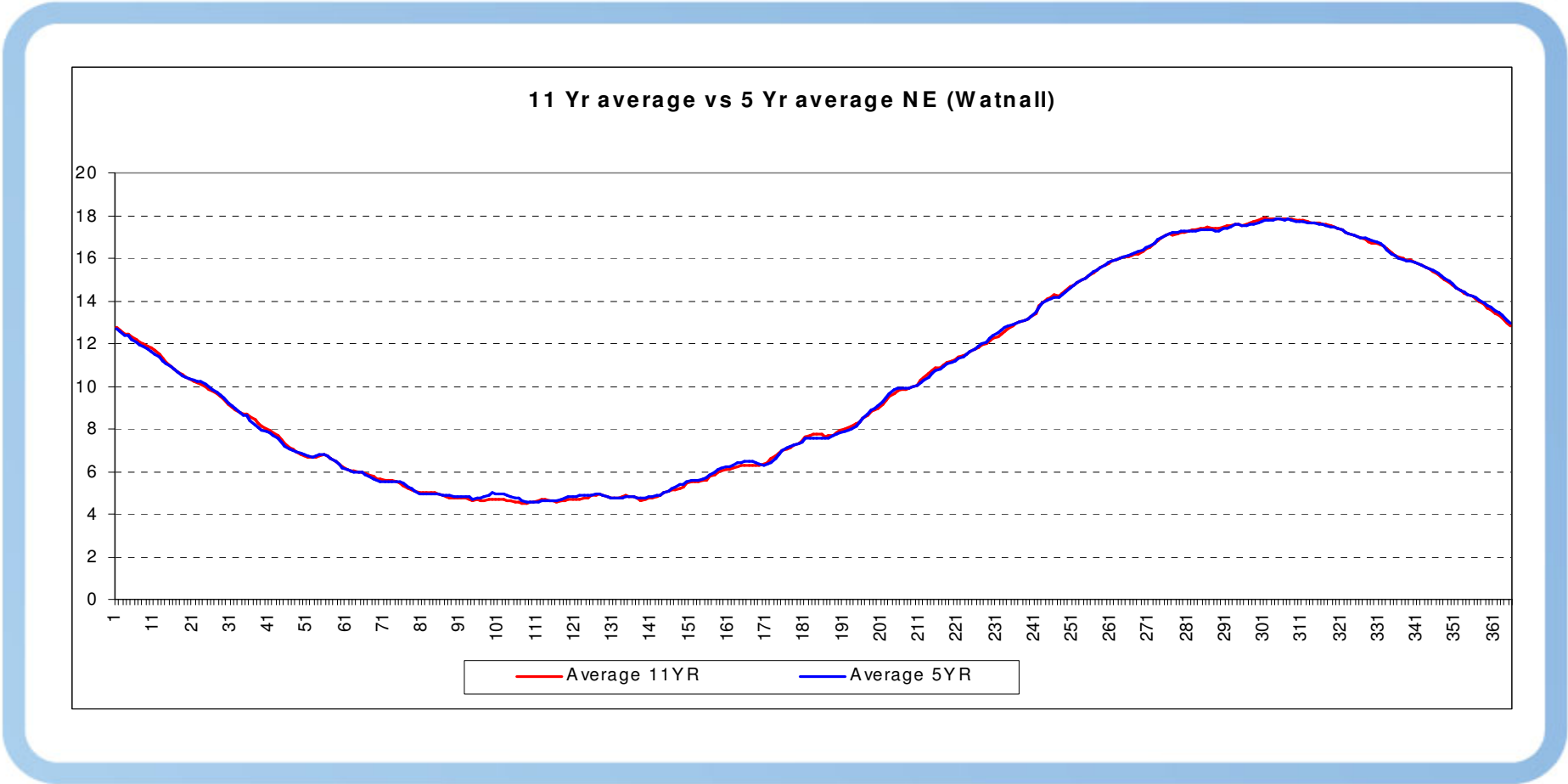
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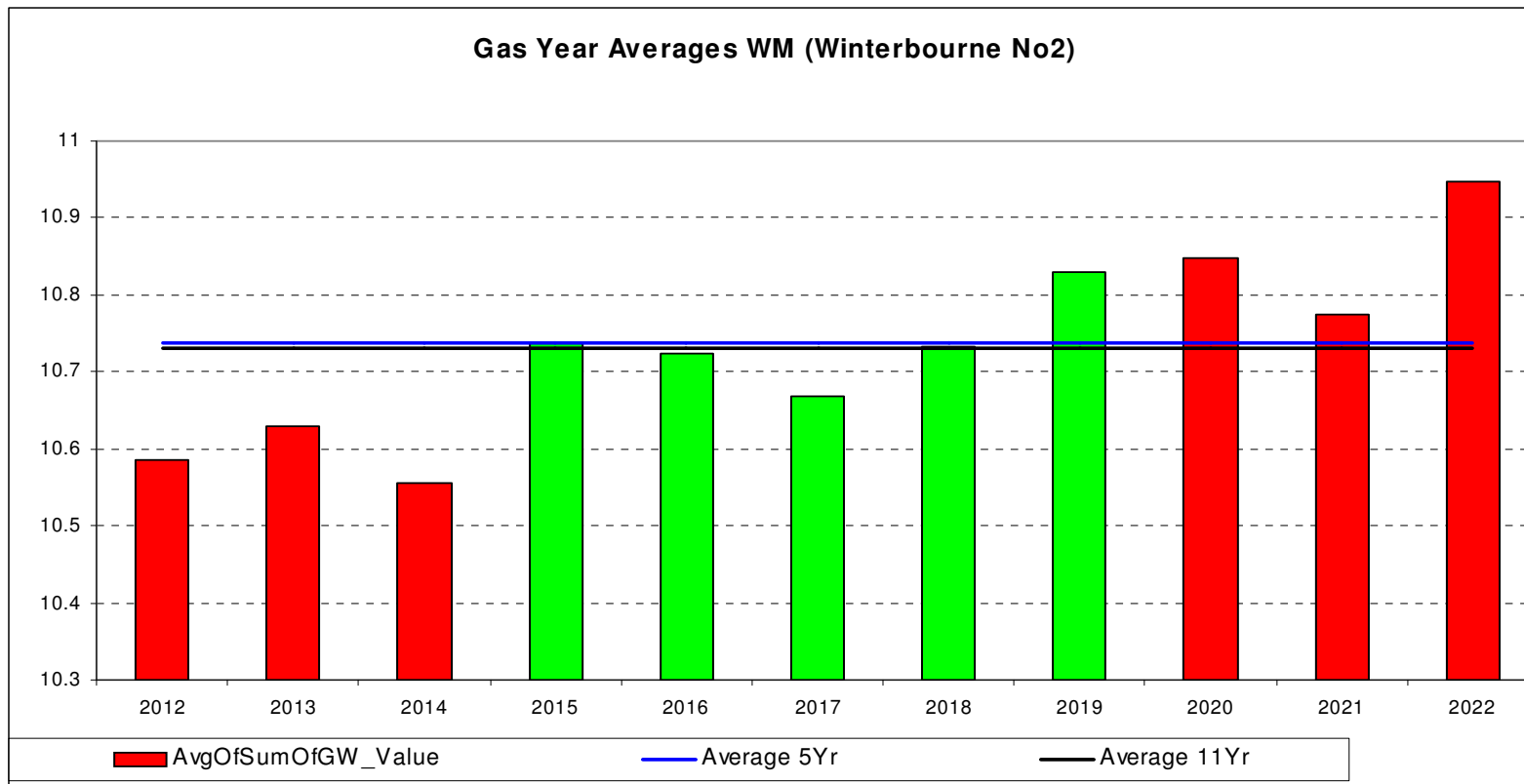
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# NE Temp. Proj. – 5 and 11 Years Avg. Profile



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



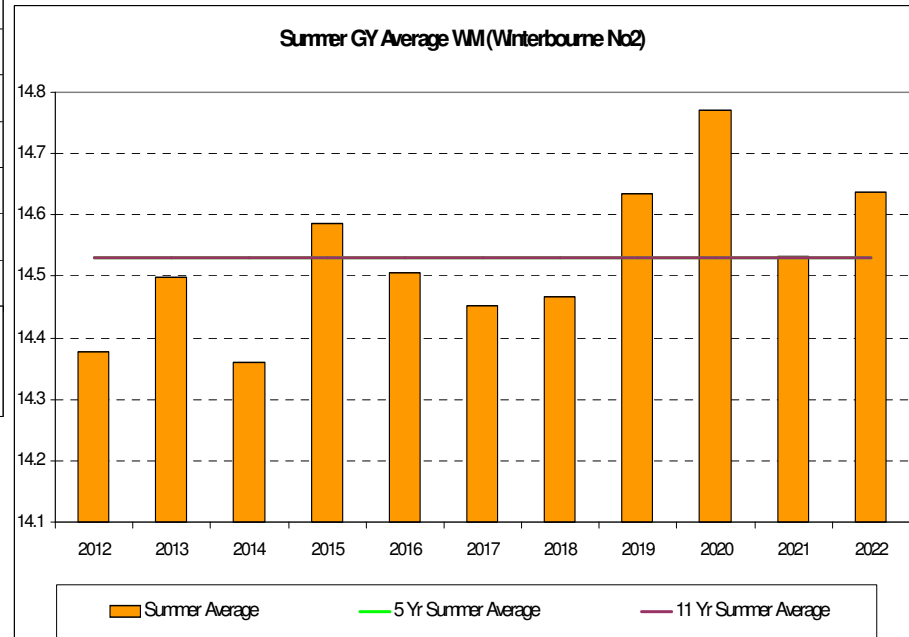
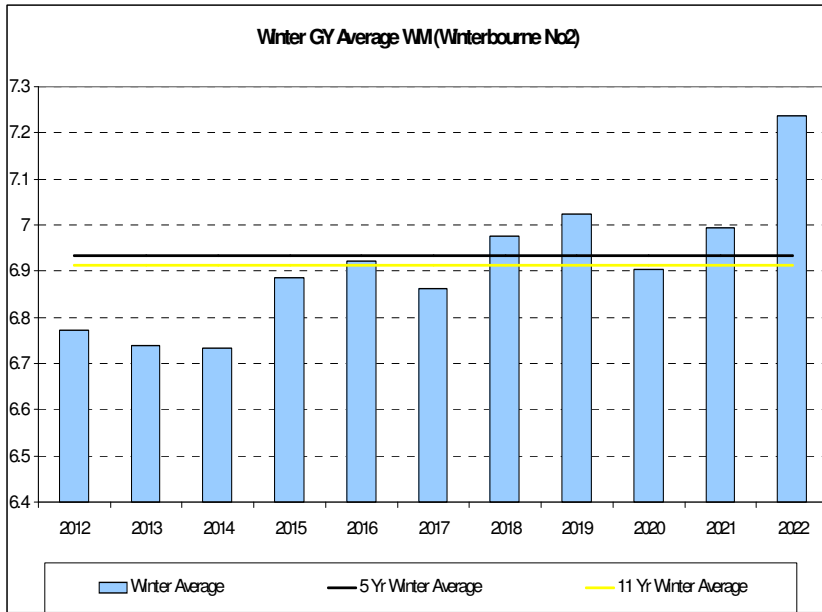
- Years highlighted green represent the 5 gas years SNCWV is expected to apply for

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# WM Temp. Proj. – Winter and Summer Annual Avge.

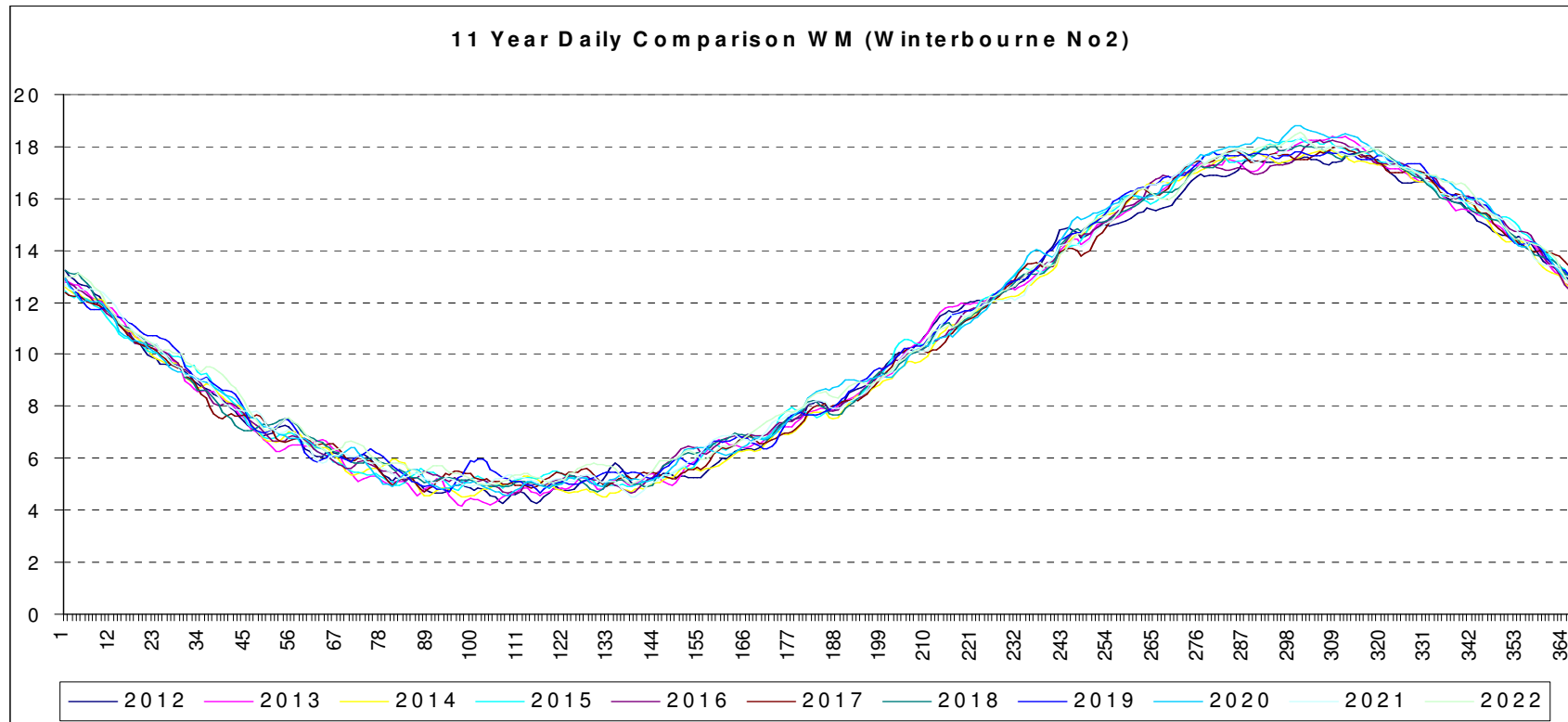


Gas Year	Compared to 5 Yr Avge.		
	Annual	Winter	Summer
2015	0.00	0.05	-0.06
2016	0.01	0.01	0.02
2017	0.07	0.07	0.08
2018	0.01	-0.04	0.06
2019	-0.09	-0.09	-0.11



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# WM Temp. Proj. – Individual Gas Years Avg. Profile

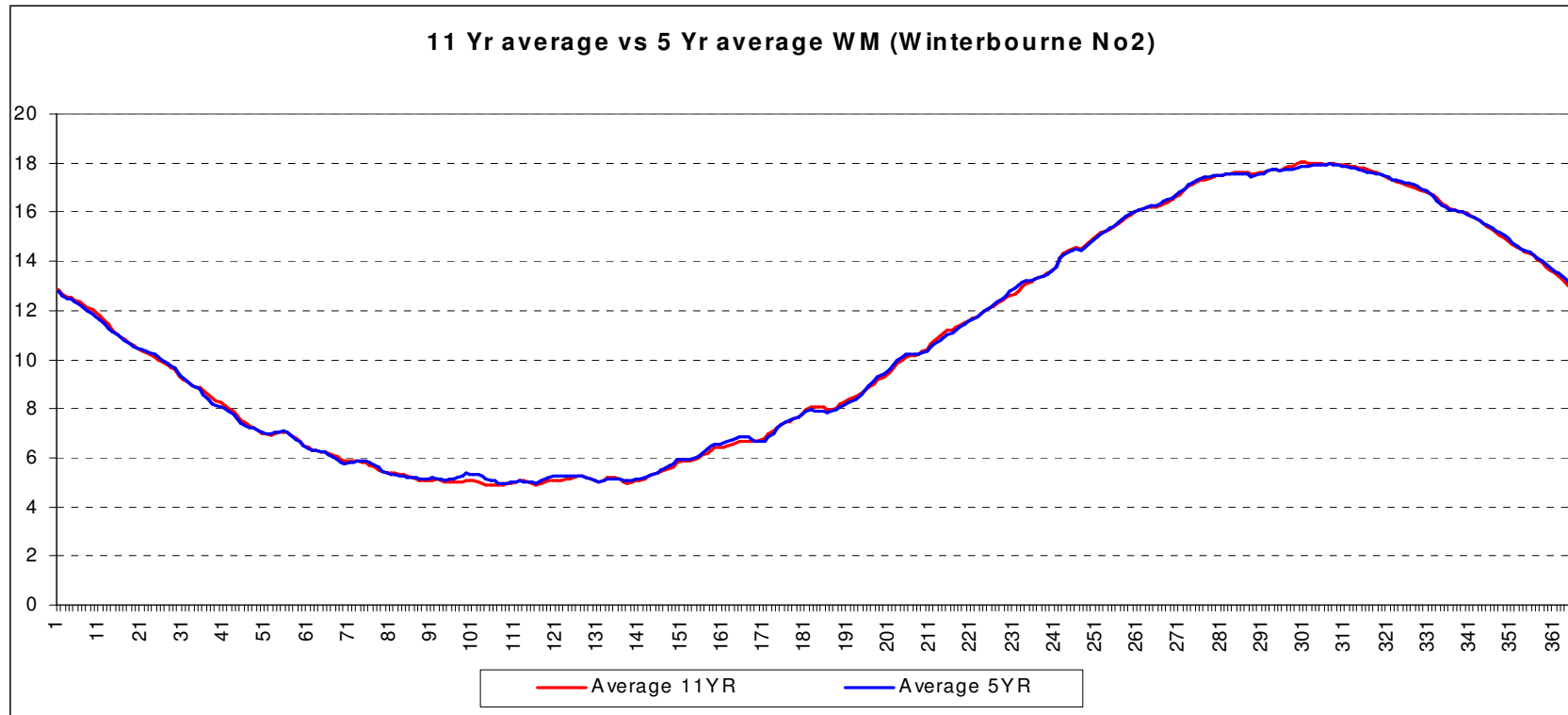


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# WM Temp. Proj. – 5 and 11 Years Avg. Profile

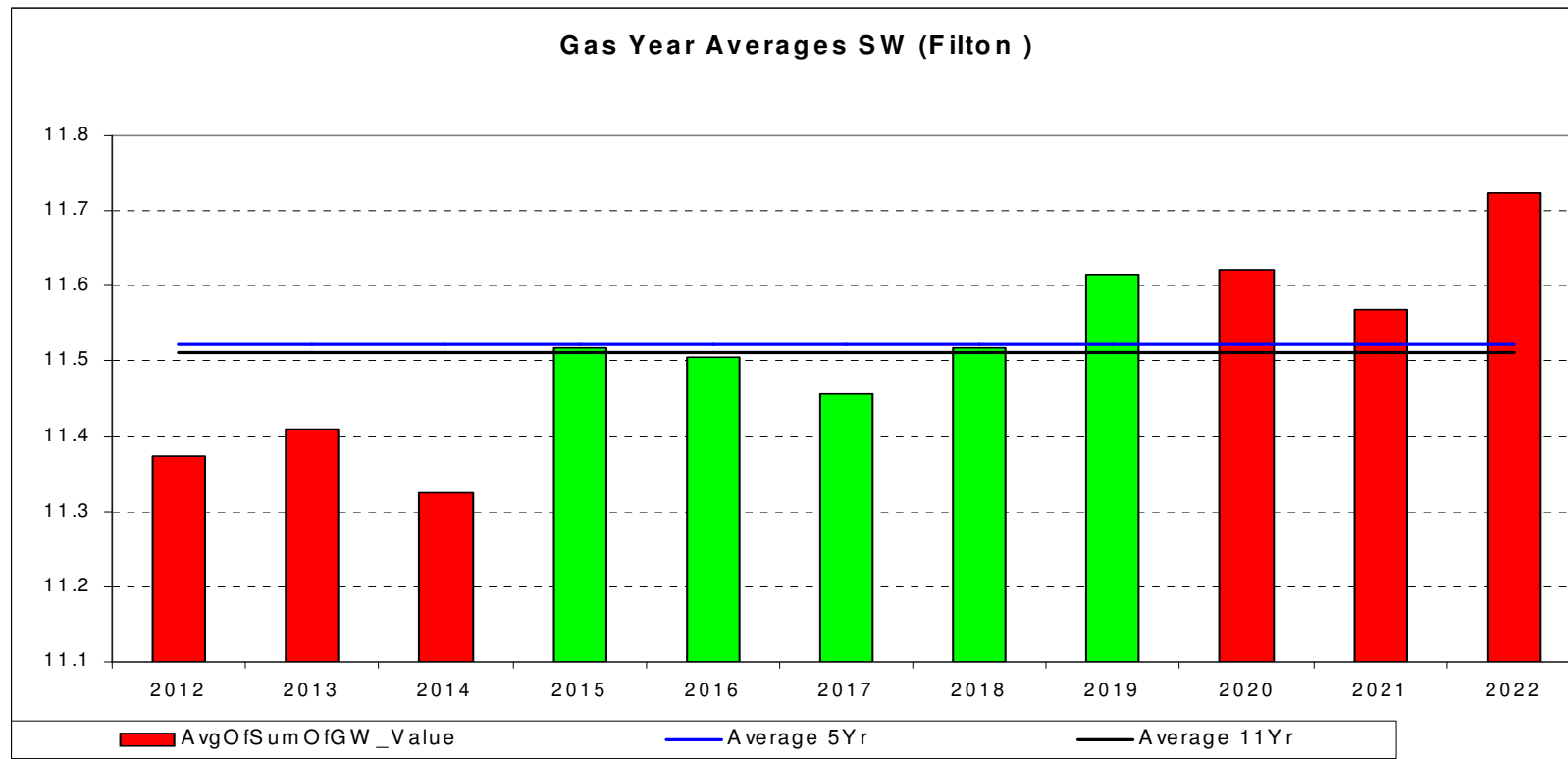


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## SW Temp. Proj. – ‘Gas Weighted’ Annual Avge.



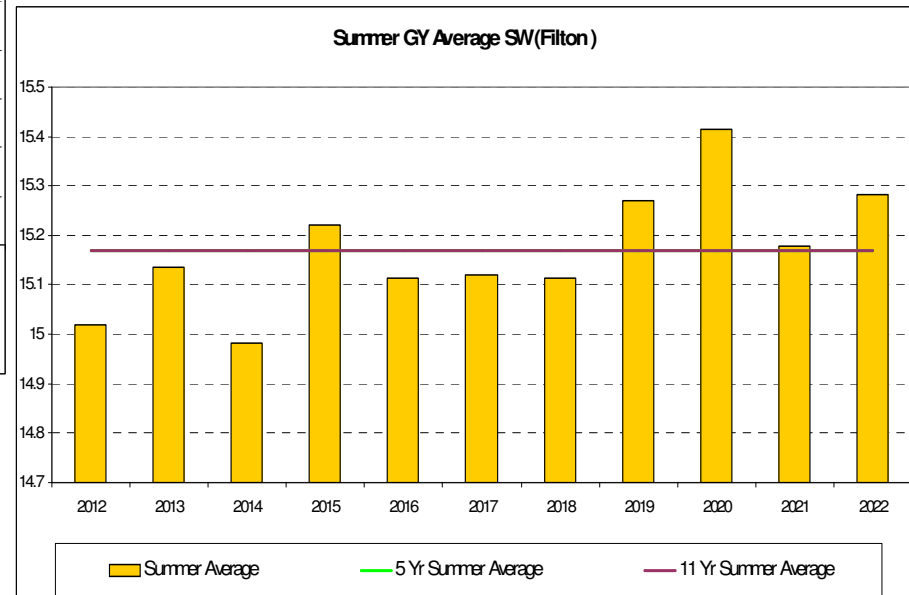
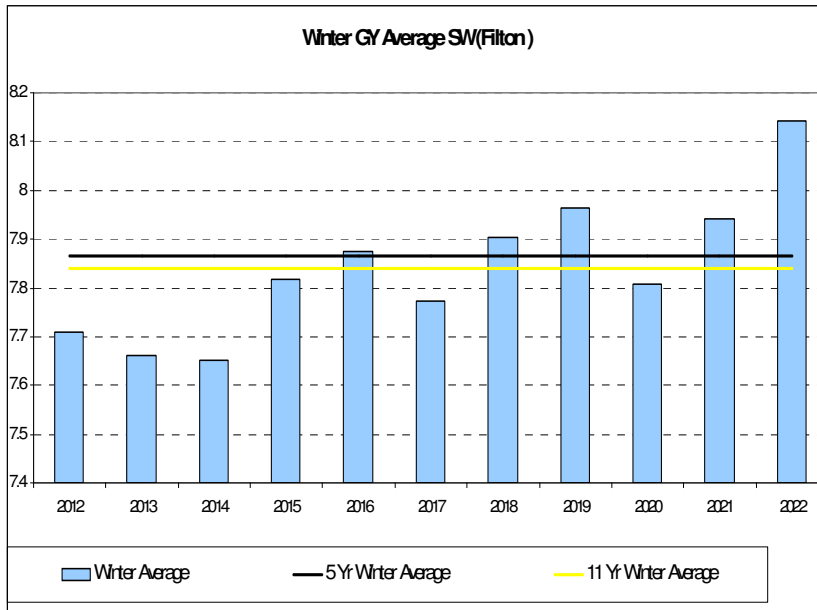
- Years highlighted green represent the 5 gas years SNCWV is expected to apply for

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# SW Temp. Proj. – Winter and Summer Annual Avge.



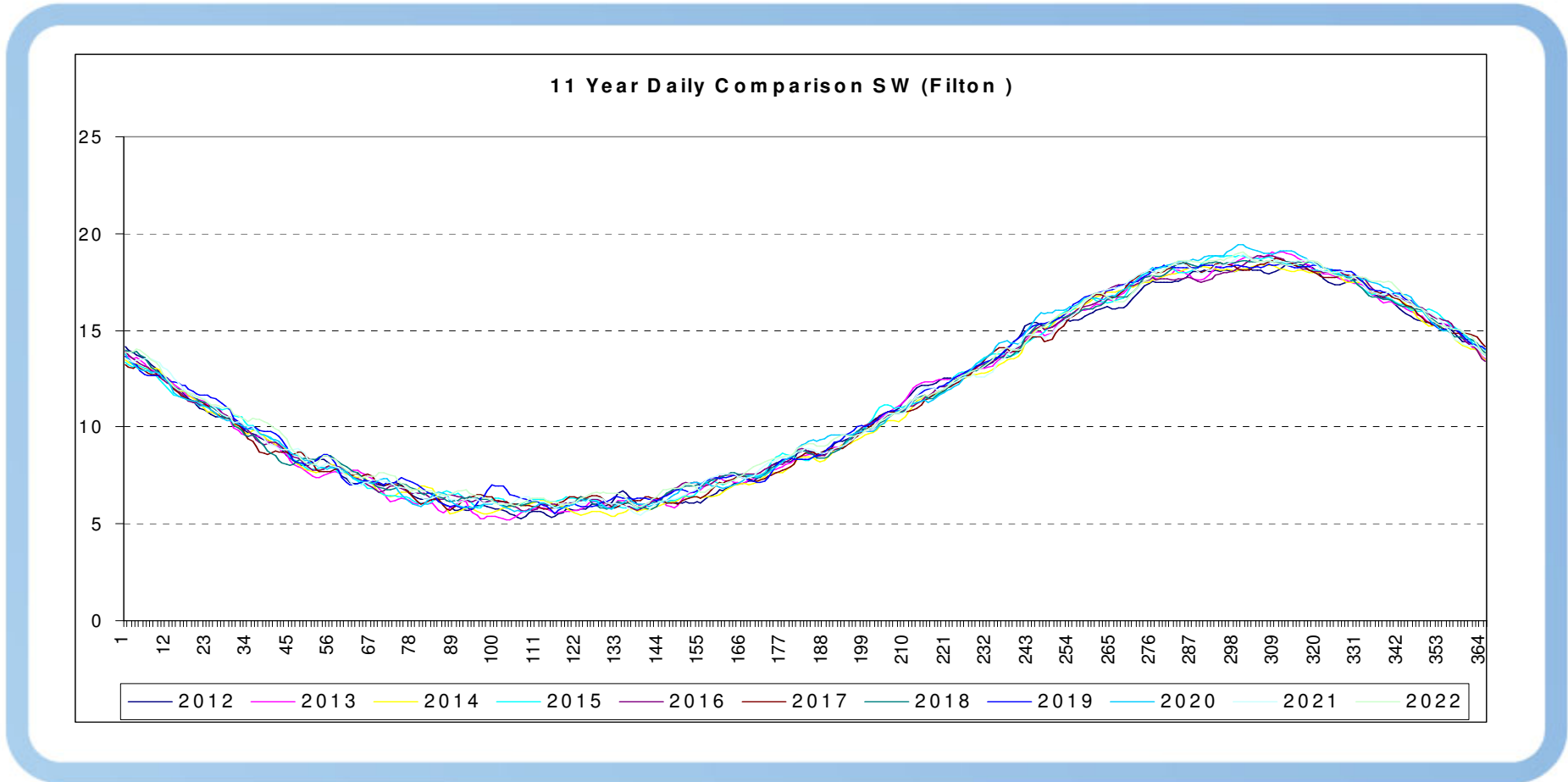
Gas Year	Compared to 5 Yr Avge.		
	Annual	Winter	Summer
2015	0.00	0.05	-0.05
2016	0.02	-0.01	0.05
2017	0.07	0.09	0.05
2018	0.00	-0.04	0.05
2019	-0.09	-0.10	-0.10

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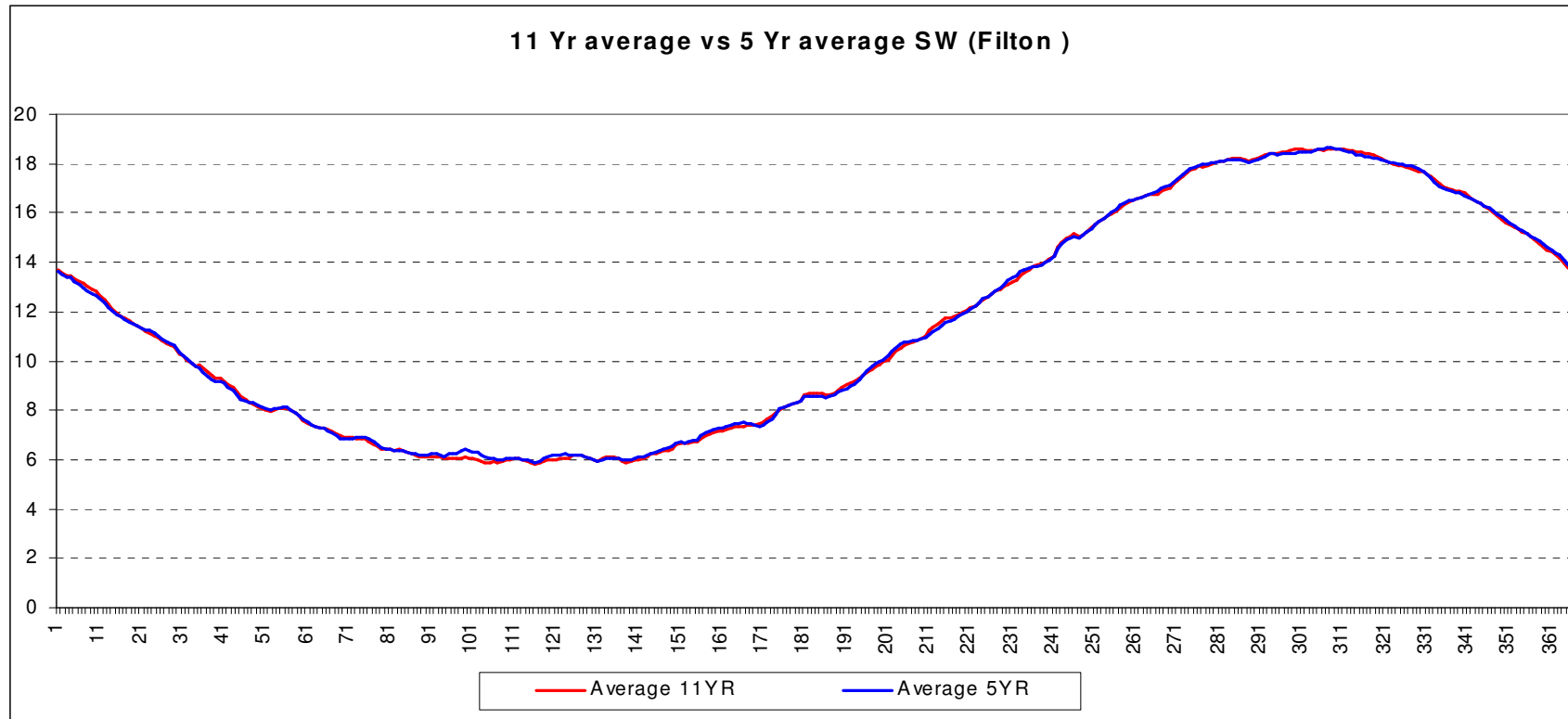
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# SW Temp. Proj. – Individual Gas Years Avg. Profile





# SW Temp. Proj. – 5 and 11 Years Avg. Profile



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# Projections – 4 LDZ Summary of 5 yr avge.

SC 5 Year Average			
Gas Year	Annual	Winter	Summer
2015	0.04	0.09	-0.01
2016	-0.01	-0.03	0.01
2017	0.06	0.06	0.06
2018	0.02	0.00	0.05
2019	-0.11	-0.12	-0.11

NE 5 Year Average			
Gas Year	Annual	Winter	Summer
2015	0.01	0.06	-0.05
2016	0.00	0.00	0.01
2017	0.08	0.07	0.09
2018	0.00	-0.05	0.05
2019	-0.09	-0.09	-0.10

WM 5 Year Average			
Gas Year	Annual	Winter	Summer
2015	0.00	0.05	-0.06
2016	0.01	0.01	0.02
2017	0.07	0.07	0.08
2018	0.01	-0.04	0.06
2019	-0.09	-0.09	-0.11

SW 5 Year Average			
Gas Year	Annual	Winter	Summer
2015	0.00	0.05	-0.05
2016	0.02	-0.01	0.05
2017	0.07	0.09	0.05
2018	0.00	-0.04	0.05
2019	-0.09	-0.10	-0.10

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# Options & Next Steps

- Does the analysis carried out provide enough information to select [x] period for averaging the increments ?
- Observing the 'target' 5 years in context with surrounding years doesn't suggest using the average of all 5 years would be unreasonable
- Hopefully reach decision on [x] period today in order that progress can continue to be made to preparing a methodology for SNCWV derivation which can be signed off by DESC at end of Q3
- DESC / TWG Meeting in September to further progress both CWV Optimisation and Seasonal Normal Review preparations

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