

# Exhibit 3 - EHT Testimony

## Attachment EHT-1

### Eversource

### Unit Outage Lists

**Merrimack 1**

01/01/14 through 12/31/14

| <u>OUTAGE</u> | <u>START</u>     | <u>END</u>       | <u>OUTAGE CAUSE DESCRIPTION</u> | <u>DURATION</u><br><u>HOURS</u> |
|---------------|------------------|------------------|---------------------------------|---------------------------------|
| A             | 01/31/2014 01:44 | 02/02/2014 12:09 | WATERWALL TUBE LEAKS            | 58.42                           |
| B             | 02/20/2014 19:40 | 02/24/2014 16:17 | WATERWALL TUBE LEAKS            | 92.62                           |
| C             | 02/24/2014 19:33 | 02/24/2014 22:20 | LOW FURNACE PRESSURE TRIP       | 2.78                            |
| D             | 03/31/2014 19:47 | 04/01/2014 00:40 | CYCLONE FEEDERS                 | 4.88                            |
| E             | 04/01/2014 08:53 | 04/01/2014 11:30 | CYCLONE FEEDERS                 | 2.62                            |
| F             | 04/20/2014 05:11 | 04/20/2014 17:37 | MISC CONDENSING SYSTEM PROBLEMS | 12.43                           |
| G             | 04/22/2014 13:30 | 04/23/2014 14:48 | GAS DUCTWORK LEAKS              | 25.30                           |
| H             | 04/23/2014 16:00 | 04/23/2014 20:21 | TRANSMISSION / SWITCHYARD       | 4.35                            |
| I             | 05/12/2014 07:00 | 05/30/2014 15:30 | RELIABILITY - BOILER OVERHAUL   | 440.50                          |
| J             | 09/16/2014 07:00 | 09/21/2014 13:00 | FLUE GAS EXPANSION JOINTS       | 126.00                          |
| K             | 10/07/2014 07:00 | 10/07/2014 11:12 | REPLACE POWER SUPPLIES          | 4.20                            |
| L             | 10/15/2014 04:25 | 10/15/2014 05:00 | HIGH FURNACE PRESSURE TRIP      | 0.58                            |
| M             | 12/01/2014 09:30 | 12/01/2014 15:40 | FORCED DRAFT FAN BEARING        | 6.17                            |

**Merrimack 2**

01/01/14 through 12/31/14

| <u>OUTAGE</u> | <u>START</u>     | <u>END</u>       | <u>OUTAGE CAUSE DESCRIPTION</u>          | <u>DURATION</u><br><u>HOURS</u> |
|---------------|------------------|------------------|------------------------------------------|---------------------------------|
| A             | 01/11/2014 10:05 | 01/11/2014 16:00 | FORCED DRAFT FAN CONTROL PROBLEM         | 5.92                            |
| B             | 01/16/2014 01:06 | 01/18/2014 16:53 | BOILER WALL TUBE LEAK                    | 63.78                           |
| C             | 01/18/2014 19:23 | 01/19/2014 09:30 | BALANCE OF PLANT - TEMPERATURE EXCURSION | 14.12                           |
| D             | 02/14/2014 14:04 | 02/17/2014 08:41 | PRIMARY SUPERHEATER TUBE LEAK            | 66.62                           |
| E             | 04/07/2014 08:00 | 04/07/2014 15:30 | GENERATOR CONTROLS AND METERING PROBLEMS | 7.50                            |
| F             | 04/21/2014 07:00 | 05/21/2014 15:10 | BOILER OVERHAUL                          | 728.17                          |
| G             | 05/27/2014 08:00 | 06/17/2014 16:45 | GENERATOR HYDROGEN LEAK                  | 512.75                          |
| H             | 06/18/2014 01:16 | 06/18/2014 07:20 | TRANSMISSION SYSTEM OUTAGE               | 6.07                            |
| I             | 07/29/2014 07:00 | 07/31/2014 14:30 | ESP INSPECTION / HOPPER LEAKS            | 55.50                           |
| J             | 10/14/2014 17:00 | 10/16/2014 16:23 | WATER WASH AND BOILER INSPECTIONS        | 47.38                           |
| K             | 10/18/2014 07:00 | 10/18/2014 14:43 | TRANSMISSION SYSTEM OUTAGE               | 7.72                            |
| L             | 10/25/2014 06:30 | 10/25/2014 10:50 | BURNER MANAGEMENT SYSTEM                 | 4.33                            |
| M             | 10/27/2014 15:30 | 10/31/2014 16:09 | MISCELLANEOUS BOILER TUBE LEAKS          | 96.65                           |
| N             | 12/12/2014 00:01 | 12/16/2014 14:40 | RELIABILITY MAINTENANCE OUTAGE           | 110.65                          |

**Merrimack CT1**

01/01/14 through 12/31/14

| <u>OUTAGE</u> | <u>START</u>     | <u>END</u>       | <u>OUTAGE CAUSE DESCRIPTION</u>               | <u>DURATION</u><br><u>HOURS</u> |
|---------------|------------------|------------------|-----------------------------------------------|---------------------------------|
| A             | 01/07/2014 06:56 | 01/07/2014 07:22 | OTHER GENERATOR CONTROLS AND METERING PROBLEI | 0.43                            |
| B             | 01/07/2014 18:06 | 01/07/2014 18:18 | OTHER GAS TURBINE PROBLEMS                    | 0.20                            |
| C             | 01/10/2014 04:00 | 01/10/2014 12:31 | OTHER EXCITER PROBLEMS                        | 8.52                            |
| D             | 01/14/2014 09:23 | 01/14/2014 10:20 | FUEL GAS COMPRESSOR FILTERS                   | 0.95                            |
| E             | 01/22/2014 09:58 | 01/22/2014 18:05 | GAS TURBINE LOCKOUT                           | 8.12                            |
| F             | 01/22/2014 18:19 | 01/22/2014 18:48 | OTHER MISCELLANEOUS GENERATOR PROBLEMS        | 0.48                            |
| G             | 02/05/2014 12:15 | 02/05/2014 12:58 | OTHER EXCITER PROBLEMS                        | 0.72                            |
| H             | 02/08/2014 17:34 | 02/08/2014 17:50 | OTHER EXCITER PROBLEMS                        | 0.27                            |
| I             | 02/09/2014 17:19 | 02/09/2014 17:34 | GENERATOR VOLTAGE CONTROL                     | 0.25                            |
| J             | 03/13/2014 14:28 | 03/13/2014 14:43 | OTHER VOLTAGE CONDUCTORS AND BUSES            | 0.25                            |
| K             | 05/12/2014 07:00 | 07/03/2014 18:36 | GAS TURBINE CONTROL SYSTEM UPGRADES           | 1,259.60                        |
| L             | 09/17/2014 07:29 | 09/17/2014 13:56 | GT STARTING SYSTEM (INCLUDING MOTOR)          | 6.45                            |
| M             | 10/18/2014 15:59 | 10/18/2014 16:01 | MAIN TRANSFORMER                              | 0.03                            |
| N             | 11/05/2014 07:00 | 11/05/2014 11:42 | GT STARTING SYSTEM (INCLUDING MOTOR)          | 4.70                            |
| O             | 11/26/2014 01:51 | 11/26/2014 02:03 | COMPRESSOR PROBLEMS                           | 0.20                            |
| P             | 12/03/2014 04:35 | 12/04/2014 22:16 | 12KV CONDUCTORS AND BUSES                     | 41.68                           |

**Merrimack CT2**

01/01/14 through 12/31/14

| <u>OUTAGE</u> | <u>START</u>     | <u>END</u>       | <u>OUTAGE CAUSE DESCRIPTION</u>               | <u>DURATION</u><br><u>HOURS</u> |
|---------------|------------------|------------------|-----------------------------------------------|---------------------------------|
| A             | 01/10/2014 05:45 | 01/10/2014 06:04 | OTHER MISCELLANEOUS GENERATOR PROBLEMS        | 0.32                            |
| B             | 01/10/2014 07:40 | 01/10/2014 07:41 | OTHER JET ENGINE FUEL SYSTEM PROBLEMS         | 0.02                            |
| C             | 01/10/2014 14:28 | 01/10/2014 14:55 | OTHER JET ENGINE HIGH PRESSURE PROBLEMS       | 0.45                            |
| D             | 01/16/2014 17:16 | 01/16/2014 18:01 | JE STARTING SYSTEM (INCLUDING MOTOR)          | 0.75                            |
| E             | 01/16/2014 18:04 | 01/16/2014 18:12 | OTHER JET ENGINE AUXILIARY SYSTEM PROBLEMS    | 0.13                            |
| F             | 01/23/2014 08:37 | 01/23/2014 08:59 | OTHER JET ENGINE COMBUSTOR PROBLEMS           | 0.37                            |
| G             | 01/23/2014 09:04 | 01/23/2014 09:42 | OTHER JET ENGINE COMBUSTOR PROBLEMS           | 0.63                            |
| H             | 03/31/2014 17:29 | 03/31/2014 17:37 | JE STARTING SYSTEM (INCLUDING MOTOR)          | 0.13                            |
| I             | 05/12/2014 07:00 | 05/30/2014 11:25 | GAS TURBINE CONTROL SYSTEM - UPGRADES         | 436.42                          |
| J             | 06/17/2014 09:27 | 06/17/2014 10:03 | JE STARTING SYSTEM (INCLUDING MOTOR)          | 0.60                            |
| K             | 06/23/2014 10:43 | 06/23/2014 10:56 | OTHER INSTRUMENT AIR PROBLEMS                 | 0.22                            |
| L             | 09/17/2014 07:29 | 09/17/2014 13:56 | JE STARTING SYSTEM (INCLUDING MOTOR)          | 6.45                            |
| M             | 09/23/2014 08:00 | 09/23/2014 09:55 | JET ENGINE INLET AIR DUCTS                    | 1.92                            |
| N             | 10/06/2014 07:00 | 10/30/2014 19:24 | PLC UPGRADES / CONTROLS AND METERING PROBLEMS | 588.40                          |
| O             | 10/31/2014 19:52 | 11/01/2014 22:50 | CONTROLS AND METERING PROBLEMS                | 26.97                           |
| P             | 11/03/2014 12:30 | 11/03/2014 16:07 | JE SHAFT SEALS                                | 3.62                            |
| Q             | 11/04/2014 14:25 | 11/04/2014 15:00 | EMERGENCY GENERATOR TRIP DEVICES              | 0.58                            |
| R             | 11/05/2014 14:16 | 11/05/2014 15:44 | JE FUEL FILTERS                               | 1.47                            |
| S             | 12/03/2014 04:35 | 12/04/2014 22:16 | 12KV CONDUCTORS AND BUSES                     | 41.68                           |

**Newington 1**

01/01/14 through 12/31/14

| <u>OUTAGE</u> | <u>START</u>     | <u>END</u>       | <u>OUTAGE CAUSE DESCRIPTION</u>                 | <u>DURATION</u><br><u>HOURS</u> |
|---------------|------------------|------------------|-------------------------------------------------|---------------------------------|
| A             | 01/04/2014 06:00 | 01/04/2014 22:07 | OTHER EXCITER PROBLEMS                          | 16.12                           |
| B             | 01/08/2014 11:00 | 01/08/2014 21:00 | OTHER SWITCHYARD EQUIPMENT                      | 10.00                           |
| C             | 01/10/2014 07:00 | 01/11/2014 16:10 | POWERHOUSE SWITCHYARD (NON-GENERATING UNIT EQ   | 33.17                           |
| D             | 01/30/2014 00:32 | 01/31/2014 20:17 | WATERWALL (FURNACE WALL) LEAKS                  | 43.75                           |
| E             | 03/17/2014 06:00 | 03/29/2014 14:25 | DCS - UPGRADES                                  | 296.42                          |
| F             | 03/31/2014 21:00 | 03/31/2014 23:53 | OTHER BOILER CONTROL AND INSTRUMENTATION PROBL  | 2.88                            |
| G             | 04/03/2014 09:58 | 04/03/2014 11:32 | STARTUP FEEDWATER PUMP                          | 1.57                            |
| H             | 04/22/2014 05:00 | 04/22/2014 09:10 | STARTUP FEEDWATER PUMP                          | 4.17                            |
| I             | 04/22/2014 09:57 | 04/22/2014 12:15 | FEEDWATER CONTROLS                              | 2.30                            |
| J             | 04/24/2014 10:50 | 04/24/2014 12:10 | MISCELLANEOUS REGULATORY                        | 1.33                            |
| K             | 04/29/2014 06:00 | 04/29/2014 15:30 | FEEDWATER REGULATING (BOILER LEVEL CONTROL) VAL | 9.50                            |
| L             | 07/03/2014 13:35 | 07/03/2014 16:30 | OTHER BOILER CONTROL AND INSTRUMENTATION PROBL  | 2.92                            |
| M             | 09/24/2014 06:00 | 10/10/2014 10:25 | RELIABILITY OUTAGE - BOILER TUBE REPLACEMENT    | 388.42                          |
| N             | 12/29/2014 10:30 | 12/30/2014 04:20 | WATERWALL LEAKS                                 | 17.83                           |

**Schiller 4**

01/01/14 through 12/31/14

| <u>OUTAGE</u> | <u>START</u>     | <u>END</u>       | <u>OUTAGE CAUSE DESCRIPTION</u>             | <u>DURATION</u><br><u>HOURS</u> |
|---------------|------------------|------------------|---------------------------------------------|---------------------------------|
| A             | 01/18/2014 04:15 | 01/18/2014 20:05 | OTHER FEEDWATER VALVES                      | 15.83                           |
| B             | 03/14/2014 18:21 | 03/14/2014 19:28 | OTHER DCS PROBLEMS                          | 1.12                            |
| C             | 03/16/2014 00:03 | 03/16/2014 00:50 | PULVERIZER MILLS                            | 0.78                            |
| D             | 03/25/2014 01:19 | 03/25/2014 02:10 | PULVERIZER MILLS                            | 0.85                            |
| E             | 04/06/2014 23:00 | 04/26/2014 17:35 | MAJOR BOILER OVERHAUL (720 HOURS OR LONGER) | 474.58                          |
| F             | 05/12/2014 07:10 | 05/12/2014 08:32 | FEEDWATER CONTROLS                          | 1.37                            |
| G             | 05/12/2014 09:22 | 05/12/2014 10:30 | FEEDWATER CONTROLS                          | 1.13                            |
| H             | 05/14/2014 09:05 | 05/14/2014 14:40 | OTHER FEEDWATER VALVES                      | 5.58                            |
| I             | 08/27/2014 04:37 | 08/27/2014 10:15 | OTHER MISCELLANEOUS STEAM TURBINE PROBLEMS  | 5.63                            |
| J             | 09/05/2014 08:12 | 09/05/2014 08:59 | FUEL OIL PUMPS (BURNER SUPPLY)              | 0.78                            |
| K             | 09/09/2014 13:15 | 10/08/2014 15:00 | INDUCED DRAFT FAN MOTOR INSPECTION/ REPAIR\ | 697.75                          |
| L             | 11/15/2014 14:16 | 11/15/2014 16:35 | FEEDWATER CONTROLS                          | 2.32                            |

**Schiller 5**

01/01/14 through 12/31/14

| <u>OUTAGE</u> | <u>START</u>     | <u>END</u>       | <u>OUTAGE CAUSE DESCRIPTION</u> | <u>DURATION</u><br><u>HOURS</u> |
|---------------|------------------|------------------|---------------------------------|---------------------------------|
| A             | 04/05/2014 00:06 | 04/28/2014 00:33 | BOILER OVERHAUL                 | 552.45                          |
| B             | 08/18/2014 03:38 | 08/27/2014 17:30 | IN-BED BOILER TUBE LEAKS        | 229.87                          |
| C             | 12/06/2014 10:48 | 12/13/2014 05:45 | RELIABILITY MAINTENANCE OUTAGE  | 162.95                          |
| D             | 12/27/2014 21:04 | 12/31/2014 24:00 | HYDROGEN COOLER TUBE LEAK       | 98.93                           |



### Schiller 6

01/01/14 through 12/31/14

| <u>OUTAGE</u> | <u>START</u>     | <u>END</u>       | <u>OUTAGE CAUSE DESCRIPTION</u>               | <u>DURATION</u><br><u>HOURS</u> |
|---------------|------------------|------------------|-----------------------------------------------|---------------------------------|
| A             | 01/11/2014 03:15 | 01/12/2014 15:15 | SECONDARY SUPERHEATER LEAKS                   | 36.00                           |
| B             | 03/13/2014 06:26 | 03/13/2014 06:50 | PULVERIZER FEEDERS                            | 0.40                            |
| C             | 03/28/2014 23:22 | 05/05/2014 15:10 | BOILER OVERHAUL                               | 903.80                          |
| D             | 09/03/2014 12:59 | 09/06/2014 12:59 | OTHER GENERATOR CONTROLS AND METERING PROBLEI | 72.00                           |
| E             | 10/31/2014 14:40 | 11/07/2014 14:15 | SECONDARY SUPERHEATER HAND HOLE CAP LEAK      | 168.58                          |

**Schiller CT1**

01/01/14 through 12/31/14

| <u>OUTAGE</u> | <u>START</u>     | <u>END</u>       | <u>OUTAGE CAUSE DESCRIPTION</u>       | <u>DURATION</u><br><u>HOURS</u> |
|---------------|------------------|------------------|---------------------------------------|---------------------------------|
| A             | 01/01/2014 00:01 | 10/10/2014 14:00 | OTHER JET ENGINE FUEL SYSTEM PROBLEMS | 6,780.98                        |
| B             | 12/29/2014 10:00 | 12/30/2014 20:30 | JE BATTERY AND CHARGER SYSTEM         | 34.50                           |

**WYMAN**

**01/01/14 through 12/31/14**

| <u>OUTAGE</u> | <u>START</u>     | <u>END</u>       | <u>OUTAGE CAUSE DESCRIPTION</u>                | <u>DURATION</u><br><u>HOURS</u> |
|---------------|------------------|------------------|------------------------------------------------|---------------------------------|
| A             | 2014/01/21 17:21 | 2014/01/22 00:03 | LOW DRUM LEVEL DUE TO L.P. HEATERS TRIP        | 6.70                            |
| B             | 2014/02/18 07:13 | 2014/02/18 09:00 | TRANSMISSION WORK - OOS PER ISO                | 1.78                            |
| C             | 2014/03/08 07:00 | 2014/03/08 11:33 | LATE START - LOSS OF DAMPER CONTROL            | 4.55                            |
| D             | 2014/05/28 00:01 | 2014/05/30 23:45 | MAINTENANCE OUTAGE-TURBINE EHC FLUID REPLACEME | 71.73                           |
| E             | 2014/07/14 12:08 | 2014/07/14 14:50 | FUEL OIL METER MALFUNCTION                     | 2.70                            |
| F             | 2014/07/12 00:01 | 2014/07/12 12:28 | MAINTENANCE OUTAGE-TURBINE EHC FLUID REPLACEME | 12.45                           |
| G             | 2014/08/08 16:00 | 2014/08/12 02:30 | MAINTENANCE OUTAGE - 115KV SWITCHYARD REPAIR   | 82.50                           |
| H             | 2014/10/22 00:01 | 2014/11/21 12:00 | PLANNED ANNUAL OVERHAUL                        | 731.98                          |

| Facility | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage                      |
|----------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|--------------------------------------|
| Amoskeag | M    | A      | 5/8/14 5:37          | 5/8/14 15:09        | 9.53             | Y                        | EMO         | 354/355 Bus inspection by contractor |
|          | S    | B      | 8/28/14 5:02         | 8/28/14 6:03        | 1.02             | Y                        | EMO         | Black Start testing                  |
|          | S    | C      | 9/2/14 4:36          | 10/1/14 0:37        | 692.02           | Y                        | UO          | GSU Replacement                      |
|          | S    | D      | 10/1/14 14:42        | 10/2/14 12:02       | 21.33            | Y                        | EMO         | Bus PT Wiring Configuration          |
|          | S    | E      | 10/24/14 18:41       | 10/25/14 22:05      | 27.40            | Y                        | T/D         | Eddy Sub Bus A insulator failure     |
|          | S    | F      | 11/11/14 6:41        | 11/11/14 19:10      | 12.48            | Y                        | EMO         | TB 3540 2.4KV PT Wiring              |
| Amoskeag | 1    | A      | 1/16/14 9:42         | 1/16/14 10:16       | 0.57             | Y                        | TRIP        | Operator Error                       |
|          | 1    | B      | 2/4/14 7:29          | 2/6/14 11:08        | 51.65            | N                        | EMO         | Limited Wicket Operation             |
|          | 1    | C      | 3/3/14 7:24          | 7/23/14 11:21       | 3411.95          | Y                        | UO          | Generator rewind                     |
| Amoskeag | 2    | A      | 1/13/14 7:20         | 1/22/14 11:07       | 219.78           | Y                        | A.I.        | Annual Inspection                    |
|          | 2    | B      | 5/10/14 0:56         | 5/10/14 1:56        | 1.00             | Y                        | TRIP        | Low oil in lower guide bearing.      |
|          | 2    | C      | 6/20/14 10:37        | 7/1/14 13:23        | 266.77           | Y                        | EMO         | Oil leak in lower guide bearing      |
|          | 2    | D      | 11/13/14 10:48       | 11/20/14 12:45      | 169.95           | Y                        | EMO         | Oil leak in lower guide bearing      |
| Amoskeag | 3    | A      | 1/27/14 7:24         | 1/31/14 13:26       | 102.03           | N                        | AI          | Annual Inspection                    |
|          | 3    | B      | 2/28/14 7:22         | 2/28/14 10:55       | 3.55             | N                        | EMO         | Governor Maintenance.                |
|          | 3    | C      | 5/19/14 21:20        | 5/19/14 22:45       | 1.42             | Y                        | TRIP        | Bladder compressor over load         |
|          | 3    | D      | 7/21/14 6:06         | 7/21/14 8:12        | 2.10             | Y                        | TRIP        | 39 device - coil failure             |

| Facility     | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage                                          |
|--------------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|----------------------------------------------------------|
| Ayers Island | M    | A      | 3/20/14 6:51         | 3/21/14 13:09       | 30.30            | Y                        | EMO         | Commission new transformer, disconnect mobile substation |
|              | S    | B      | 5/1/14 4:01          | 5/2/14 21:07        | 41.10            | Y                        | T/D         | 3114 Trip                                                |
|              | S    | C      | 5/9/14 18:33         | 5/10/14 0:01        | 5.47             | Y                        | T/D         | 345 Trip                                                 |
| Ayers Island | 1    | A      | 2/18/14 7:00         | 4/1/14 14:08        | 1015.13          | Y                        | A.I.        | Annual Inspection                                        |
|              | 1    | B      | 4/1/14 16:38         | 4/1/14 17:53        | 1.25             | Y                        | TRIP        | Lower guide bearing oil reservoir high                   |
|              | 1    | C      | 4/1/14 19:14         | 4/1/14 22:38        | 3.40             | Y                        | TRIP        | over speed switch                                        |
|              | 1    | D      | 4/4/14 10:07         | 4/4/14 18:27        | 8.33             | Y                        | EMO         | Erratic indication from tachometer                       |
|              | 1    | E      | 4/16/14 2:36         | 4/16/14 4:01        | 1.42             | Y                        | T/D         | 345 Trip and Reclose                                     |
|              | 1    | F      | 10/5/14 7:35         | 10/6/14 13:45       | 30.17            | Y                        | Trip        | Field Switch Resistor                                    |
|              | 1    | G      | 10/30/14 11:59       | 11/18/14 10:56      | 454.95           | Y                        | EMO         | Penstock Inspection and Repair                           |
| Ayers Island | 2    | A      | 1/16/14 12:50        | 1/16/14 13:11       | 0.35             | Y                        | T/D         | Inadvertent Transfer Trip                                |
|              | 2    | B      | 2/3/14 7:45          | 2/6/14 15:51        | 80.10            | N                        | A.I.        | Annual Inspection                                        |
|              | 2    | C      | 9/1/14 11:24         | 9/1/14 12:51        | 1.45             | Y                        | T/D         | 338 line fault                                           |
|              | 2    | D      | 11/10/14 8:34        | 11/10/14 13:24      | 4.83             | N                        | EMO         | Safety Outage - Divers                                   |
| Ayers Island | 3    | A      | 1/20/14 8:04         | 1/24/14 15:20       | 103.27           | Y                        | A.I.        | Annual Inspection                                        |
|              | 3    | B      | 2/5/14 11:25         | 2/5/14 13:38        | 2.22             | Y                        | TRIP        | High Bearing Temp indication.                            |
|              | 3    | C      | 5/2/14 21:07         | 5/2/14 23:19        | 2.20             | Y                        | Trip        | Faulty Speed Switch                                      |
|              | 3    | D      | 5/12/14 15:43        | 5/12/14 17:45       | 2.03             | Y                        | TRIP        | High Stator Temperature                                  |
|              | 3    | E      | 10/28/14 7:35        | 10/28/14 8:17       | 0.70             | Y                        | EMO         | Maintenance for exciter brushes                          |
|              | 3    | F      | 11/3/14 8:14         | 11/3/14 9:02        | 0.80             | Y                        | EMO         | Maintenance for exciter brushes                          |
|              | 3    | G      | 11/3/14 12:39        | 11/3/14 13:20       | 0.68             | Y                        | EMO         | Maintenance for exciter brushes                          |
|              | 3    | H      | 11/13/14 12:31       | 11/13/14 12:58      | 0.45             | Y                        | EMO         | Maintenance for exciter brushes                          |
|              | 3    | I      | 11/26/14 7:41        | 11/26/14 8:09       | 0.47             | Y                        | EMO         | Maintenance for exciter brushes                          |
|              | 3    | J      | 12/3/14 11:28        | 12/5/14 12:33       | 49.08            | Y                        | EMO         | Maintenance for Collector Rings                          |

| Facility | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage                                   |
|----------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|---------------------------------------------------|
| Canaan   | 1    | A      | 7/5/14 11:27         | 7/5/14 14:13        | 2.77             | Y                        | T/D         | 355 Trip                                          |
|          | 1    | B      | 7/8/14 23:16         | 7/8/14 23:39        | 0.38             | Y                        | T/D         | North Country Outage                              |
|          | 1    | C      | 7/23/14 15:00        | 7/23/14 15:10       | 0.17             | Y                        | T/D         | System disturbance beyond ESCC monitored devices. |
|          | 1    | D      | 11/24/14 10:11       | 11/24/14 10:34      | 0.38             | Y                        | EMO         | Maintenance for exciter brushes                   |
|          | 1    | E      | 12/28/14 7:14        | 12/28/14 12:08      | 4.90             | Y                        | T/D         | 355 Trip                                          |

| Facility | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage                       |
|----------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|---------------------------------------|
| Eastman  | S    | A      | 2/3/14 18:29         | 2/3/14 20:04        | 1.58             | Y                        | T/D         | Webster TB-37 switching issue         |
|          | S    | B      | 5/6/14 12:49         | 5/6/14 13:45        | 0.93             | Y                        | T/D         | Voltage reduction testing             |
|          | S    | C      | 10/28/14 12:46       | 10/28/14 14:08      | 1.37             | Y                        | T/D         | Voltage reduction testing             |
| Eastman  | 1    | A      | 8/6/14 13:48         | 8/6/14 16:29        | 2.68             | Y                        | EMO         | RTU Testing                           |
|          | 1    | B      | 10/28/14 13:37       | 10/29/14 13:46      | 24.15            | N                        | TRIP        | Plugged cooling water intake line     |
|          | 1    | C      | 11/25/14 0:13        | 11/25/14 2:01       | 1.80             | Y                        | TRIP        | Temperature alarm                     |
|          | 1    | D      | 12/28/14 2:43        | 12/31/14 12:34      | 81.85            | Y                        | TRIP        | Slip ring brush rigging failure       |
|          | 1    | E      | 12/31/14 15:21       | 1/1/15 0:00         | 8.65             | Y                        | EMO         | Governor speeder spring motor failure |
| Eastman  | 2    | A      | 5/6/14 15:20         | 5/6/14 18:21        | 3.02             | Y                        | EMO         | PLC Logic Problem                     |
|          | 2    | B      | 7/3/14 12:03         | 7/3/14 13:03        | 1.00             | Y                        | T/D         | System Disturbance                    |
|          | 2    | C      | 7/3/14 13:03         | 7/3/14 15:33        | 2.50             | Y                        | Trip        | Failed to start PT-6                  |
|          | 2    | D      | 8/6/14 13:48         | 8/6/14 16:29        | 2.68             | Y                        | Trip        | High MX during RTU testing            |
|          | 2    | E      | 11/17/14 8:02        | 11/17/14 15:43      | 7.68             | N                        | EMO         | Trash rack inspection.                |
|          | 2    | F      | 12/8/14 8:40         | 12/12/14 16:19      | 103.65           | Y                        | AI          | Annual Inspection                     |

| Facility | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage                    |
|----------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|------------------------------------|
| Garvins  | S    | A      | 6/10/14 8:30         | 6/10/14 13:16       | 4.77             | Y                        | EMO         | Install Louvers                    |
|          | S    | B      | 6/23/14 5:51         | 6/30/14 18:02       | 180.18           | Y                        | EMO         | Switch gear replacement            |
|          | M    | C      | 6/30/14 18:02        | 7/1/14 14:03        | 20.02            | Y                        | EMO         | Switch gear replacement            |
|          | S    | D      | 10/7/14 8:48         | 10/7/14 9:41        | 0.88             | N                        | EMO         | Black Start Testing                |
|          | S    | E      | 12/4/14 8:55         | 12/4/14 14:00       | 5.08             | Y                        | EMO         | Safety Outage - Divers             |
| Garvins  | 1    | A      | 8/14/14 1:58         | 8/14/14 8:24        | 6.43             | Y                        | TRIP        | Speed switch failure               |
|          | 1    | B      | 10/16/14 23:12       | 10/17/14 0:37       | 1.42             | Y                        | TRIP        | Missed phase window                |
|          | 1    | C      | 11/26/14 18:13       | 11/26/14 19:32      | 1.32             | Y                        | T/D         | Loss of AC. Winter storm           |
|          | 1    | D      | 11/26/14 20:02       | 11/26/14 20:29      | 0.45             | Y                        | T/D         | Winter storm                       |
|          | 1    | E      | 12/12/14 11:26       | 12/12/14 13:34      | 2.13             | Y                        | Trip        | Transformer Door contacts          |
| Garvins  | 2    | A      | 3/31/14 6:46         | 3/31/14 8:17        | 1.52             | Y                        | TRIP        | Actuator adjustment                |
|          | 2    | B      | 5/21/14 11:42        | 5/21/14 17:57       | 6.25             | N                        | TRIP        | Failed Motor Operated Rheostat     |
|          | 2    | C      | 6/5/14 23:28         | 6/6/14 0:25         | 0.95             | Y                        | TRIP        | Actuator adjustment.               |
|          | 2    | D      | 6/19/14 19:03        | 6/19/14 20:05       | 1.03             | Y                        | Trip        | Late phase                         |
|          | 2    | E      | 11/26/14 18:14       | 11/26/14 20:37      | 2.38             | Y                        | T/D         | Winter Storm                       |
| Garvins  | 3    | A      | 1/12/14 12:08        | 1/12/14 13:15       | 1.12             | Y                        | TRIP        | Incomplete sequence - Synchronizer |
|          | 3    | B      | 1/27/14 11:09        | 1/27/14 11:38       | 0.48             | Y                        | TRIP        | Incomplete sequence - Synchronizer |
|          | 3    | C      | 4/14/14 16:15        | 4/14/14 18:05       | 1.83             | Y                        | TRIP        | Oil pump motor over loads trip     |
|          | 3    | D      | 4/27/14 2:13         | 4/27/14 3:21        | 1.13             | Y                        | TRIP        | Governor adjustment                |
|          | 3    | E      | 4/27/14 20:35        | 4/27/14 21:52       | 1.28             | Y                        | TRIP        | Governor adjustment                |
|          | 3    | F      | 5/13/14 8:16         | 5/13/14 9:50        | 1.57             | Y                        | TRIP        | Governor adjustment                |
|          | 3    | G      | 7/14/14 12:47        | 7/14/14 13:24       | 0.62             | Y                        | TRIP        | operator error                     |
|          | 3    | H      | 7/14/14 16:52        | 7/14/14 18:14       | 1.37             | Y                        | Trip        | lower bearing oil pump motor       |
|          | 3    | I      | 9/22/14 7:00         | 9/26/14 12:11       | 101.18           | N                        | AI          | Annual inspection                  |
|          | 3    | J      | 9/29/14 9:00         | 9/29/14 11:00       | 2.00             | N                        | EMO         | Unit slow rolling after shut down  |
|          | 3    | K      | 12/30/14 8:40        | 12/30/14 11:48      | 3.13             | Y                        | Trip        | Gate Lock obstruction              |
| Garvins  | 4    | A      | 7/6/14 17:25         | 7/6/14 18:42        | 1.28             | Y                        | Trip        | Low oil in lower guide bearing     |
|          | 4    | B      | 7/16/14 5:41         | 7/16/14 6:24        | 0.72             | Y                        | Trip        | Over speed                         |
|          | 4    | C      | 9/15/14 7:57         | 9/19/14 11:17       | 99.33            | N                        | AI          | Annual Inspection                  |
|          | 4    | D      | 10/15/14 3:46        | 10/15/14 8:15       | 4.48             | Y                        | Trip        | Voltage Regulator Issue            |
|          | 4    | E      | 10/16/14 23:29       | 10/17/14 0:24       | 0.92             | Y                        | Trip        | Voltage Regulator Issue            |



| Facility | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage            |
|----------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|----------------------------|
| Gorham   | S    | A      | 7/8/14 23:16         | 7/9/14 8:21         | 9.08             | Y                        | T/D         | North Country Outage       |
| Gorham   | 1    | A      | 8/25/14 7:00         | 8/29/14 10:19       | 99.32            | N                        | AI          | Annual Inspection          |
| Gorham   | 2    | A      | 8/25/14 7:00         | 8/29/14 10:24       | 99.40            | N                        | AI          | Annual Inspection          |
| Gorham   | 3    | A      | 9/2/14 7:00          | 9/5/14 8:51         | 73.85            | N                        | AI          | Annual Inspection          |
|          | 3    | B      | 10/14/14 14:09       | 10/14/14 15:10      | 1.02             | Y                        | Trip        | Actuator oil pump failure. |
| Gorham   | 4    | A      | 7/14/14 11:44        | 7/14/14 12:14       | 0.50             | Y                        | EMO         | Exciter Brush Maintenance  |
|          | 4    | B      | 9/8/14 7:00          | 9/12/14 8:29        | 97.48            | N                        | AI          | Annual inspection          |

| Facility | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage                     |
|----------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|-------------------------------------|
| Hooksett | 1    | A      | 3/17/14 8:35         | 3/17/14 8:57        | 0.37             | Y                        | EMO         | Exciter Brush Maintenance           |
|          | 1    | B      | 3/31/14 23:16        | 4/1/14 9:29         | 10.22            | Y                        | TRIP        | Governor pump motor seized          |
|          | 1    | C      | 7/14/14 10:42        | 7/14/14 11:18       | 0.60             | Y                        | TRIP        | Operator Error                      |
|          | 1    | D      | 7/17/14 6:58         | 7/25/14 15:04       | 200.10           | Y                        | A.I.        | Annual Inspection / RTU replacement |
|          | 1    | E      | 10/15/14 8:50        | 10/15/14 14:01      | 5.18             | Y                        | EMO         | Fish board removal                  |
|          | 1    | F      | 11/5/14 9:47         | 11/5/14 12:27       | 2.67             | Y                        | EMO         | Fish Board Installation             |
|          | 1    | G      | 11/14/14 10:18       | 11/14/14 11:07      | 0.82             | Y                        | EMO         | Emergency Waste Gate Operation      |

| Facility | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage               |
|----------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|-------------------------------|
| Jackman  | 1    | A      | 1/28/14 17:10        | 1/28/14 18:31       | 1.35             | N                        | TRIP        | High field current            |
|          | 1    | B      | 4/16/14 6:11         | 4/16/14 6:58        | 0.78             | Y                        | TRIP        | High field current            |
|          | 1    | C      | 5/17/14 5:07         | 5/17/14 6:26        | 1.32             | N                        | T/D         | 3173 breaker trip.            |
|          | 1    | D      | 6/2/14 1:04          | 6/2/14 2:00         | 0.93             | N                        | TRIP        | Governor Drift                |
|          | 1    | E      | 6/2/14 13:00         | 6/2/14 13:08        | 0.13             | N                        | EMO         | Governor Drift                |
|          | 1    | F      | 6/4/14 8:30          | 6/4/14 13:12        | 4.70             | N                        | EMO         | Governor Trouble Shooting     |
|          | 1    | G      | 7/15/14 14:58        | 11/13/14 14:15      | 2903.28          | Y                        | TRIP        | Generator Rotor Pole Failure  |
|          | 1    | H      | 11/13/14 15:00       | 11/13/14 15:44      | 0.73             | N                        | EMO         | Radial Gate Chains adjustment |
|          | 1    | I      | 11/14/14 15:46       | 11/14/14 17:04      | 1.30             | N                        | TRIP        | High field current            |

| Facility    | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage                   |
|-------------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|-----------------------------------|
| Lost Nation | 1    | A      | 1/24/14 17:30        | 1/24/14 21:22       | 3.87             | Y                        | Trip        | 63 DMX relay failure - Blown Fuse |
|             | 1    | B      | 1/28/14 22:21        | 1/28/14 22:38       | 0.28             | Y                        | Trip        | Shut down /start up sequence time |
|             | 1    | C      | 2/12/14 11:17        | 2/12/14 13:17       | 2.00             | N                        | EMO         | DC Fuse failure                   |
|             | 1    | D      | 2/27/14 20:13        | 2/27/14 21:53       | 1.67             | Y                        | Trip        | Over speed trip or trouble        |
|             | 1    | E      | 5/2/14 8:59          | 5/2/14 10:00        | 1.02             | N                        | EMO         | Black Start Test                  |
|             | 1    | F      | 7/8/14 23:16         | 7/9/14 7:30         | 8.23             | N                        | T/D         | North Country outage              |
|             | 1    | G      | 10/6/14 7:00         | 10/10/14 13:41      | 102.68           | N                        | AI          | Annual Inspection                 |

| Facility | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage                |
|----------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|--------------------------------|
| Smith    | 1    | A      | 1/27/14 0:52         | 1/27/14 6:35        | 5.72             | Y                        | Trip        | Transfer Trip erroneously sent |
|          | 1    | B      | 4/16/14 2:30         | 4/19/14 20:42       | 90.20            | Y                        | Trip        | Field ground.                  |
|          | 1    | C      | 7/8/14 23:16         | 7/9/14 7:42         | 8.43             | Y                        | T/D         | North country outage           |
|          | 1    | D      | 8/3/14 7:49          | 11/8/14 10:06       | 2330.28          | Y                        | UO          | Rotor Refurbishment            |

| Facility   | Unit | outage | Date & Time OFF line | Date & Time ON line | Duration (Hours) | Lost Generation (Y or N) | Outage Type | Cause of Outage          |
|------------|------|--------|----------------------|---------------------|------------------|--------------------------|-------------|--------------------------|
| White Lake | 1    | A      | 2/9/14 19:23         | 2/9/14 21:40        | 2.28             | N                        | TRIP        | Unit Lock Out            |
|            | 1    | B      | 2/12/14 5:56         | 2/12/14 6:22        | 0.43             | Y                        | TRIP        | Failed Start - Flame out |
|            | 1    | C      | 2/12/14 6:57         | 2/12/14 10:16       | 3.32             | Y                        | TRIP        | Failed Start - Flame out |
|            | 1    | D      | 4/21/14 7:00         | 4/25/14 18:10       | 107.17           | N                        | A.I.        | Annual Inspection        |

# **Exhibit 3 - EHT Testimony**

## **Attachment EHT-2**

### **Eversource**

#### **Unit Outage Reports**

## NH GENERATION

### STEAM STATION OUTAGE REPORT

**PUC Outage Report No.:**      **OR-2014-01**

**Station/Unit:**                      Merrimack Station, Unit 2

**Dates:**                                      January 16 - January 18, 2014

**Duration:**                                2.66 Days

**Immediate Cause:**

Convection Pass Wall Tube Leak

**Discussion/Remedy:** Taking advantage of milder winter temperatures, Unit 2 was removed from service to repair an external convection pass wall tube leak. The outage work plan was to focus on necessary repairs and perform those activities around the clock to allow the unit to be ready for the next wave of below zero temperatures. Along with the wall leak, an inspection of the boiler, cyclones and firebox revealed a number of other water tube leaks.

Convection pass wall tube repairs were performed. The convection pass repair needed staging installed to gain access. Insulation and lagging was then removed. The tube leak was small in size and easily pad welded. After the repair, a successful pressure test was performed, followed by the reinstallation of insulation, lagging and the staging removed.

Cyclone repairs were completed. 2C cyclone had two tube leaks, both located on the neck. One of which was at the 8:00 o'clock position looking out of the cyclone. The other leak was 16" down from the wear blocks. 2G cyclone had two barrel tube leaks and one on the re-entrant throat. The re-entrant throat tube leak was located at the 5:00 o'clock position looking in the cyclone from the firebox. The other two were behind the flat studs. One was two feet in from the re-entrant throat, 12" up from the pin studs, and the other was four tubes west, same distance from the pin studs.

There were three different front wall leaks in the firebox, 1 inch up from the floor and 1 foot south and below "C" cyclone slag tap. Erosion and corrosion were factors for the tube leaks.

All tubes were pad welded back to original wall thickness. New studs were welded on the cyclone tubes and refractory was reinstalled once all the tube leaks were repaired.



A final boiler pressure test was performed, and there were no other waterside leaks found.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the priority outage backlog, jobs that were found during the boiler inspection that was completed at the beginning of the outage and other corrective and preventative work.

## NH GENERATION

### STEAM STATION OUTAGE REPORT

**PUC Outage Report No.:**      **OR-2014-02**

**Station/Unit:**                      Merrimack Station, Unit 1

**Dates:**                                      January 31 – February 2, 2014

**Duration:**                                  2.4 Days

**Immediate Cause:** North Water Wall Tube Failure

**Discussion/Remedy:** Unit 1 was on- line. The unit was removed from service due to water wall tube leaks at elevation 287'. A boiler inspection revealed that two wall tubes were involved on the north side, numbers 8 and 9 counting from the superheater door going east. The primary leak was in an original weld on tube number eight, and that leak consequently cut into the adjacent tube, number nine. This was in a difficult area to access, requiring a full shift to set up staging inside the boiler. The leaks were between the wall and the secondary superheat outlet pendant on the arch slope.

Accessing the area is not possible entering thru the space between the screen tubes. A custom staging was built by reaching thru the screen tubes and utilizing the west boiler man door across from the SSH inlet pendants. The external boiler wall needed lagging, insulation and casing removed to allow the weld repairs to be performed. The tubes are tangential and needed to be spread with wedges to gain enough access to weld the sides of the tubes. The boiler was filled with water and the weld repairs were inspected with black light, as unit-1 cannot be pressure tested. All casing, insulation and lagging was reinstalled and the unit isolations cleared and turned over to operations.

The unit was phased at the completion of the outage.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the priority outage backlog, jobs that were found during the boiler inspection that was completed at the beginning of the outage and other corrective and preventative work.

## NH GENERATION

### STEAM STATION OUTAGE REPORT

**PUC Outage Report No.:**      **OR-2014-03**

**Station/Unit:**                      Merrimack Station, Unit 2

**Dates:**                                  February 14 - February 17, 2014

**Duration:**                              2.8 Days

**Immediate Cause:** Primary Superheat leak

**Discussion/Remedy:** Unit 2 was on-line. The unit was removed from service for a tube failure on a primary superheat bend, 3rd assembly from the northeast corner. Lagging, insulation and the membrane had to be removed to make the repair externally. The 2nd elbow from the north needed to be pad welded also, as it had some tube wastage from the 3<sup>rd</sup> assembly tube failure. Along with the primary superheater tube leak, an inspection of the boiler, cyclones, and firebox revealed several other water tube leaks. The outage work plan focused on performing the needed repairs around the clock and be ready for the next wave of below zero temperatures.

2C cyclone had three tube leaks. Two were located on the neck. One of which was at the 6:00 o'clock position and one at the 7:00 position, looking out of the cyclone. The third leak was on the re-entry throat, 4' up from the floor in the center. 2D cyclone had one leak on the neck tube at the 9:00 position. 2F cyclone had a leak on a secondary air arch tube 5' from the neck. Erosion and corrosion were factors for the tube leaks.

All tubes in the cyclones were pad welded back to original wall thickness. New studs were welded on the cyclone tubes and refractory was reinstalled once all the tube leaks were repaired. A final boiler pressure test was performed, and there were no other waterside leaks found.

The unit was phased at the completion of the outage.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the priority outage backlog, jobs that were found during the boiler inspection that was completed at the beginning of the outage and other corrective and preventative work.

## NH GENERATION

### STEAM STATION OUTAGE REPORT

**PUC Outage Report No.:** OR-2014-04

**Station/Unit:** Merrimack Station, Unit 1

**Dates:** February 20 - February 24, 2014

**Duration:** 3.9 Days

**Immediate Cause:** Maintenance outage— North Water wall Tube Repair and Air Heater Wash

**Discussion/Remedy:** Unit1 was on-line. With a period of unseasonably warm weather, a number of corrective maintenance activities were planned. An air heater wash was completed and several wall tubes on elevation 287' (north side) were replaced. The prior water wall tube failure caused tube wastage to three secondary superheater outlet tubes in the pendant directly across from leak. Access was not possible through the space between the screen tubes, where the secondary superheater (SSH) outlet tubes are attached. The exterior of the boiler wall needed the lagging, insulation and casing removed. To access this area inside, a special staging was installed by spreading the pendant from the wall using an air bag and installing wooden blocking. This effort still limited the work space to approximately 12 inches.

Wall tubes were cut out which allowed better access to reach through the pendants and pad weld the SSH tubes. The wall tubes are tangent and needed the upper ties cut to allow the tubes to be moved out of alignment with wedges to gain enough access to cut out the damaged tubes. The new tubes were then prepped for fit-up. The east wall tube was welded in first followed by the west one. The weld repairs were black lighted, as unit-1 cannot be pressure tested like unit 2. The weld repaired tubes were wrapped and kept warm until stress relieving could be achieved.

Because the tube was a T-91 material, the weld repairs required stress relieving. This step can involve ten to twelve hours including set-up and tear down. T-91 is a very strong material, and reliable, however the welding and stress relieving process is time consuming. The pad welds required a 400 degree preheat. Once the pad welds were complete the tubes needed to be wrapped with ceramics for a heat treatment at 500 degrees for 15 minutes, the temperature is then brought down to 200 degrees over the next 10 minutes and kept wrapped until the post weld heat treatment process. This process requires a temperature of 1375 degrees + or – 25 degrees holding for 30 minutes.

When the stress relieving began, the temperature ramped up to 600 degrees, but then stopped and quickly dropped off. A second attempt was made with similar results. A spare stress relieving machine was used to determine if the equipment was faulty. With similar results again, it was presumed that sufficient water was in the steam tubes which prevented the equipment obtaining the necessary maximum temperature for stress relieving. Water was drained from the tubes drilling holes in the bottom of the pendant loops. With the three tubes drained, the stress relieving of the pad welds was successful. The drill holes were prepped, welded and stress relieved.

During the stress relieving activities, the boiler casing, insulation and lagging was reinstalled and the remaining doors were closed and the Unit was ready for startup.

The unit was phased on February 24.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the priority outage backlog, jobs that were found during the boiler inspection that was completed at the beginning of the outage and other corrective and preventative work.

## NH GENERATION

### STEAM STATION OUTAGE REPORT

**PUC Outage Report No.:**      **OR-2014-05**

**Station/Unit:**                      Merrimack Station, Unit No. 2

**Dates:**                                      May 27 – June 17, 2014

**Duration:**                                21.4 Days

**Immediate Cause:**

Planned Corrective Maintenance – The unit was removed from service to investigate excessive generator hydrogen leakage.

**Discussion/Remedy:** Generator hydrogen pressure is a critical operating parameter and station operators monitor and adjust this pressure by adding hydrogen. A sudden increase in compressed hydrogen consumption indicated excessive leakage.

The station used in-house resources and methods in an exhaustive initial leak investigation; however, the efforts proved unsuccessful at pinpointing the leak location. As a result, several contractors with specialized experience and techniques were called upon for assistance, including American Efficiency Services, Equipment Imaging and Solutions (EIS) and Siemens Energy.

Several attempts were made to repump the labyrinth seal at the generator bearing brackets mating surfaces with little improvement in the leakage rate. Multiple other small sources of leakage were investigated, such as inspection cover bolting, lead box bushings and the lead box joint to the generator frame. Fluorosilicone sealant was pumped into the lead box joint and other bolting was removed and resealed at covers as indicated by testing.

This important hydrogen leakage effort was very time consuming with investigation, repairs and repeated overnight timed leakage rate tests performed to evaluate results.

One of the specialized vendors, who provided assistance, American Efficiency Services, used sensitive helium detection equipment to “sniff” for the leak(s) while the generator is pressurized with helium gas. While they have historically been successful at locating these types of leaks, only very minor sources were located with their help, with little impact on total leakage rates when corrected.

Another vendor, EIS utilized SF6 gas and specialized detectors in much the same way. EOS personnel made two visits to the site during this outage to assist. Upper half oil seals and generator lagging was removed for their inspection. During the second visit it

became clearer that the main source of leakage appeared to be at both the turbine end and exciter end bearing cavities, requiring the disassembly of both end's bearing brackets.

The turbine end and exciter end oil seal upper and lower halves, bearing bracket upper halves, and hydrogen gland bracket upper and lower halves were removed. Each component was hand cleaned. The hydrogen gland brackets and oil seals were installed with new gaskets. The upper half bearing brackets were installed with new rubber plugs at the horizontal joint. The bearing brackets were then pumped with fluorosilicone sealant.

The final leakage rate after a 24-hour test period was calculated to be well within manufacturer's guidelines. The unit was returned to reserve status.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the outage backlog, as well as other corrective and preventative work.

## **NH GENERATION**

### **STEAM STATION OUTAGE REPORT**

**PUC Outage Report No.:**      **OR-2014-06**

**Station/Unit:**                      Merrimack Station, Unit No. 2

**Dates:**                                      July 29 – July 31, 2014

**Duration:**                                2.3 Days

**Immediate Cause:**

Planned Corrective Maintenance – The unit was removed from service to investigate two inoperable precipitator automatic voltage controllers, AVC #3 and AVC #9

**Discussion/Remedy:** The unit was in reserve status. The controller problem was suspected to be a mechanical interference within the precipitator, requiring electrical isolation for entry and inspection. Electricians found and repaired a bad high voltage lead in the precipitator penthouse over hopper # 3 "A" field, and replaced the two AVCs to correct the problem.

During this outage, Maintenance also took the opportunity to inspect the precipitator structure and flues to investigate and repair a possible rainwater leak into hoppers 10 & 11 "C" field as well as miscellaneous maintenance activities. At the completion of the outage, the unit was returned to reserve status.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the outage backlog and other corrective and preventative work.



## NH GENERATION

### STEAM STATION OUTAGE REPORT

**PUC Outage Report No.:**      **OR-2014-07**

**Station/Unit:**                      Schiller Station, Unit 5

**Dates:**                                      August 18 – August 27, 2014

**Duration:**                                9.58 Days

**Immediate Cause:**    In-Bed Boiler Tube Leaks

**Discussion/Remedy:** Unit 5 was on-line. At 03:38 on Sunday 8/18/14, the unit tripped due to an apparent leak in the in-bed boiler tube area. When Unit 5 tripped, steam was noted coming from the area of the wood and coal feeder doors, a tube leak on elevation 30 on the east side could be heard, and there was water coming from the I.D. fan duct work drain at the stack.

This outage ended 113 days of continuous operation, which tied the previous 3rd all-time run. Coupled with the 109-day run that occurred prior to the spring overhaul, 2014 continues to demonstrate the high reliability of this unit.

Boiler makers (O'conner), the vacuum vendor (HIS), and the bag house inspection contractor (RPS) were immediately contacted to support the outage. Moran services were also scheduled to assist with vacuuming.

On sight O'conner began the process of pulling cyclone covers and cyclones after all boiler doors and access points were opened. HIS vacuumed out the bed, back pass and associated areas. RPS inspected condition of the bags.

Multiple leaks were found. Repairs were made by installing 29 dutchmen and padwelding an additional 71 tubes, including two roof tubes. Thielsch Engineering assisted with thickness readings to determine the condition of the in bed tubes to determine the pad welding needs. Shielding was also applied to two sections of the boiler.

The unit was successfully hydrostatically tested. The boiler was vented and drained to normal operating levels. PSNH employees finished closing all access doors and returned the unit back to operations. The unit was phased at the end of the outage.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the outage backlog and other corrective and preventative work.

## NH GENERATION

### STEAM STATION OUTAGE REPORT

**PUC Outage Report No.:** OR-2014-08

**Station/Unit:** Schiller Station, Unit 4

**Dates:** September 9 – October 8, 2014

**Duration:** 29.1 Days

**Immediate Cause:** Induced-draft (ID) Fan Motor

**Discussion/Remedy:** Unit 4 was in reserve status. This outage was taken to assess and repair, as necessary, the ID fan motor prior to the high demand winter period. During two previous startups of Unit 4, sparks were seen by operations personnel coming from the ID fan motor. Further inspection with the unit offline found at least two rotor bars loose inside the motor. It was determined that the rotor bars were contacting the rotor during start up and causing the sparks.

The ID fan motor was disconnected, uncoupled and removed from its pedestal, packaged and shipped to the Leppert Nutmegs electric motor shop for evaluation. The motor was deemed repairable after the shop inspection. The necessary repairs were completed successfully. The motor was field tested and shipped back to the station. Maintenance department personnel reinstalled, aligned, coupled and wired the repaired motor. The fan was successfully test run prior to unit start up.

A boiler inspection was performed during the outage. It was noted that a section of the south sidewall of the secondary super-heater had detached from the rest of the wall and was leaning on tubes. This caused broken tiles on the intermediate baffle as well as on the south side of superheater boiler section. Staging was erected on the inside and outside south wall from El. 65 to El. 95. The boiler skin was removed from El. 70 to El. 95. The refractory section removed was approximately 4 feet wide and 30 feet long. It was removed in multiple sections to keep integrity of the refractory wall. It appeared that the refractory anchors failed at the top of the wall which caused additional stress on lower anchors which resulted in their failure. Repairs of this wall area included installation of new, heavier angle along with a new design for the refractory anchors.

Weld repairs were ongoing during the refractory repairs. Pad welding and shielding was also completed in the primary and secondary superheater sections. A hydro was completed and no leaks identified.

The unit was turned over to operations; and ISO was notified the unit was returned to service as of 15:00. Gas igniters were lit to cure the refractory. The unit was not requested by ISO and the unit returned to reserve status.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the outage backlog, jobs that were found during the boiler inspection that was completed at the beginning of the outage and other corrective and preventative work.

## NH GENERATION

### FOSSIL STATION OUTAGE REPORT

**PUC Outage Report No.:**      **OR-2014-09**

**Station/Unit:**                      Merrimack Station, Unit 1

**Dates:**                                      September 16 – September 21, 2014

**Duration:**                                  5.3 Days

**Immediate Cause:** Reliability Outage – SCR Expansion Joint Replacement

**Discussion/Remedy:** Unit 1 was in reserve status. With power prices and demand low, this outage was taken to perform corrective and preventative maintenance to maintain the reliability of Unit 1. The SCR Reactor Outlet/Air Heater Inlet expansion joints were replaced and other mechanical and electrical jobs were completed.

The unit was returned to reserve status at the completion of the outage.

**Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the priority outage backlog, jobs that were found during the boiler inspection that was completed at the beginning of the outage and other corrective and preventative work. An abbreviated list of some of these activities is provided below.

Mechanical Department:

- Replaced 4<sup>th</sup> point low pressure heater relief valve.
- Opened, inspected and plugged one tube in the air ejector.
- Repaired PCV-17 gland steam seal system manual bypass valve.
- Rebuilt piston for slag tank gate.
- Inspected and operated and reset limits on 1A and 1B economizer bypass dampers.
- Replaced SCR door by SB2 sootblower.
- Inspected and operated G9B-4 sootblower.
- Repaired casing leaks inside the SCR Inlet.
- Replaced a section of the sample port located on the bottom of the SCR slope.

Boiler:

- Performed complete boiler inspection.

- I.A.F.D. replaced both 1A and 1B SCR reactor outlet/air heater inlet expansion joints.

North American:

- Vacuumed SCR ductwork prior to working on the expansion joints and also cleaned the economizer area, sumps, and all other associated work areas for the outage.

**NH GENERATION**  
**FOSSIL STATION OUTAGE REPORT**

**PUC Outage Report No.:**      **OR-2014-10**

**Station/Unit:**                      Merrimack Station, Unit 2

**Dates:**                                      October 27- October 31, 2014

**Duration:**                                4.0 Days

**Immediate Cause:** Reliability Outage – Backpass boiler tube maintenance

**Discussion/Remedy:** Unit 2 was in reserve status. With low energy prices and low demand, an outage was scheduled to inspect and repair tubes in the backpass area of the boiler.

The inspections involved utilizing the services of two subject matter/field experts to inspect and repair accessible areas of the primary superheater and horizontal reheater. Each component is comprised of 107 elements spaced four inches apart across the unit, with each element 18 tubes deep. The two vendors were UDC, professional boiler inspectors, and O'Connor, boilermakers who perform mechanical assistance and repairs.

The area is extremely hard to access. To inspect these elements, it was necessary for O'Connor to spread tubes with the use of an air bag to an opening of approximately 10" to 12" (top of the element and bottom). UDC started with a visual inspection and then used a non-destructive testing method to measure the tube wastage in worn areas. Reaching at arm's length, the UDC Tech polished worn areas and performed an NDT test, to measure the tube wall thickness. Trouble spots found were pad welded or replaced by O'Connor, as well as tube shielded.

The unit was returned to reserve status at the completion of the outage.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the priority outage backlog, jobs that were found during the boiler inspection that was completed at the beginning of the outage and other corrective and preventative work.

## NH GENERATION

### FOSSIL STATION OUTAGE REPORT

**PUC Outage Report No.:**      **OR-2014-11**

**Station/Unit:**                      Schiller Station, Unit 6

**Dates:**                                      October 31- November 7, 2014

**Duration:**                                7.0 Days

**Immediate Cause:** Reliability Outage – Superheater Header Repairs

**Discussion/Remedy:** Unit 6 was in reserve status. As part of the seasonal readiness initiative, a boiler inspection was performed on Friday October 31st. During the inspection, multiple items were noted including a leaking secondary superheater hand hole cap. The unit was put in an unavailable status to proactively address this hand hole cap leak and complete other identified outage work. Low market prices and no planned operation for the unit allowed the outage to be performed on straight time to minimize overall costs.

The secondary superheater hand hole cap was removed for thorough inspection of the area and header by Theilsch. No additional problems or concerns were noted in that area or on the header itself. The hand hole cap was reinstalled, fitted and welded.

Additional boiler maintenance was completed. Boiler tube erosion where noted was padwelded including 14 lower loop tubes in the primary superheater. Tube shielding was repaired and/ or replaced as necessary with a total of 7 shields installed across the primary superheater. A successful hydro of the unit was completed.

A turbine turning gear assembly problem after the unit was removed from service was identified by the Operations Group. The turning gear motor and gear box were disassembled for inspection. The fiber gear was found to be damaged and replaced.

A Siemens representative was requested on-site to inspect the equipment components with the maintenance crew. That inspection confirmed that the clearance between the bushing and the shaft was within specification. The bushing was concentric with negligible wear noted. The pinion support arms were checked and adjusted 1/8". Oil passages were all clear with no debris noted. Shafts and bushings that were accessible were measured and were within specification. All steel gears were inspected and deemed in very good condition with no appreciable wear. The wear patterns were even throughout the gear assembly. One gear in the assembly was reseated and locked down. No additional concerns were noted during the inspection.

The turning gear motor was inspected. Some babbitt material was noted in the motor oil, but not an amount of concern. The motor oil was changed and the motor was test run while unloaded. The turning gear assembly was also run while on the floor to check functionality. The turning gear drive was reinstalled and put into service.

The unit was returned to reserve status at the completion of the outage at 1415 on November 7<sup>th</sup>.

Other corrective and preventative work was performed during the outage other corrective and preventative work.



## NH GENERATION

### STEAM STATION OUTAGE REPORT

**PUC Outage Report No.:**      **OR-2014-12**

**Station/Unit:**                      Schiller Station, Unit 5

**Dates:**                                      December 6 – December 13, 2014

**Duration:**                                  6.79 Days

**Immediate Cause:** Reliability Outage – routine inspection and maintenance

**Discussion/Remedy:** The unit was taken offline to inspect and take preventative measures for the purpose of winter reliability. Vendors scheduled to support the outage included O'conner boiler makers, Theilsch, MER vacuum services, RPS for bag house inspection, and CMS for tubular air heater inspection.

The unit was removed from service on Saturday 12/6/14 @ 10:48. Initial activities included: opening the boiler doors; removing bed material into the bed material silo, vacuuming remaining bed material; removing all cyclone covers.

A number of outage activities were completed included the following.

- The cyclones were inspected and cleaned. Minimal amounts of pluggage were noted in cyclones #1, # 2, #3 and #6. Conversely, significant pluggage in #4 and #5 cyclones was cleared including the area down through the dip legs.
- In-bed tubes were inspected by O'conner and Thielsch. There were 37 in-bed tubes replaced and 6 padwelds performed.
- The tubular air heater was inspected by CMS with no deficiencies noted.
- The 5A Cooling water pump was pulled and shipped to Generation Maintenance for maintenance.
- The baghouse was inspected and 125 bags were replaced by RPS. A complete replacement of the 2880 bags is planned for the spring outage.
- A new fluid drive coupling was installed on C-5 belt and a new head pulley was installed on C-5.
- The sand fill line was inspected and the wear documented to assist in defining the spring outage work scope.
- Urea nozzles were inspected with no replacement of tips needed at this time.
- Repaired PB-1, the outer cover was rebound.
- The tuyeres were inspected and cleaned prior to closing unit up. The furnace plenum was cleaned, tube shielding completed and a successful hydro performed.

The unit was turned over to Operations and phased on 12/13/14 @ 05:45 ending the outage.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the outage backlog, as well as other corrective and preventative work.

## NH GENERATION

### STEAM STATION OUTAGE REPORT

**PUC Outage Report No.:** OR-2014-13

**Station/Unit:** Merrimack Station, Unit 2

**Dates:** December 12 - December 16, 2014

**Duration:** 4.61 Days

**Immediate Cause:** Maintenance outage - penthouse tube leak/SCR Inlet Expansion Joint Repair

**Discussion/Remedy:** Unit 2 was to be in a reserve status on Friday December 12. To take advantage of this reserve shutdown, the unit was declared unavailable to repair a tube leak in the penthouse and to replace the SCR reactor inlet expansion joint.

The penthouse leak was located in the inlet header drain line under the 3rd floor tube from the north, where it attaches to header. The repair was accessed by installing a small staging on elevation 345' (7 ½), under the overhang of the penthouse on the west side. The lagging and insulation was removed and an access hole was cut into the casing. The repair was made by pad welding. It appeared that the leak had occurred over time due to movement and stress of the boiler.

The drain line support arrangement was inspected after the leak repairs were complete. Other tube leaks were repaired. In the economizer the 2nd assembly from the south, the 4th tube down on the west wall was padwelded. Two barrel tube leaks in 2A cyclone, located at the 4 o'clock position (looking in) about one foot apart were also padwelded. A cooling water leak in both 2B and 2D cyclones were identified and pad weld repaired. In 2C cyclone, a tube leak 2' down at the 8 o'clock position on the neck was repaired. And in 2G cyclone one barrel tube leak located 3' in from the door at the 8 o'clock position was repaired. All tubes were pad welded to original thickness and pressure tested.

The SCR reactor inlet expansion joint was replaced. Because the joint was approaching the end of its replacement cycle, completing the replacement at this time was a more economical solution than undertaking repairs and then completing a replacement in the near future. The expansion joint is a large internal design joint measuring 14' by 33'. Staging was installed to access the sides and top of the joint. The flow liner, hardware and old belt were removed. The frame service was cleaned and prepped for the new material. Disassembly of the joint confirmed that the bottom east end of the material had failed.

The unit was returned to reserve status at the completion of the outage.

**Additional Work Completed During the Outage:**

Other work performed during the outage included jobs that were in the priority outage backlog, jobs that were found during the boiler inspection that was completed at the beginning of the outage and other corrective and preventative work. An abbreviated list of some of these activities is provided below.

## NH GENERATION

### STEAM STATION OUTAGE REPORT

**PUC Outage Report No.:**      **OR-2014-14**

**Station/Unit:**                      Schiller Station, Unit 5

**Dates:**                                  December 27 - January 1, 2015

**Duration:**                              4.47 Days

**Immediate Cause:** Hydrogen Cooler Tube Leak

**Discussion/Remedy:** Schiller 5 was on-line. The unit was taken offline to locate and repair a hydrogen cooler leak. The generator cooler covers were pulled and air testing performed. A leak was found in the #1 cooler. To make the repair, the cooler tube ends were plugged. An air test on the generator was performed through the night and confirmed the leak had been repaired. The covers were reinstalled and all piping reconnected.

While the unit was down, the boiler was opened and a good portion of the bed material vacuumed into the bed material silo. An internal inspection found the in-bed tubes and shielding to be in good condition.

The cyclones were opened, inspected and cleaned. Cyclones 1 and 2 had minimal pluggage and needed moderate cleaning. An inspection found a greater amount of pluggage in cyclones 4 and 5. The pluggage in cyclone 5 remained hot and due to the high temperature of the pluggage material a longer time was needed to clean this cyclone. Cyclones 3 and 6 were opened, inspected and required minimal cleaning.

The unit was phased January 1, 2015 at 08:17.

**Additional Work Completed During the Outage:**

Other work performed during the outage other corrective and preventative work.

# Exhibit 3 - EHT Testimony

## Attachment EHT-3

### Eversource Steam Units'

# Availability and Performance

**PSNH Steam Unit  
Equivalent Availability Factor (EAF)**

January 2014 through December 2014

| 2014      | Merrimack Unit 1 | Merrimack Unit 2 | Newington Unit 1 | Schiller Unit 4 | Schiller Unit 5 | Schiller Unit 6 |
|-----------|------------------|------------------|------------------|-----------------|-----------------|-----------------|
| January   | 94.7%            | 88.2%            | 85.8%            | 97.5%           | 99.4%           | 94.2%           |
| February  | 80.0%            | 89.8%            | 99.9%            | 99.3%           | 99.9%           | 98.8%           |
| March     | 99.4%            | 99.8%            | 59.7%            | 95.1%           | 99.7%           | 89.2%           |
| April     | 92.9%            | 66.3%            | 97.3%            | 34.1%           | 23.2%           | 0.0%            |
| May       | 40.8%            | 18.4%            | 100.0%           | 98.9%           | 99.7%           | 84.2%           |
| June      | 100.0%           | 43.5%            | 100.0%           | 99.9%           | 100.0%          | 99.0%           |
| July      | 98.6%            | 91.7%            | 99.6%            | 100.0%          | 100.0%          | 99.0%           |
| August    | 100.0%           | 100.0%           | 100.0%           | 99.2%           | 69.1%           | 99.0%           |
| September | 82.3%            | 100.0%           | 77.5%            | 28.1%           | 100.0%          | 98.8%           |
| October   | 99.4%            | 79.0%            | 69.5%            | 75.4%           | 99.9%           | 97.7%           |
| November  | 99.6%            | 99.8%            | 100.0%           | 99.7%           | 99.8%           | 77.1%           |
| December  | 98.7%            | 85.1%            | 97.6%            | 100.0%          | 64.8%           | 99.0%           |
| Annual    | 90.7%            | 80.1%            | 90.4%            | 85.7%           | 88.0%           | 86.4%           |

**Planned Maintenance Periods**

January 2014 through December 2014

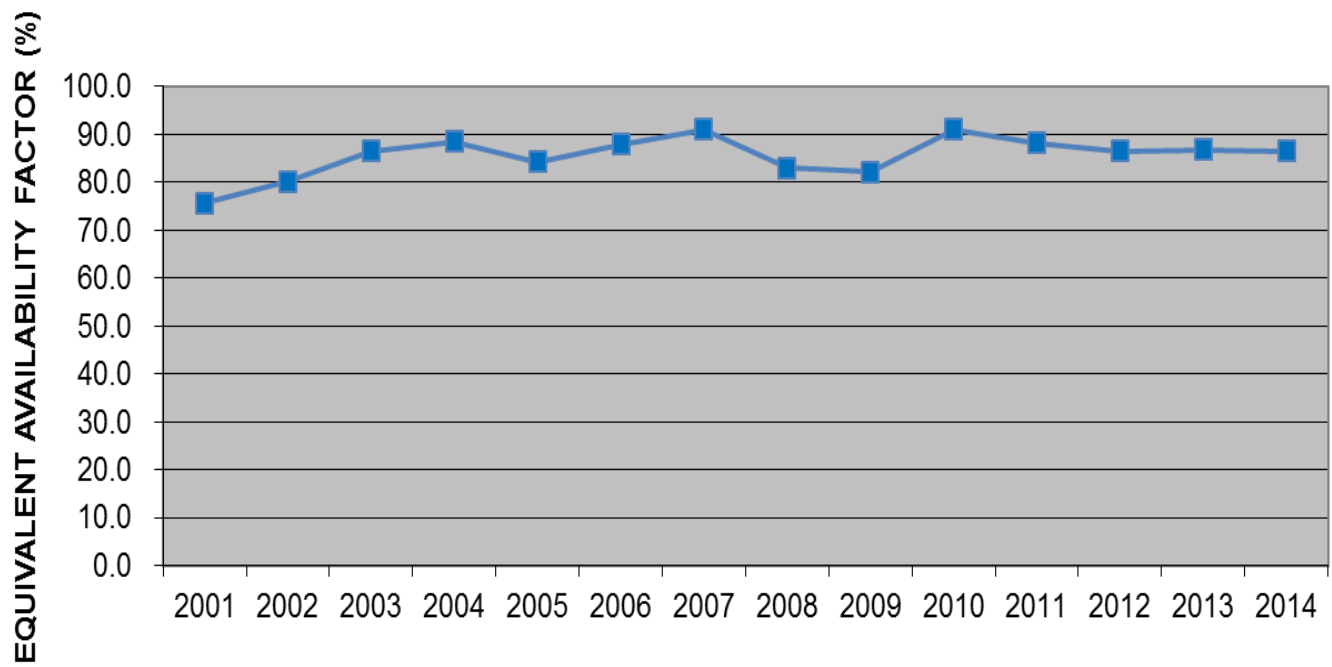
| Unit        | Month(s)      |
|-------------|---------------|
| Merrimack 1 | May           |
| Merrimack 2 | Apr-May       |
| Newington   | Mar /Sept-Oct |
| Schiller 4  | Apr           |
| Schiller 5  | Apr           |
| Schiller 6  | Mar-May       |

Equivalent Availability Factor <sup>1</sup> (EAF) is calculated as follows.

$$EAF = [(Available\ Hours - Equivalent\ Unit\ Derated\ Hours) * 100] \div Period\ Hours.$$

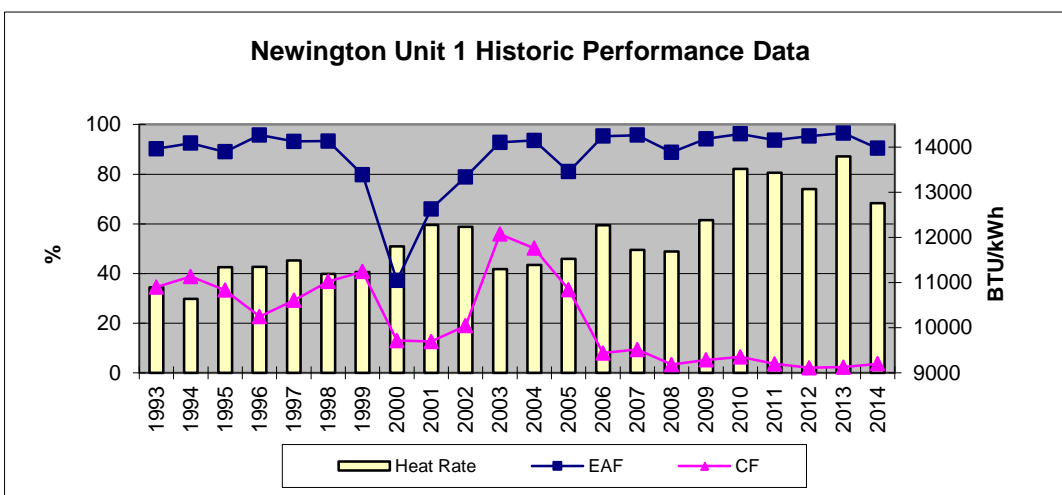
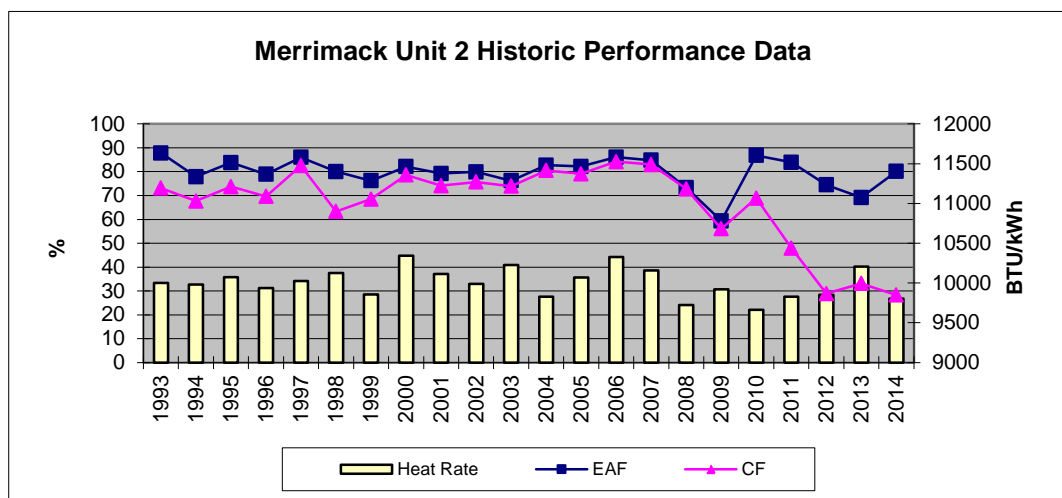
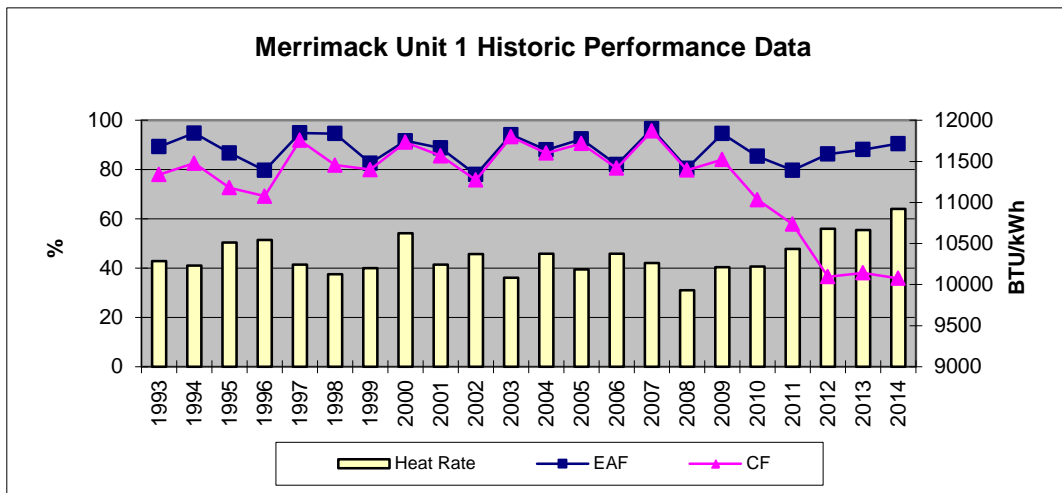
<sup>1</sup> The term equivalent availability is an industry standardized metric, and is used to represent the portion of hours that a unit is available to be dispatched at full capacity. Equivalent availability is recognized by the North American Electric Reliability Corporation (NERC) and other regional entities such as ISO-NE. The NERC approved equation to calculate the Equivalent Availability Factor is provided above.

### PSNH FOSSIL SYSTEM WEIGHTED EAF 2014

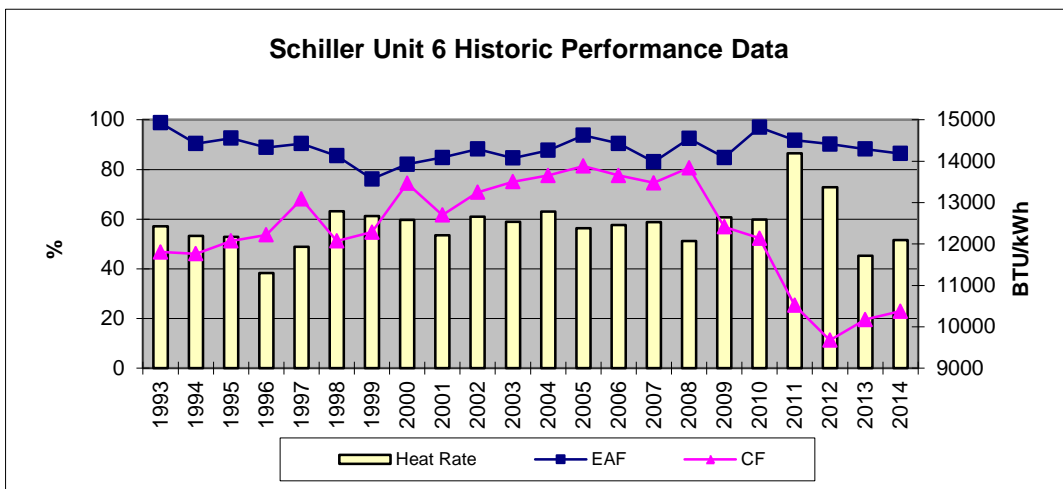
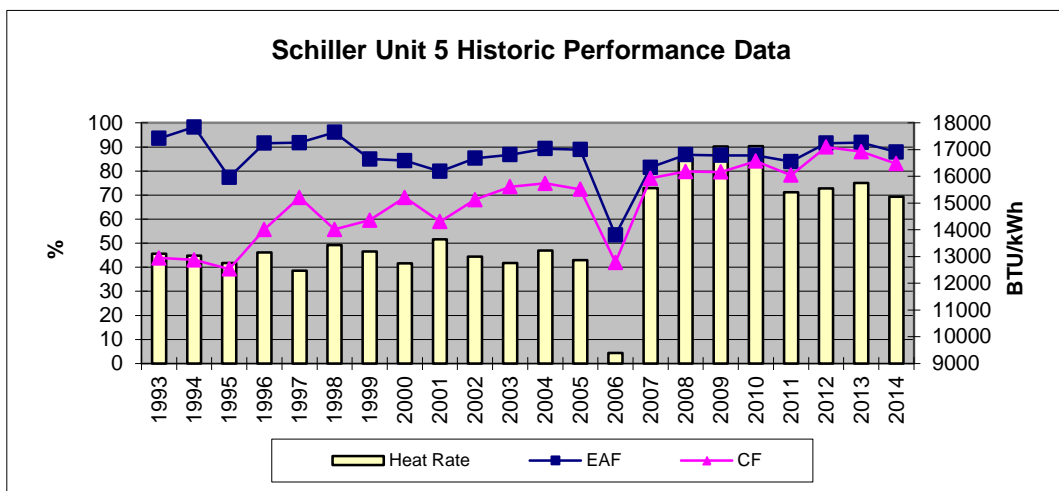
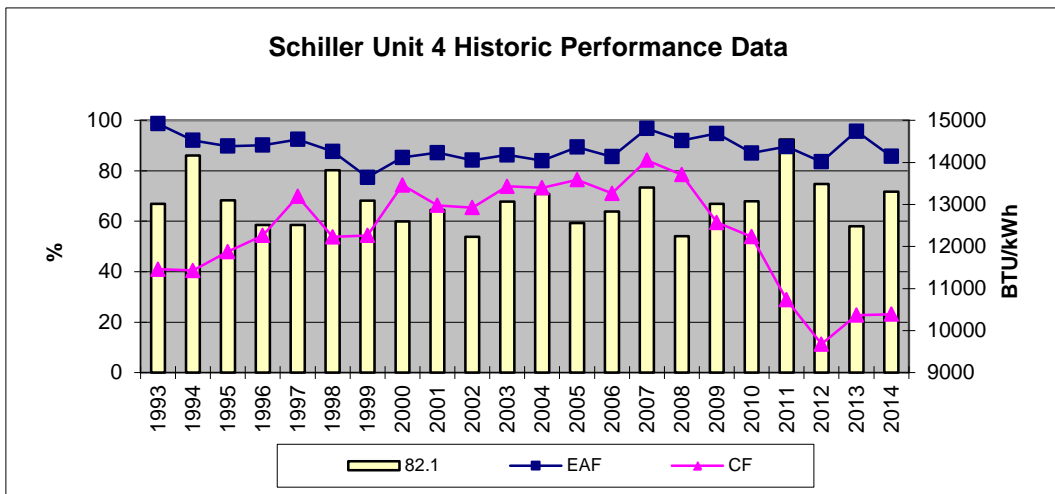




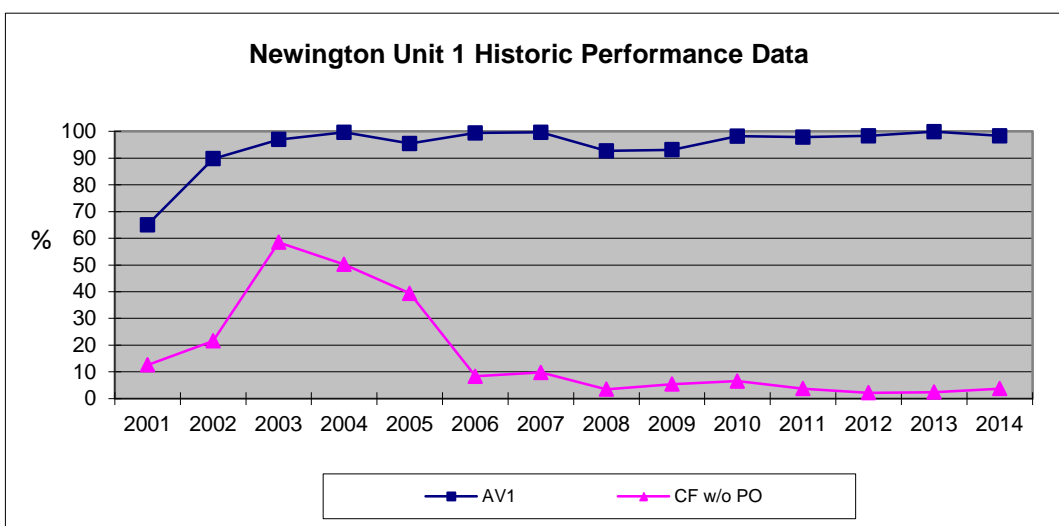
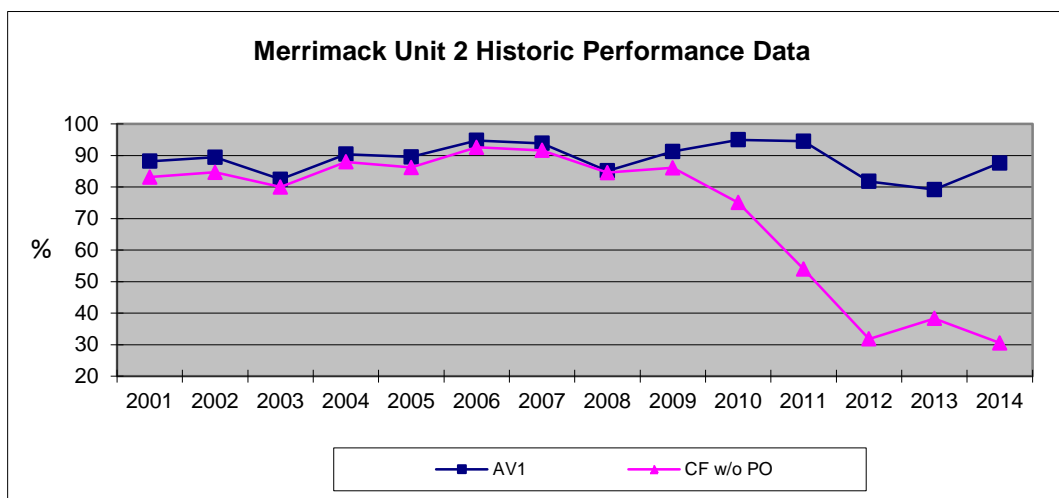
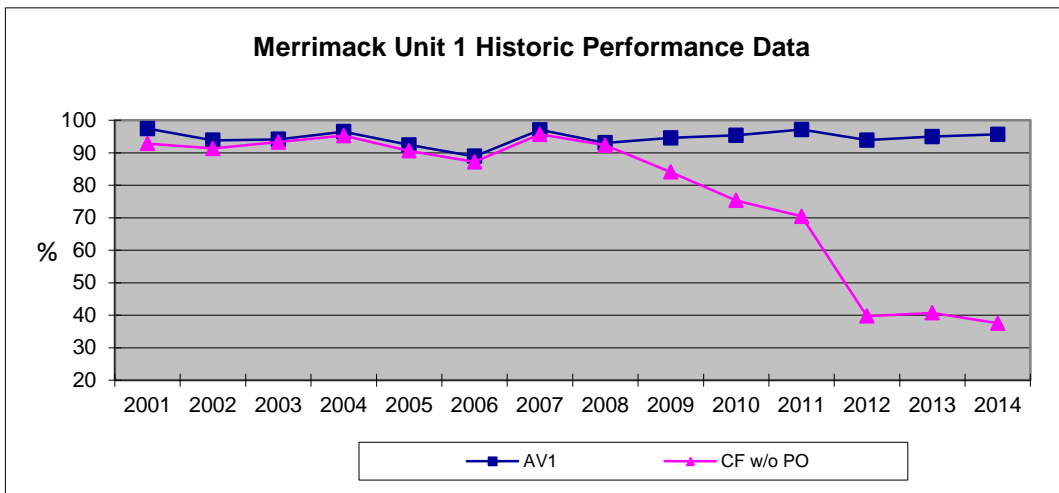
### Steam Unit Graphs Planned Outages Included



## Steam Unit Graphs Planned Outages Included



Steam Unit Graphs  
 Planned Outages Omitted



Steam Unit Graphs  
 Planned Outages Omitted

