**TOTAL DEMAND AND TEMPERATURE DATASET SUMMARY**

**NUMBER OF RECORDS THAT SHOULD BE IN EACH DATASET**

If there is a recording every half hour per day from 1/1/10 midnight to 18/3/21 midnight, then the total number of records should be:

* Normal Years 8 x 365 x 48 = 140160
* Leap Years 3 x 366 x 48 = 52704
* Partial Year (76 x 48) + 1 = 3649
* **TOTAL** = 140160 + 52704 + 3649 = **196513**

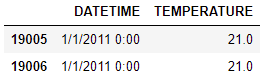
For the partial year in 2021 the 76 represents the numbers of days and 1 is added for the one recording on the 18/3/21 made at midnight. For all calculations, 48 represents a recording per half hour over a 24-hour day.

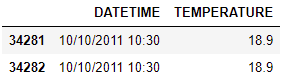
**TOTAL DEMAND DATASET**

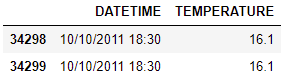
* There are no null values in the dataset
* The total demand dataset has exactly 196513 records
* When dropping all minute intervals except 0 and 30 was attempted the number of records did not change
* All counts for records for each year are correct
* The counts for each minute and hour value for each year are correct confirming there are no incorrect records

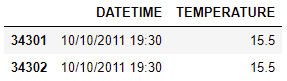
**TEMPERATURE DATASET**

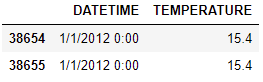
* There are no null values in the dataset
* The temperature dataset has 220326 records which is 23813 more than there should be
* There are 13 Duplicate records

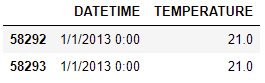


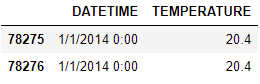


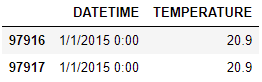


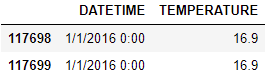


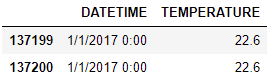


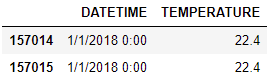


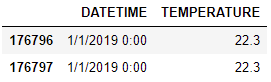


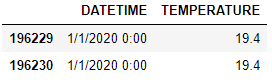












* There is evidence of records that are not on the 0 and 30-minute interval for the hour
* When dropping all minute intervals except 0 and 30 was attempted the number of records reduced to 195934 which means there are at least 579 records missing
* Summary of missing records per year (see next page for full list)
  + 2010 (Missing 261)
  + 2011 (Missing 22)
  + 2012 (Missing 35)
  + 2013 (Missing 5)
  + 2014 (Missing 3)
  + 2015 (Missing 1)
  + 2016 (Missing 222)
  + 2017 (Missing 1)
  + 2018 (Missing 26)
  + 2019 (Missing 1)
  + 2020 (Missing 2)
* 2021 is the only year with no missing records but it is only a partial year

**FULL LIST OF MISSING RECORDS IN TEMPERATURE DATASET**

**2010 (261 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 10/01/2010 4:00 | 1 |
| 11/01/2010 17:00 | 1 |
| 14/01/2010 13:30 | 1 |
| 15/01/2010 10:30 | 1 |
| 16/01/2010 10:30 | 1 |
| 19/01/2010 0:30 | 1 |
| 19/01/2010 10:30 | 1 |
| 20/01/2010 15:30 | 1 |
| 21/01/2010 18:00 | 1 |
| 23/01/2010 8:30 | 1 |
| 23/01/2010 18:30 | 1 |
| 24/01/2010 21:30 | 1 |
| 1/02/2010 19:00 | 1 |
| 3/02/2010 12:00 | 1 |
| 5/02/2010 3:00 | 1 |
| 5/02/2010 12:00 | 1 |
| 6/02/2010 20:00 | 1 |
| 9/02/2010 10:00 | 1 |
| 10/02/2010 14:30 | 1 |
| 10/02/2010 20:00 | 1 |
| 12/02/2010 16:00 | 1 |
| 14/02/2010 1:30 | 1 |
| 14/02/2010 12:30 | 1 |
| 14/02/2010 21:30 | 1 |
| 15/02/2010 14:30 | 1 |
| 16/02/2010 14:00 | 1 |
| 17/02/2010 3:30 | 1 |
| 17/02/2010 8:00 | 1 |
| 18/02/2010 0:00 | 1 |
| 18/02/2010 21:30 to 22:00 | 2 |
| 19/02/2010 15:30 | 1 |
| 20/02/2010 13:00 | 1 |
| 20/02/2010 17:30 | 1 |
| 23/02/2010 1:00 | 1 |
| 24/02/2010 3:30 | 1 |
| 24/02/2010 11:30 | 1 |
| 24/02/2010 23:00 | 1 |
| 25/02/2010 4:30 | 1 |
| 27/02/2010 18:00 | 1 |
| 28/02/2010 5:30 | 1 |
| 2/03/2010 6:30 | 1 |
| 4/03/2010 5:30 | 1 |
| 7/03/2010 4:00 | 1 |
| 7/03/2010 20:00 | 1 |
| 8/03/2010 7:00 | 1 |
| 8/03/2010 11:30 | 1 |
| 9/03/2010 14:00 | 1 |
| 9/03/2010 17:00 | 1 |
| 9/03/2010 20:30 | 1 |
| 10/03/2010 14:30 | 1 |
| 11/03/2010 6:30 | 1 |
| 11/03/2010 13:30 | 1 |
| 14/03/2010 2:30 | 1 |
| 16/03/2010 4:30 | 1 |
| 18/03/2010 7:00 | 1 |
| 18/03/2010 17:00 | 1 |
| 20/03/2010 23:30 | 1 |
| 21/03/2010 4:00 | 1 |
| 22/03/2010 7:00 | 1 |
| 22/03/2010 9:30 to 13:30 | 9 |
| 23/03/2010 15:00 | 1 |
| 25/03/2010 5:00 | 1 |
| 27/03/2010 2:30 | 1 |
| 27/03/2010 6:00 | 1 |
| 27/03/2010 14:00 | 1 |
| 29/03/2010 16:00 | 1 |
| 29/03/2010 18:00 | 1 |
| 29/03/2010 20:00 | 1 |
| 29/03/2010 23:30 to 30/03/2010 0:00 | 2 |
| 30/03/2010 4:00 | 1 |
| 30/03/2010 5:30 to 6:00 | 2 |
| 30/03/2010 7:30 | 1 |
| 30/03/2010 8:30 | 1 |
| 30/03/2010 10:00 | 1 |
| 1/04/2010 16:30 | 1 |
| 2/04/2010 10:30 | 1 |
| 4/04/2010 6:00 | 1 |
| 5/04/2010 23:00 | 1 |
| 6/04/2010 1:30 | 1 |
| 6/04/2010 5:00 | 1 |
| 6/04/2010 17:00 | 1 |
| 7/04/2010 17:00 | 1 |
| 7/04/2010 20:30 | 1 |
| 13/04/2010 4:30 | 1 |
| 13/04/2010 21:30 | 1 |
| 14/04/2010 11:30 | 1 |
| 16/04/2010 22:30 | 1 |
| 19/04/2010 7:30 | 1 |
| 19/04/2010 22:00 | 1 |
| 20/04/2010 9:00 | 1 |
| 21/04/2010 11:30 to 13:00 | 4 |
| 24/04/2010 8:00 | 1 |
| 25/04/2010 3:30 | 1 |
| 25/04/2010 12:30 | 1 |
| 26/04/2010 4:30 | 1 |
| 27/04/2010 10:00 | 1 |
| 28/04/2010 22:30 | 1 |
| 29/04/2010 23:30 | 1 |
| 30/04/2010 5:30 | 1 |
| 30/04/2010 10:00 | 1 |
| 1/05/2010 4:00 | 1 |
| 1/05/2010 6:00 | 1 |
| 1/05/2010 8:00 | 1 |
| 1/05/2010 15:00 | 1 |
| 1/05/2010 19:00 | 1 |
| 1/05/2010 20:00 | 1 |
| 1/05/2010 21:30 | 1 |
| 1/05/2010 23:00 to 23:30 | 2 |
| 2/05/2010 1:30 | 1 |
| 2/05/2010 5:00 | 1 |
| 2/05/2010 9:30 | 1 |
| 2/05/2010 12:00 | 1 |
| 2/05/2010 14:30 | 1 |
| 3/05/2010 10:00 | 1 |
| 3/05/2010 18:00 | 1 |
| 4/05/2010 20:00 | 1 |
| 4/05/2010 23:00 | 1 |
| 5/05/2010 1:30 | 1 |
| 7/05/2010 7:30 | 1 |
| 7/05/2010 11:30 | 1 |
| 8/05/2010 6:30 | 1 |
| 8/05/2010 16:00 | 1 |
| 10/05/2010 23:30 | 1 |
| 21/05/2010 1:30 to 10:30 | 19 |
| 22/05/2010 19:30 | 1 |
| 25/05/2010 7:30 | 1 |
| 16/6/2010 20:30 to 17/6/2010 9:00 | 26 |
| 19/6/2010 8:00 to 8:30 | 2 |
| 20/6/2010 13:00 | 1 |
| 21/6/2010 13:00 to 14:00 | 3 |
| 24/6/2010 20:30 | 1 |
| 26/6/2010 9:30 to 10:00 | 2 |
| 26/6/2010 15:30 | 1 |
| 30/6/2010 20:00 | 1 |
| 11/7/2010 6:00 | 1 |
| 17/7/2010 17:30 to 19:30 | 5 |
| 18/7/2010 9:00 | 1 |
| 19/7/2010 19:00 | 1 |
| 22/7/2010 20:00 | 1 |
| 23/7/2010 18:30 | 1 |
| 25/7/2010 7:30 | 1 |
| 27/7/2010 2:30 | 1 |
| 5/8/2010 12:00 to 16:30 | 10 |
| 19/8/2010 8:00 | 1 |
| 24/8/2010 0:00 | 1 |
| 26/8/2010 16:00 to 18:00 | 5 |
| 1/9/2010 8:00 | 1 |
| 5/9/2010 23:30 | 1 |
| 10/9/2010 3:30 to 6:30 | 7 |
| 29/9/2010 14:00 to 14:30 | 2 |
| 30/10/2010 11:30 | 1 |
| 18/11/2010 16:30 | 1 |
| 20/12/2010 1:30 to 12:00 | 22 |
| 21/12/2010 0:00 | 1 |
| **TOTAL** | **261** |

**2011 (22 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 15/03/2011 9:30 | 1 |
| 10/05/2011 2:30 to 7:00 | 10 |
| 20/06/2011 12:30 to 13:00 | 2 |
| 4/07/2011 10:30 | 1 |
| 5/10/2011 11:00 | 1 |
| 13/10/2011 1:00 to 3:00 | 5 |
| 18/11/2011 0:00 | 1 |
| 23/11/2011 9:00 | 1 |
| **TOTAL** | **22** |

**2012 (35 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 1/03/2012 7:30 to 8:00 | 2 |
| 7/03/2012 6:30 | 1 |
| 16/03/2012 6:30 | 1 |
| 26/03/2012 4:30 | 1 |
| 30/03/2012 7:30 | 1 |
| 4/04/2012 11:30 | 1 |
| 7/04/2012 5:30 | 1 |
| 9/04/2012 7:30 | 1 |
| 14/04/2012 6:30 | 1 |
| 16/04/2012 23:00 to 23:30 | 2 |
| 17/04/2012 0:00 to 1:00 | 3 |
| 17/04/2012 6:30 | 1 |
| 19/04/2012 6:30 | 1 |
| 30/04/2012 6:30 | 1 |
| 6/05/2012 6:30 | 1 |
| 12/05/2012 7:30 | 1 |
| 18/05/2012 6:30 | 1 |
| 23/05/2012 6:30 | 1 |
| 26/06/2012 1:30 | 1 |
| 5/07/2012 1:30 | 1 |
| 7/07/2012 17:00 to 19:30 | 6 |
| 7/07/2012 20:30 | 1 |
| 14/08/2012 2:30 | 1 |
| 3/09/2012 14:00 to 14:30 | 2 |
| 25/10/2012 4:30 | 1 |
| **TOTAL** | **35** |

**2013 (5 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 2/05/2013 9:30 to 10:30 | 3 |
| 4/06/2013 1:00 | 1 |
| 27/08/2013 15:30 | 1 |
| **TOTAL** | **5** |

**2014 (3 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 21/05/2014 0:00 | 1 |
| 7/08/2014 11:30 | 1 |
| 16/09/2014 15:00 | 1 |
| **TOTAL** | **3** |

**2015 (1 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 18/11/2015 13:30 | 1 |
| **TOTAL** | **1** |

**2016 (222 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 8/01/2016 6:30 to 8:00 | 4 |
| 8/01/2016 10:30 | 1 |
| 10/03/2016 18:30 to 11/03/2016 11:00 | 34 |
| 15/07/2016 17:00 to 19/07/2016 10:30 | 180 |
| 24/08/2016 5:30 | 1 |
| 30/08/2016 11:00 | 1 |
| 14/11/2016 15:30 | 1 |
| **TOTAL** | **222** |

**2017 (1 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 20/04/2017 14:00 | 1 |
| **TOTAL** | **1** |

**2018 (26 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 23/03/2018 2:30 to 4:30 | 5 |
| 15/04/2018 9:30 to 12:30 | 7 |
| 21/05/2018 10:30 to 17:00 | 14 |
| **TOTAL** | **26** |

**2019 (1 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 10/09/2019 11:00 | 1 |
| **TOTAL** | **1** |

**2020 (2 Missing)**

|  |  |
| --- | --- |
| **DATE TIME** | **CONSECUTIVE TIMESTAMPS** |
| 22/09/2020 14:00 to 14:30 | 2 |
| **TOTAL** | **2** |