

Nebraska Statewide Wind Integration Study
Report Appendix Section 8.2 – Part 2

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Section 8.2 Additional Wind and System Generation Characteristics and Scenario Information Part 2

Section 8.2.4.2 Weekly Load, Resource and Wind Charts:

The following charts (Figure 1-Figure 104) provide a weekly analysis of PROMOD output results.

On each page the top chart displays Load, Transactions, and Load net Transaction for the week, dates at the bottom of the chart, the first day of the week is Monday. Transactions that are shown as negative are exports, which is the typical situation for Nebraska. Then, load net transactions are a larger generation obligation than load alone. It is this load net transaction that needs to be met by the generation in the center chart. The center chart shows the resource stack aggregated into 5 categories

- Nuclear (Bottom of chart)
- Base Fossil (2nd on stack): ST Coal, Fixed Energy Resources, Steam Turbine
- Midrange (3rd on stack): Combined Cycle, Combustion Turbine, Existing Hydro, St Gas, ST Oil, St Other
- Peak (4th on stack): CT Gas, CT Oil, CT Other, Internal Combustion, Interruptible Load, and Pumped Storage
- Wind (Top of stack)

Bottom chart plots the actual wind and the dispatched wind. Red color on the chart represents periods of curtailment. Note there are no wind curtailments for Nebraska.

Nebraska seasonal peak and minimum wind energies are shown in Table 25.

Table 25: Nebraska Seasonal Peak and Minimum Energy

| Weekly Energy | Peak MWH | Week of Year | Start Date | Min MWH | Week of Year | Start Date |
|---------------|----------|--------------|------------|---------|--------------|------------|
| Season1 | 126771 | 49 | 12/3/2018 | 82076 | 7 | 2/12/2018 |
| Season2 | 138559 | 21 | 5/21/2018 | 61961 | 20 | 5/14/2018 |
| Season3 | 90803 | 24 | 6/11/2018 | 47022 | 26 | 6/25/2018 |
| Season4 | 113732 | 37 | 9/10/2018 | 55662 | 36 | 9/3/2018 |

In general these 104 charts are organized as:

- NPA profiles for the 52 weeks of the 2006 pattern applied in 2018, 10% penetration
- SPP with NPA profiles for the 52 weeks of the 2006 pattern applied in 2018, 10% penetration.

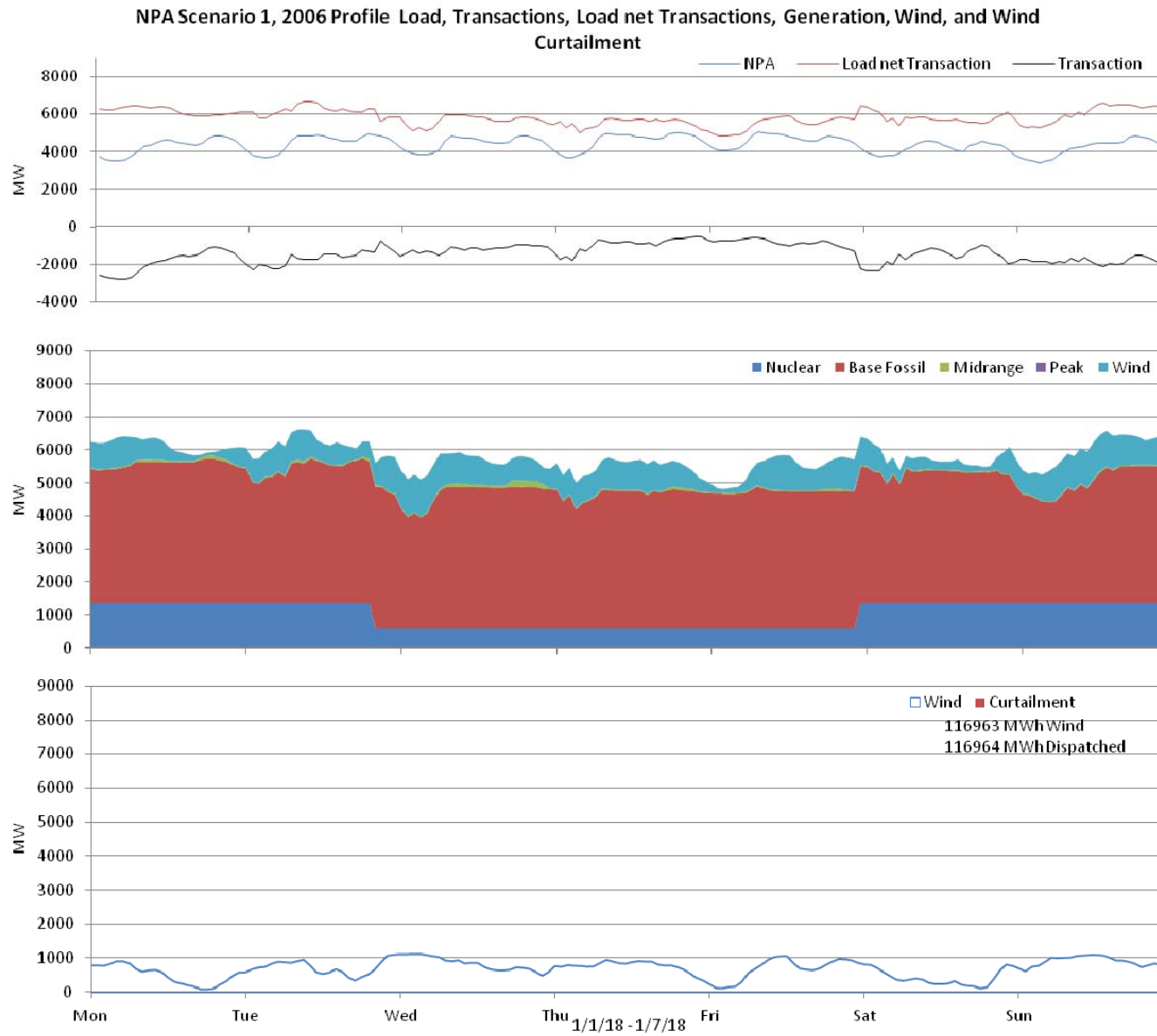


Figure 1: Nebraska 10% wind Penetration, 2006 Profile week of 1/1/2018

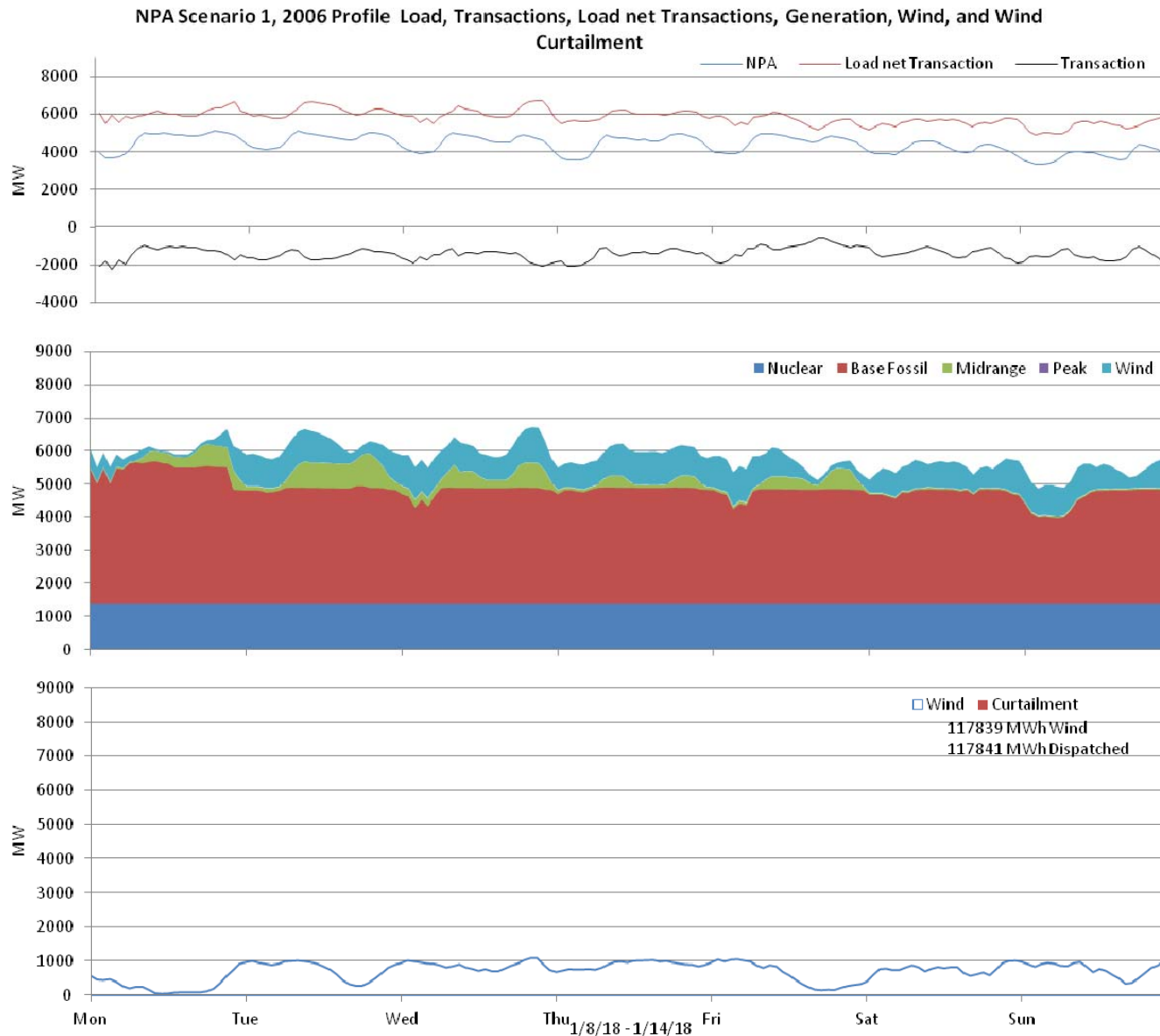


Figure 2: Nebraska 10% wind Penetration, 2006 Profile week of 1/8/2018

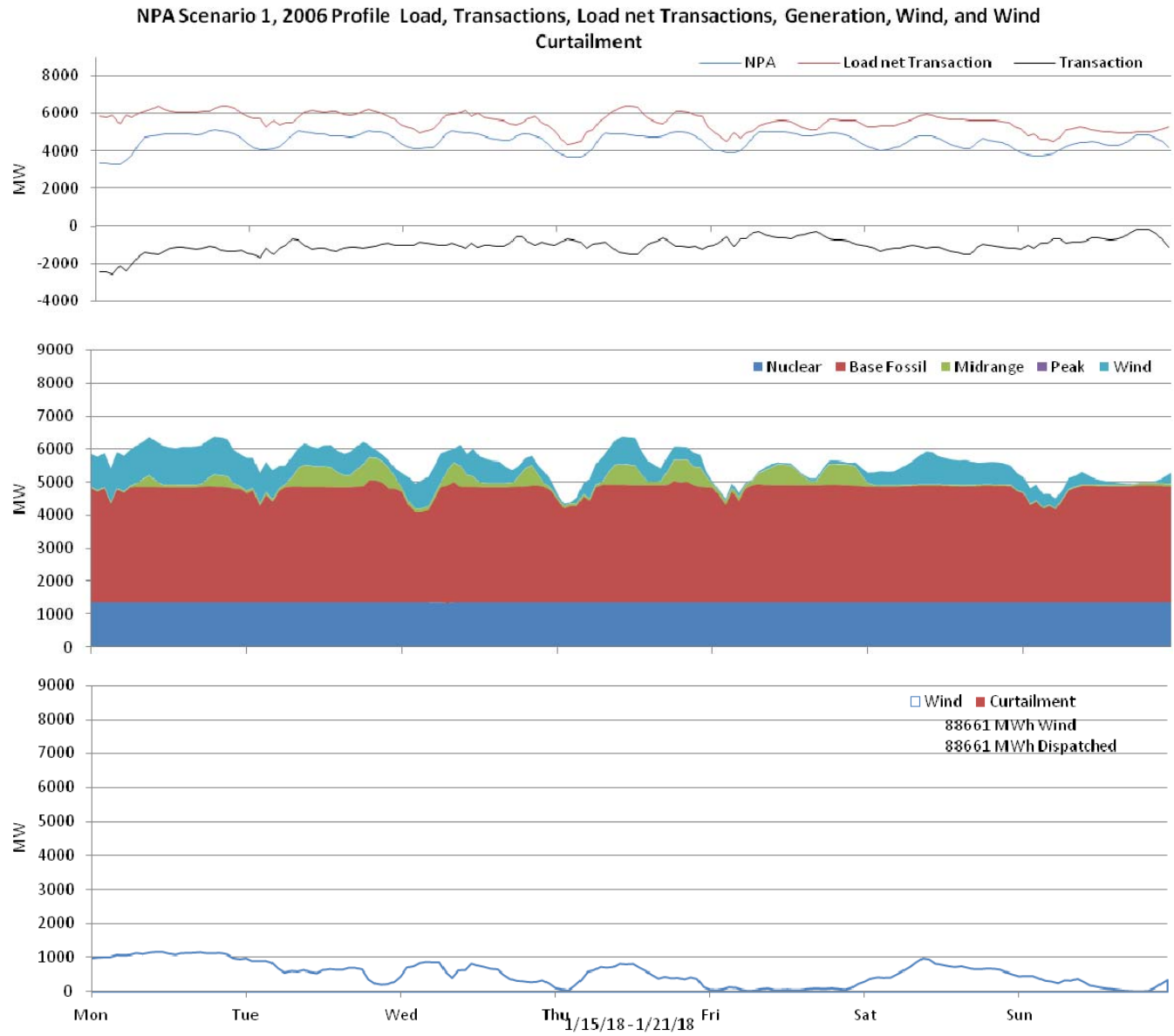


Figure 3: Nebraska 10% wind Penetration, 2006 Profile week of 1/15/2018

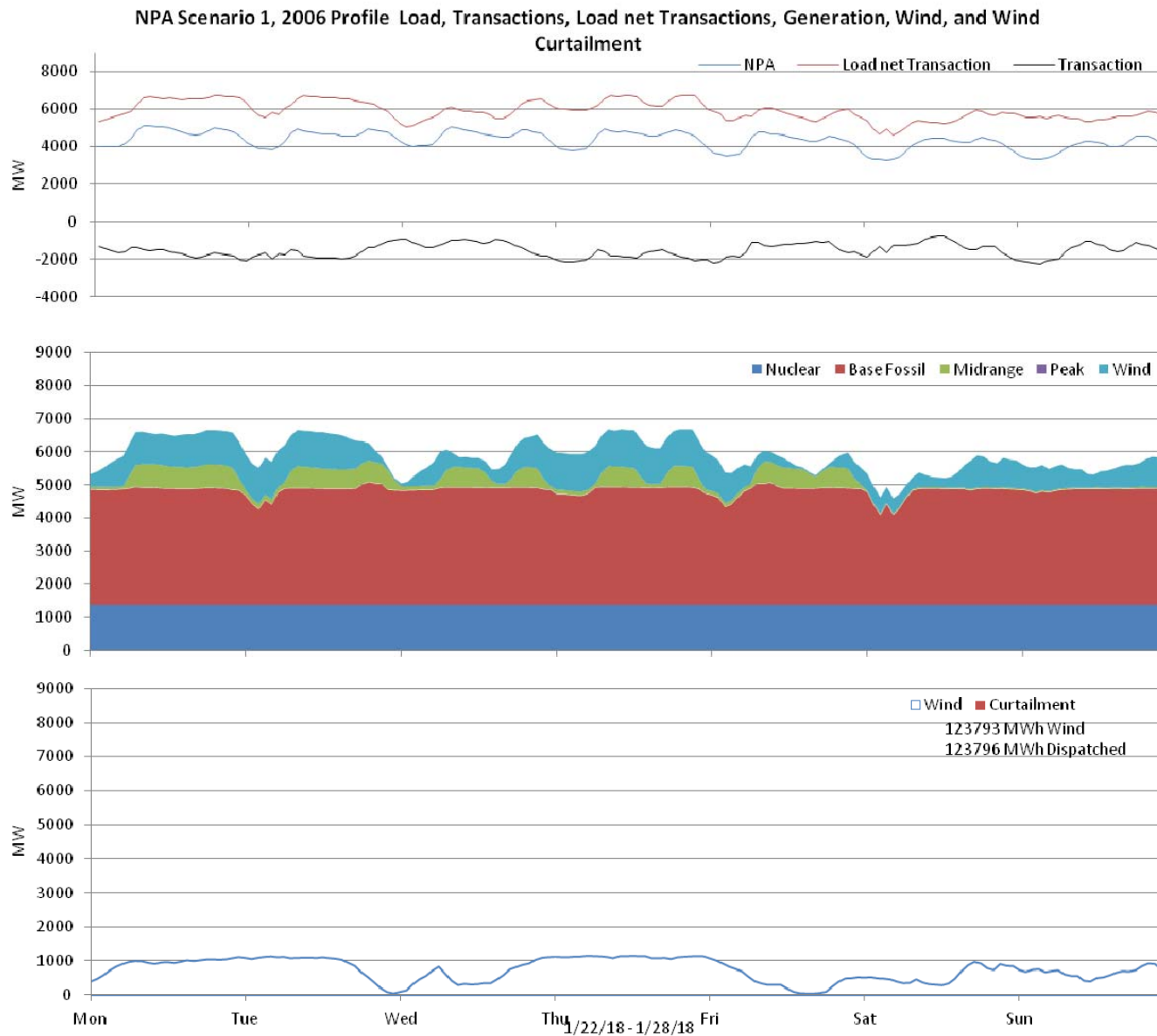


Figure 4: Nebraska 10% wind Penetration, 2006 Profile week of 1/22/2018

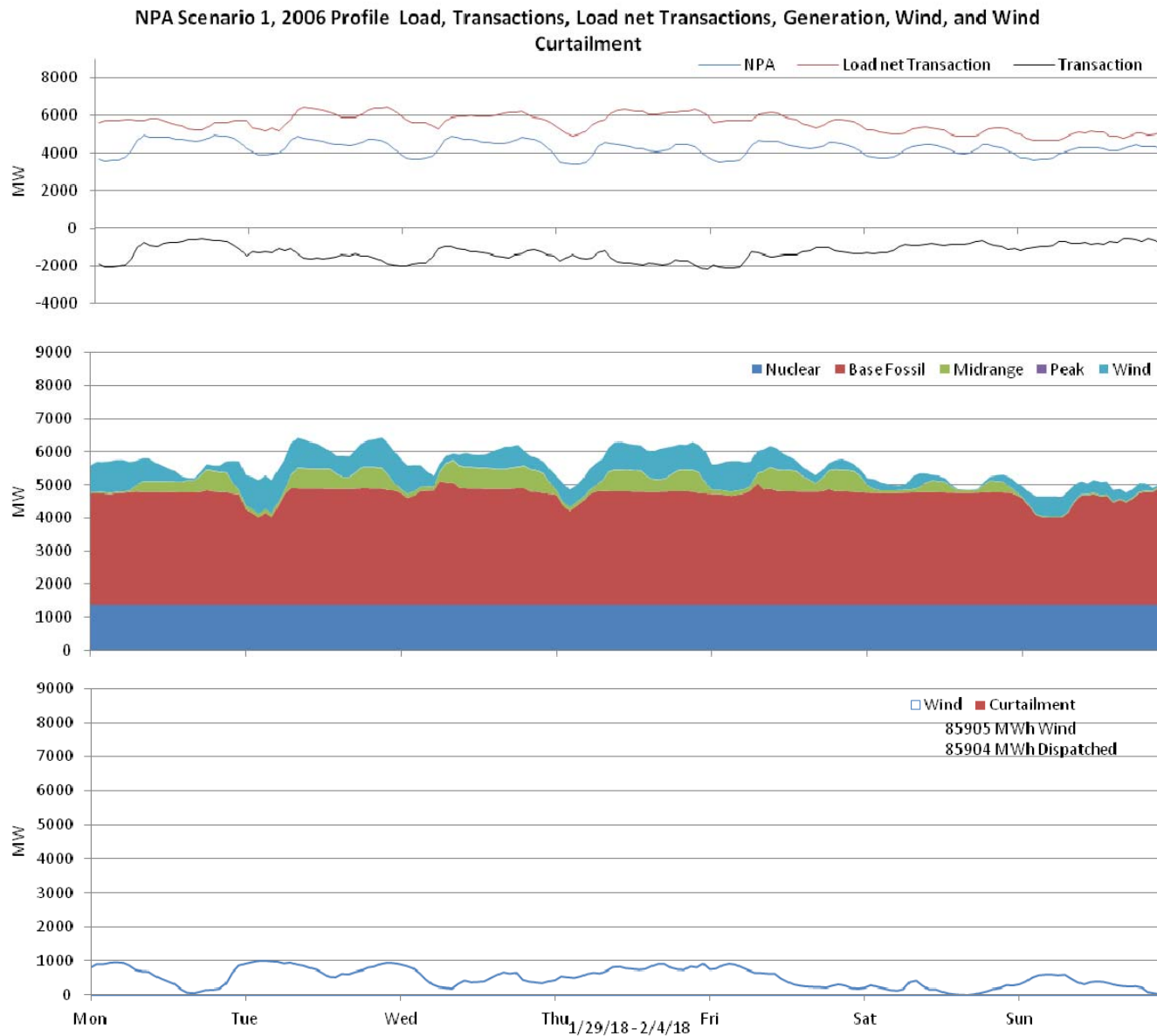


Figure 5: Nebraska 10% wind Penetration, 2006 Profile week of 1/29/2018

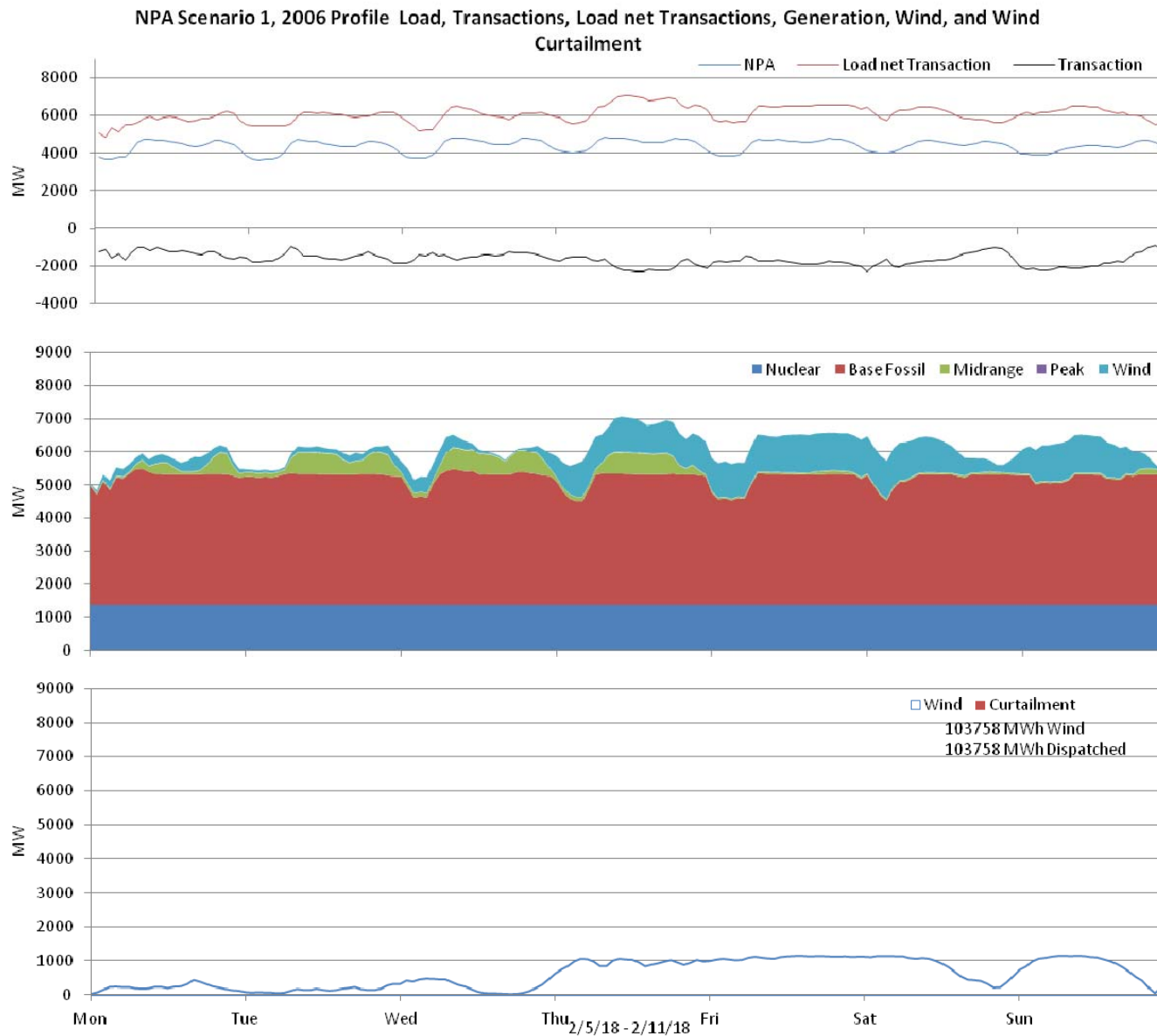


Figure 6: Nebraska 10% wind Penetration, 2006 Profile week of 2/5/2018

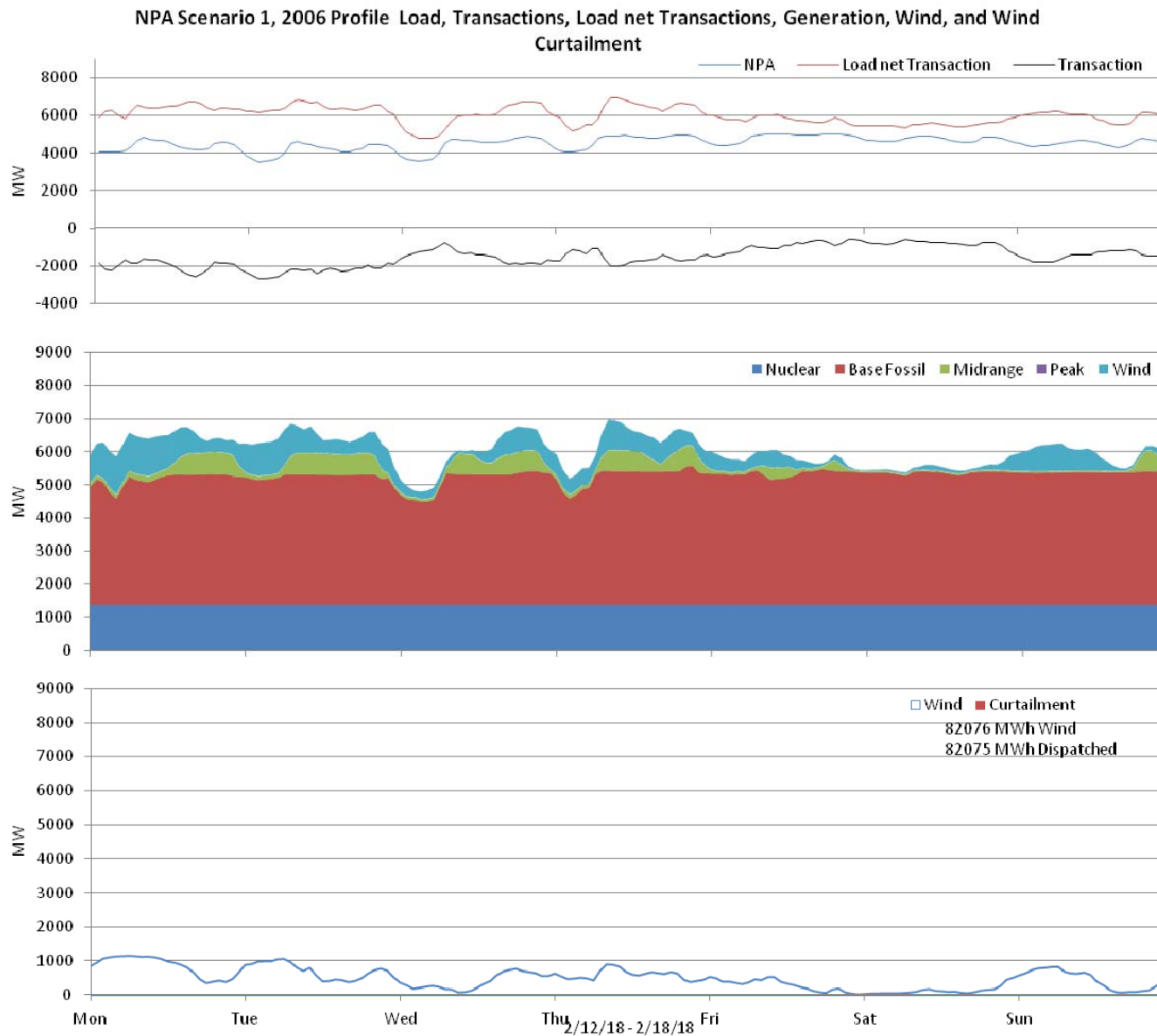


Figure 7: Nebraska 10% wind Penetration, 2006 Profile week of 2/12/2018

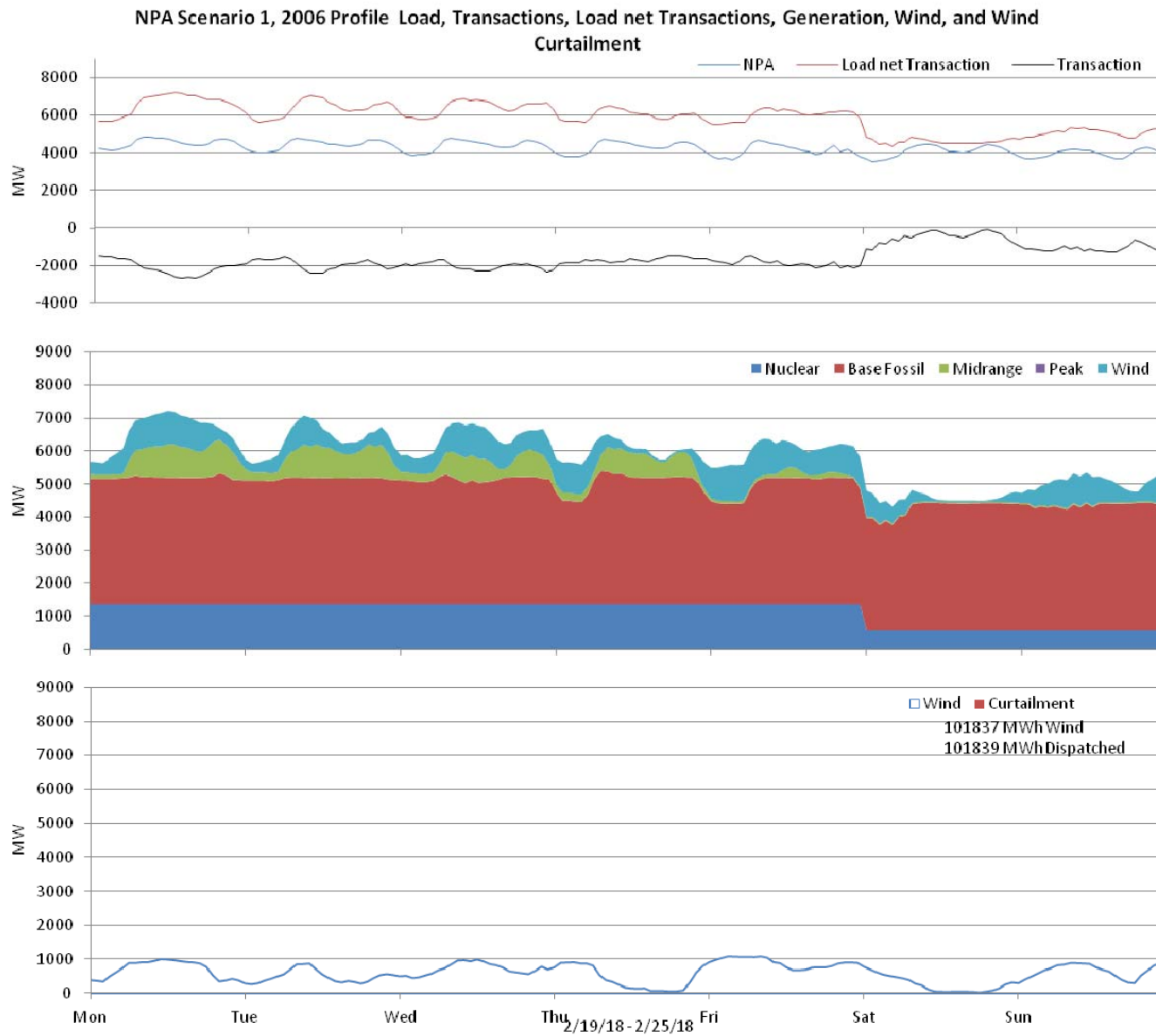


Figure 8: Nebraska 10% wind Penetration, 2006 Profile week of 2/19/2018

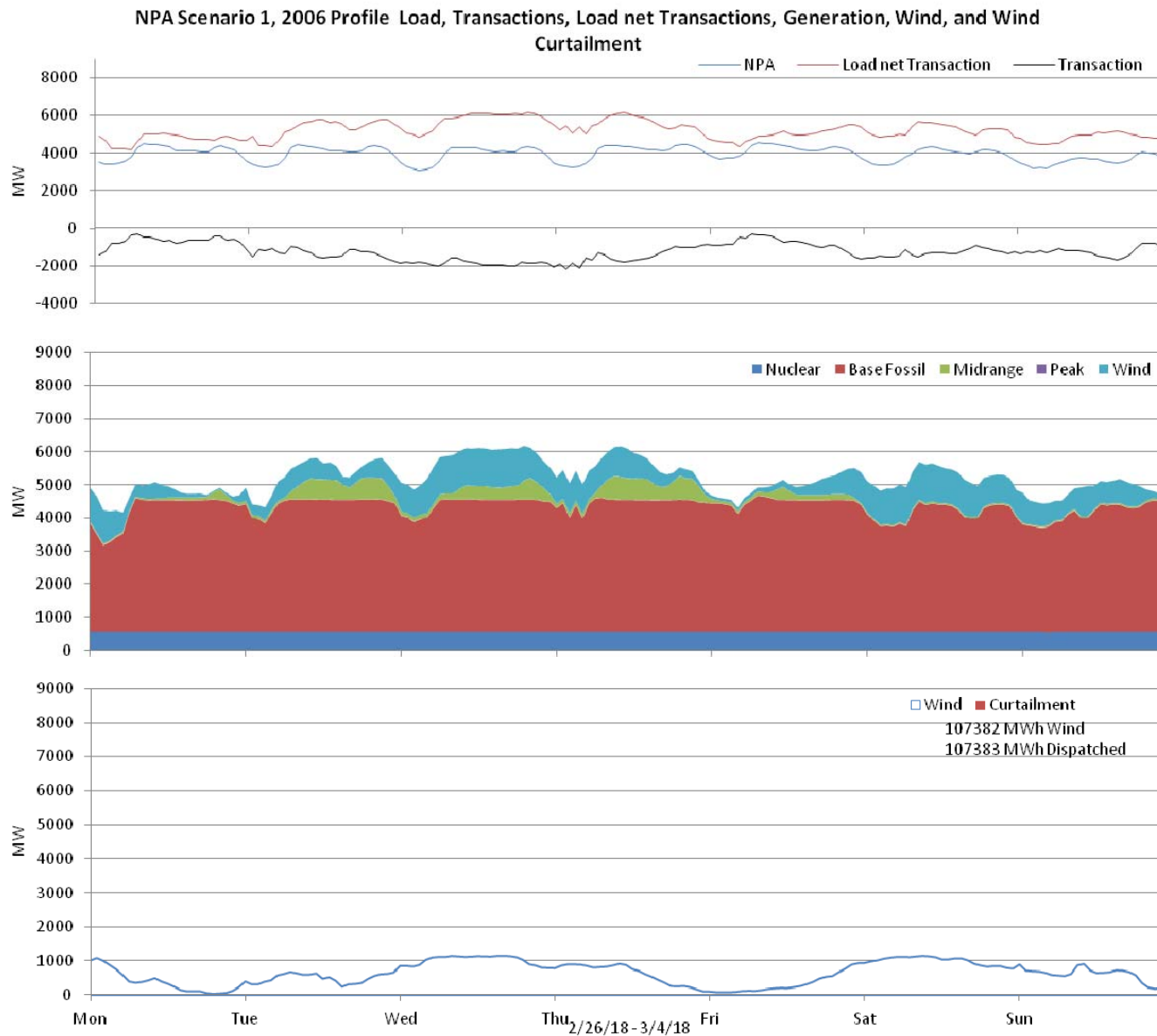


Figure 9: Nebraska 10% wind Penetration, 2006 Profile week of 2/26/2018

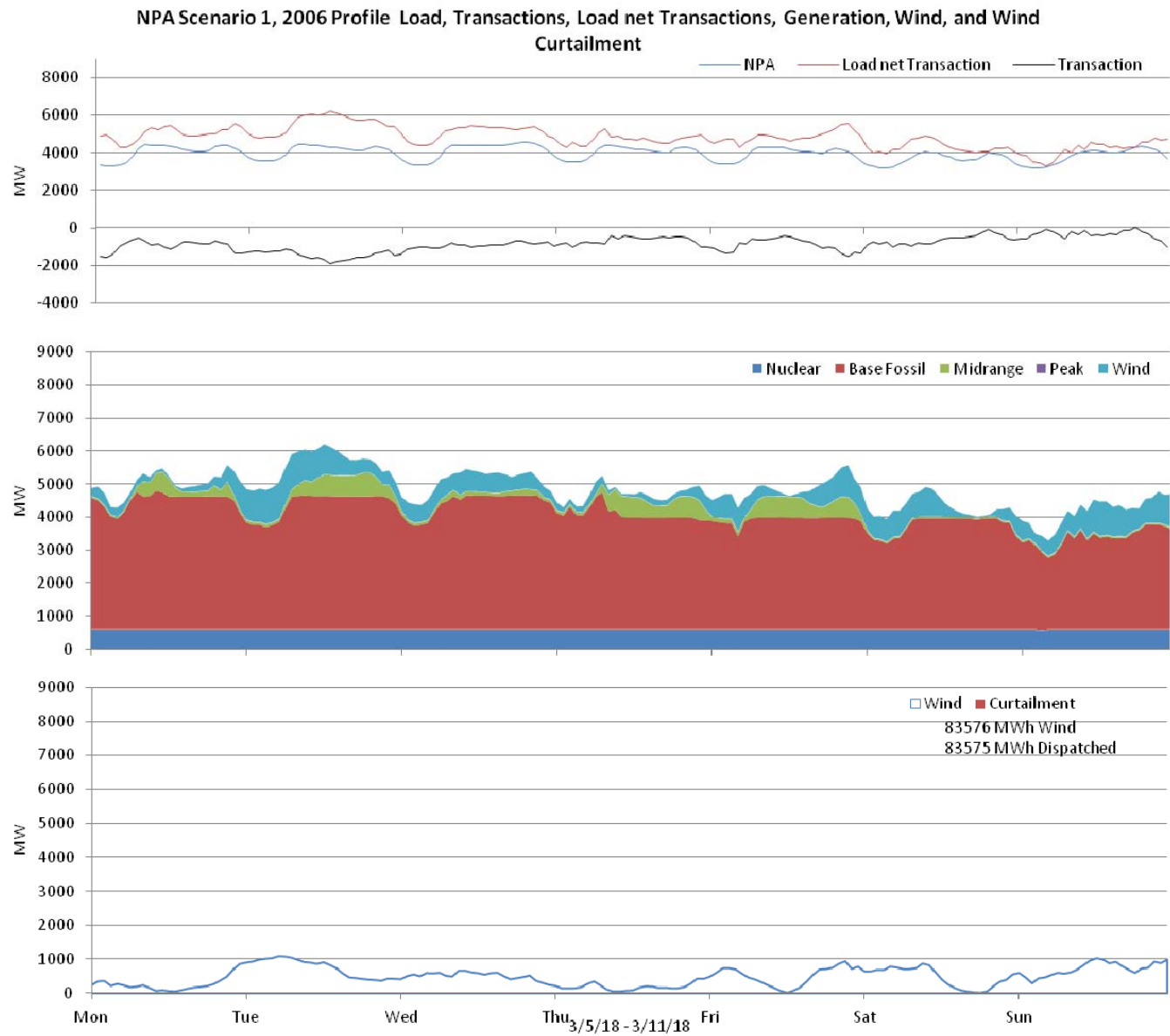


Figure 10: Nebraska 10% wind Penetration, 2006 Profile week of 3/5/2018

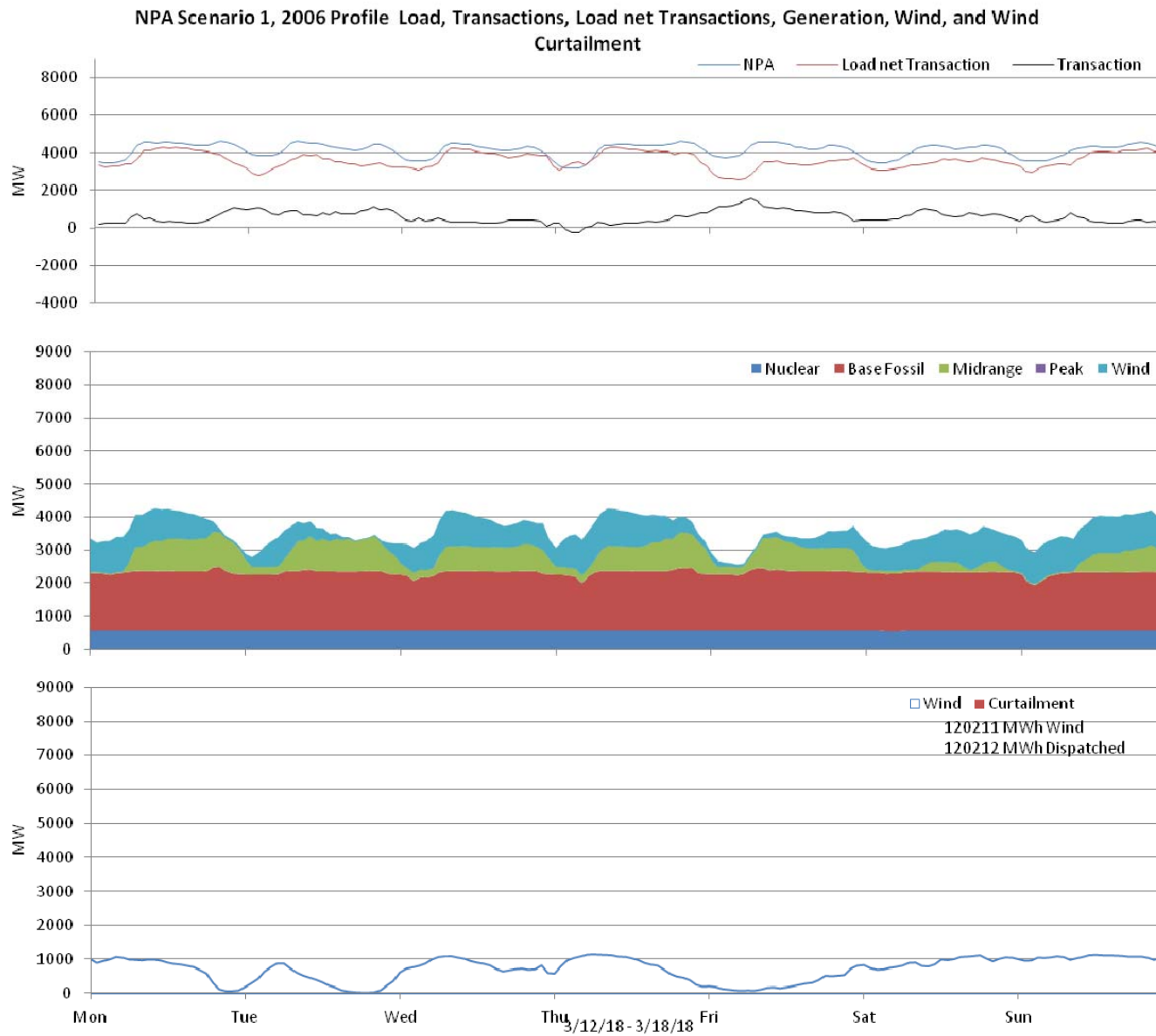


Figure 11: Nebraska 10% wind Penetration, 2006 Profile week of 3/12/2018

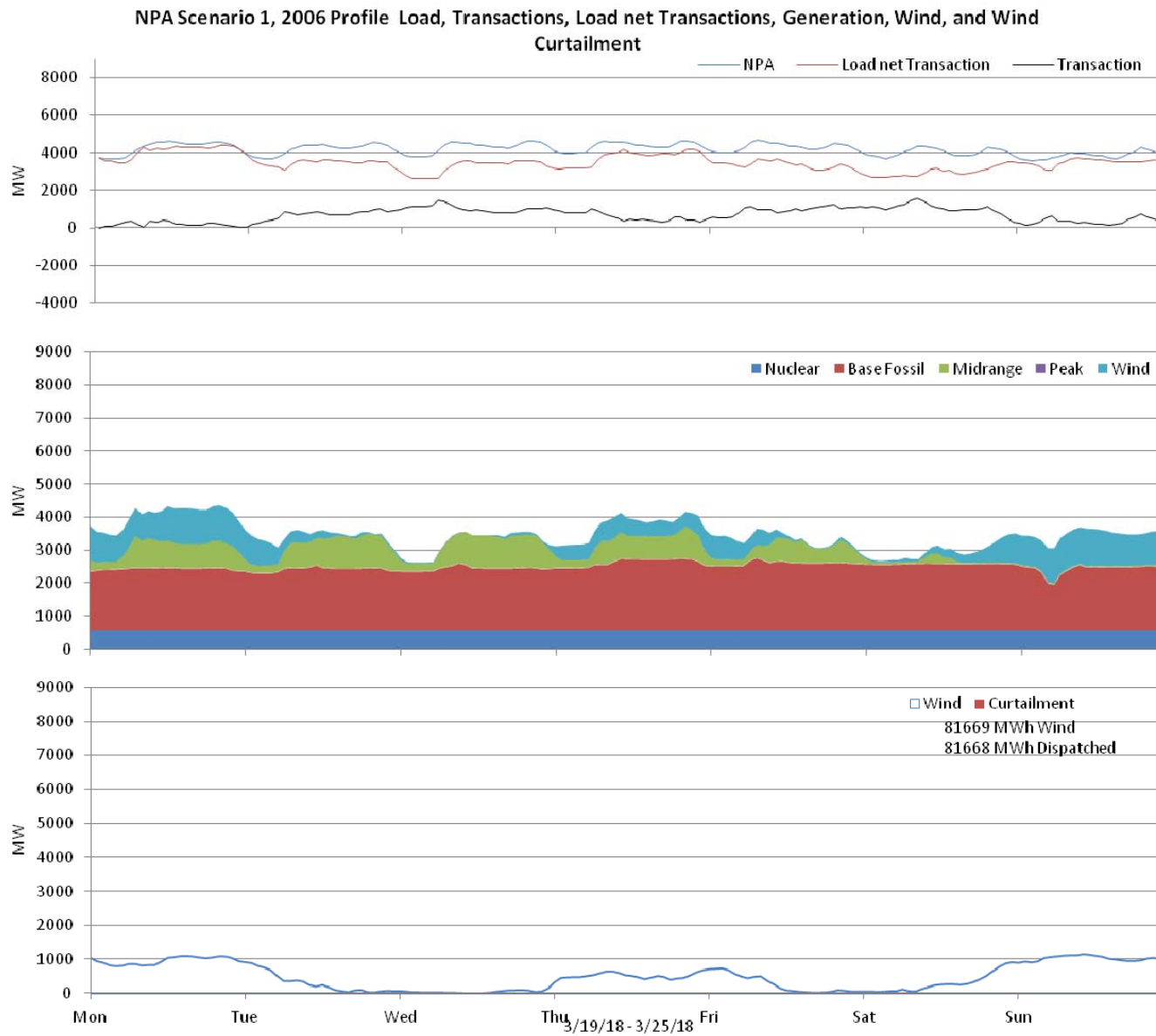


Figure 12: Nebraska 10% wind Penetration, 2006 Profile week of 3/19/2018

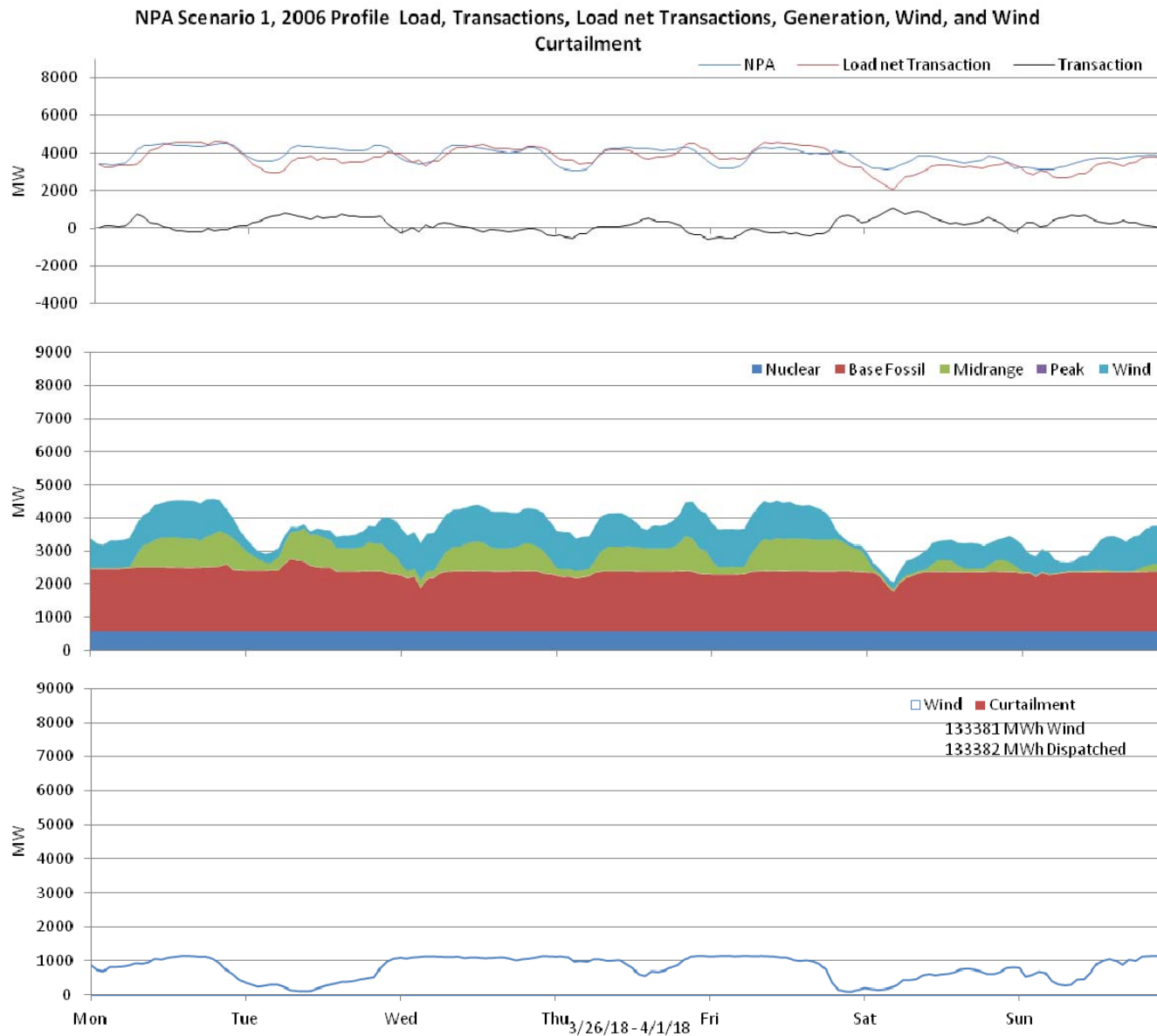


Figure 13: Nebraska 10% wind Penetration, 2006 Profile week of 3/26/2018

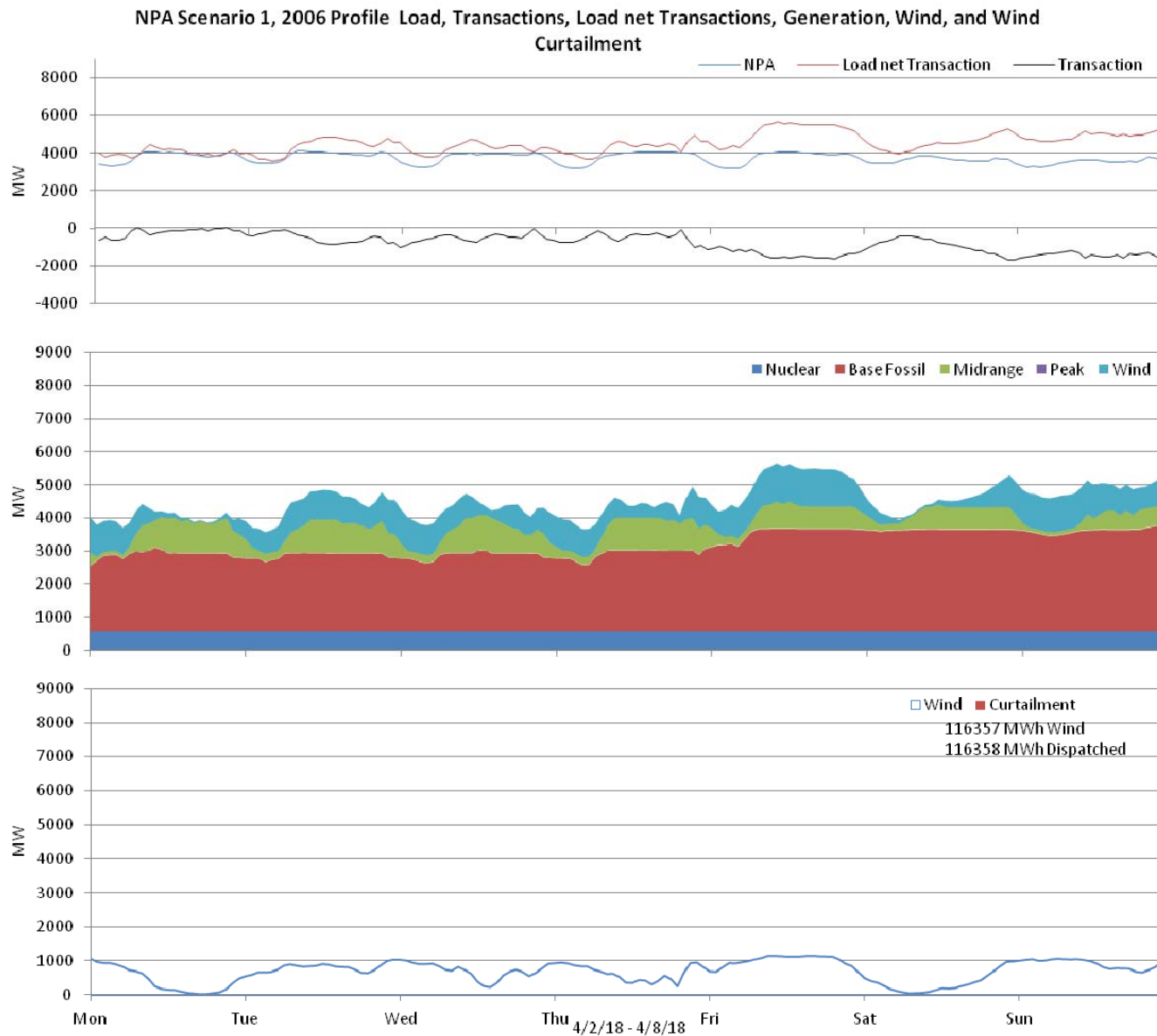


Figure 14: Nebraska 10% wind Penetration, 2006 Profile week of 4/2/2018

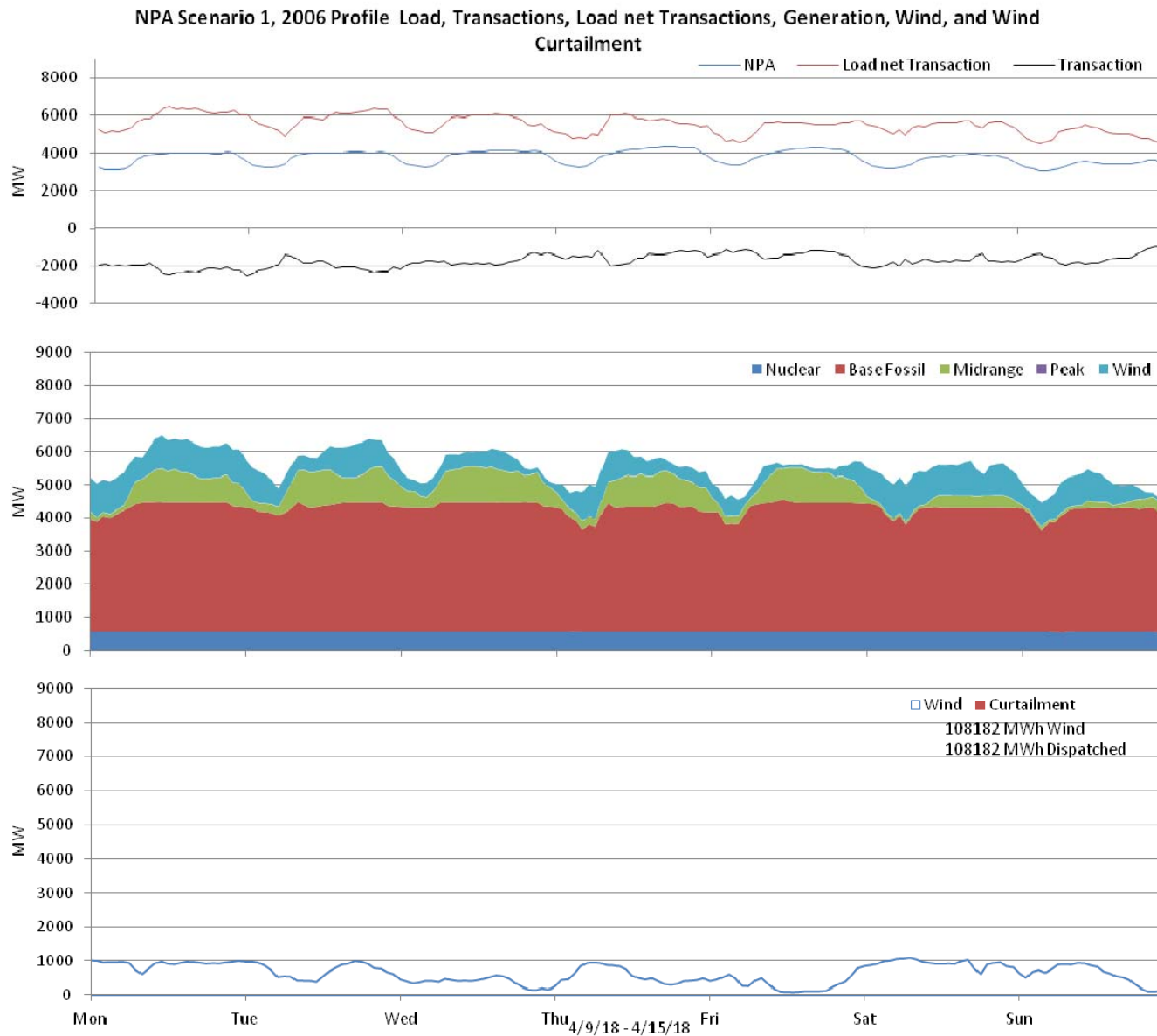


Figure 15: Nebraska 10% wind Penetration, 2006 Profile week of 4/9/2018

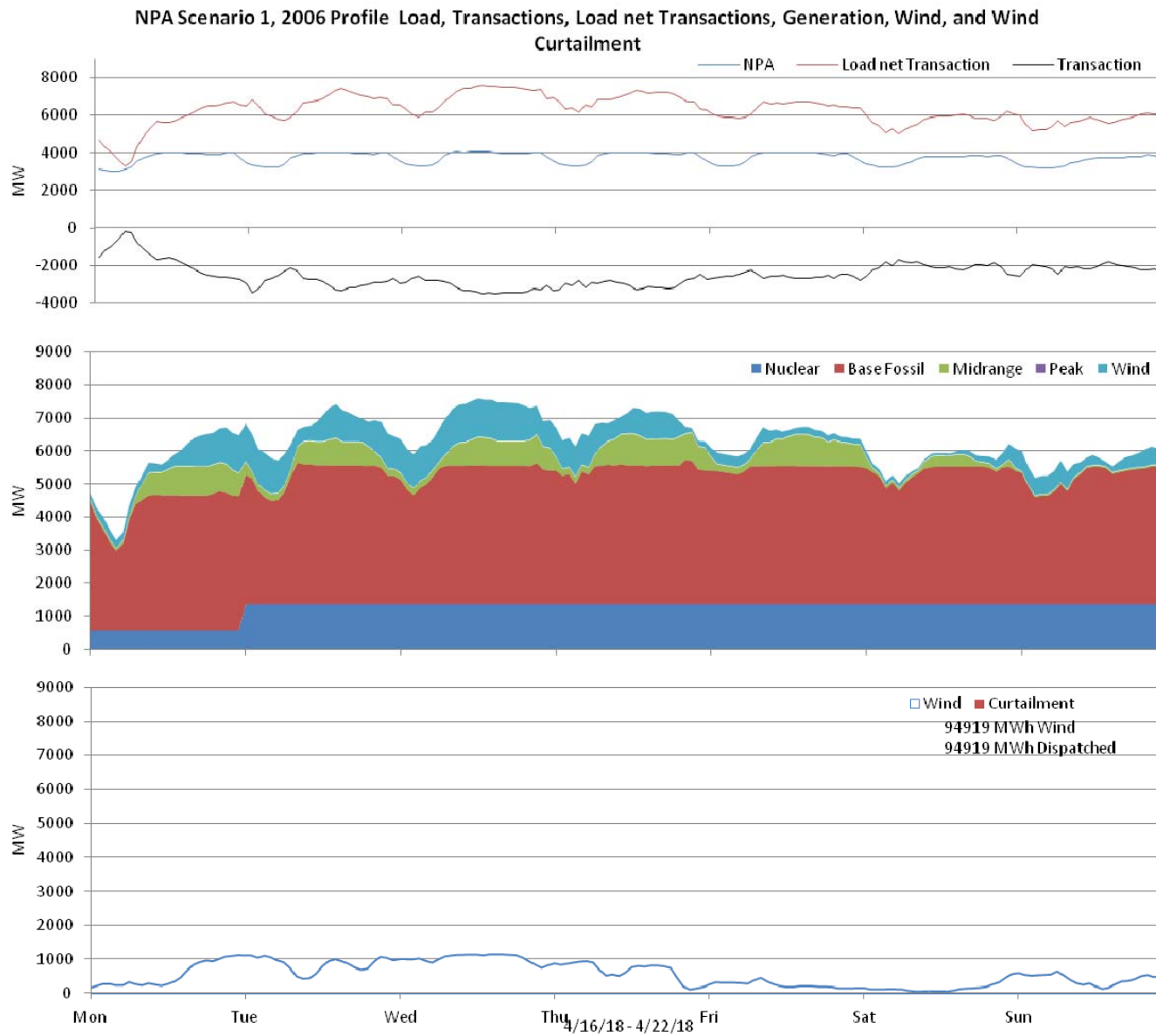


Figure 16: Nebraska 10% wind Penetration, 2006 Profile week of 4/16/2018

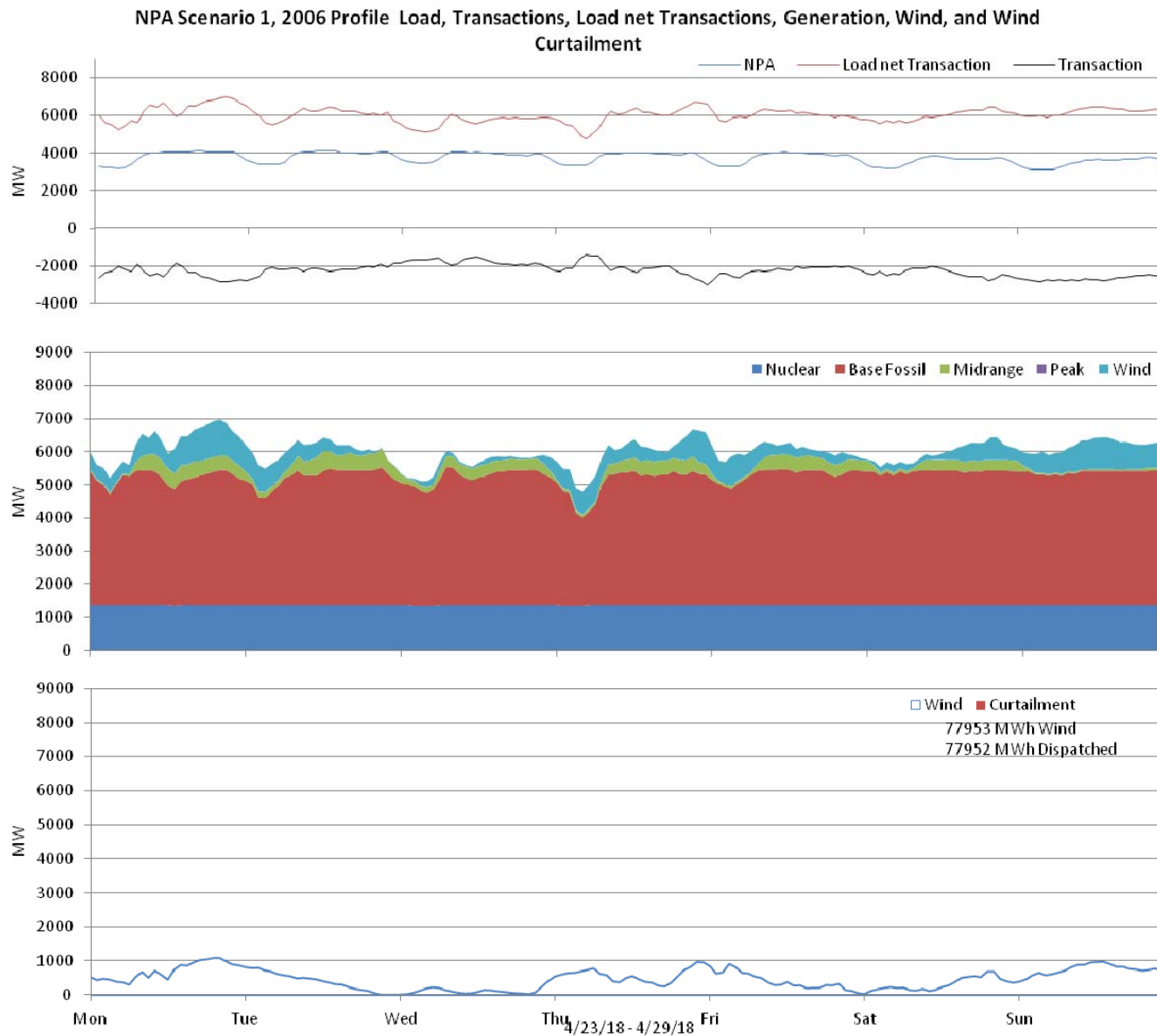


Figure 17: Nebraska 10% wind Penetration, 2006 Profile week of 4/23/2018

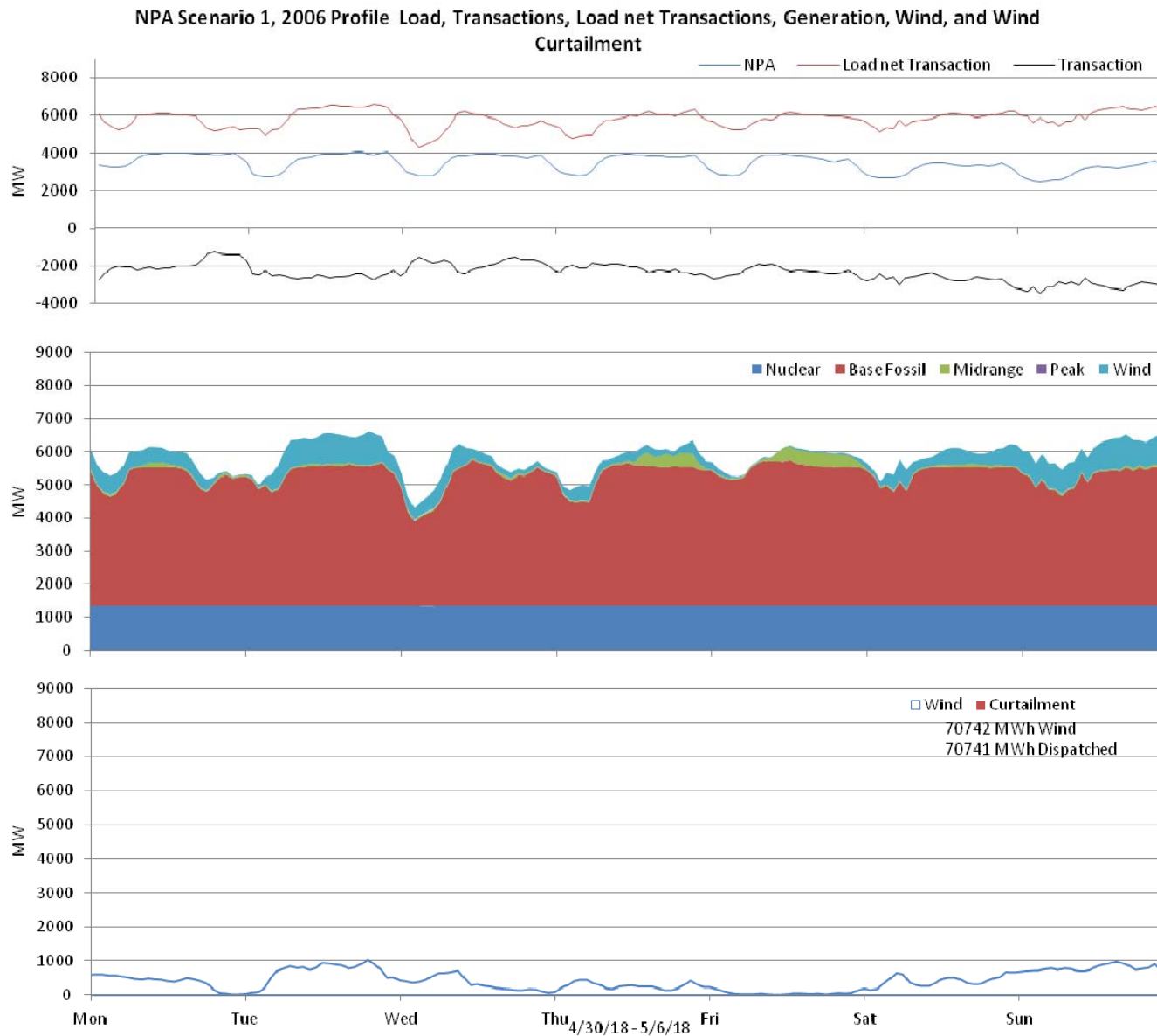


Figure 18: Nebraska 10% wind Penetration, 2006 Profile week of 4/30/2018

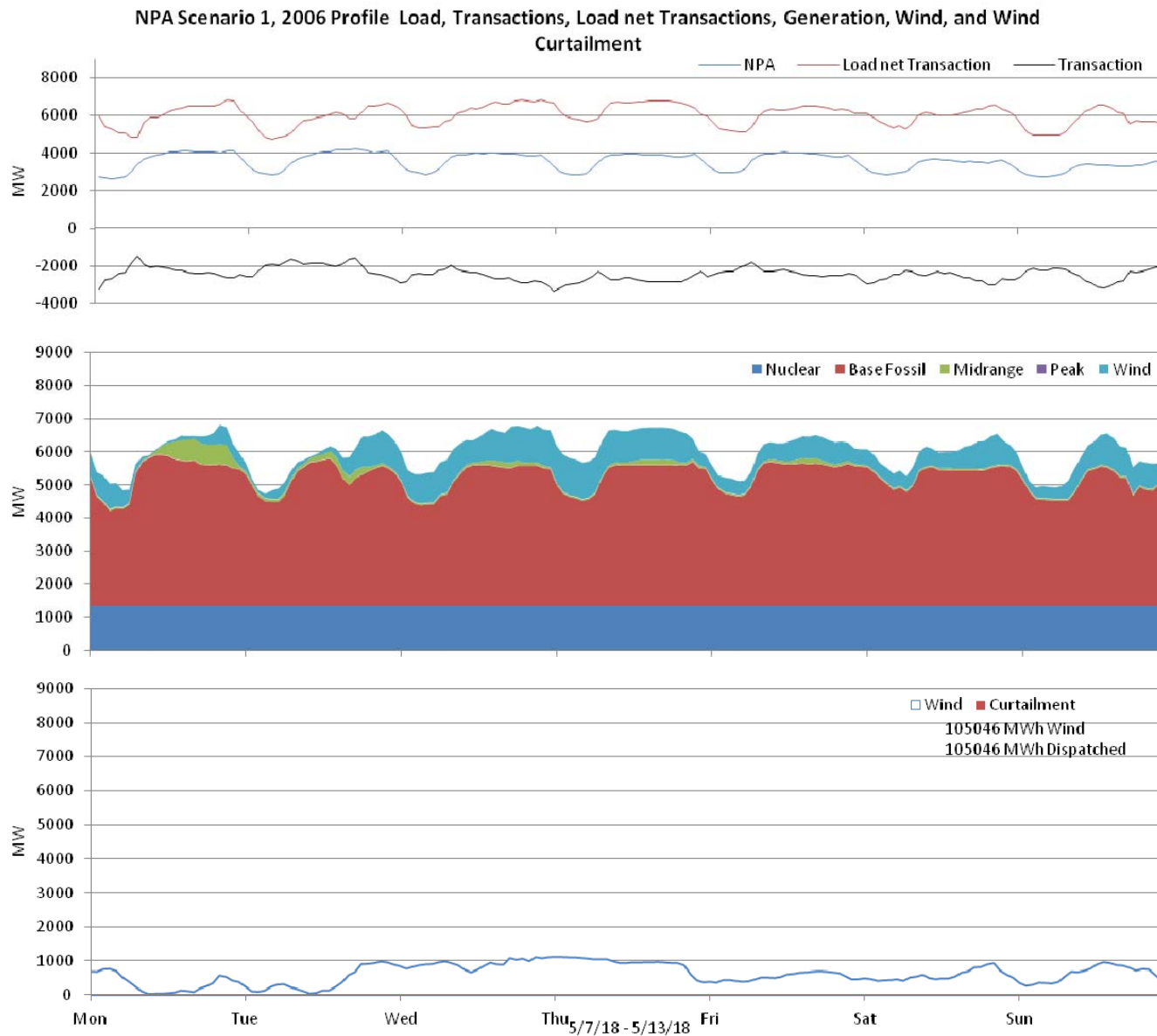


Figure 19: Nebraska 10% wind Penetration, 2006 Profile week of 5/7/2018

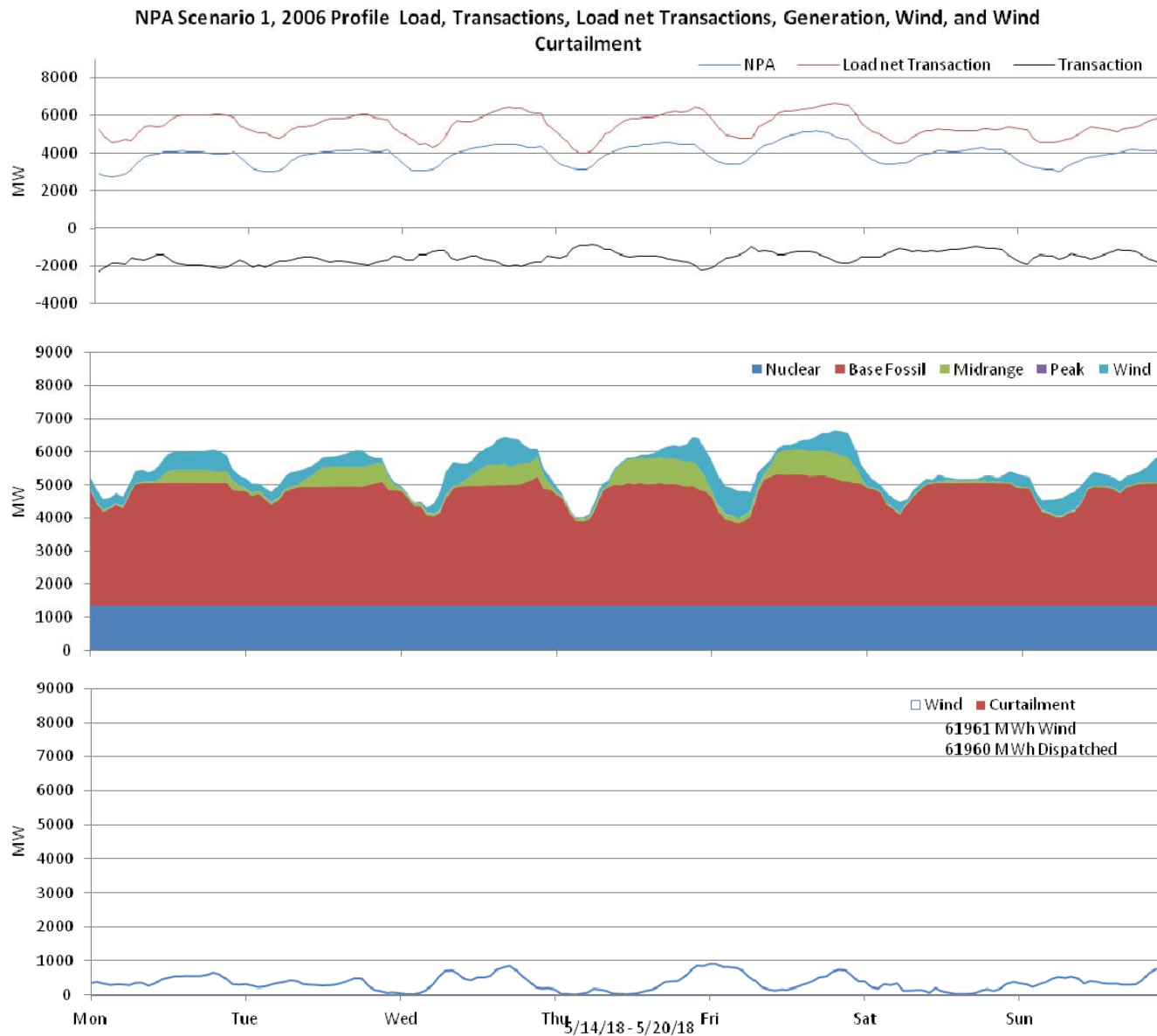


Figure 20: Nebraska 10% wind Penetration, 2006 Profile week of 5/14/2018

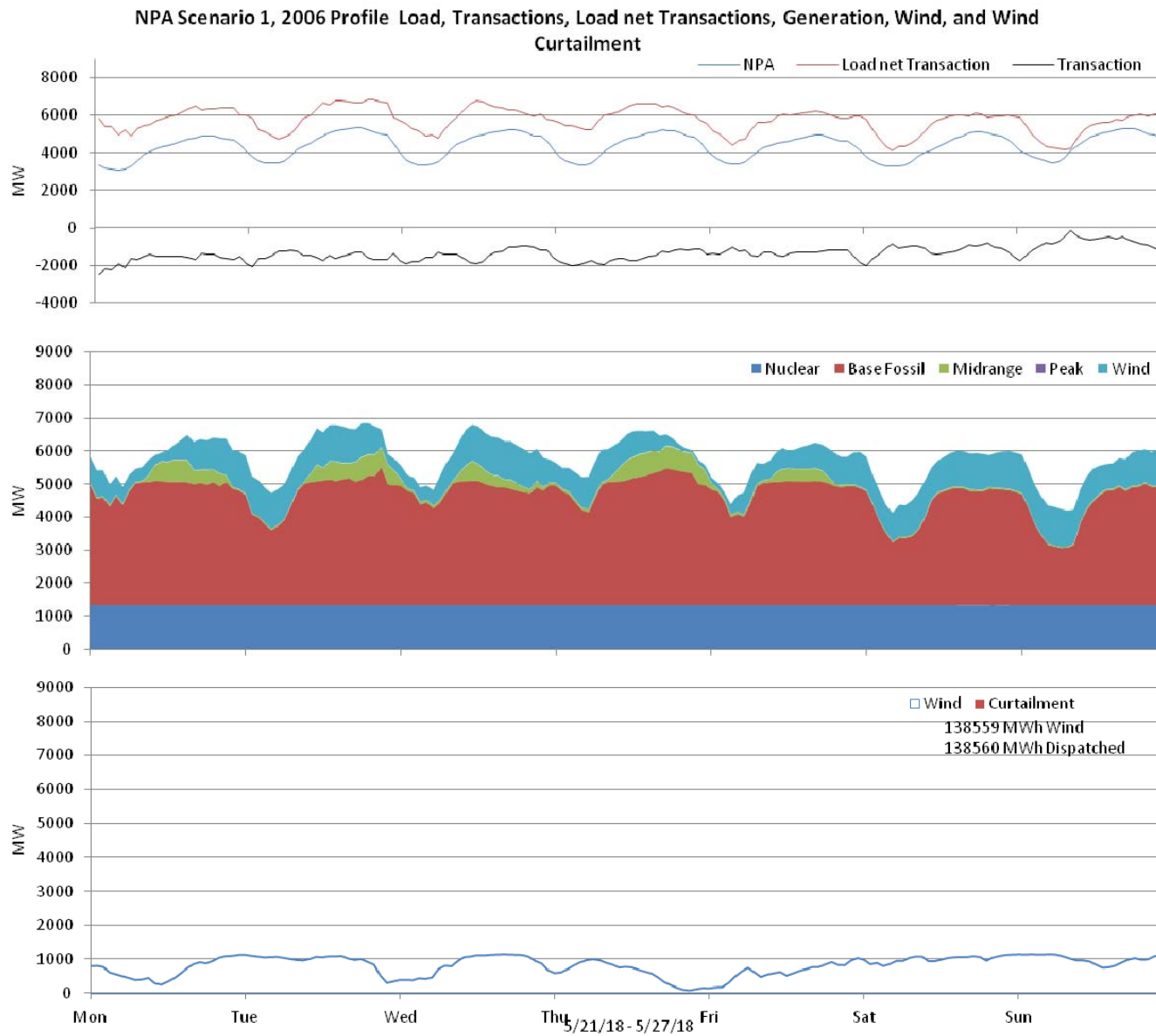


Figure 21: Nebraska 10% wind Penetration, 2006 Profile week of 5/21/2018

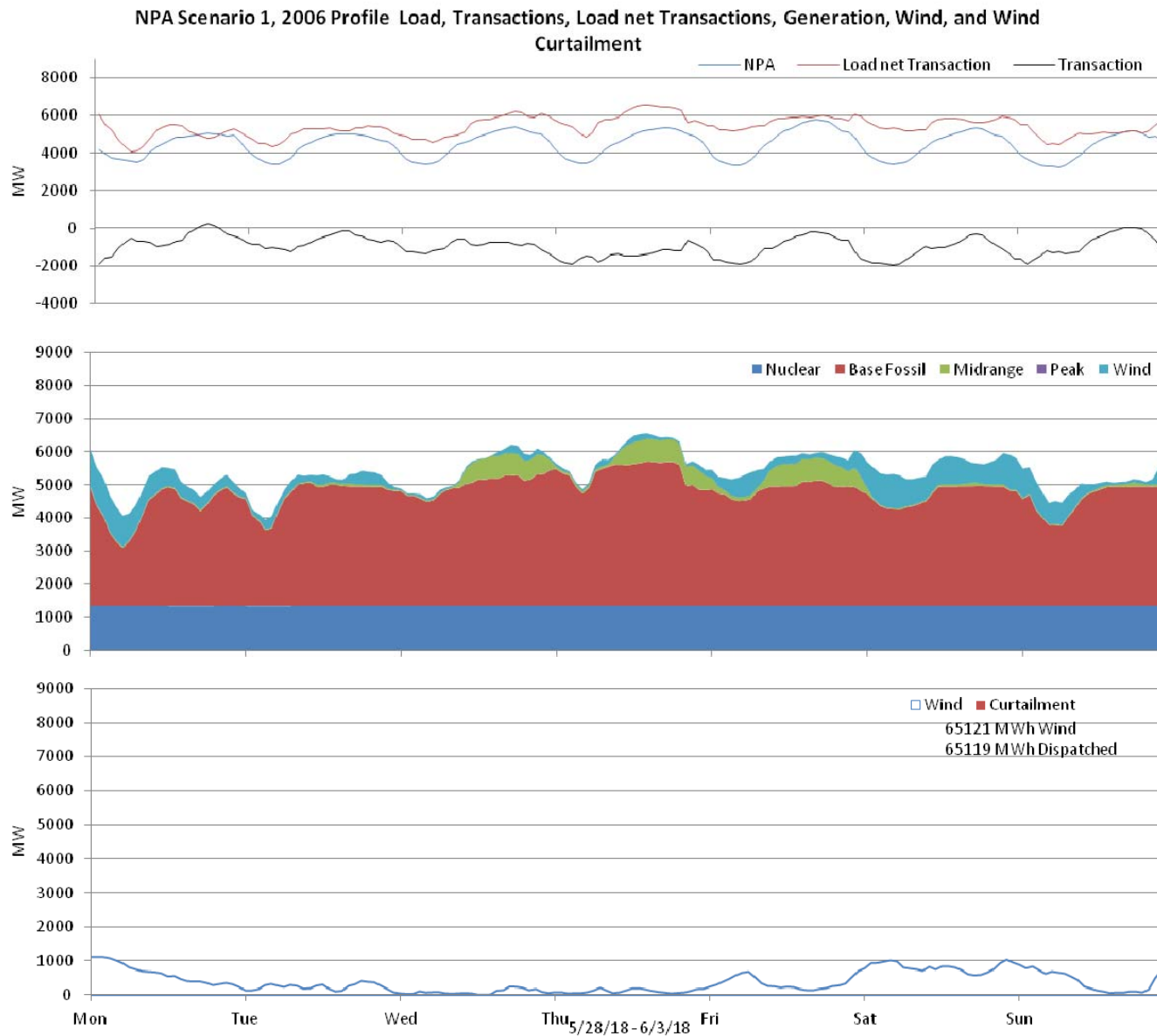


Figure 22: Nebraska 10% wind Penetration, 2006 Profile week of 5/28/2018

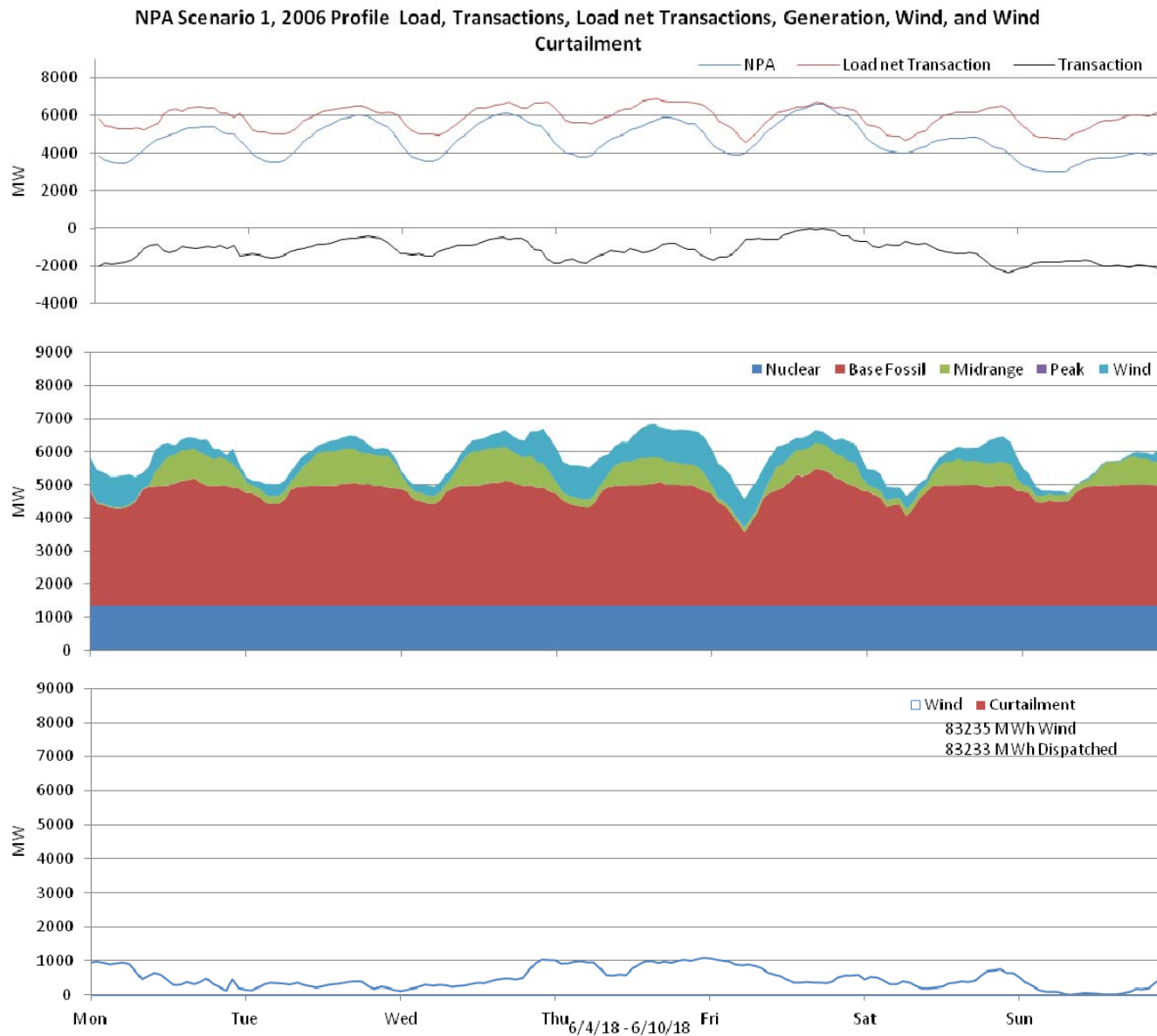


Figure 23: Nebraska 10% wind Penetration, 2006 Profile week of 6/4/2018

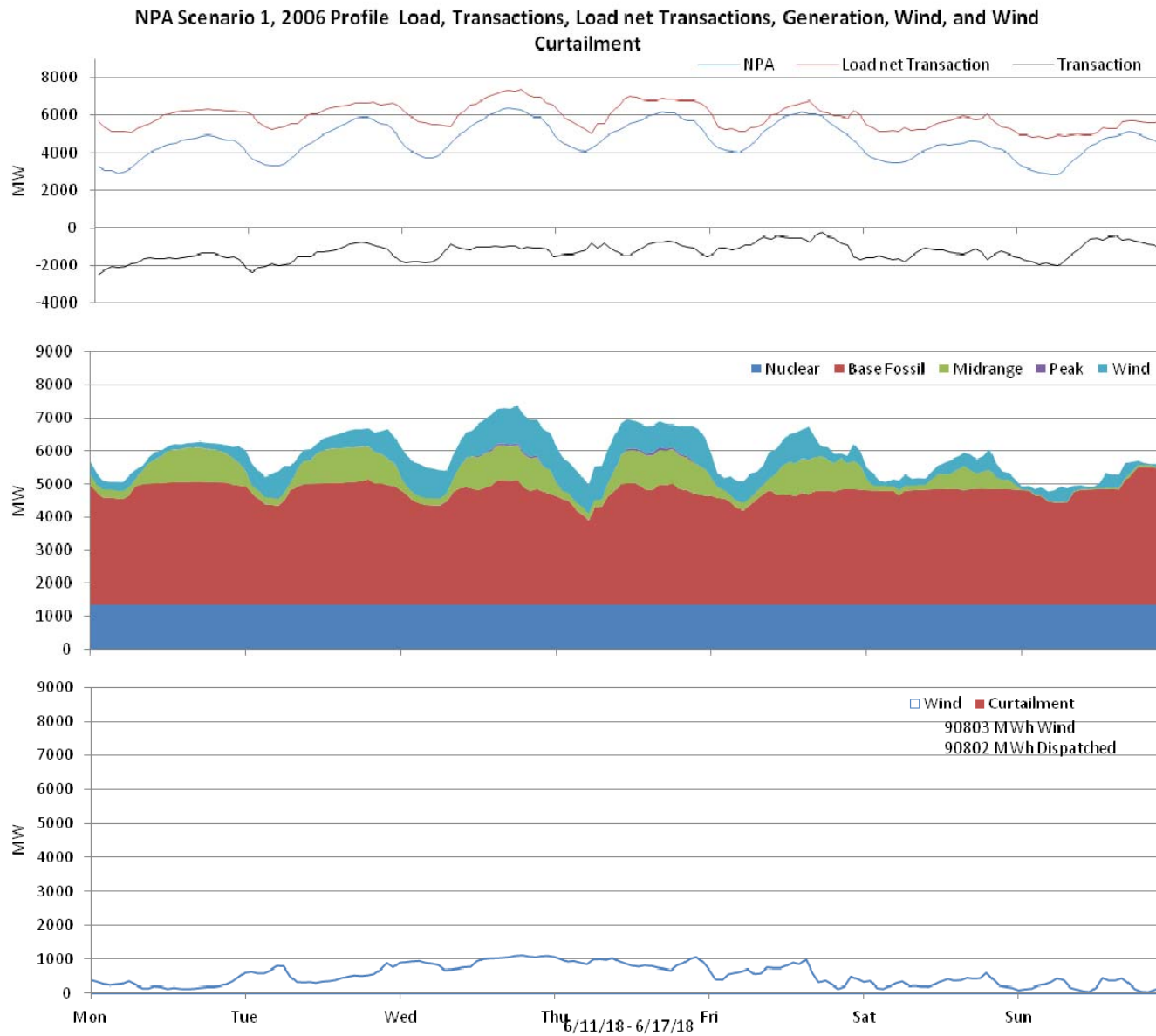


Figure 24: Nebraska 10% wind Penetration, 2006 Profile week of 6/11/2018

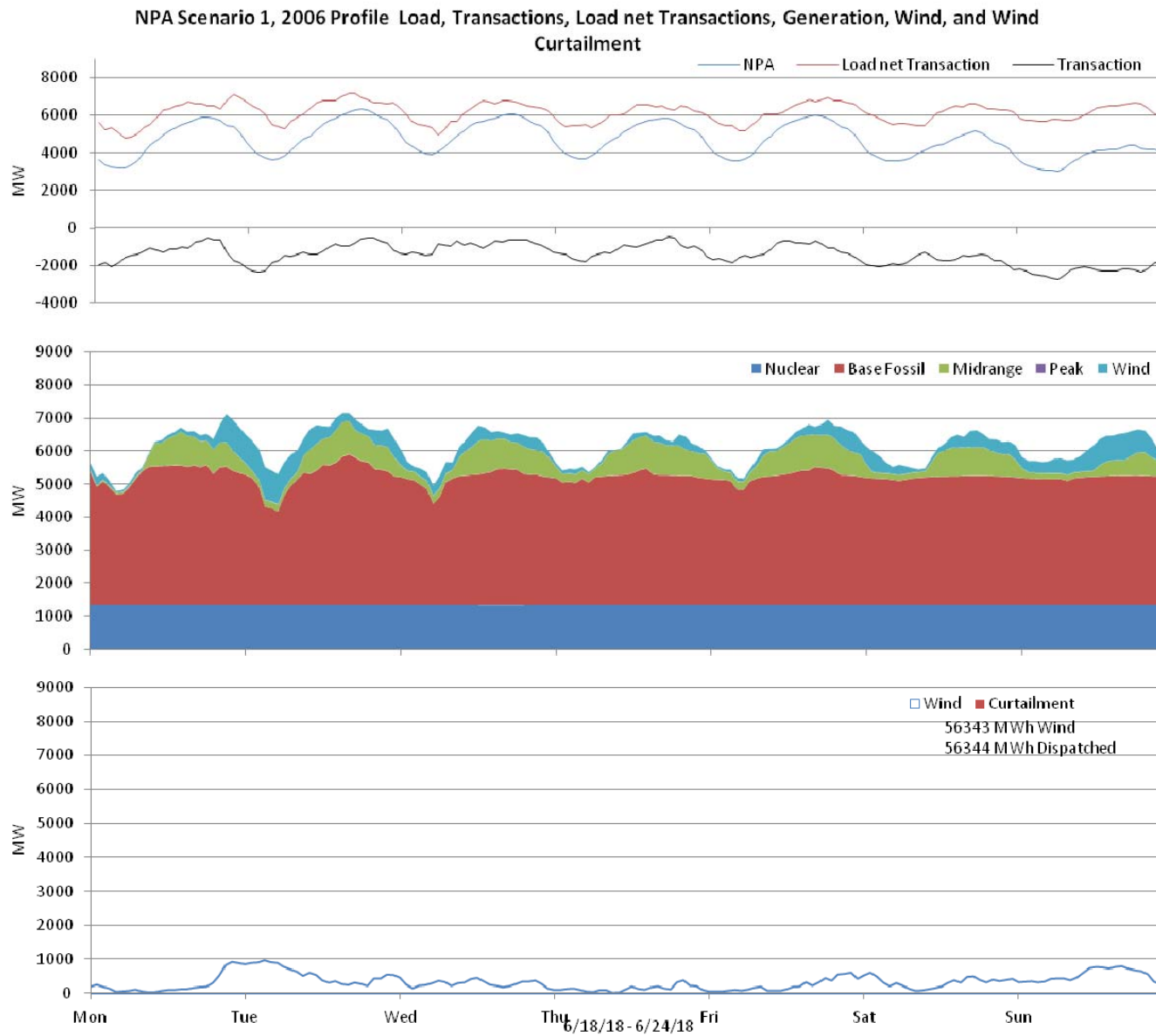


Figure 25: Nebraska 10% wind Penetration, 2006 Profile week of 6/18/2018

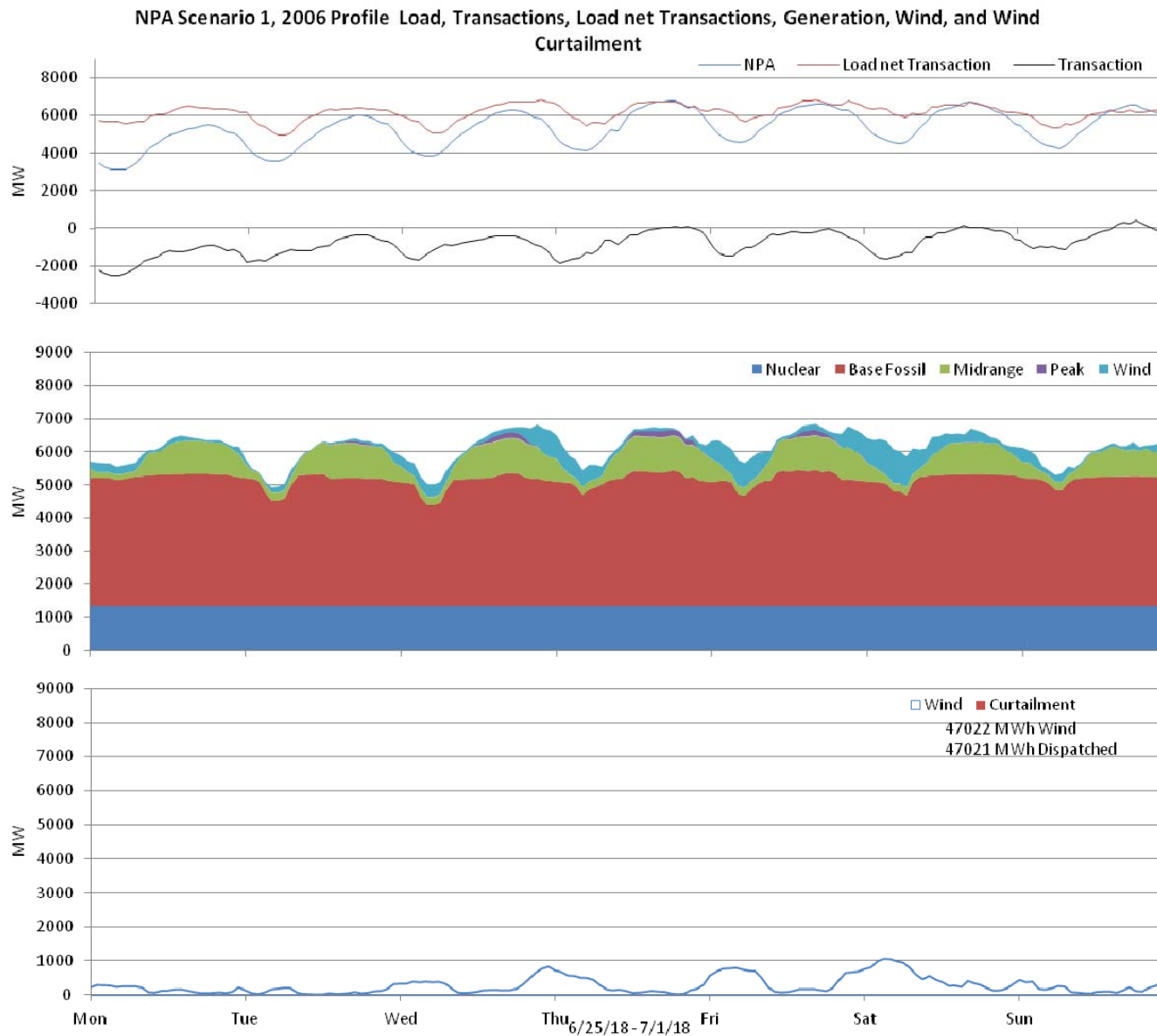


Figure 26: Nebraska 10% wind Penetration, 2006 Profile week of 6/25/2018

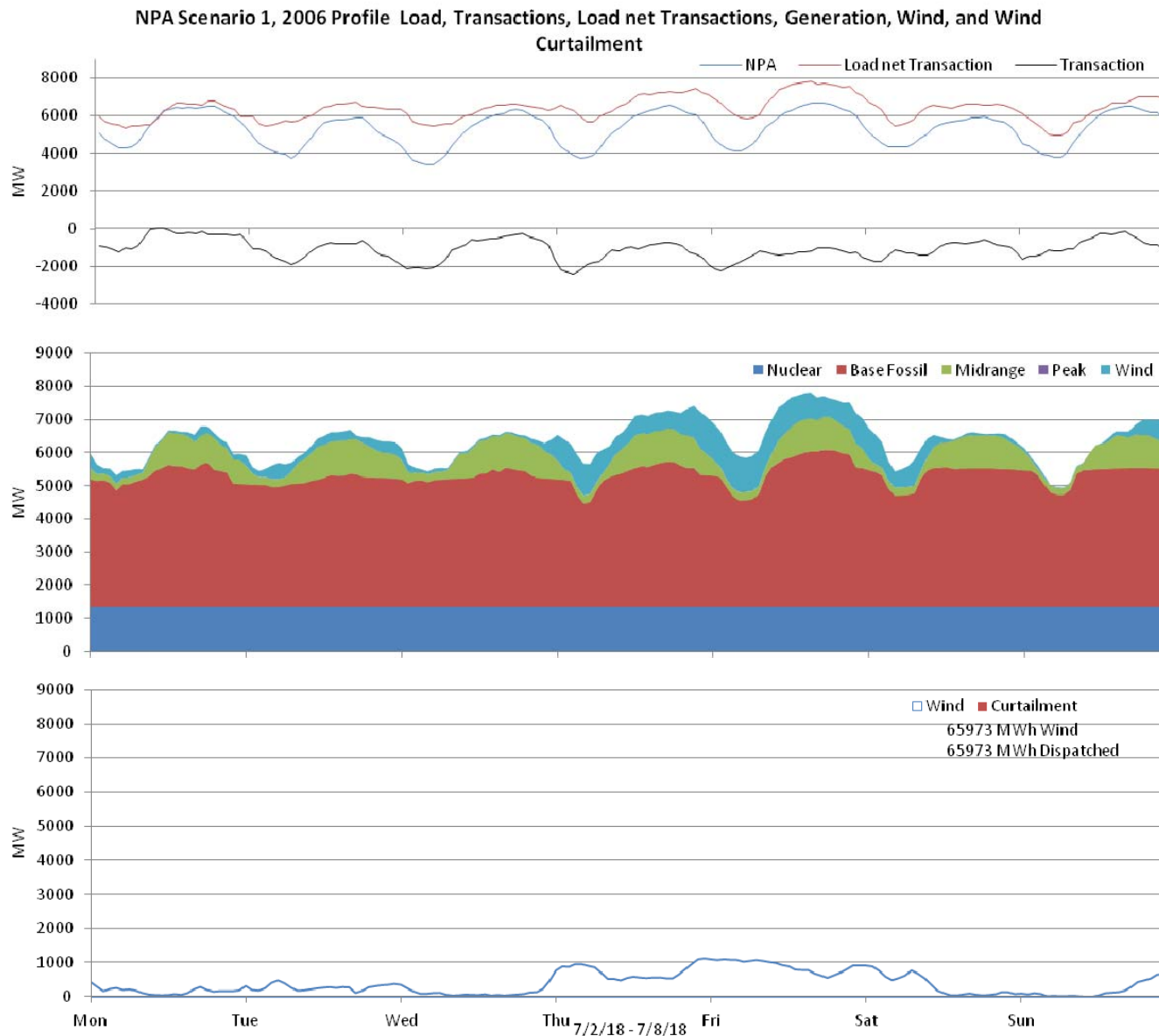


Figure 27: Nebraska 10% wind Penetration, 2006 Profile week of 7/2/2018

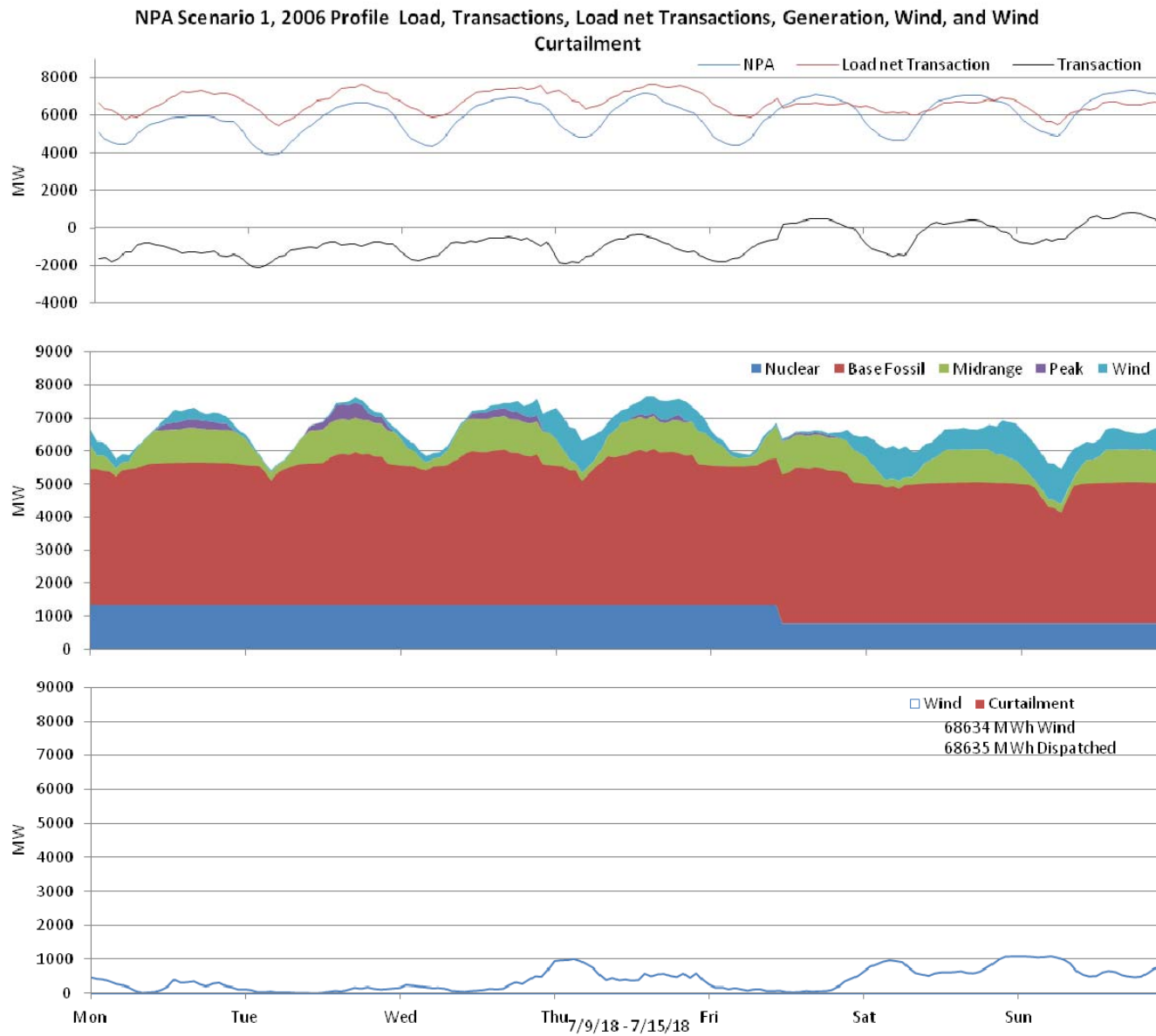


Figure 28: Nebraska 10% wind Penetration, 2006 Profile week of 7/9/2018

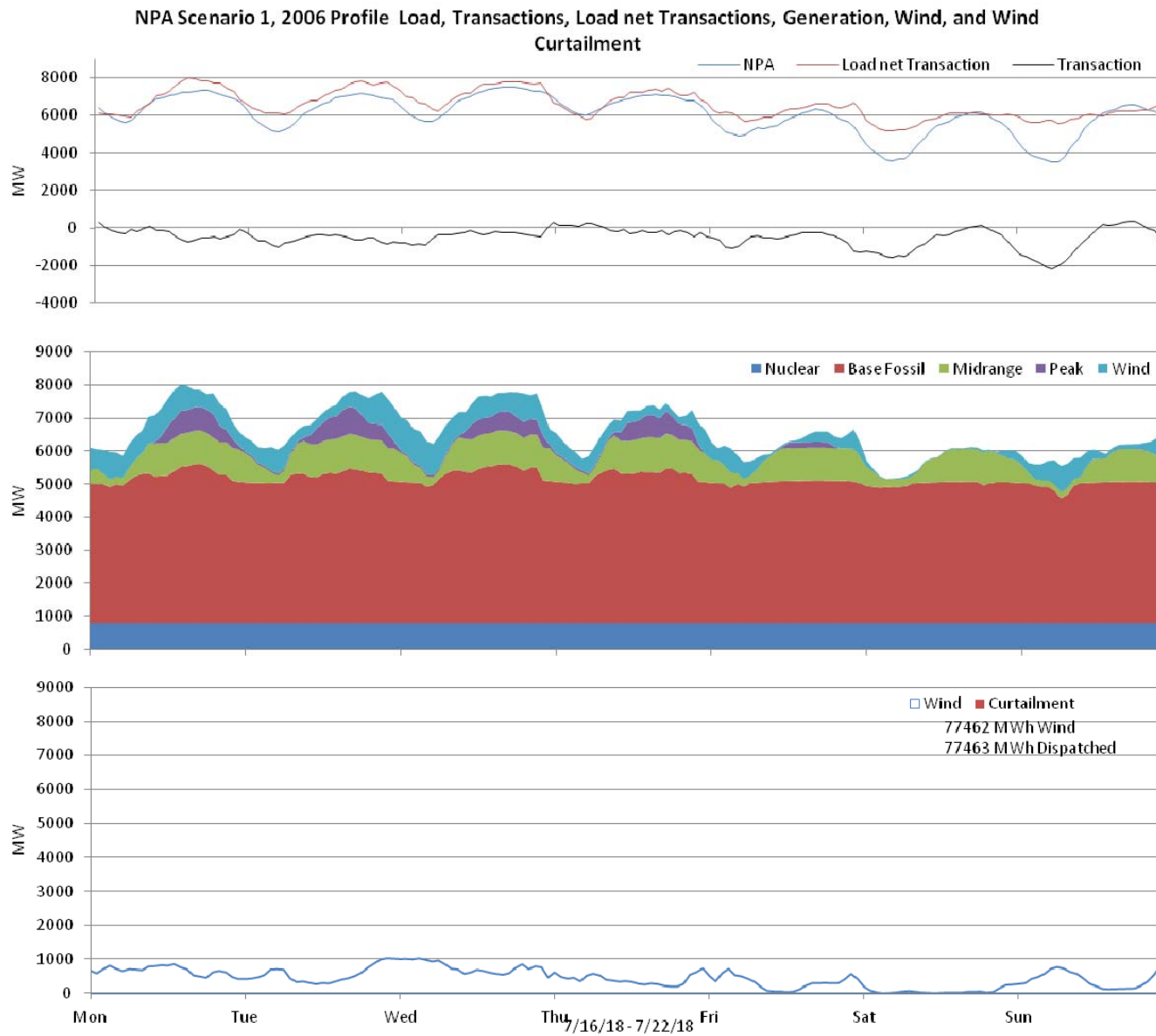


Figure 29: Nebraska 10% wind Penetration, 2006 Profile week of 7/16/2018

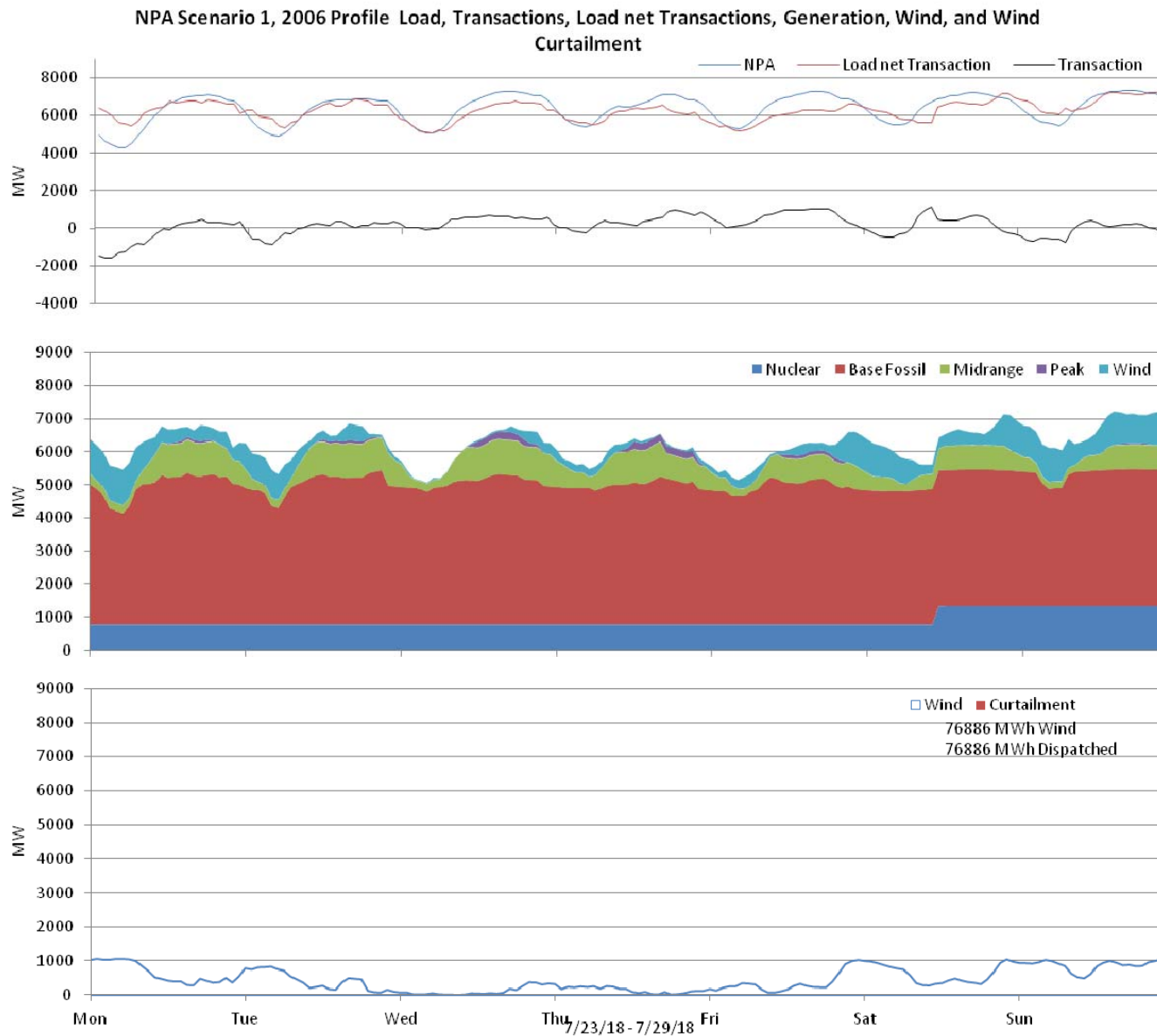


Figure 30: Nebraska 10% wind Penetration, 2006 Profile week of 7/23/2018

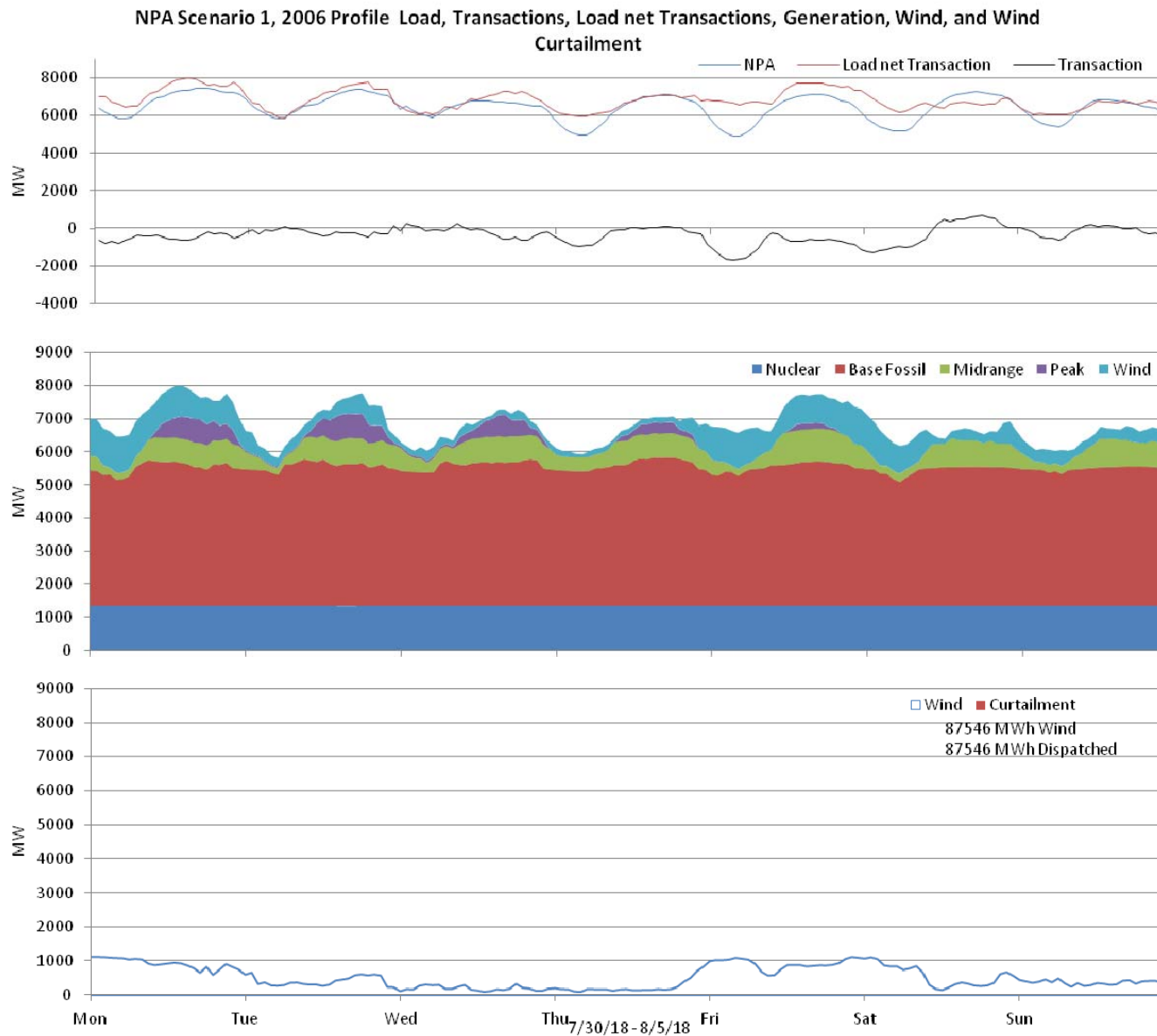


Figure 31: Nebraska 10% wind Penetration, 2006 Profile week of 7/30/2018

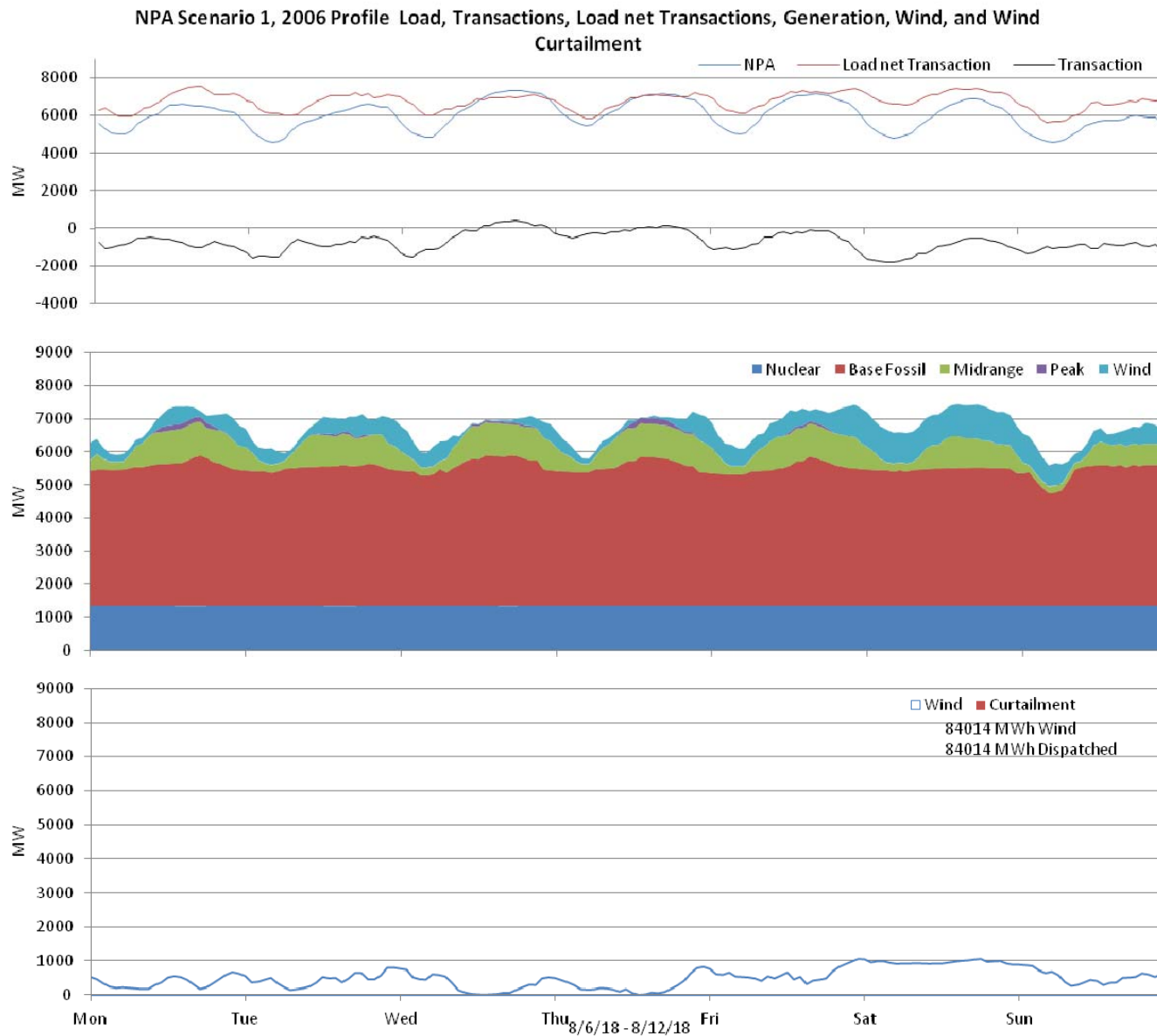


Figure 32: Nebraska 10% wind Penetration, 2006 Profile week of 8/6/2018

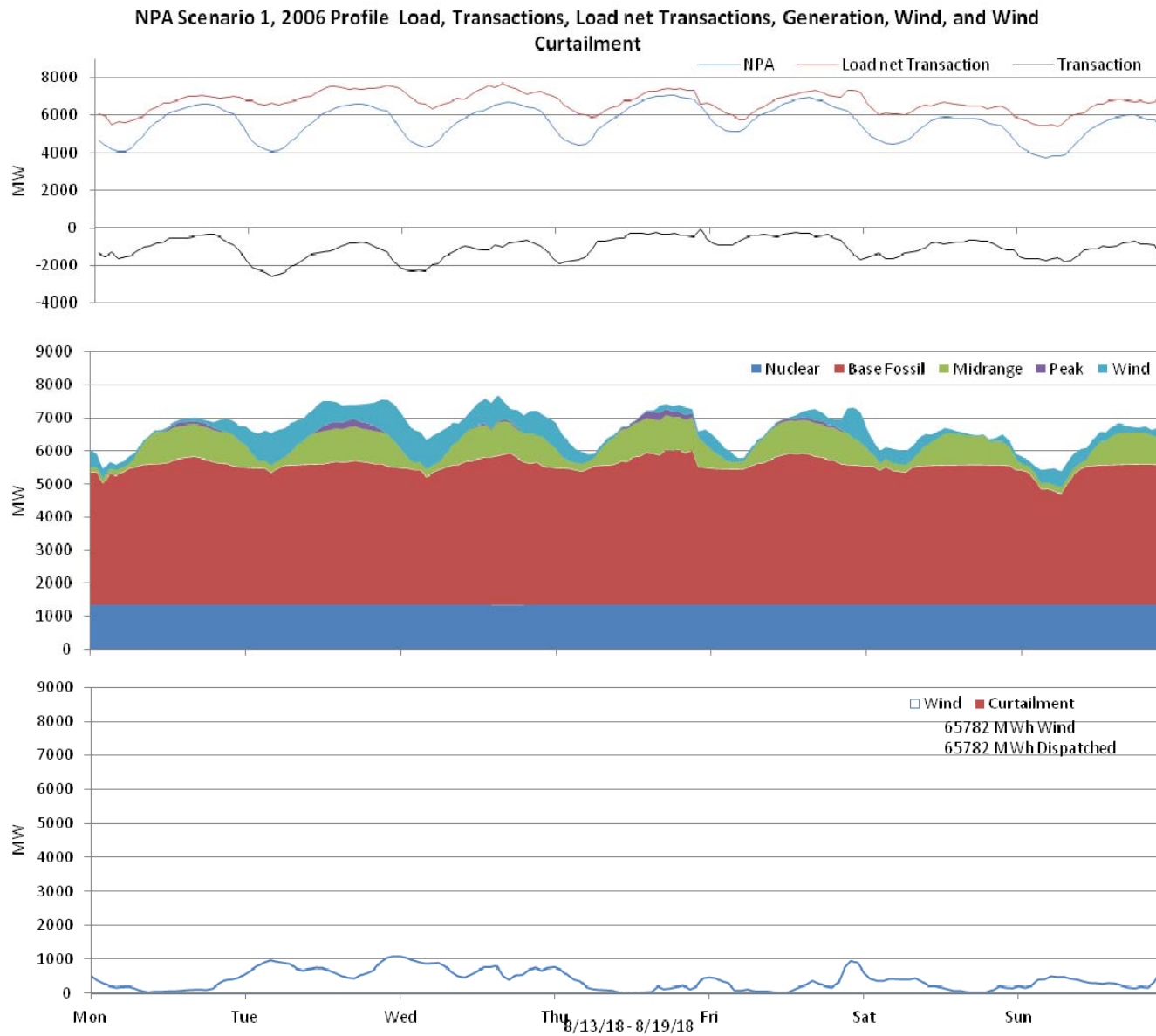


Figure 33: Nebraska 10% wind Penetration, 2006 Profile week of 8/13/2018

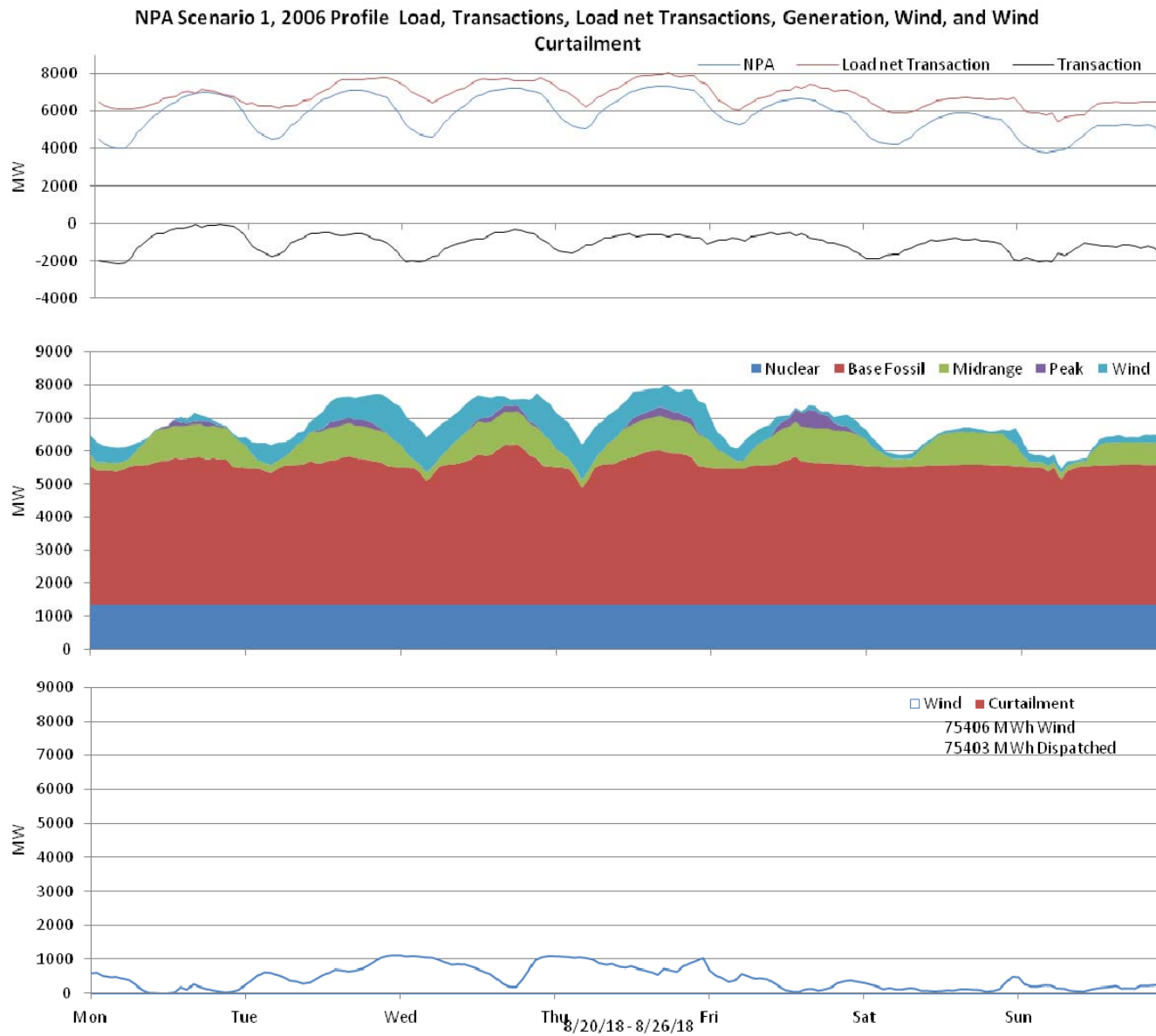


Figure 34: Nebraska 10% wind Penetration, 2006 Profile week of 8/20/2018

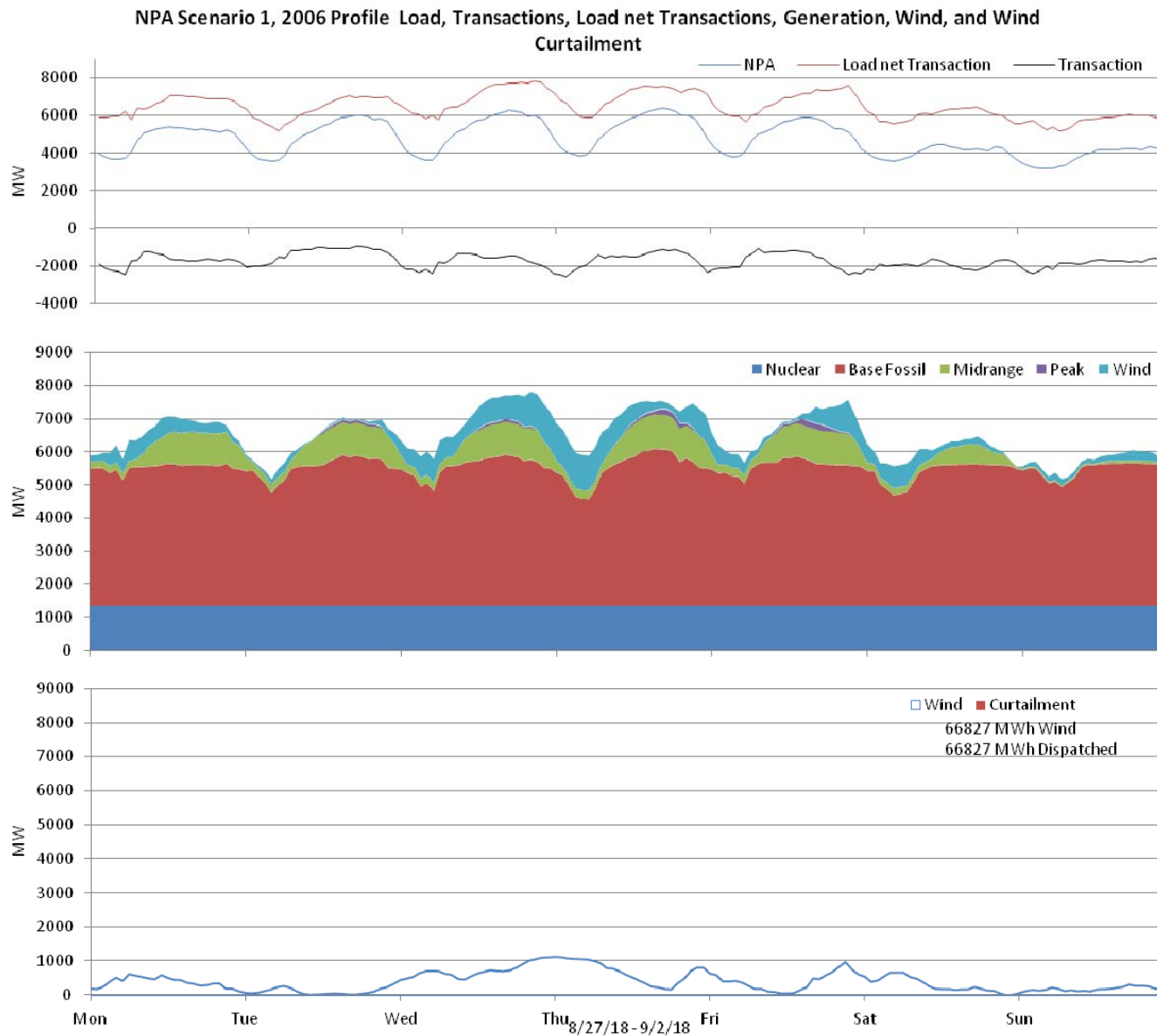


Figure 35: Nebraska 10% wind Penetration, 2006 Profile week of 8/27/2018

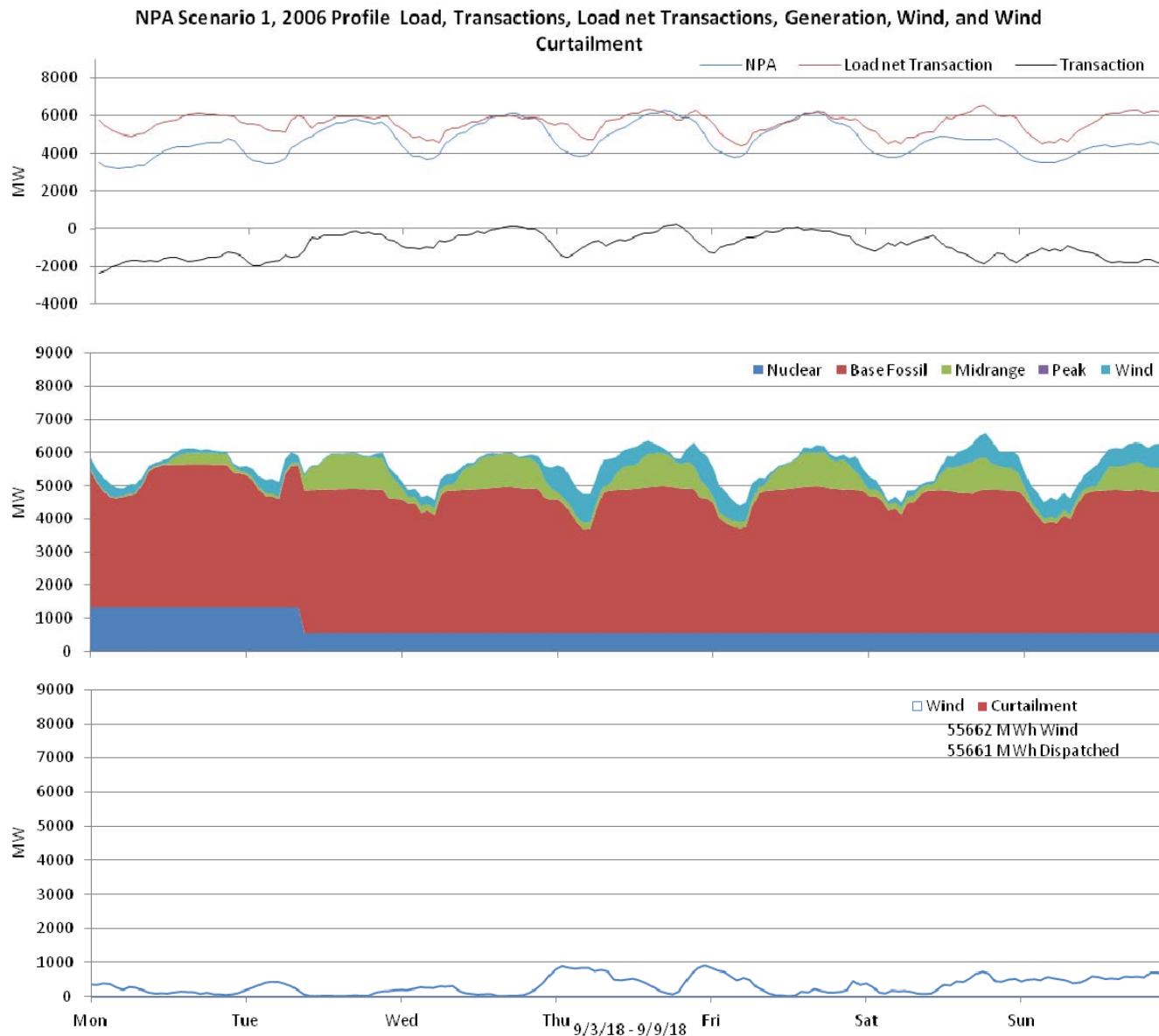


Figure 36: Nebraska 10% wind Penetration, 2006 Profile week of 9/3/2018

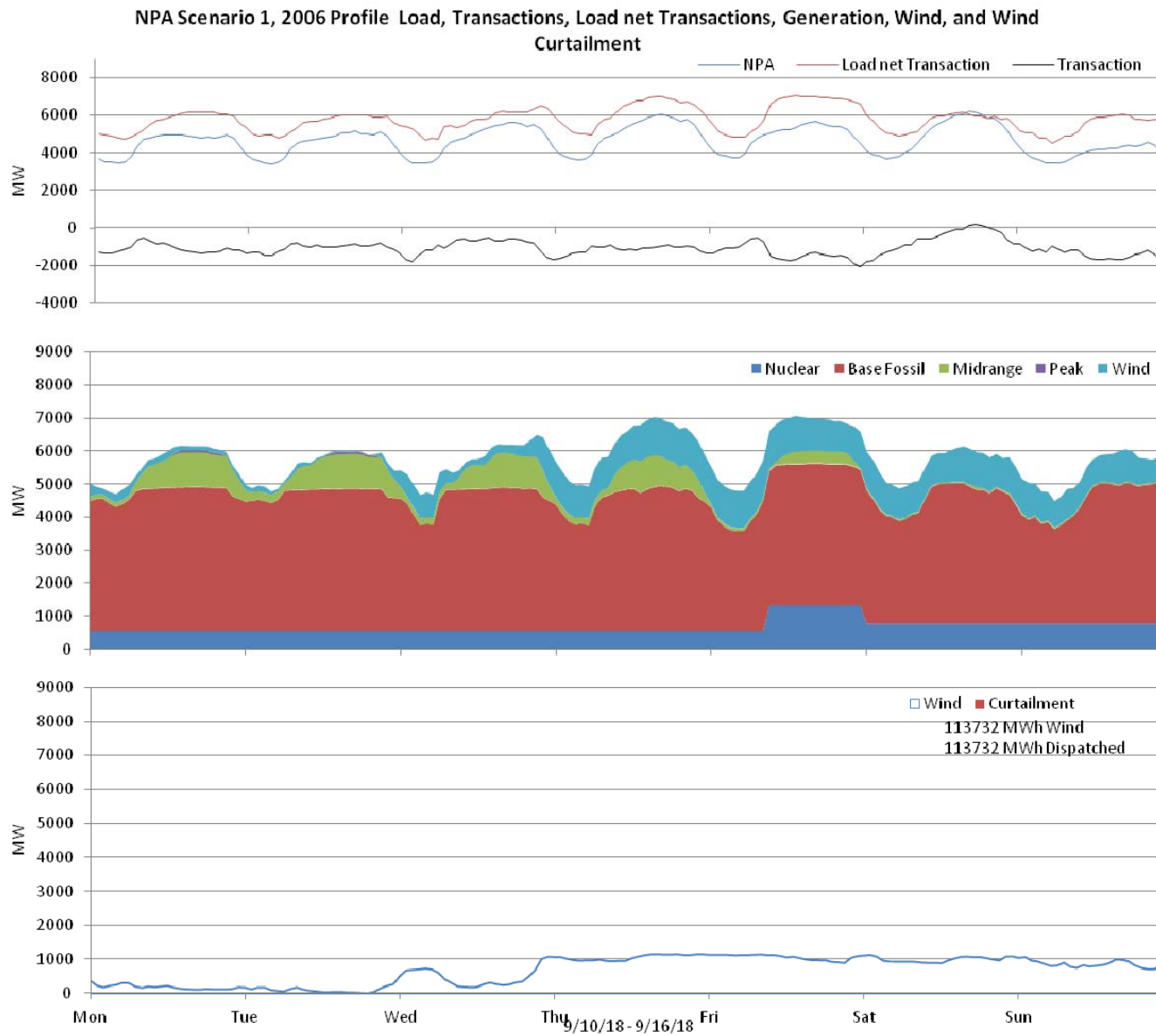


Figure 37: Nebraska 10% wind Penetration, 2006 Profile week of 9/10/2018

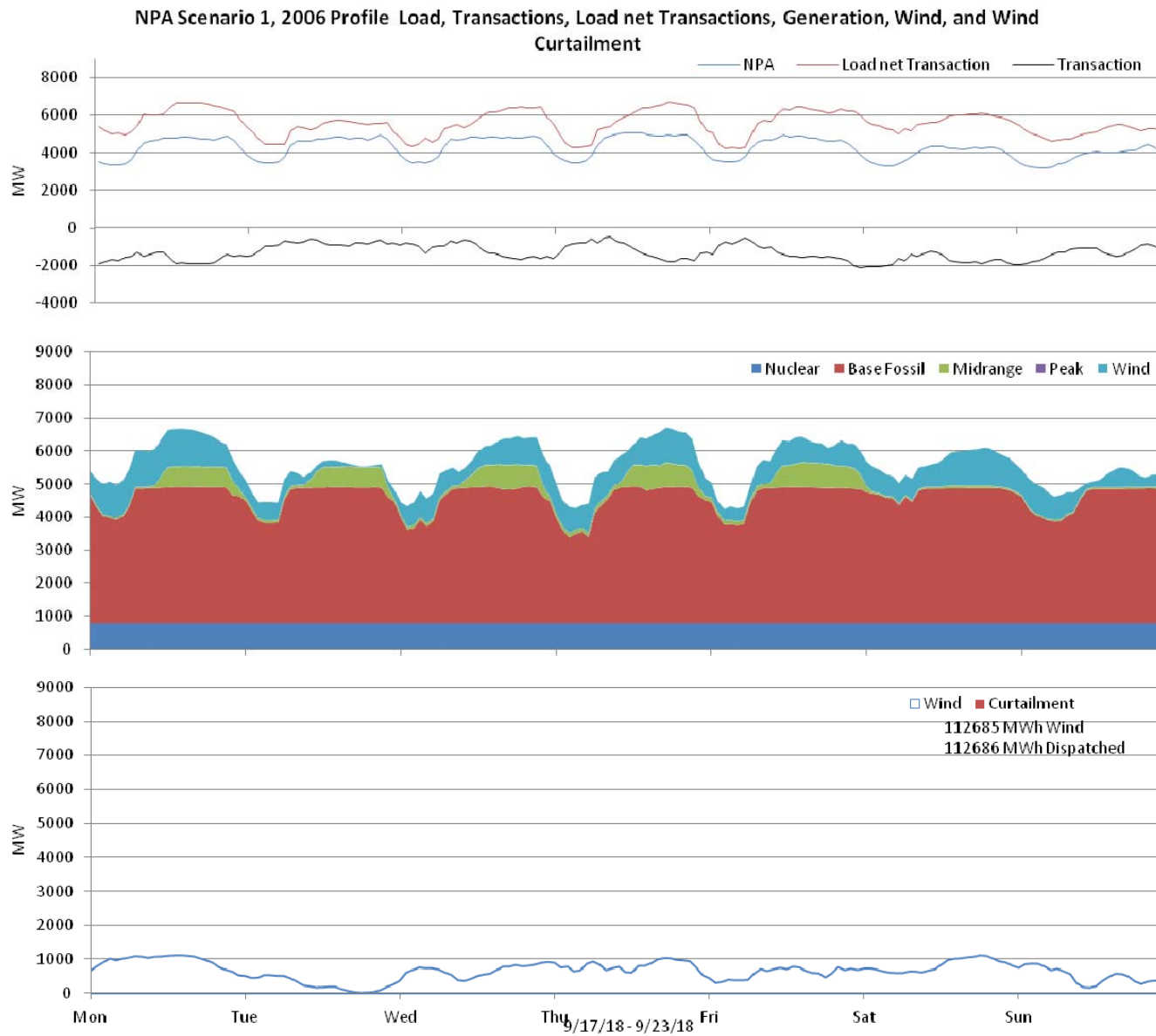


Figure 38: Nebraska 10% wind Penetration, 2006 Profile week of 9/17/2018

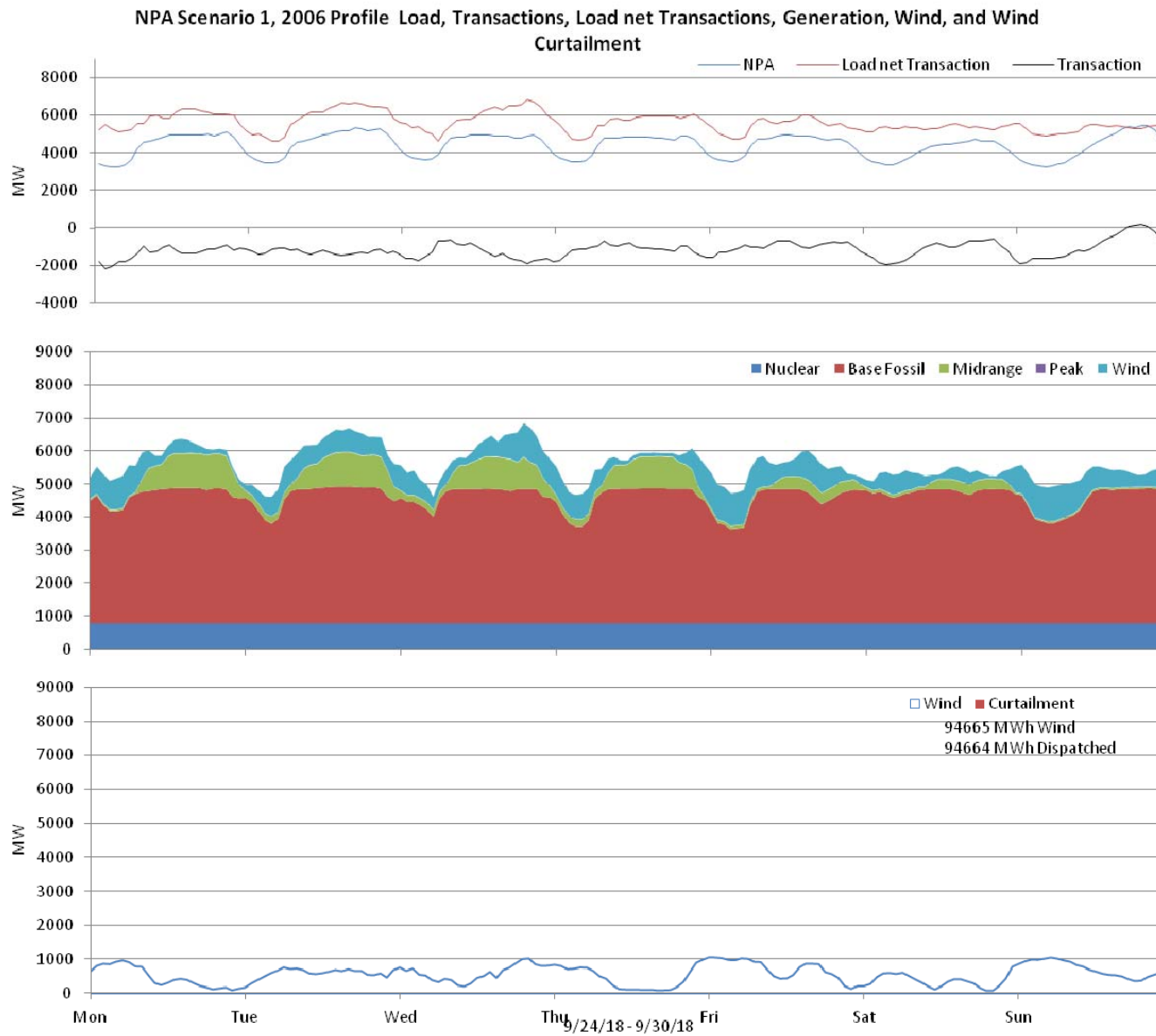


Figure 39: Nebraska 10% wind Penetration, 2006 Profile week of 9/24/2018

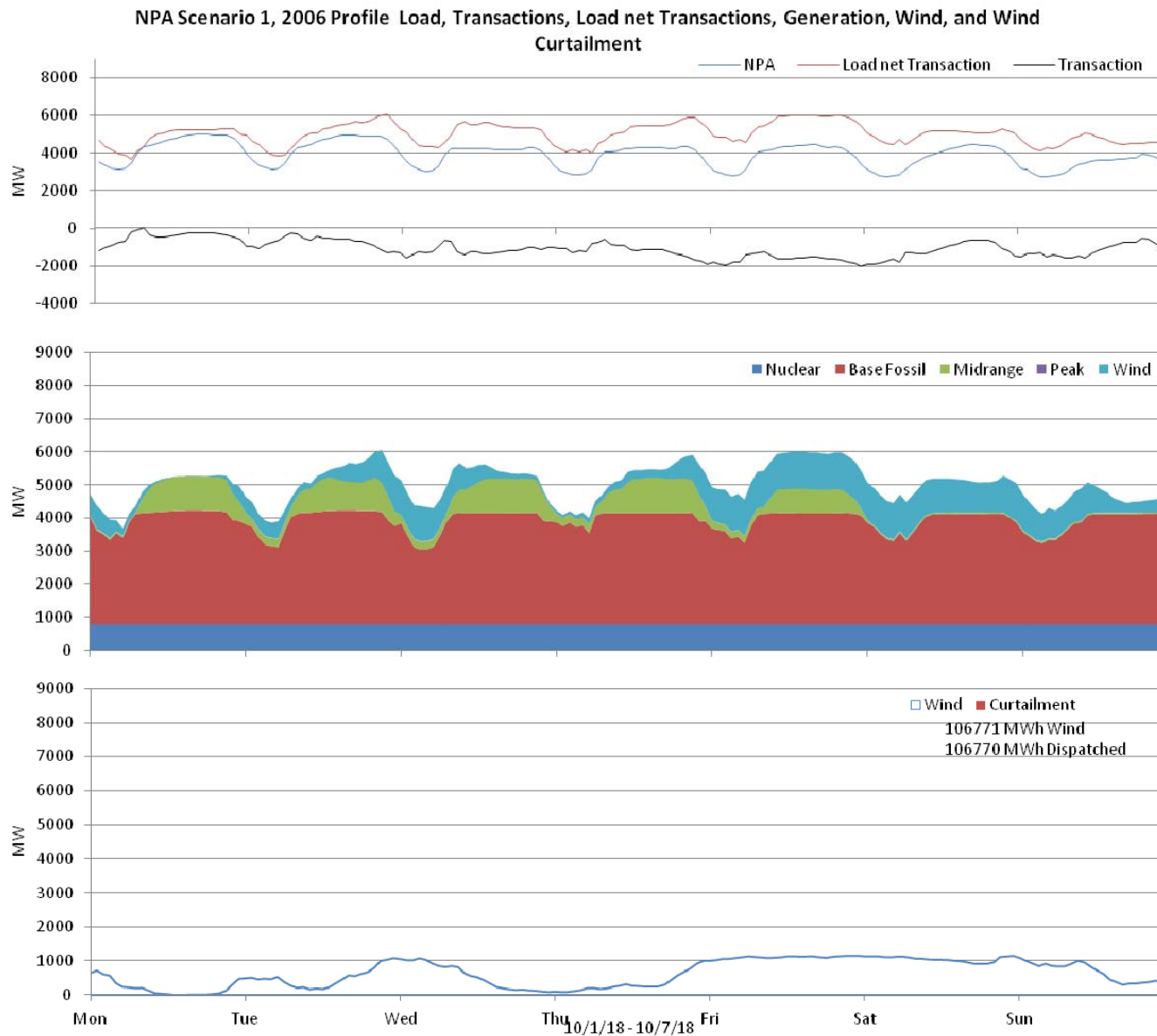


Figure 40: Nebraska 10% wind Penetration, 2006 Profile week of 10/1/2018

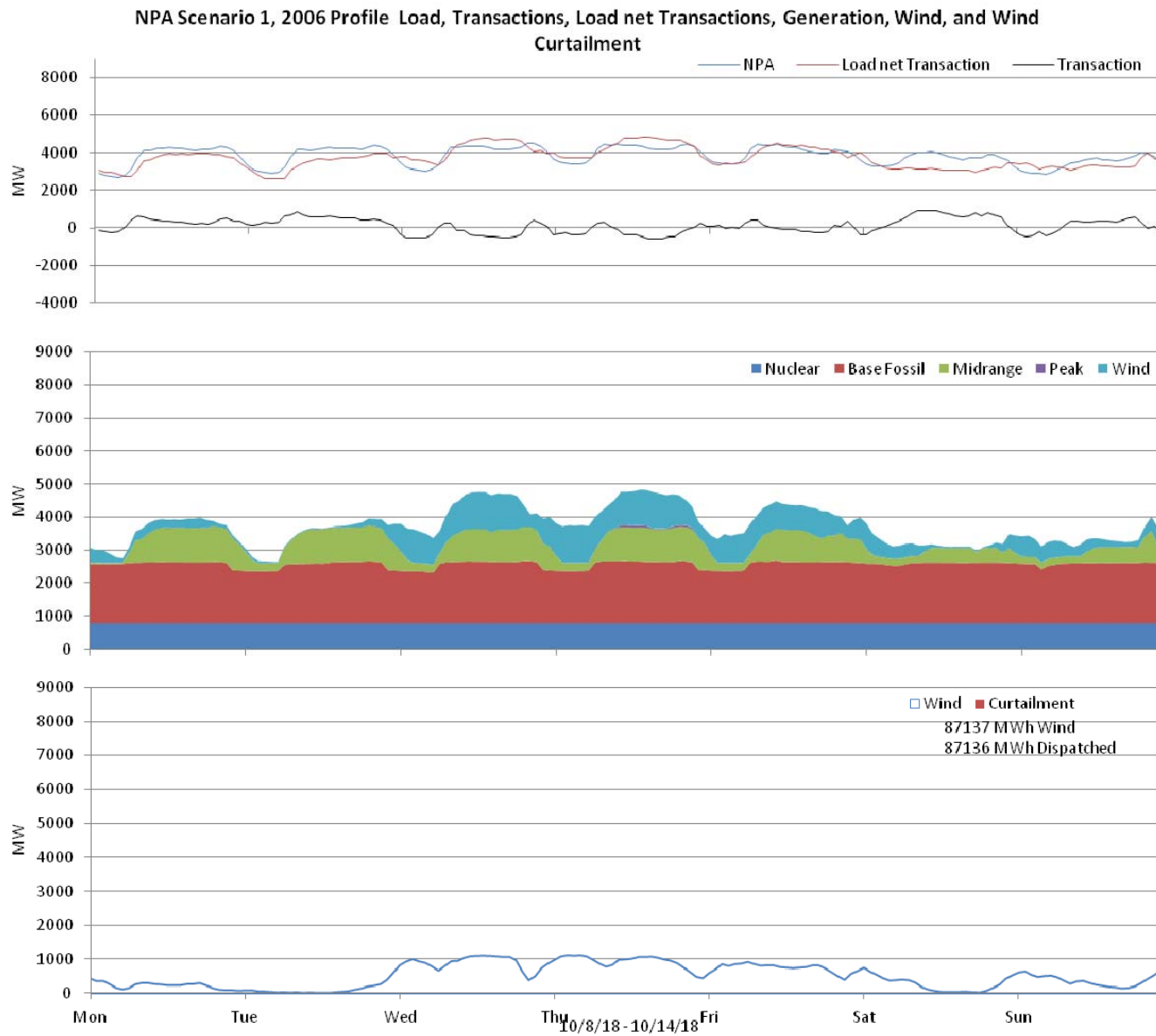


Figure 41: Nebraska 10% wind Penetration, 2006 Profile week of 10/8/2018

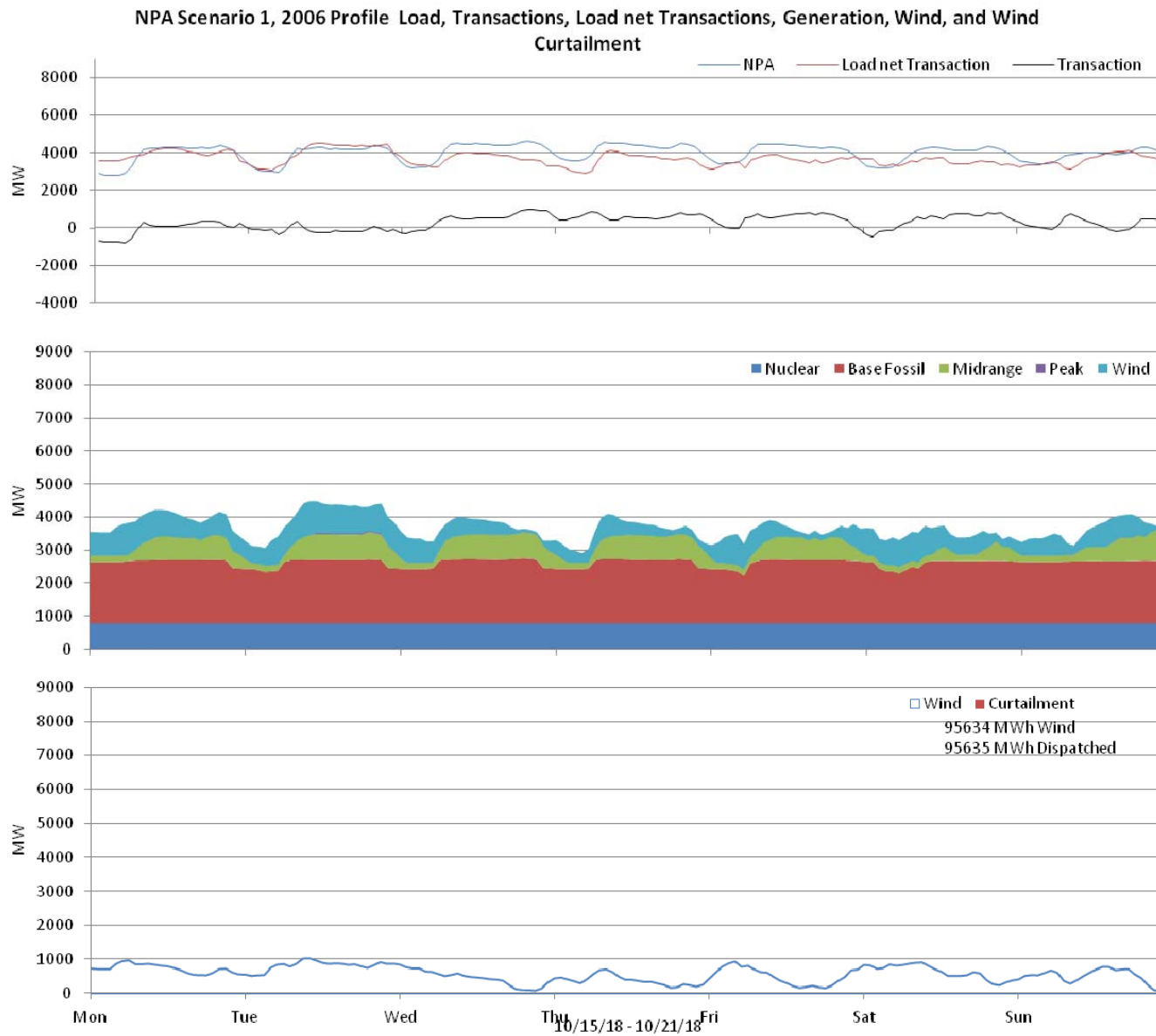


Figure 42: Nebraska 10% wind Penetration, 2006 Profile week of 10/15/2018

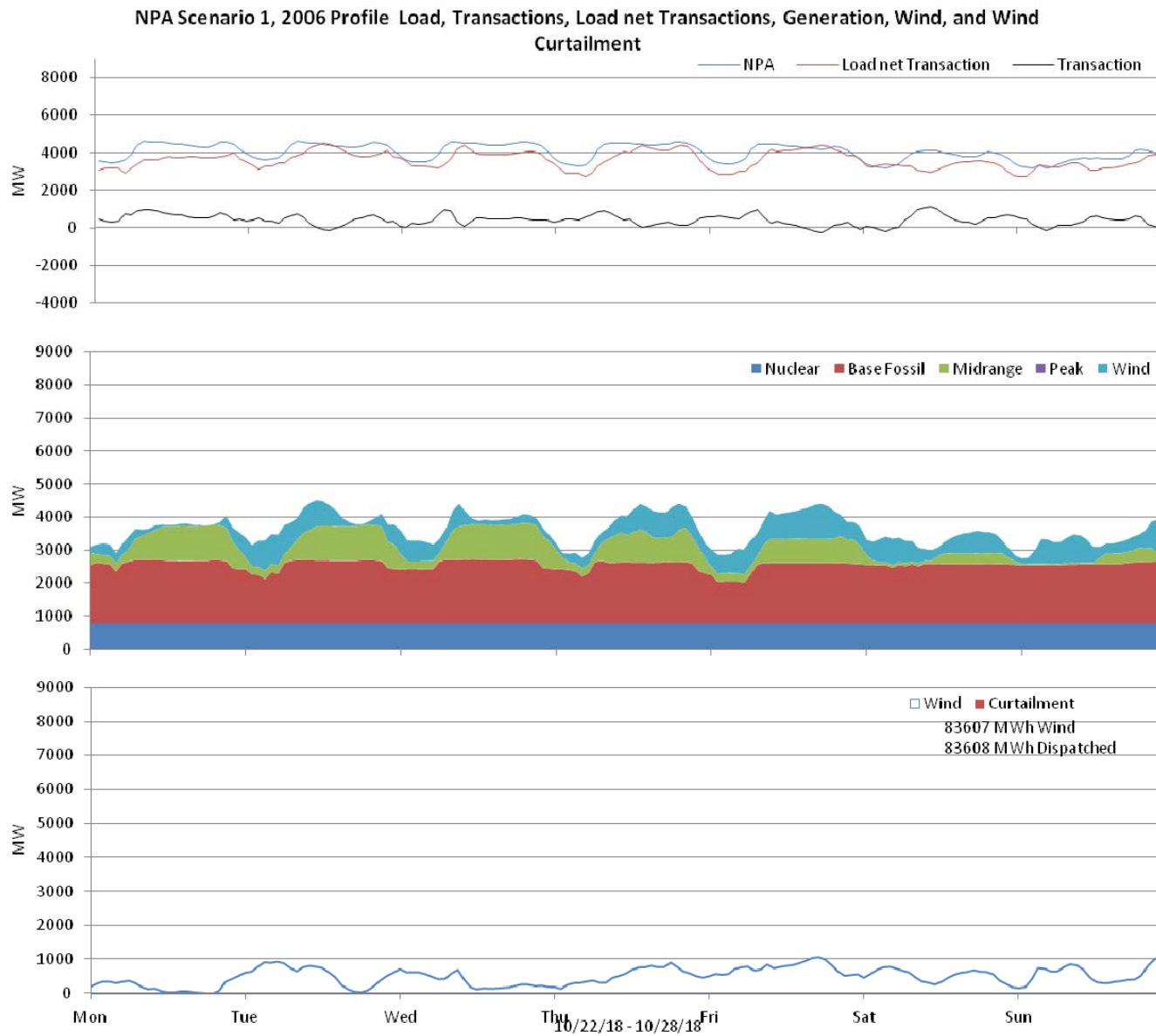


Figure 43 Nebraska 10% wind Penetration, 2006 Profile week of 10/22/2018

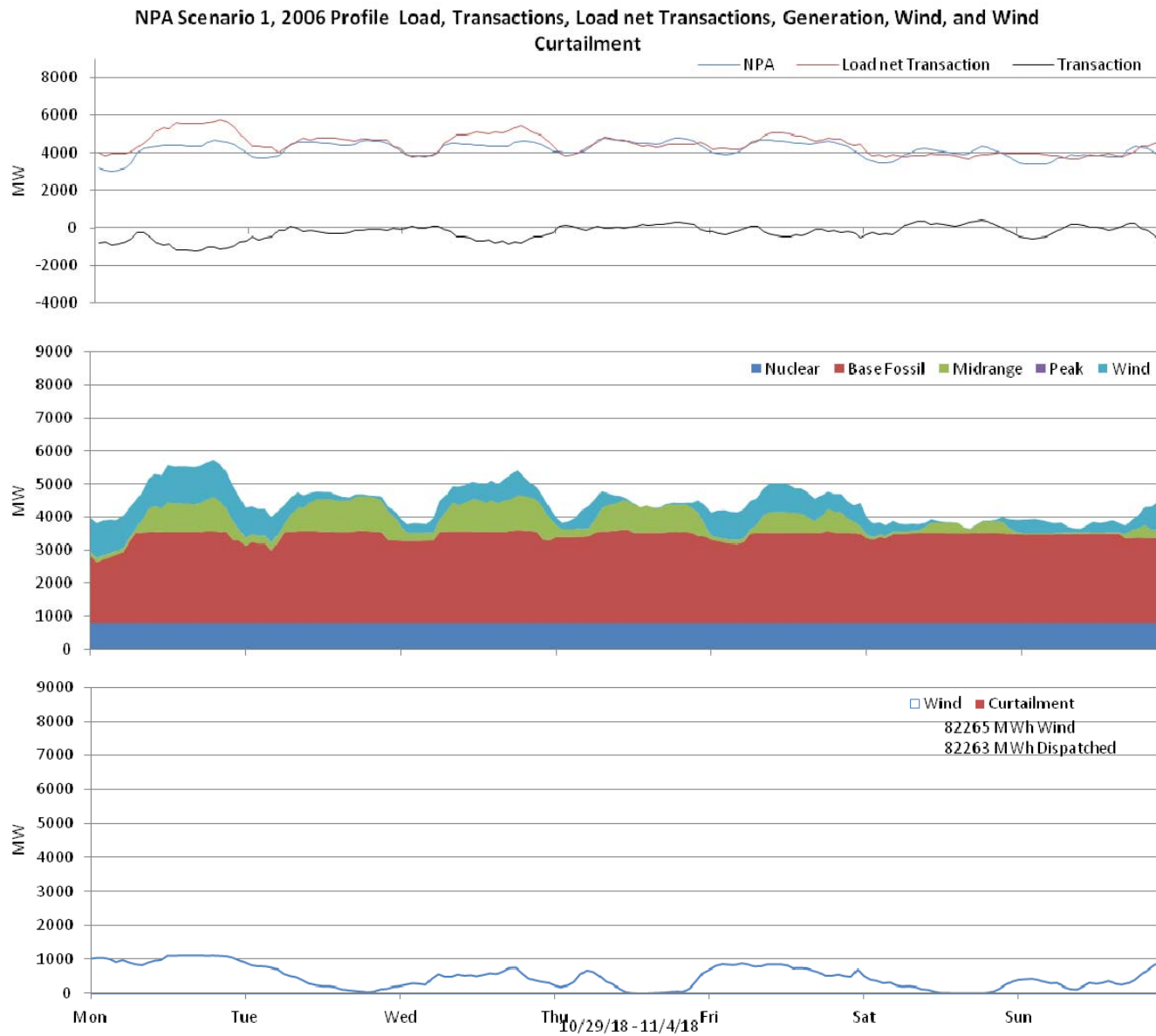


Figure 44: Nebraska 10% wind Penetration, 2006 Profile week of 10/29/2018

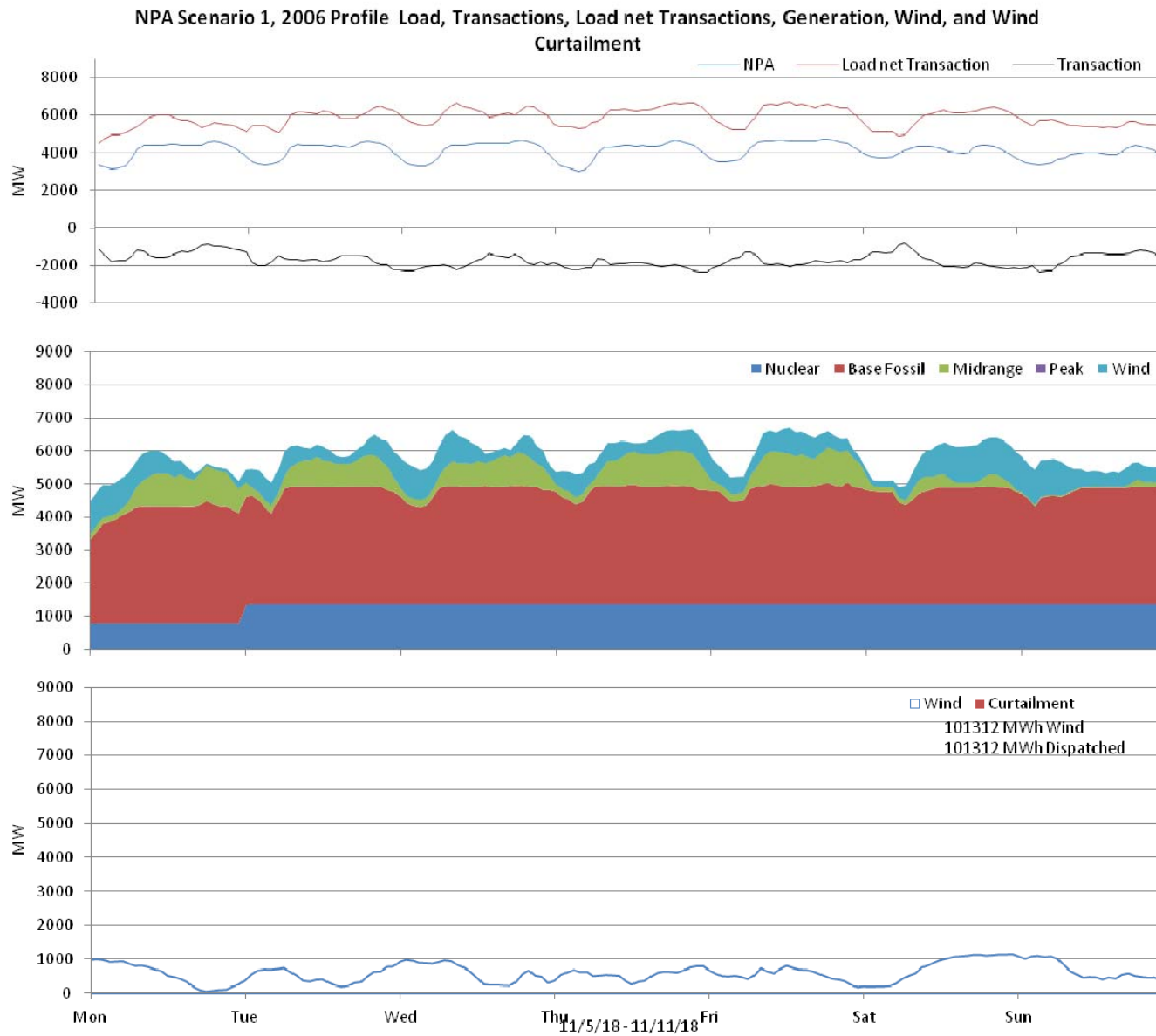


Figure 45 Nebraska 10% wind Penetration, 2006 Profile week of 11/5/2018

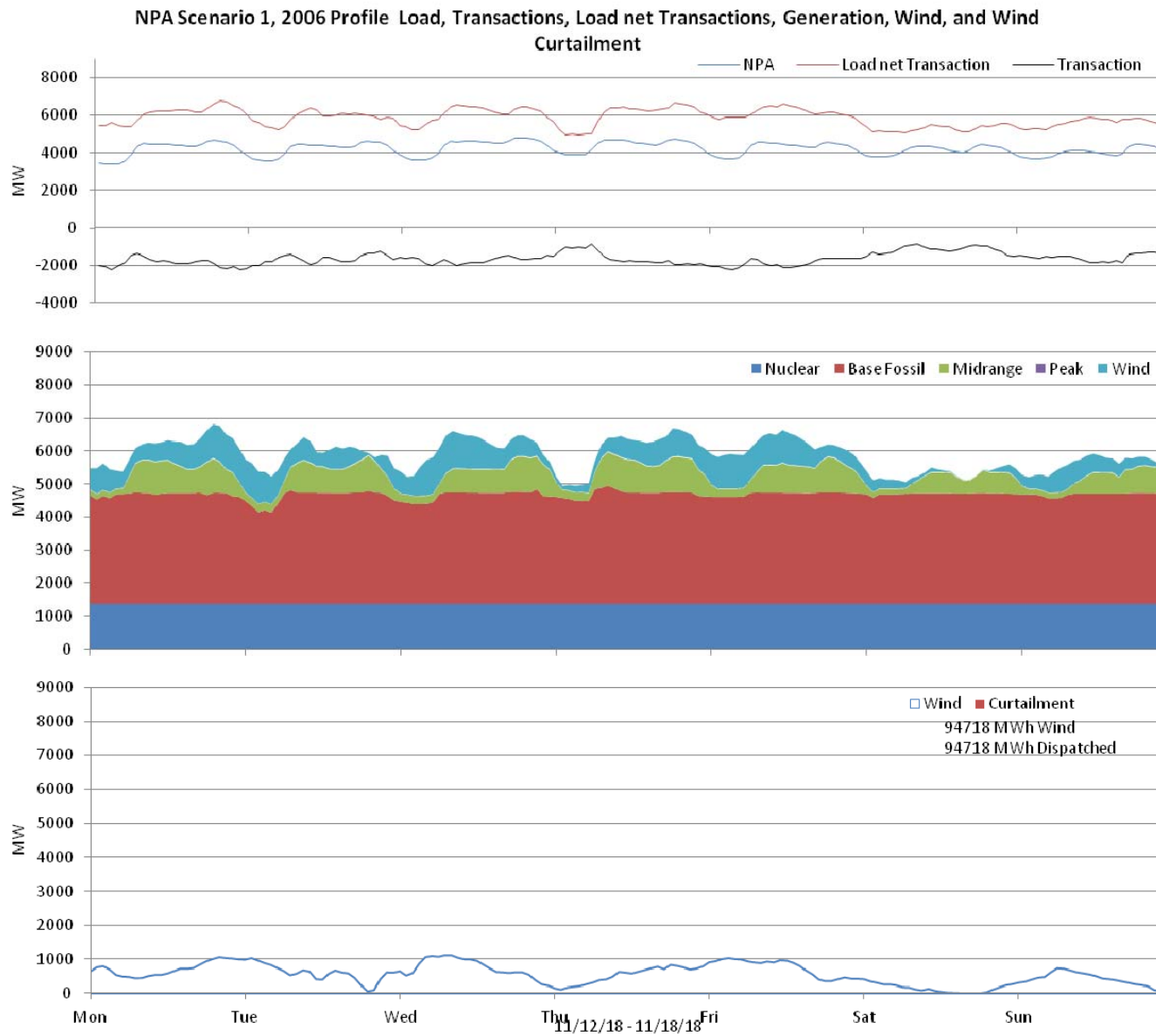


Figure 46: Nebraska 10% wind Penetration, 2006 Profile week of 11/12/2018

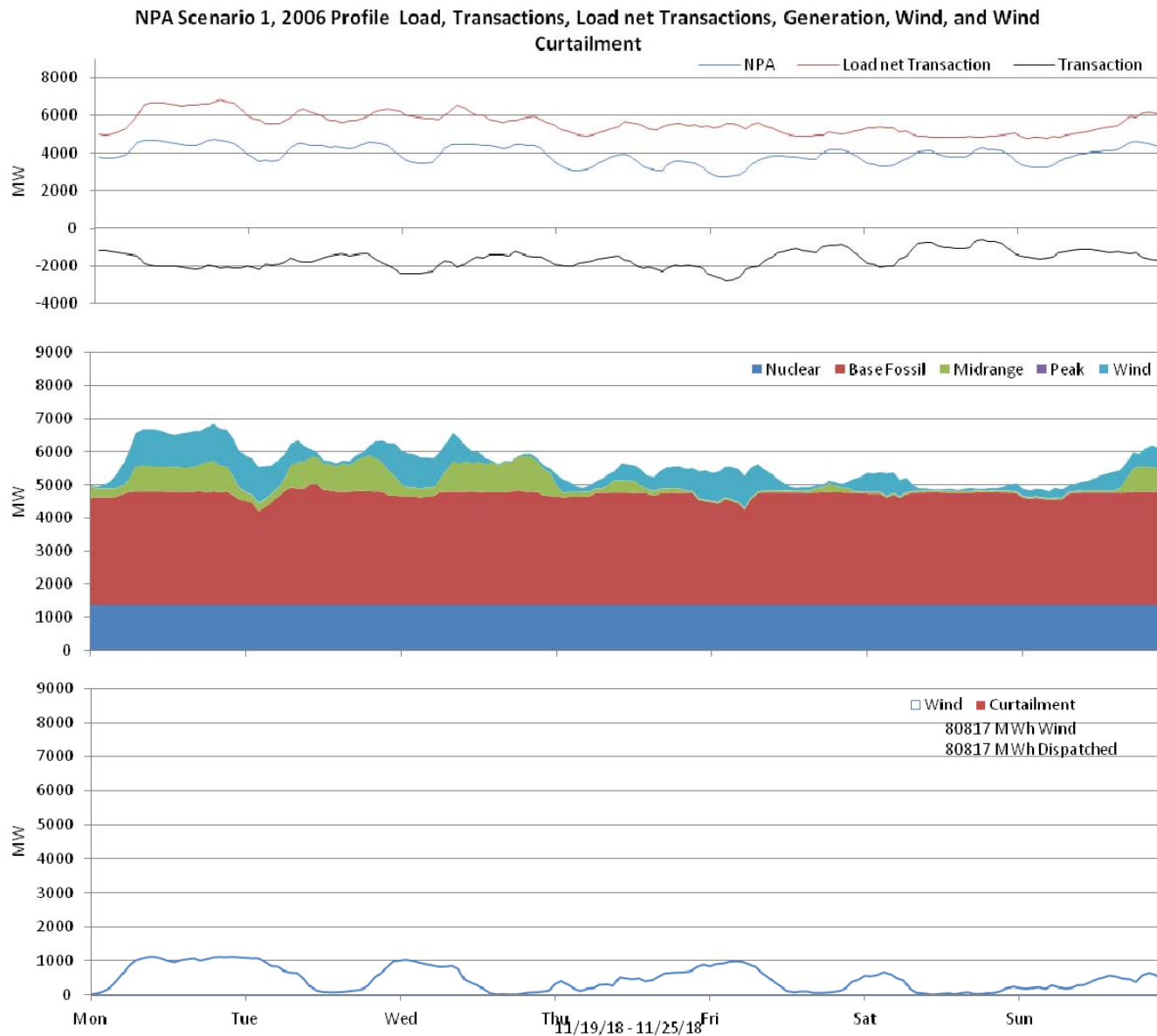


Figure 47: Nebraska 10% wind Penetration, 2006 Profile week of 11/19/2018

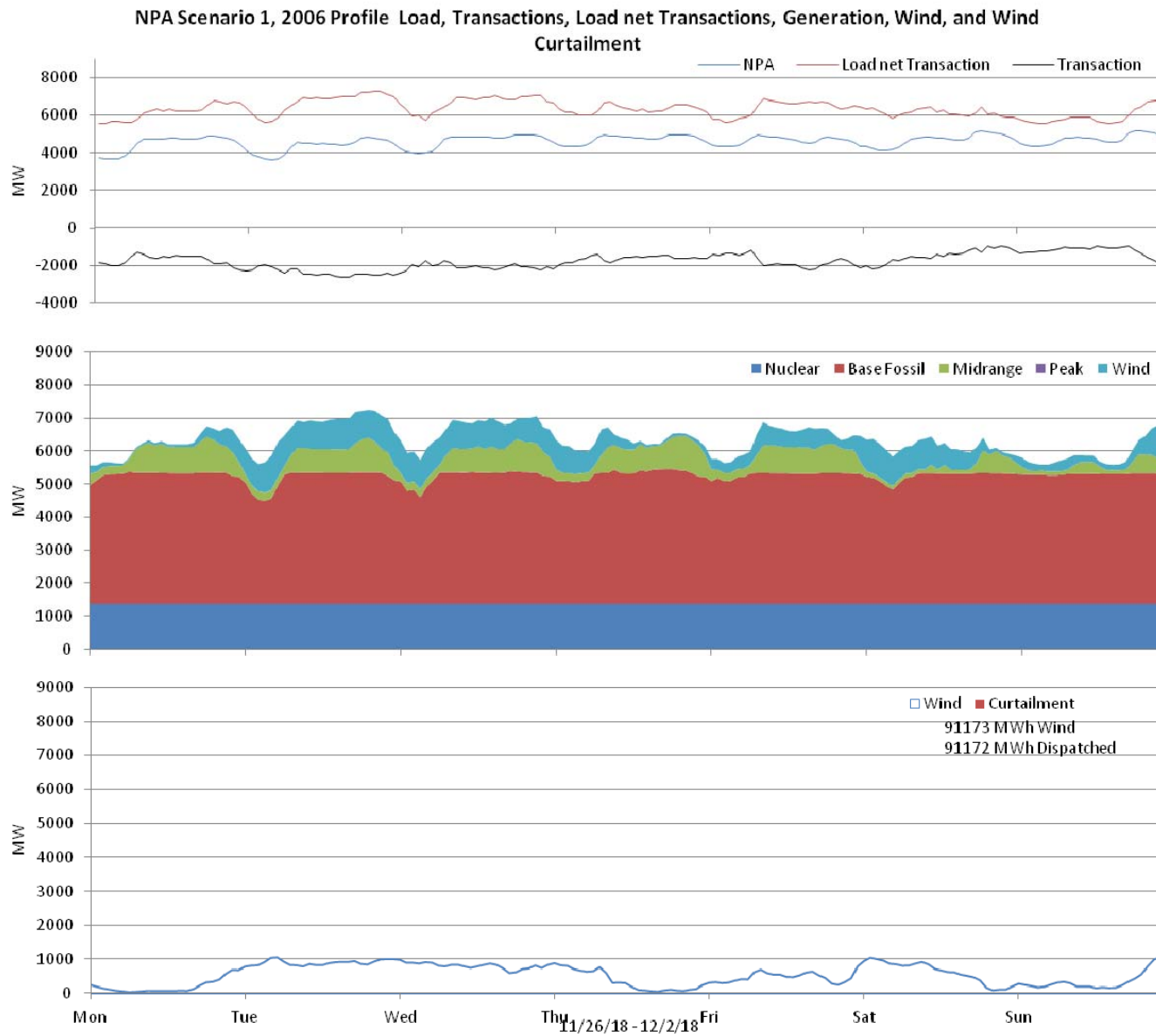


Figure 48: Nebraska 10% wind Penetration, 2006 Profile week of 11/26/2018

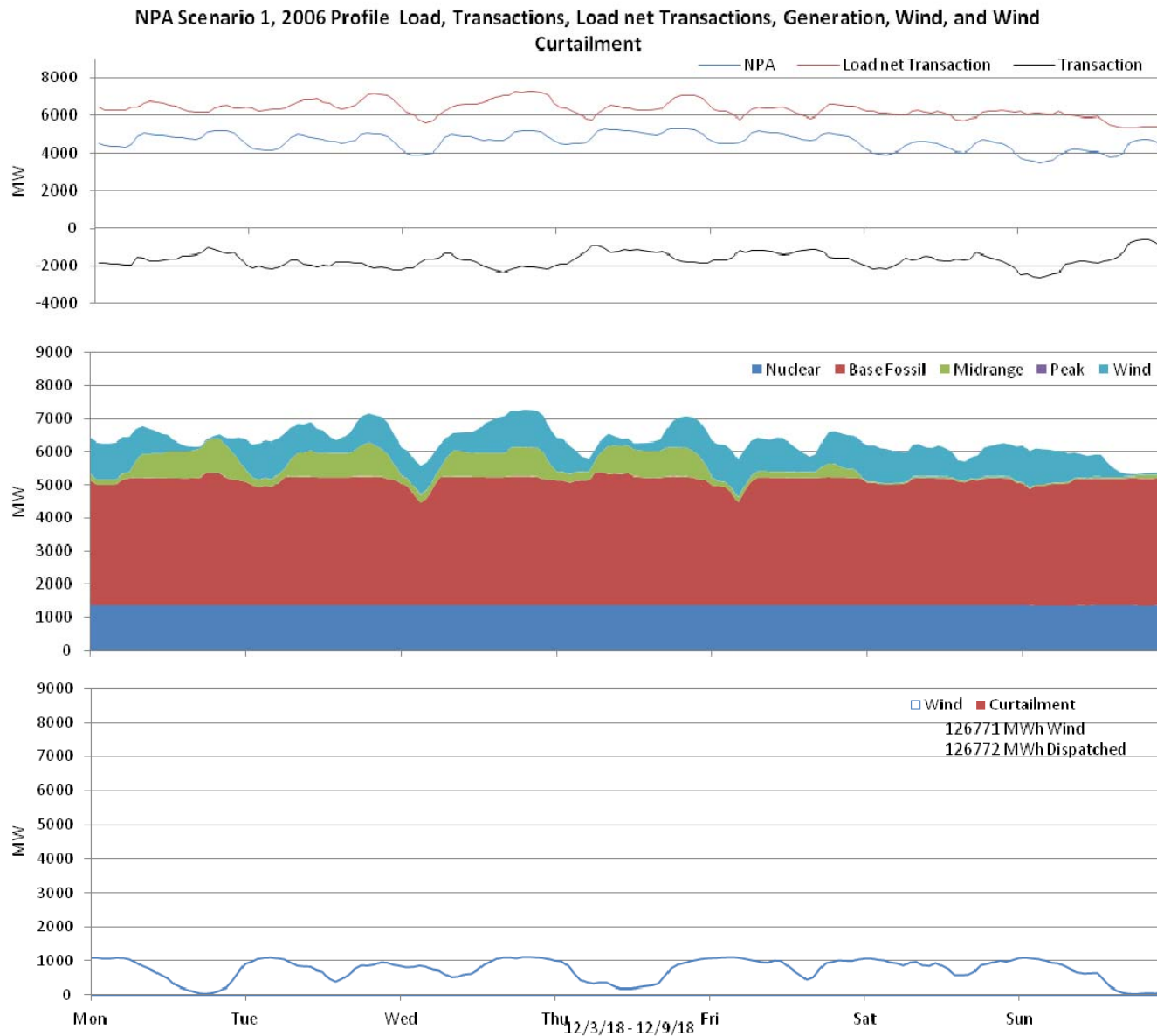


Figure 49: Nebraska 10% wind Penetration, 2006 Profile week of 12/3/2018

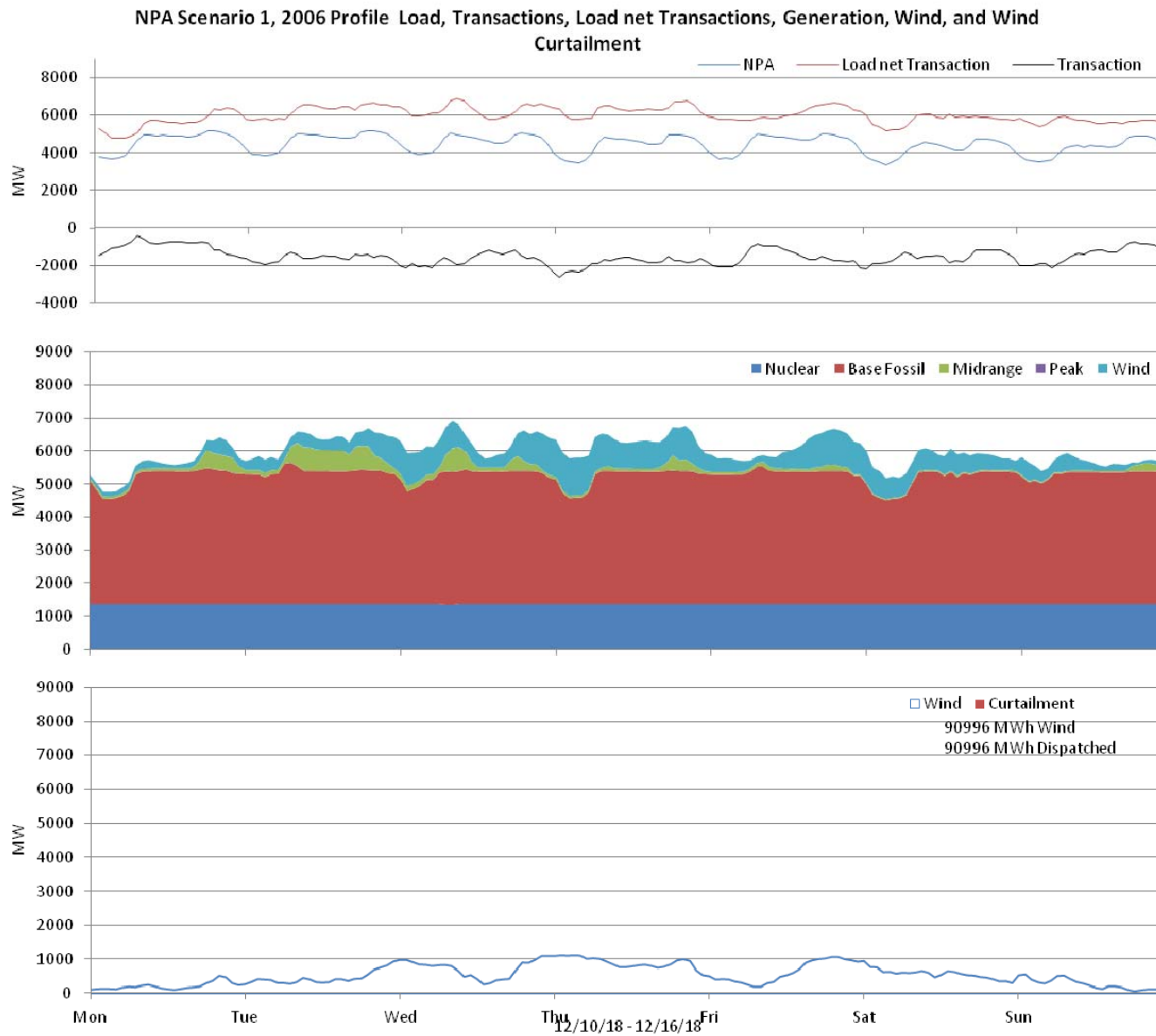


Figure 50: Nebraska 10% wind Penetration, 2006 Profile week of 12/10/2018

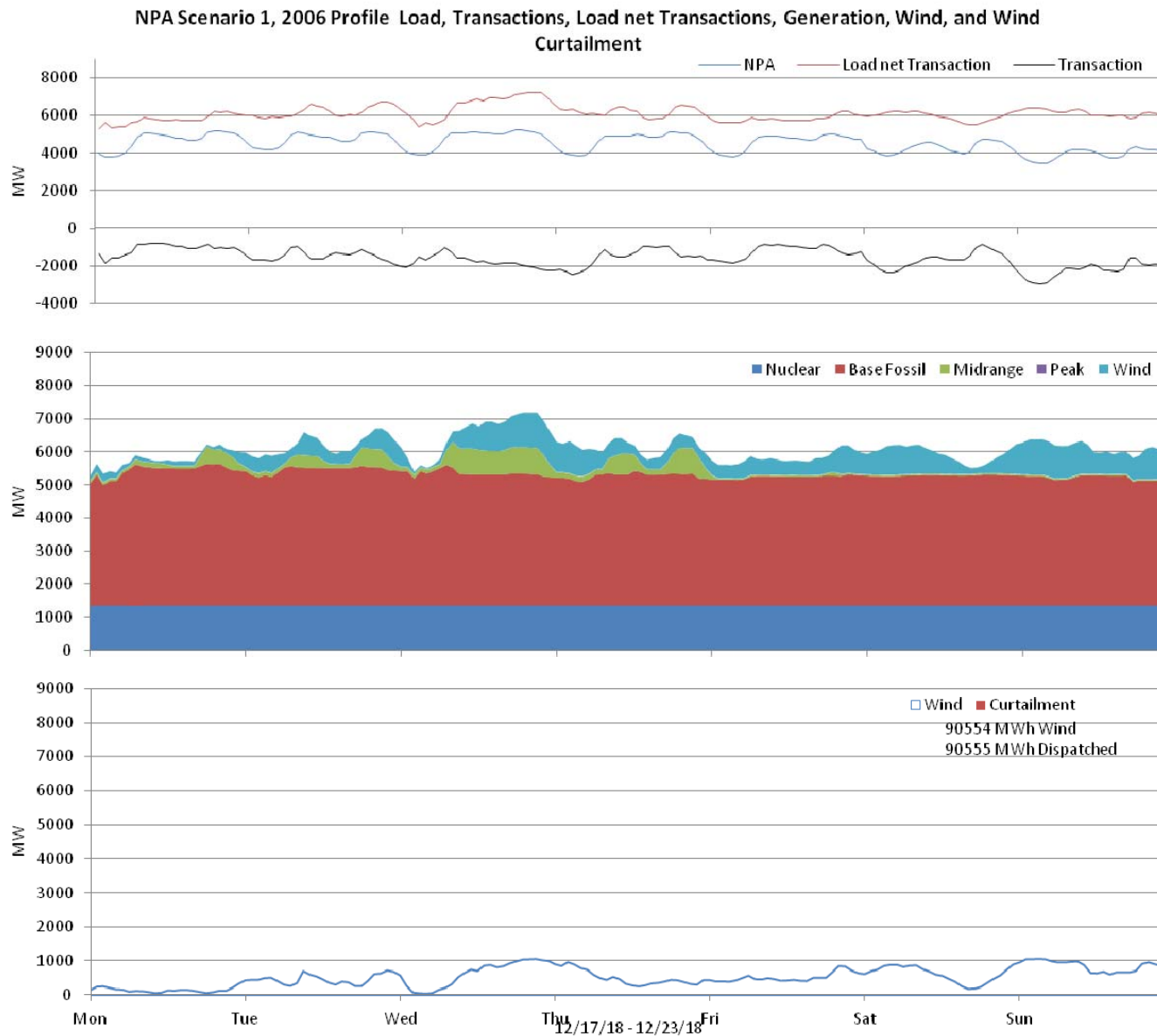


Figure 51: Nebraska 10% wind Penetration, 2006 Profile week of 12/17/2018

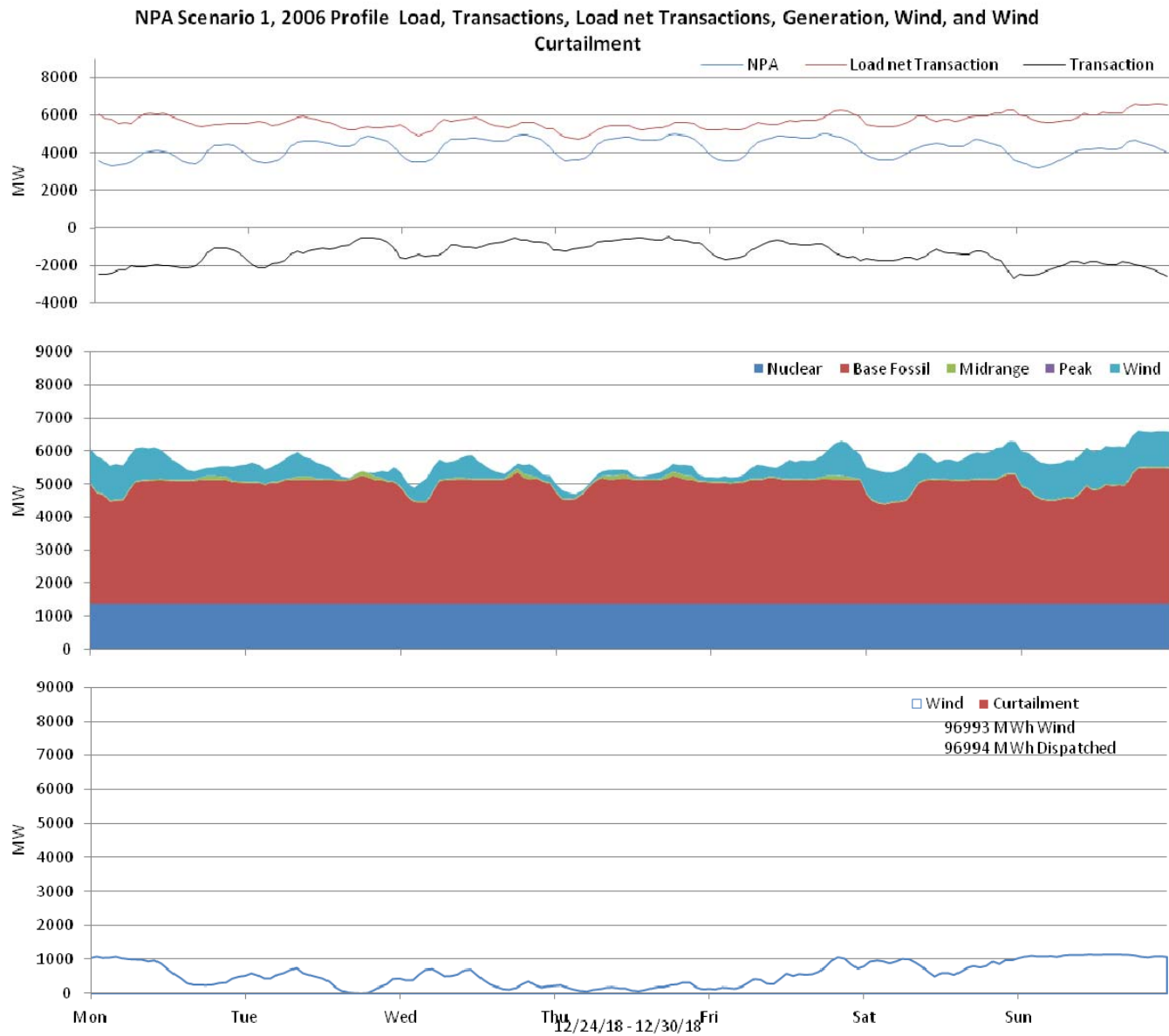


Figure 52: Nebraska 10% wind Penetration, 2006 Profile week of 12/24/2018

For SPP with Nebraska seasonal peak and minimum wind energies are shown in Table 26.

Table 26: SPP with Nebraska Seasonal Peak and Minimum Energy

| Weekly Energy | Peak MWH | Week of Year | Start Date | Min MWH | Week of Year | Start Date |
|---------------|----------|--------------|------------|---------|--------------|------------|
| Season1 | 776093 | 2 | 1/8/2018 | 464849 | 51 | 12/17/2018 |
| Season2 | 922523 | 21 | 5/21/2018 | 359033 | 20 | 5/14/2018 |
| Season3 | 785389 | 24 | 6/11/2018 | 359675 | 34 | 8/20/2018 |
| Season4 | 780341 | 40 | 10/1/2018 | 403535 | 36 | 9/3/2018 |

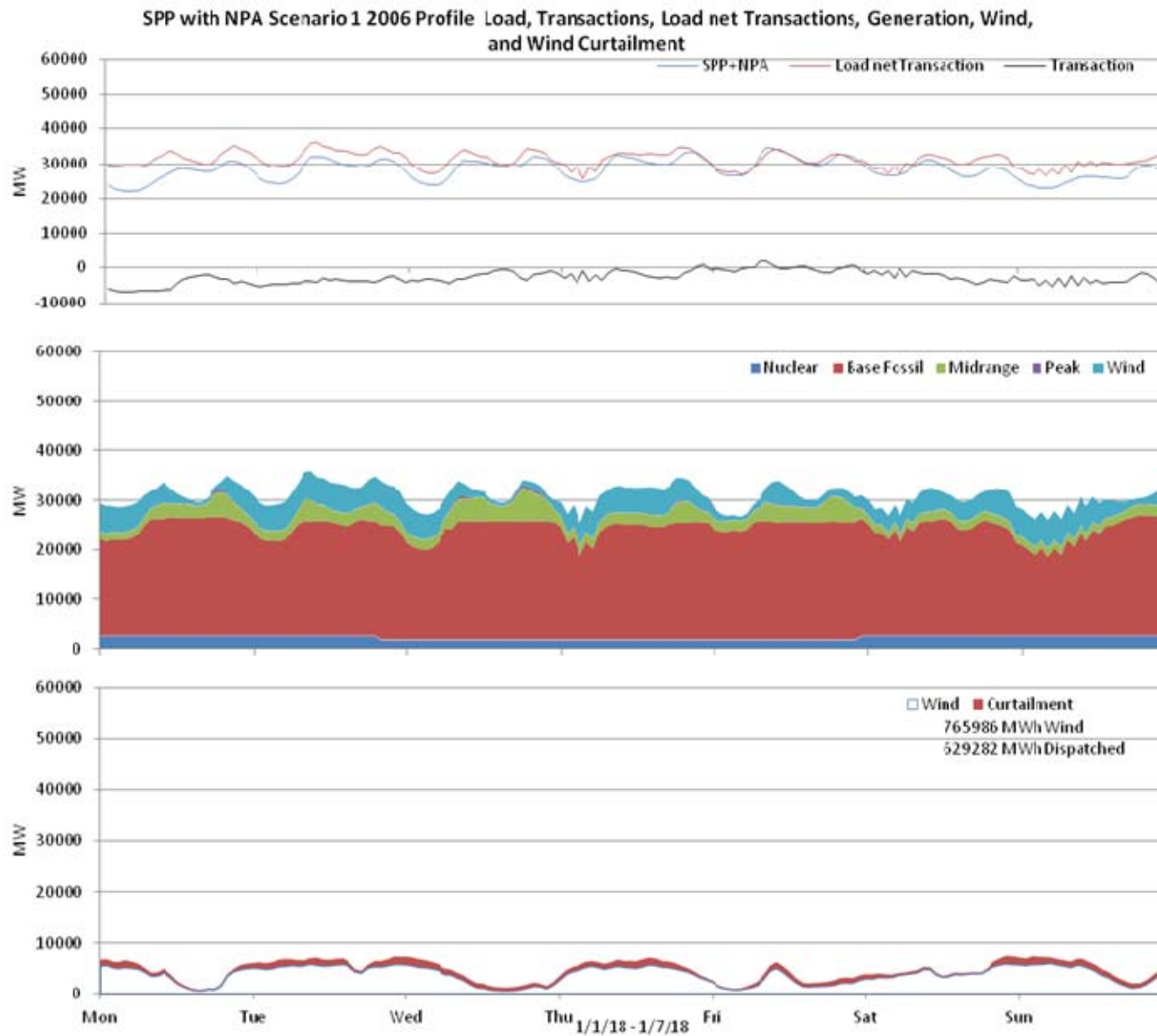


Figure 53: SPP 10% wind Penetration, 2006 Profile week of 1/1/2018

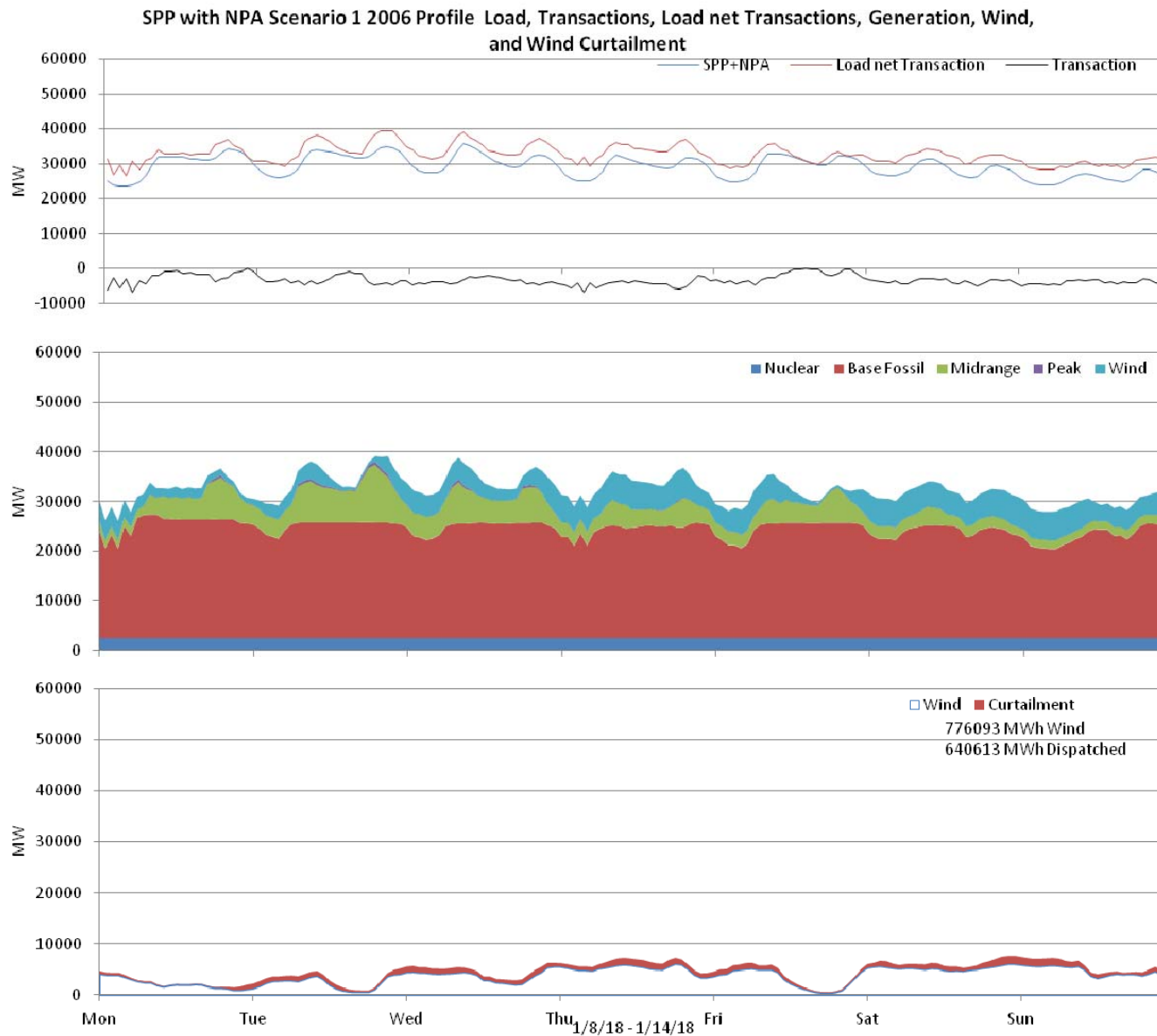


Figure 54: SPP 10% wind Penetration, 2006 Profile week of 1/8/2018

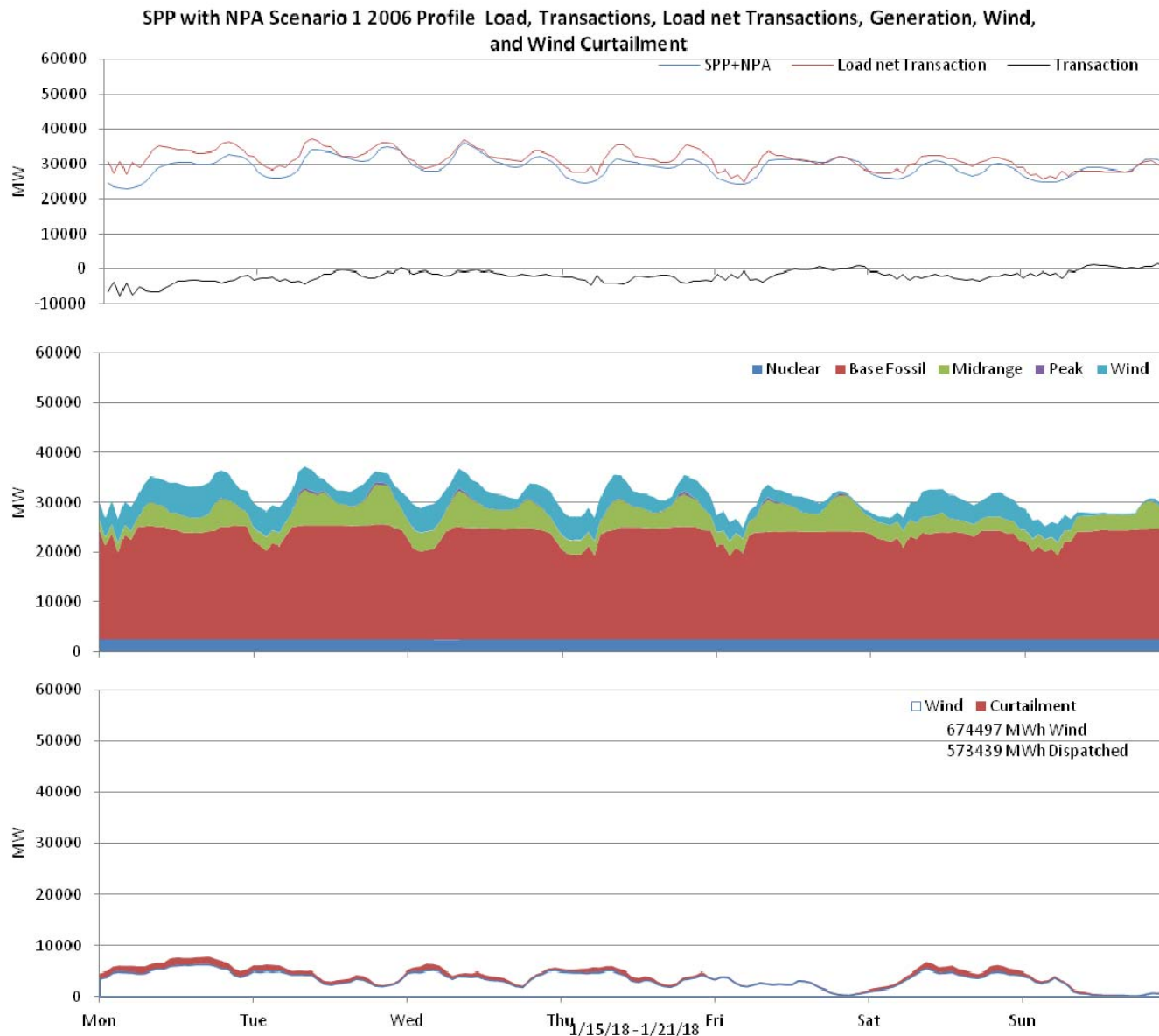


Figure 55: SPP 10% wind Penetration, 2006 Profile week of 1/15/2018

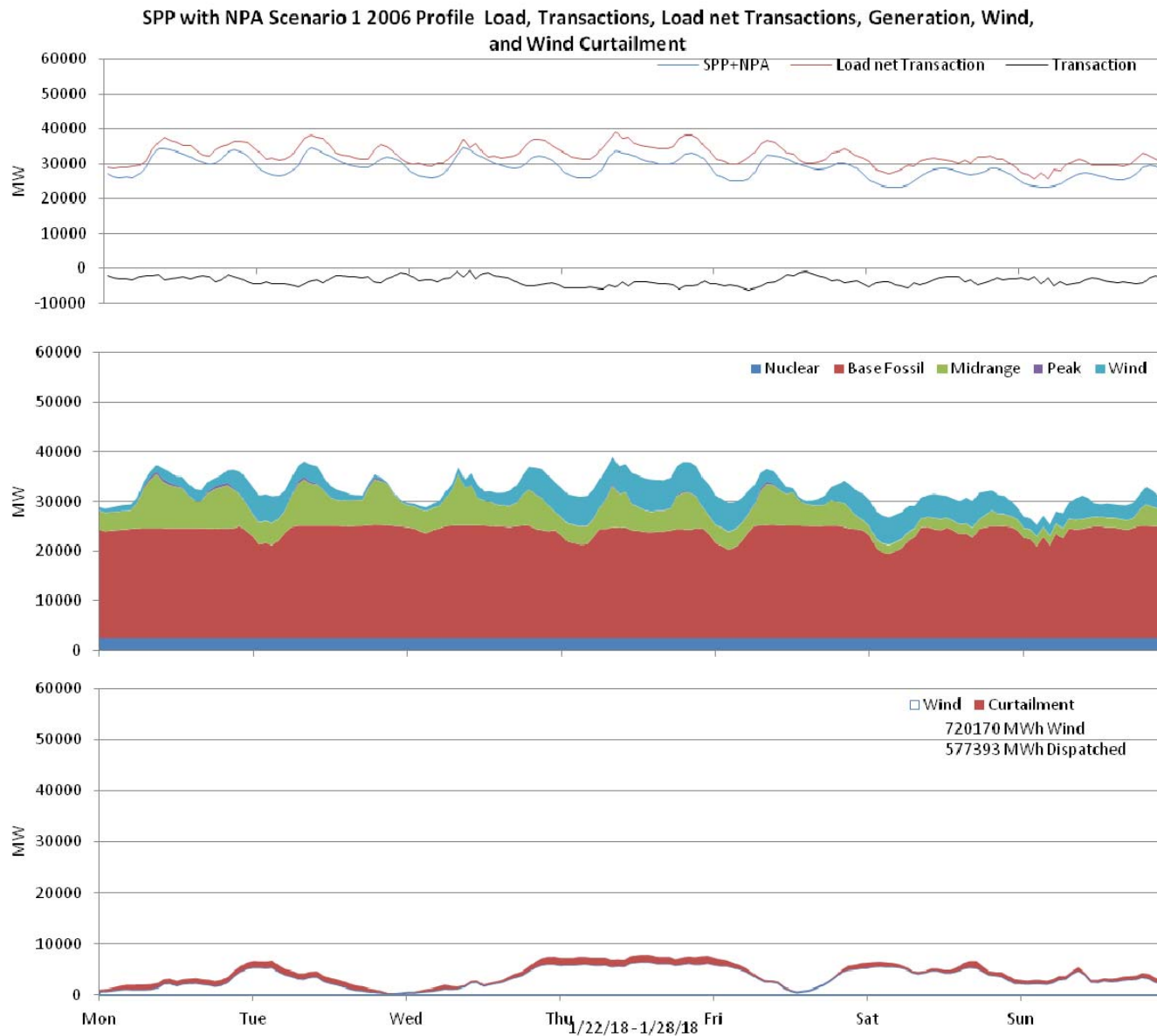


Figure 56: SPP 10% wind Penetration, 2006 Profile week of 1/22/2018

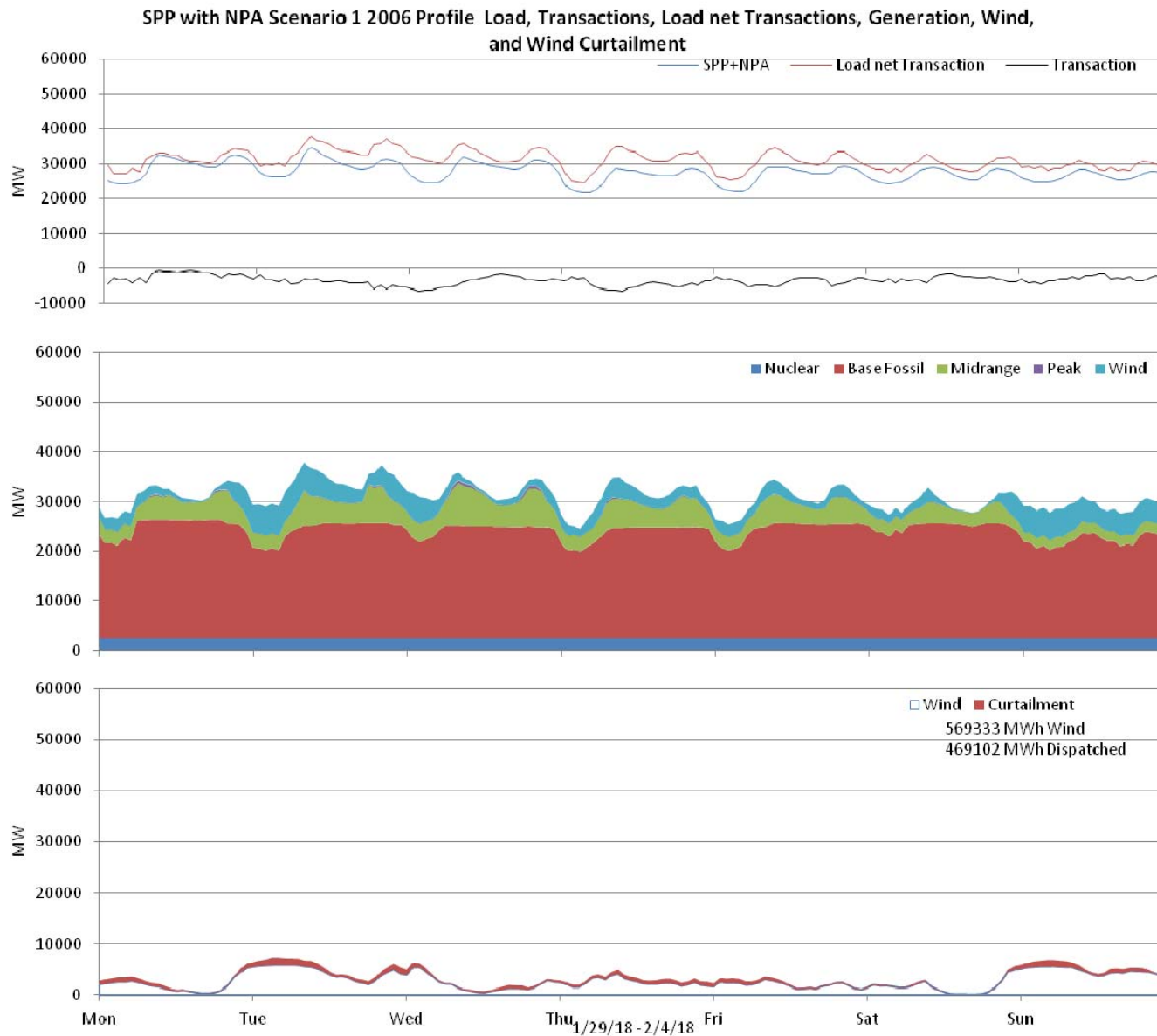


Figure 57: SPP 10% wind Penetration, 2006 Profile week of 1/29/2018

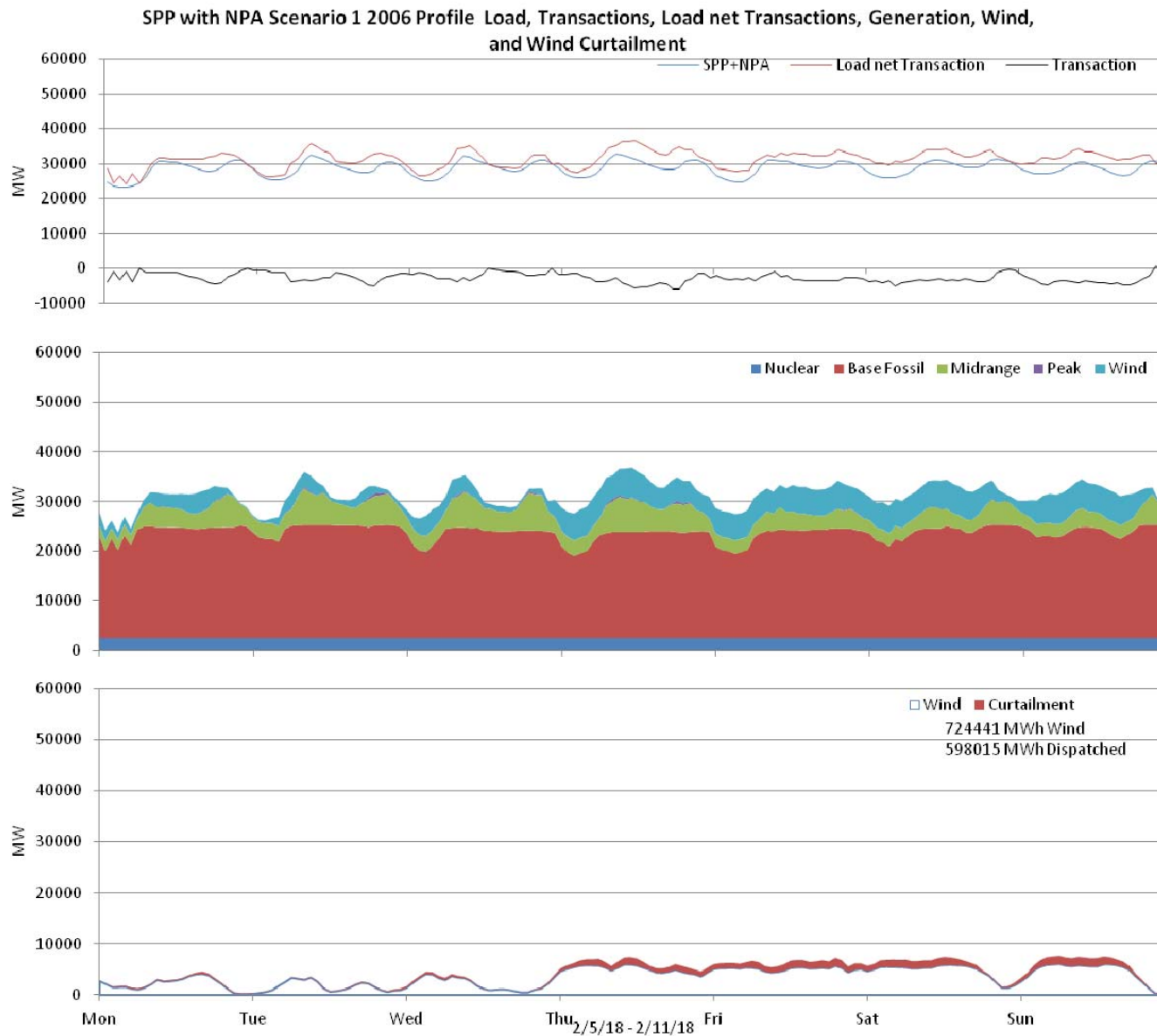


Figure 58: SPP 10% wind Penetration, 2006 Profile week of 2/5/2018

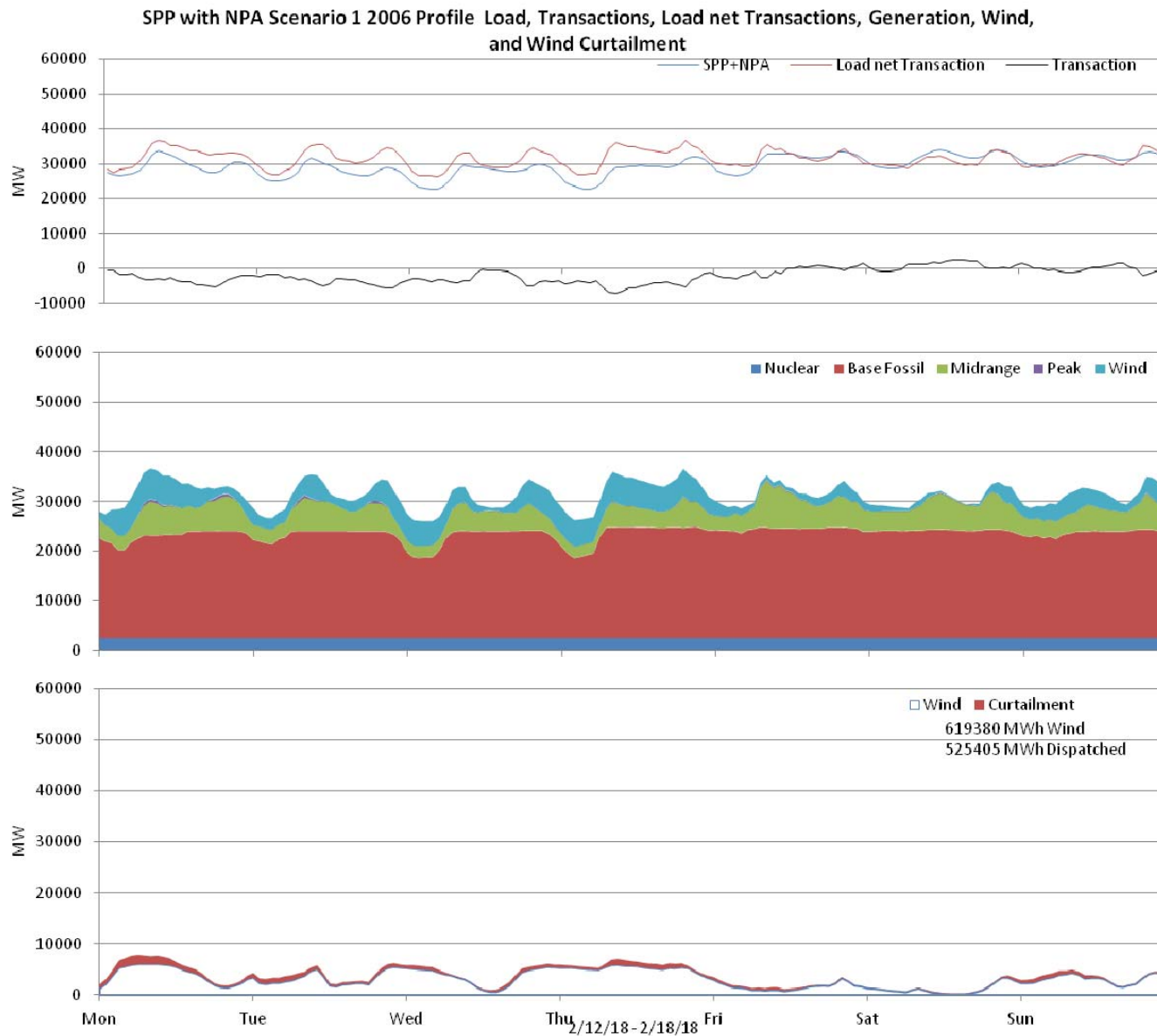


Figure 59: SPP 10% wind Penetration, 2006 Profile week of 2/12/2018

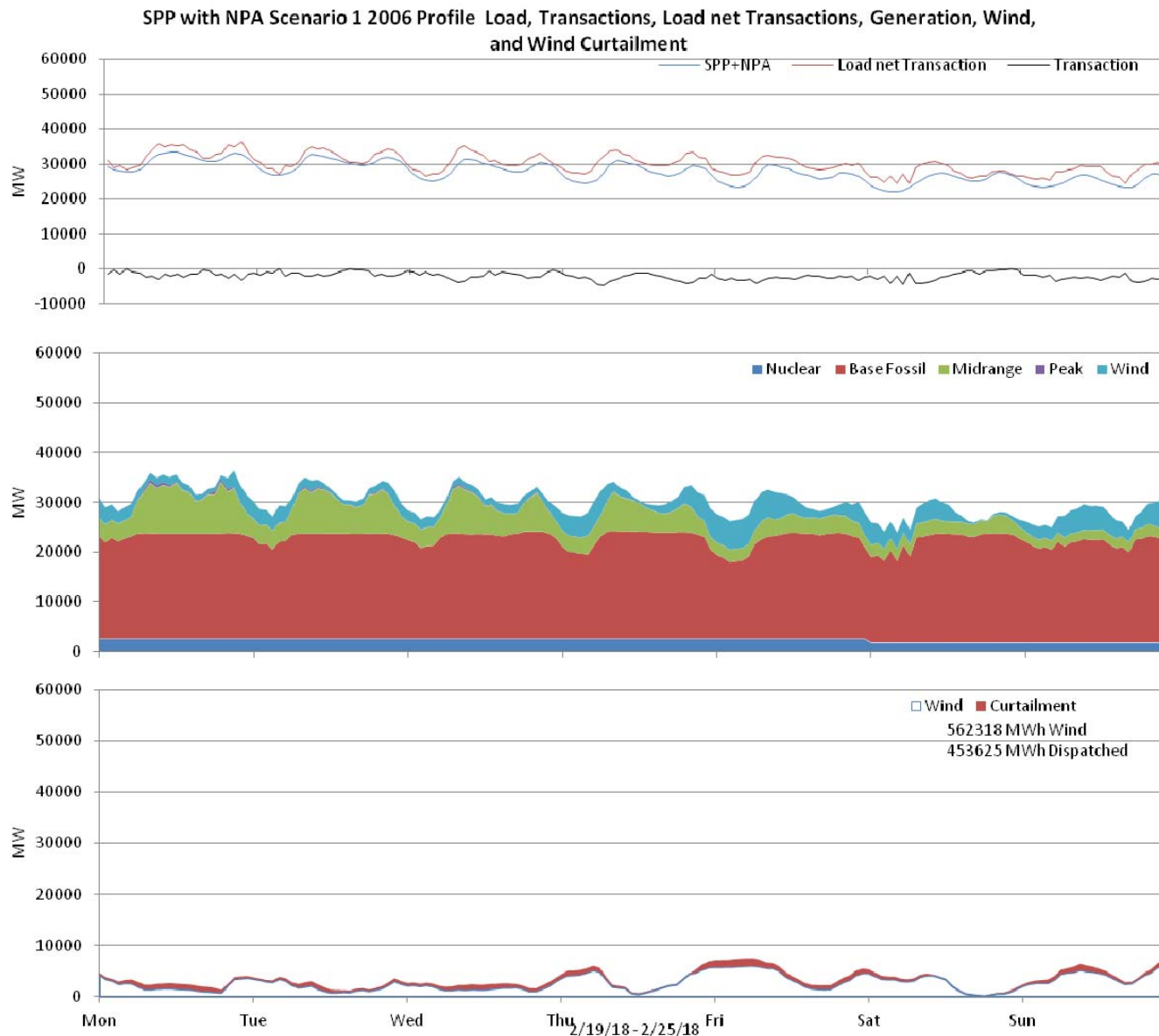


Figure 60: SPP 10% wind Penetration, 2006 Profile week of 2/19/2018

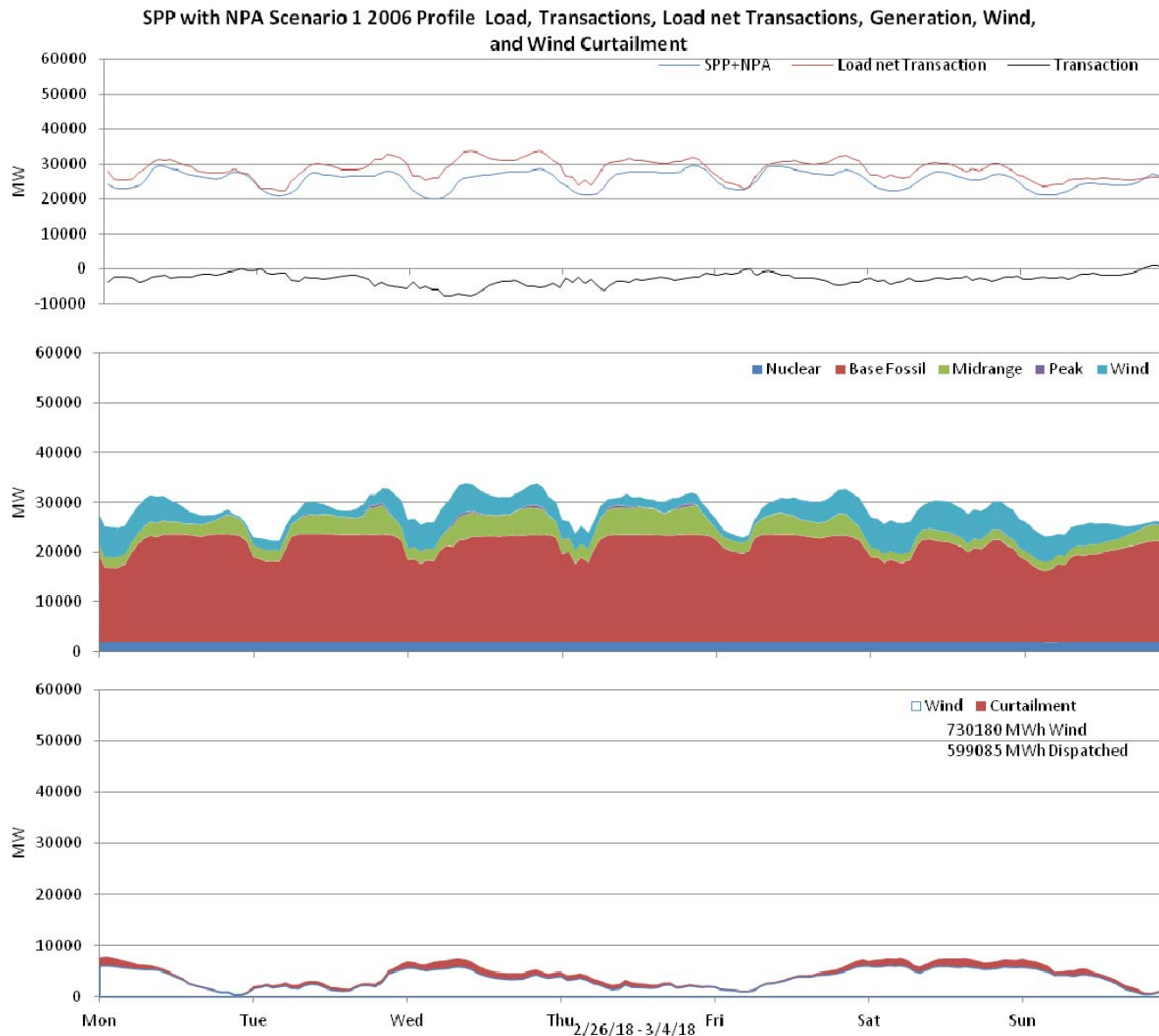


Figure 61: SPP 10% wind Penetration, 2006 Profile week of 2/26/2018

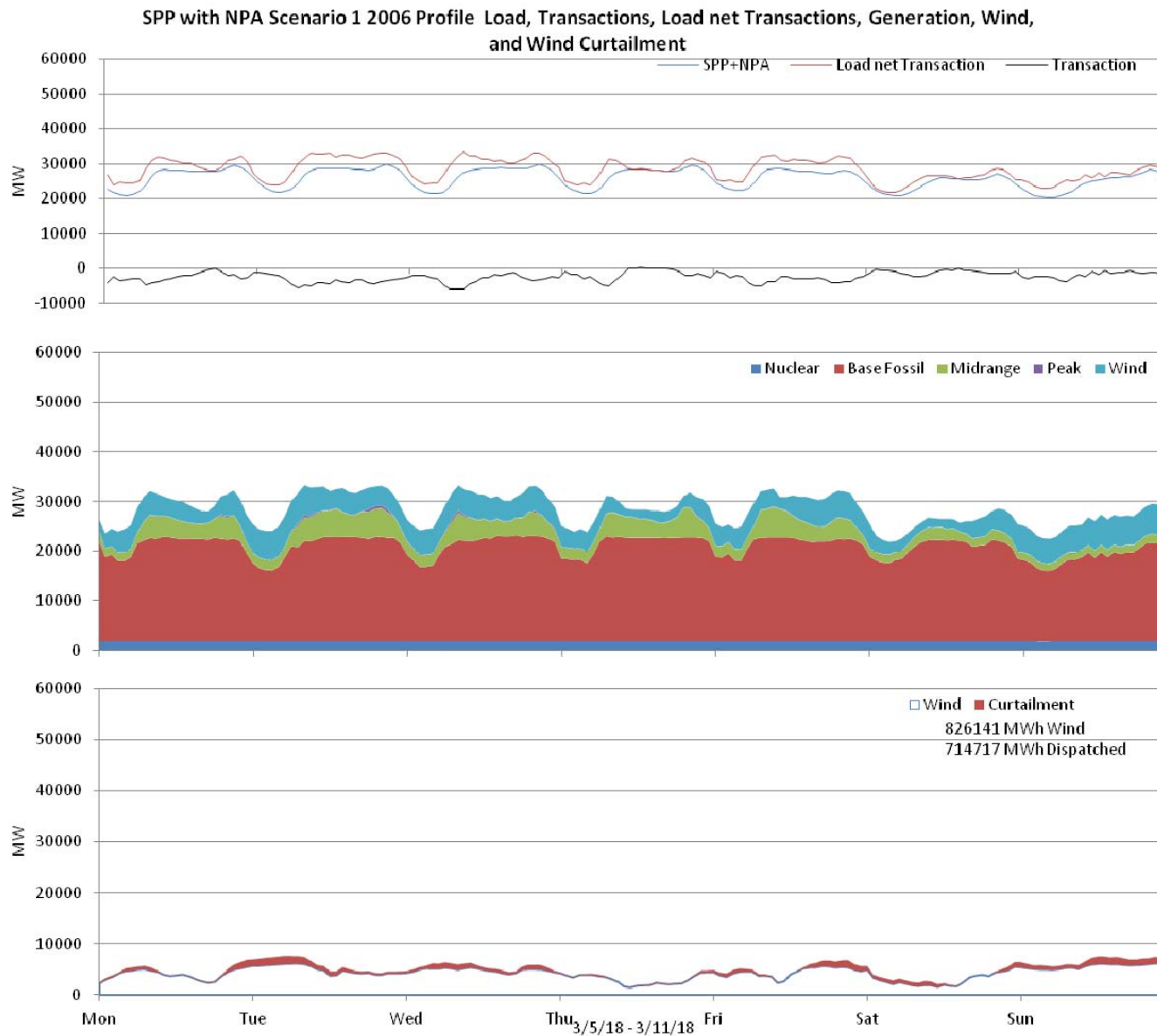


Figure 62: SPP 10% wind Penetration, 2006 Profile week of 3/5/2018

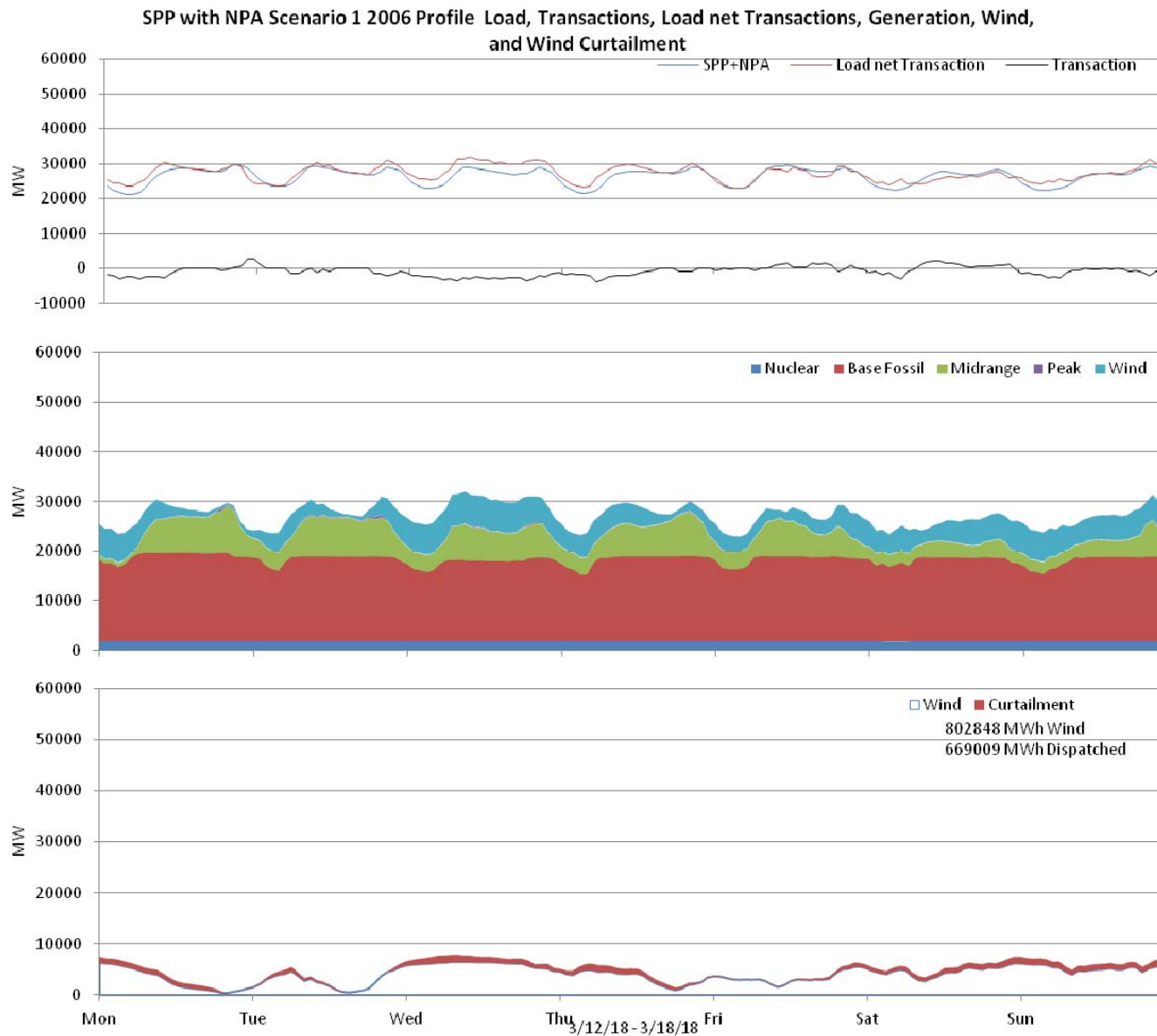


Figure 63: SPP 10% wind Penetration, 2006 Profile week of 3/12/2018

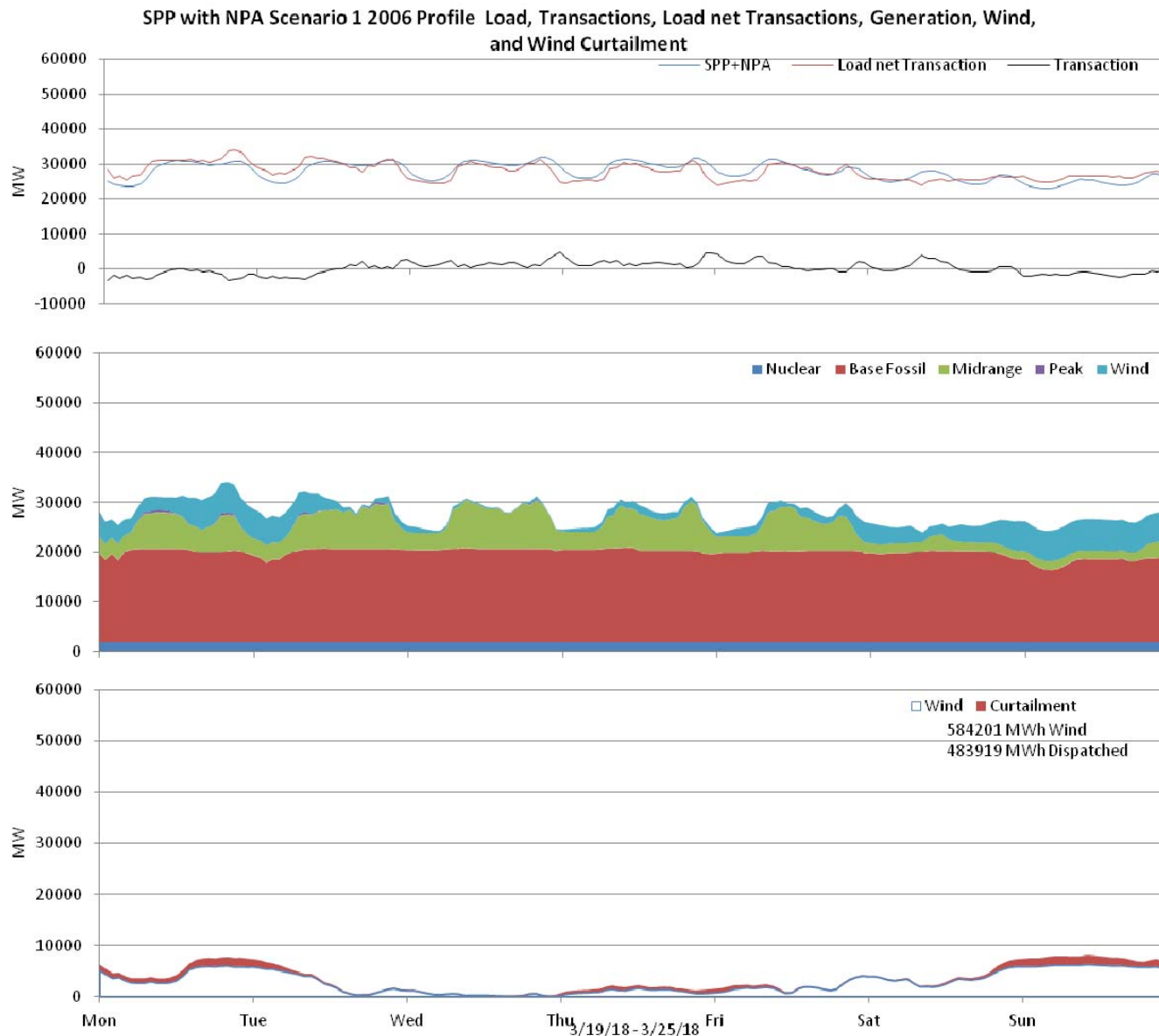


Figure 64: SPP 10% wind Penetration, 2006 Profile week of 3/19/2018

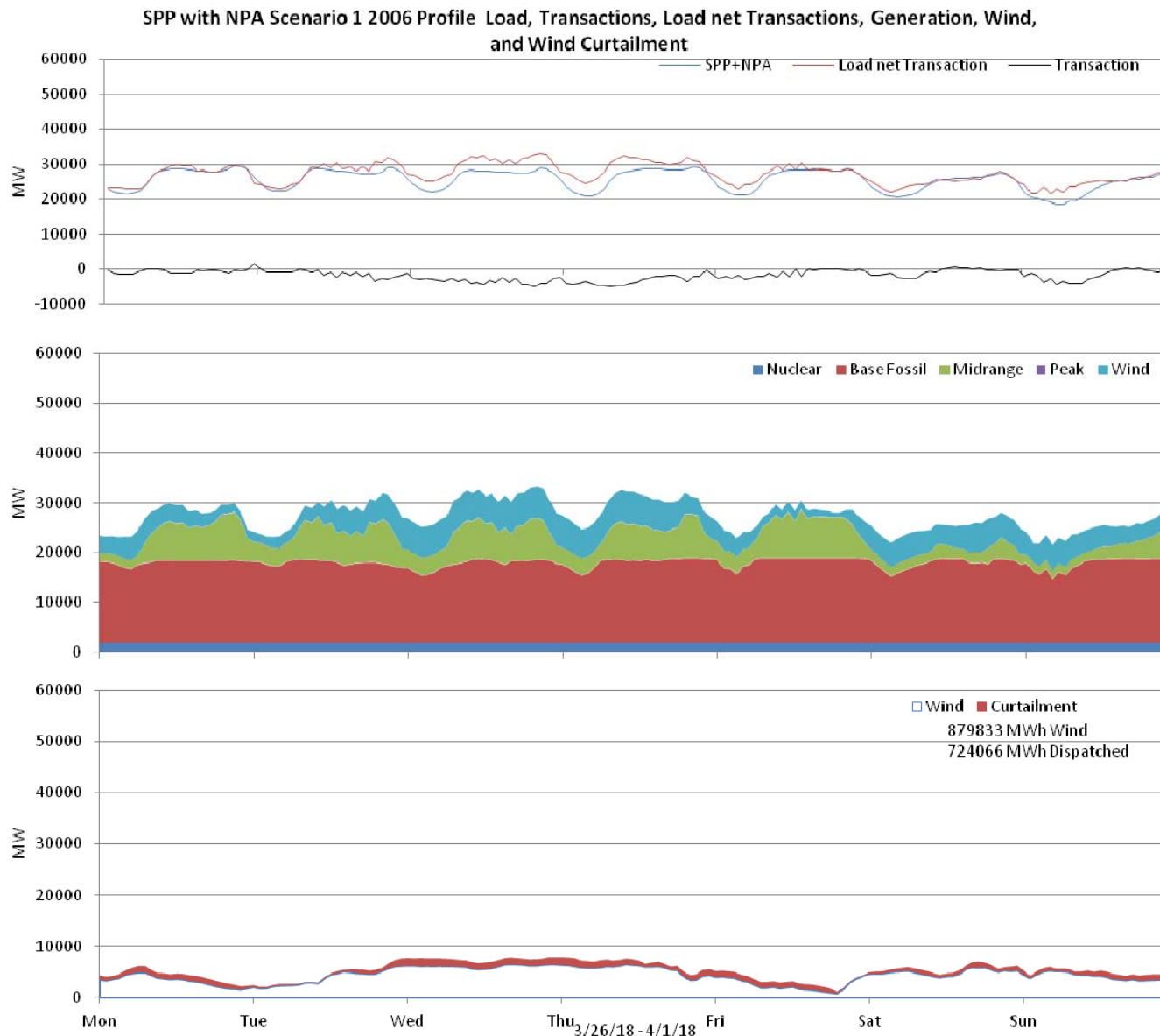


Figure 65: SPP 10% wind Penetration, 2006 Profile week of 3/26/2018

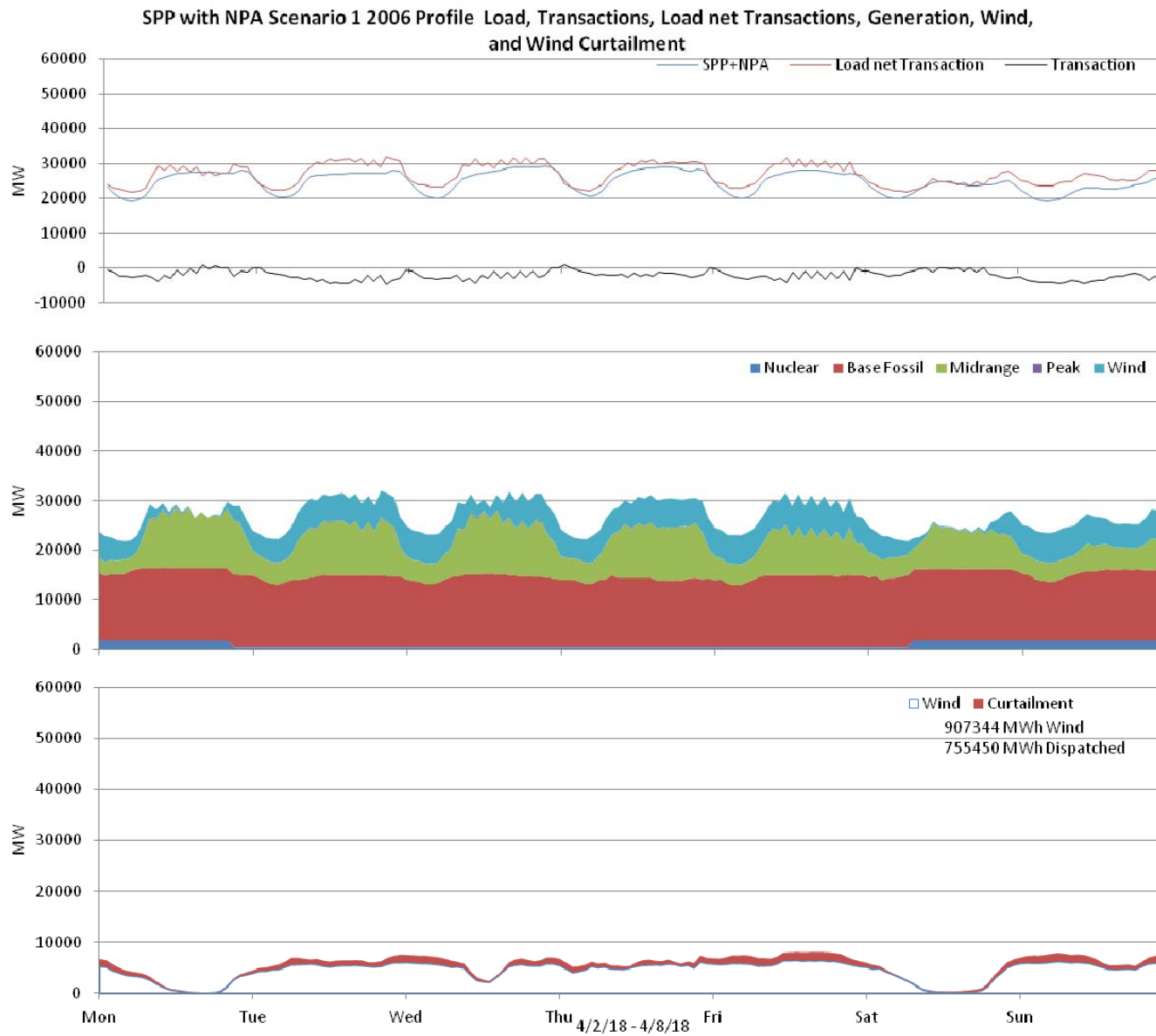


Figure 66: SPP 10% wind Penetration, 2006 Profile week of 4/2/2018

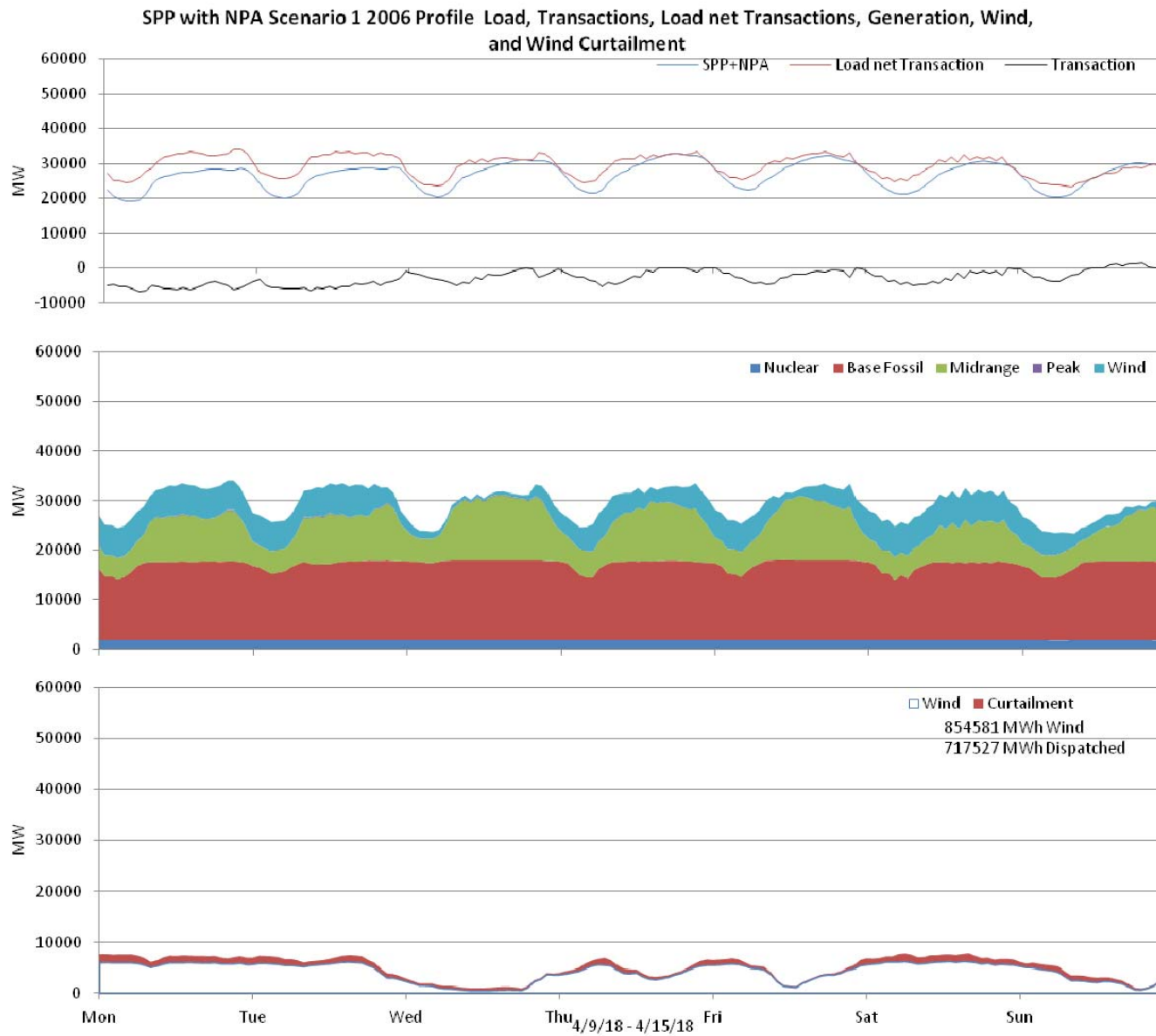


Figure 67: SPP 10% wind Penetration, 2006 Profile week of 4/9/2018

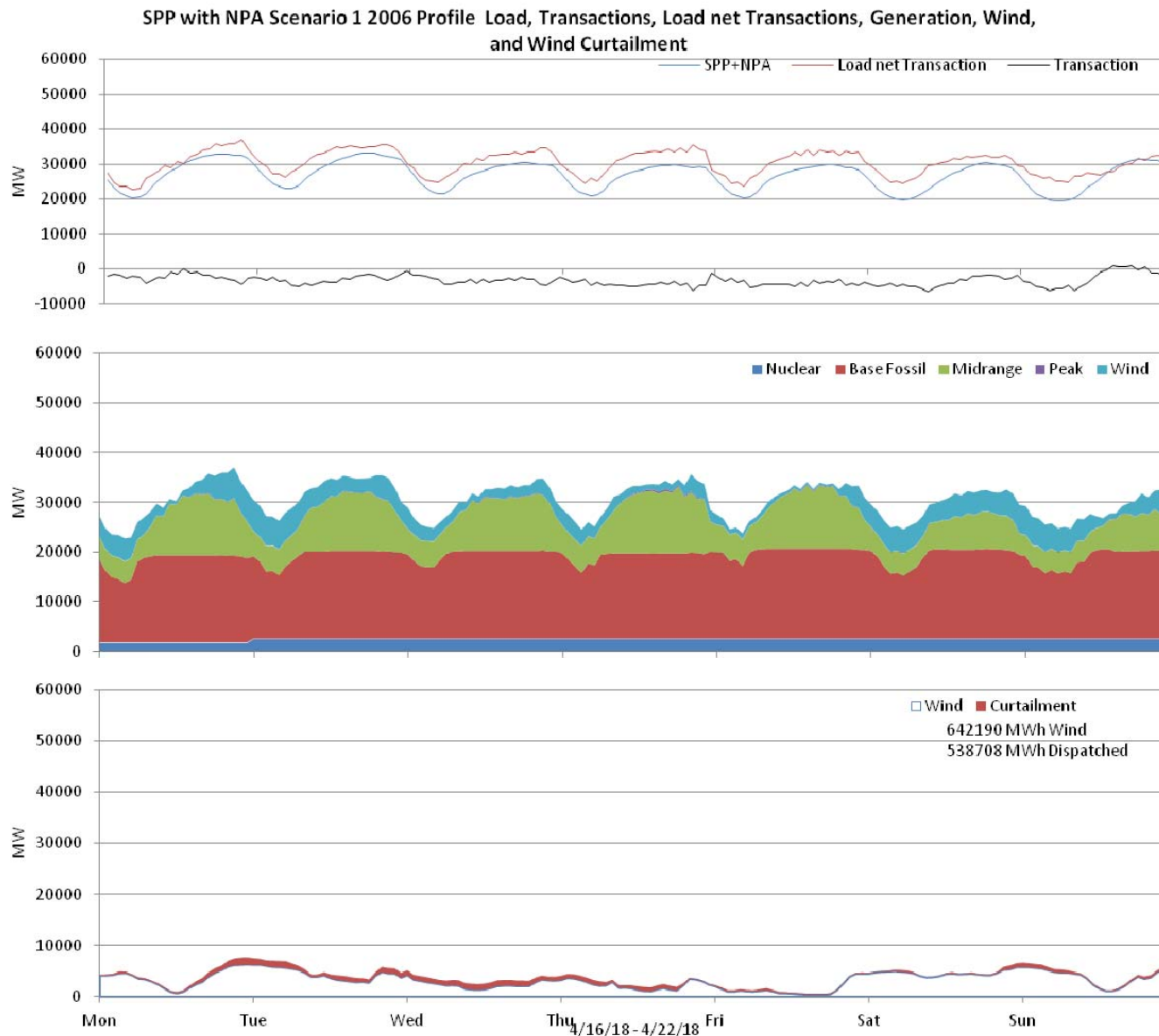


Figure 68: SPP 10% wind Penetration, 2006 Profile week of 4/16/2018

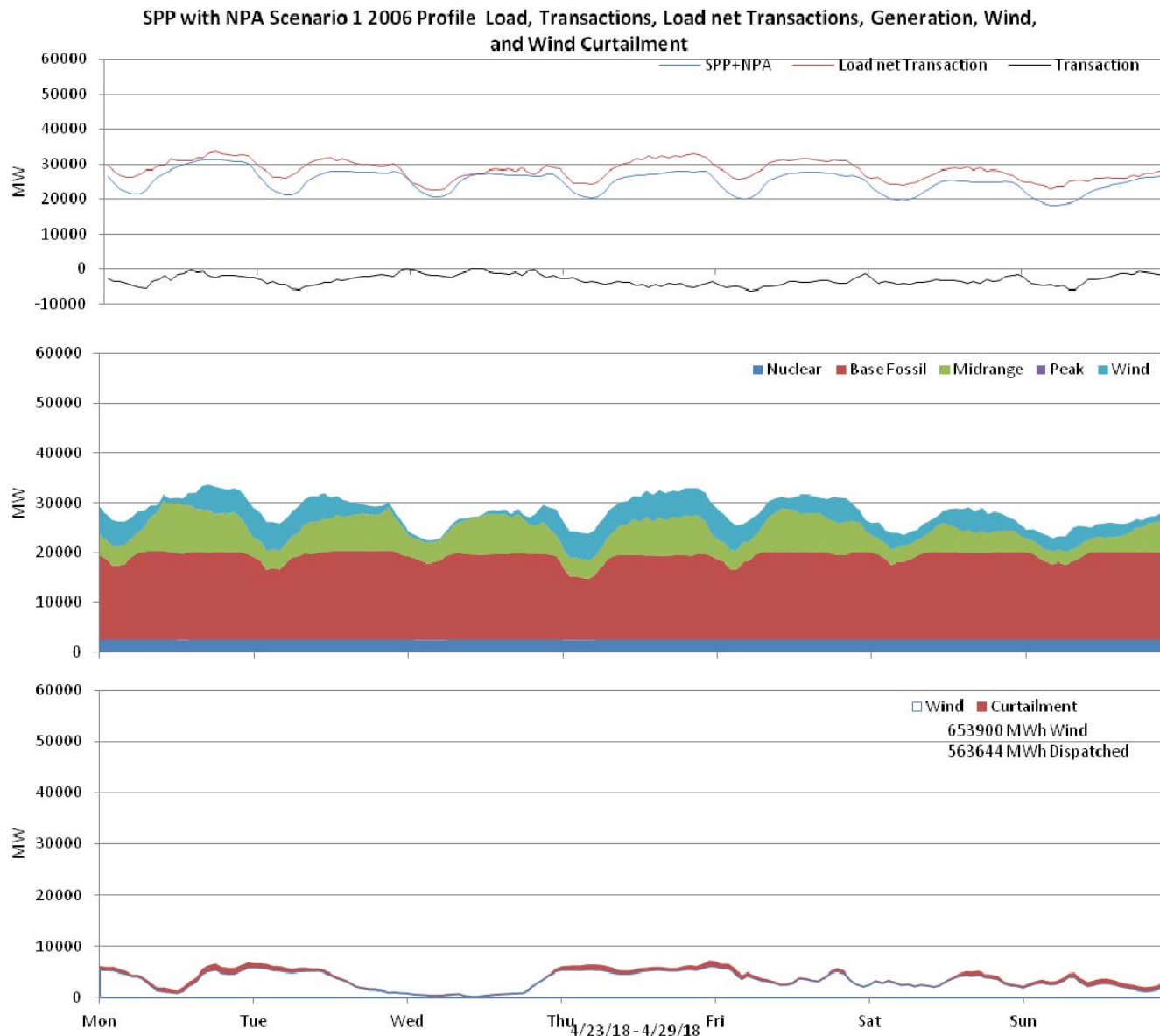


Figure 69: SPP 10% wind Penetration, 2006 Profile week of 4/23/2018

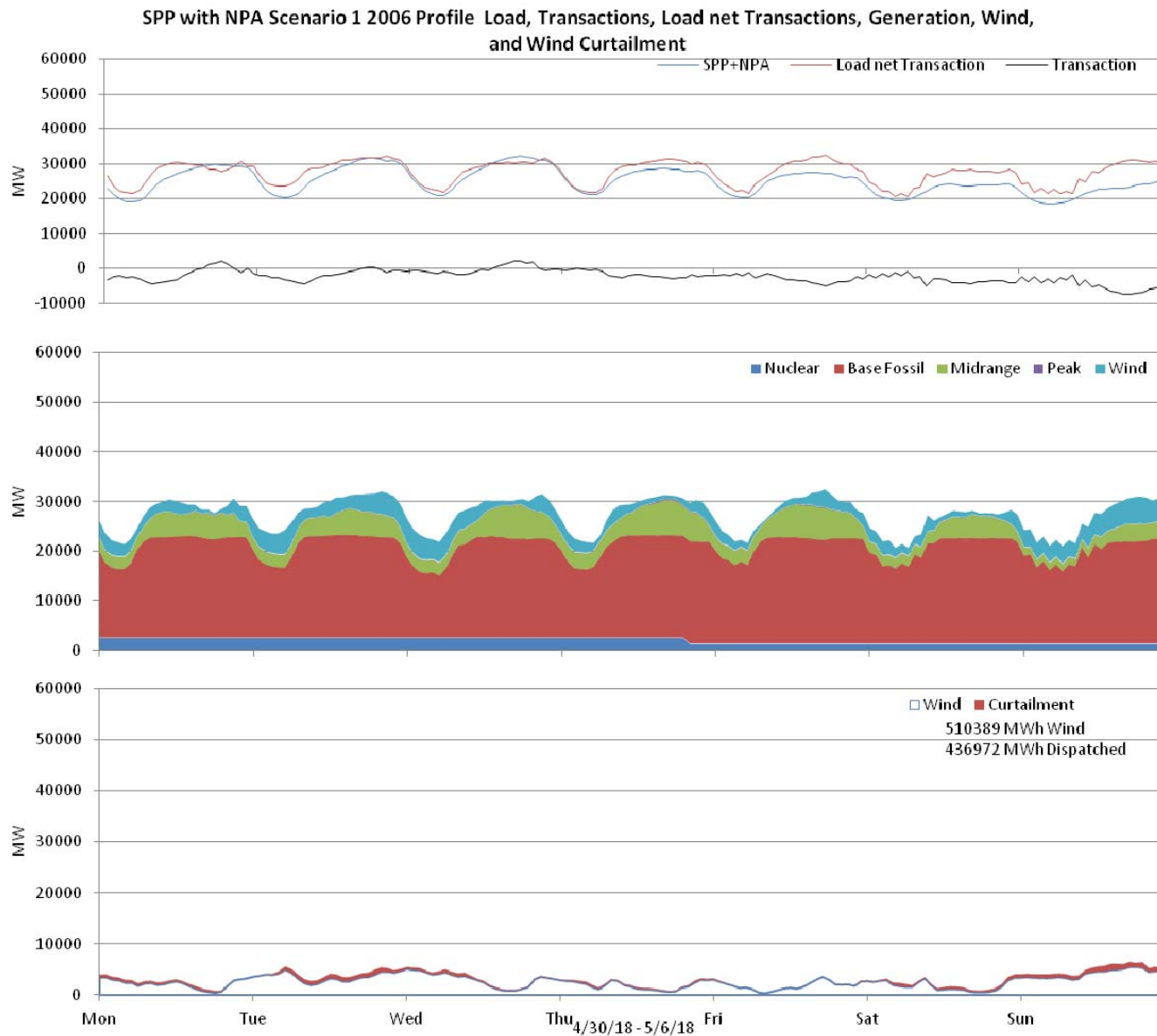


Figure 70: SPP 10% wind Penetration, 2006 Profile week of 4/30/2018

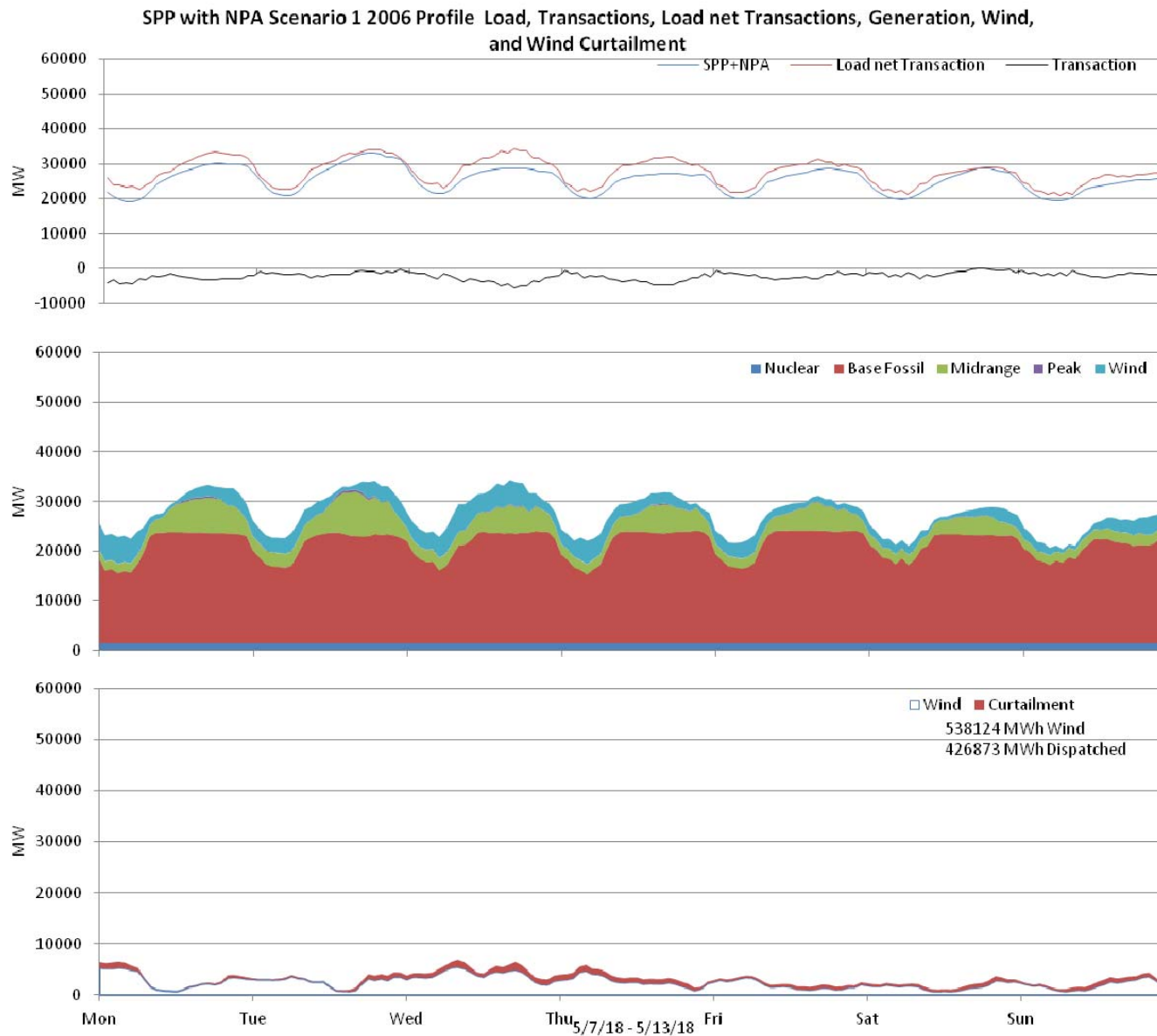


Figure 71: SPP 10% wind Penetration, 2006 Profile week of 5/7/2018

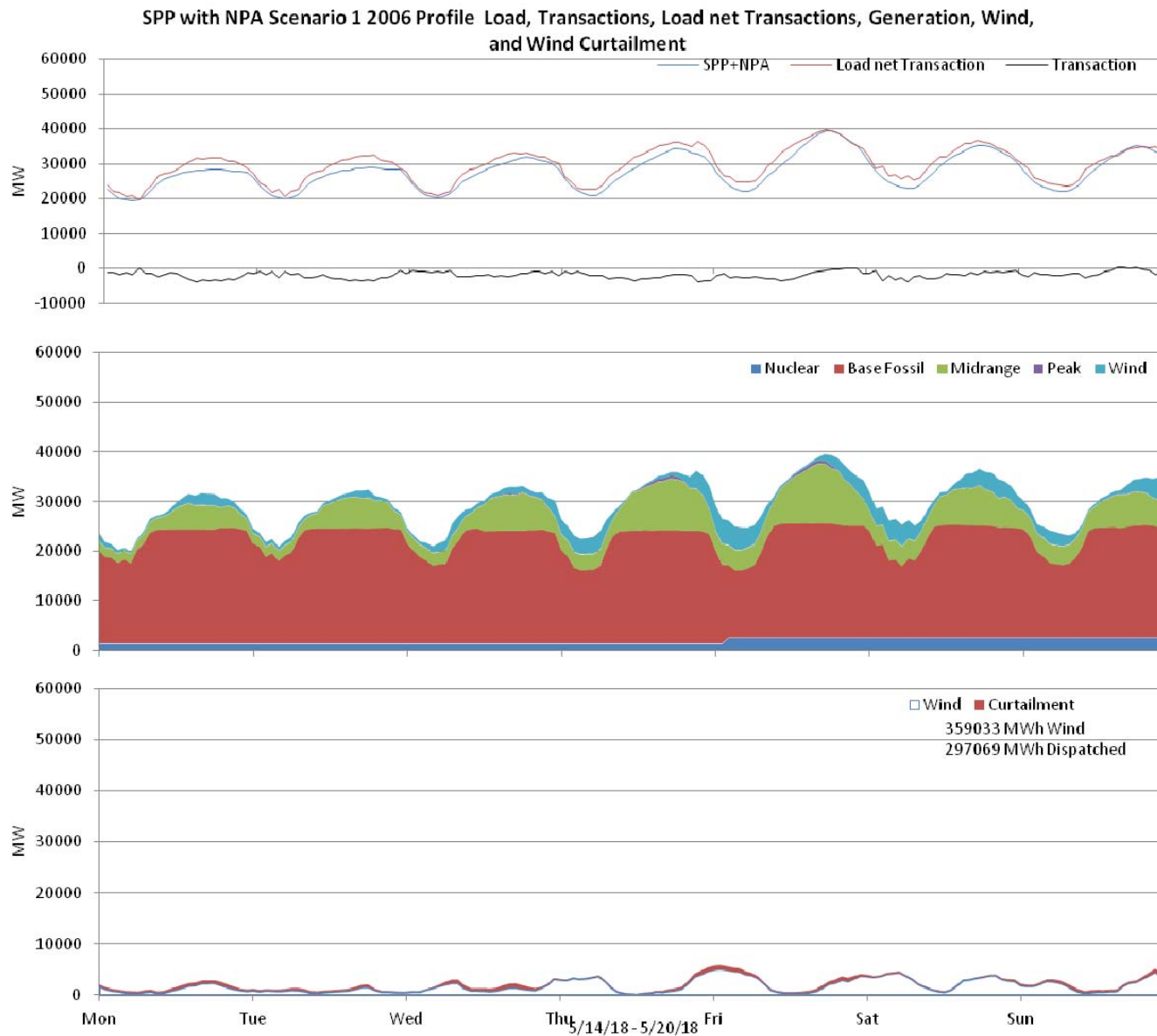


Figure 72: SPP 10% wind Penetration, 2006 Profile week of 5/14/2018

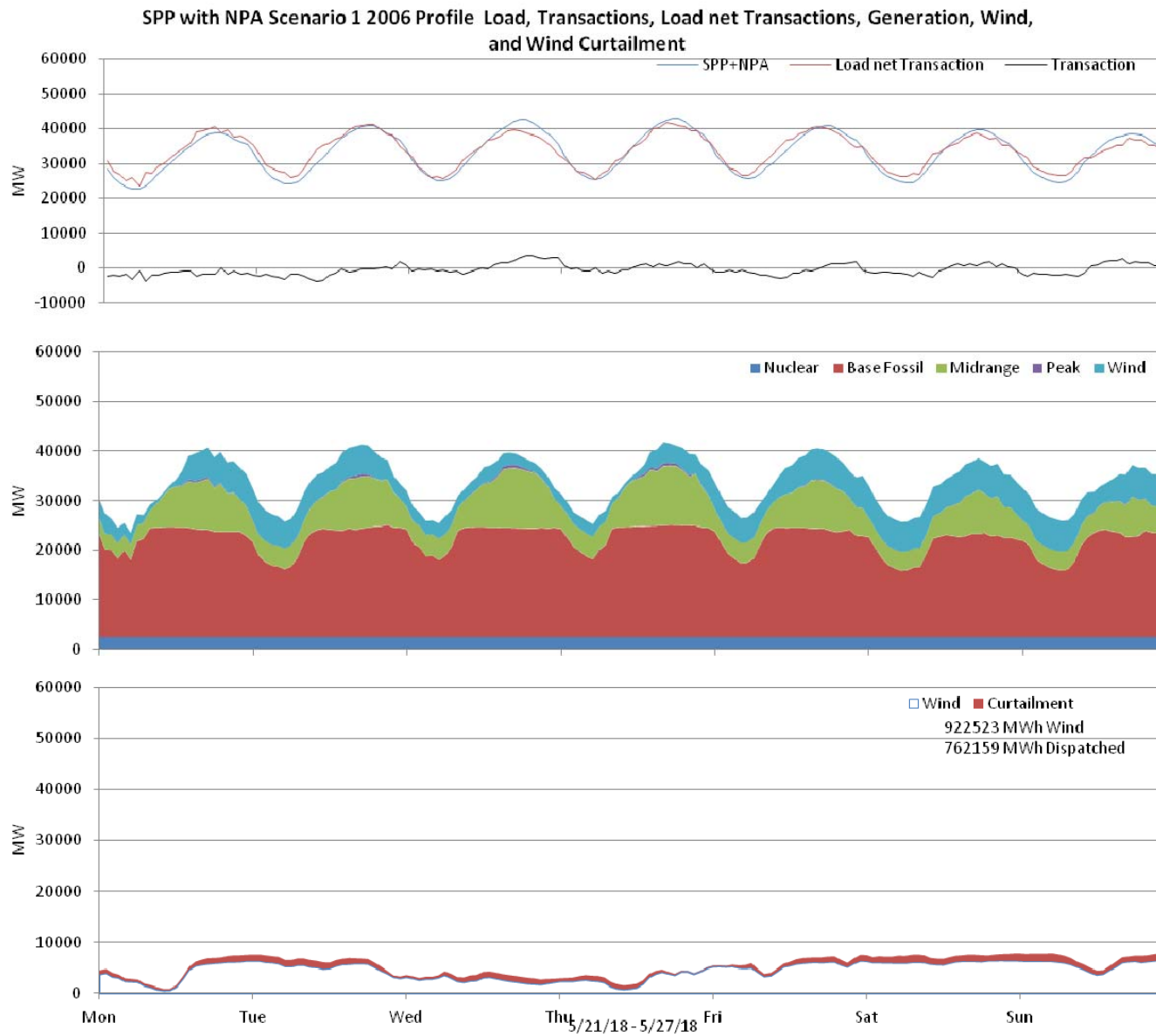


Figure 73: SPP 10% wind Penetration, 2006 Profile week of 5/21/2018

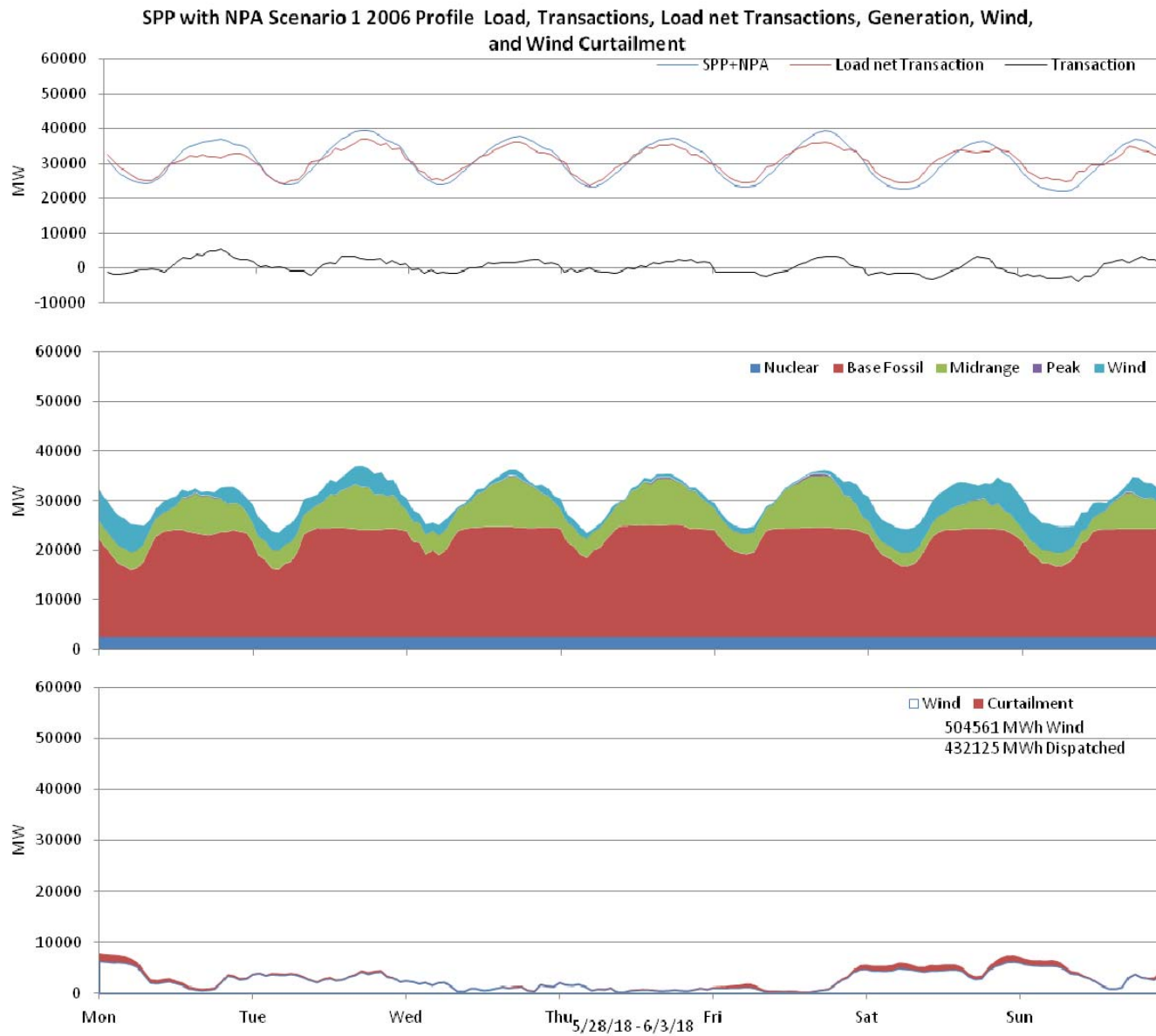


Figure 74: SPP 10% wind Penetration, 2006 Profile week of 5/28/2018

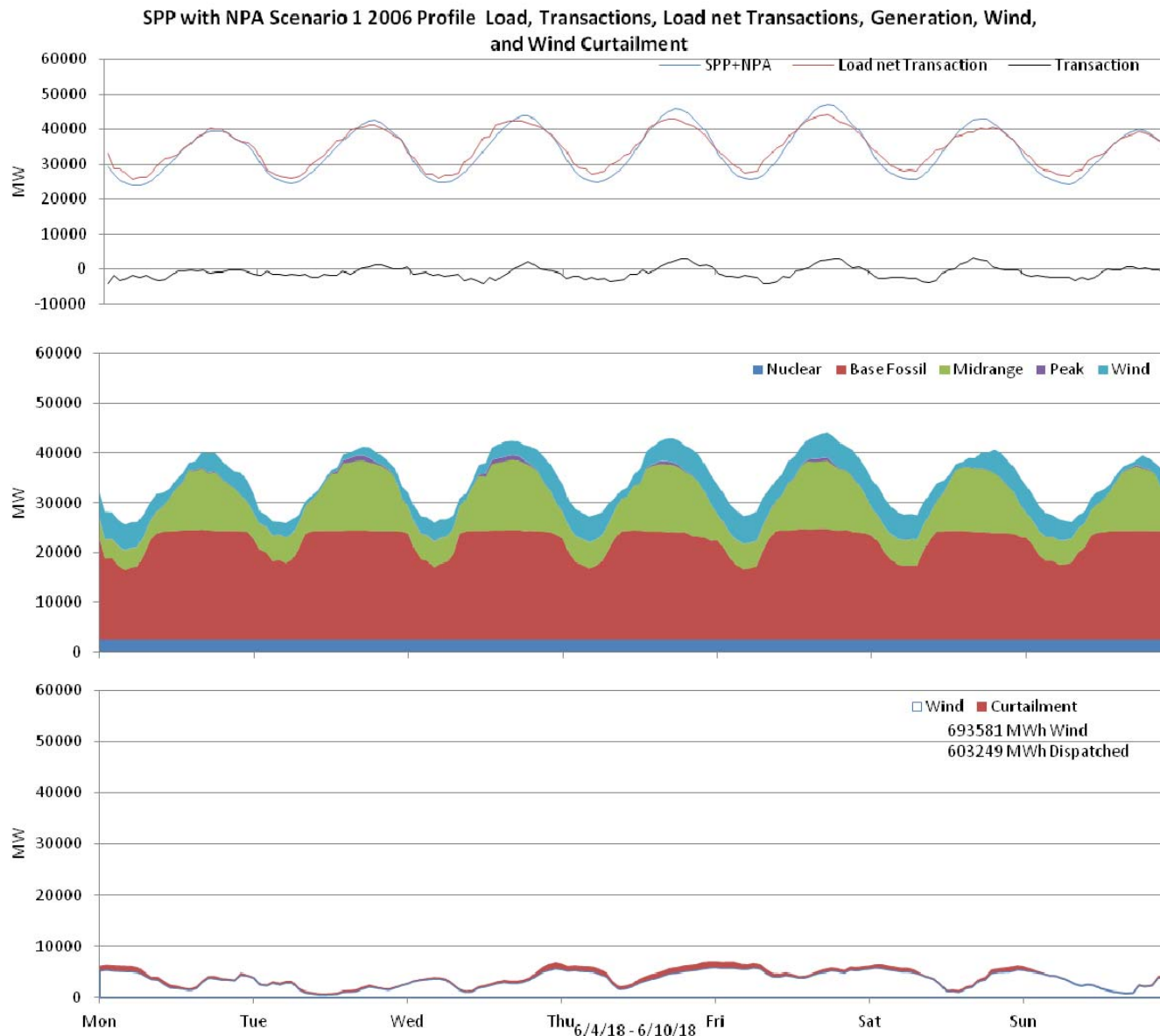


Figure 75: SPP 10% wind Penetration, 2006 Profile week of 6/4/2018

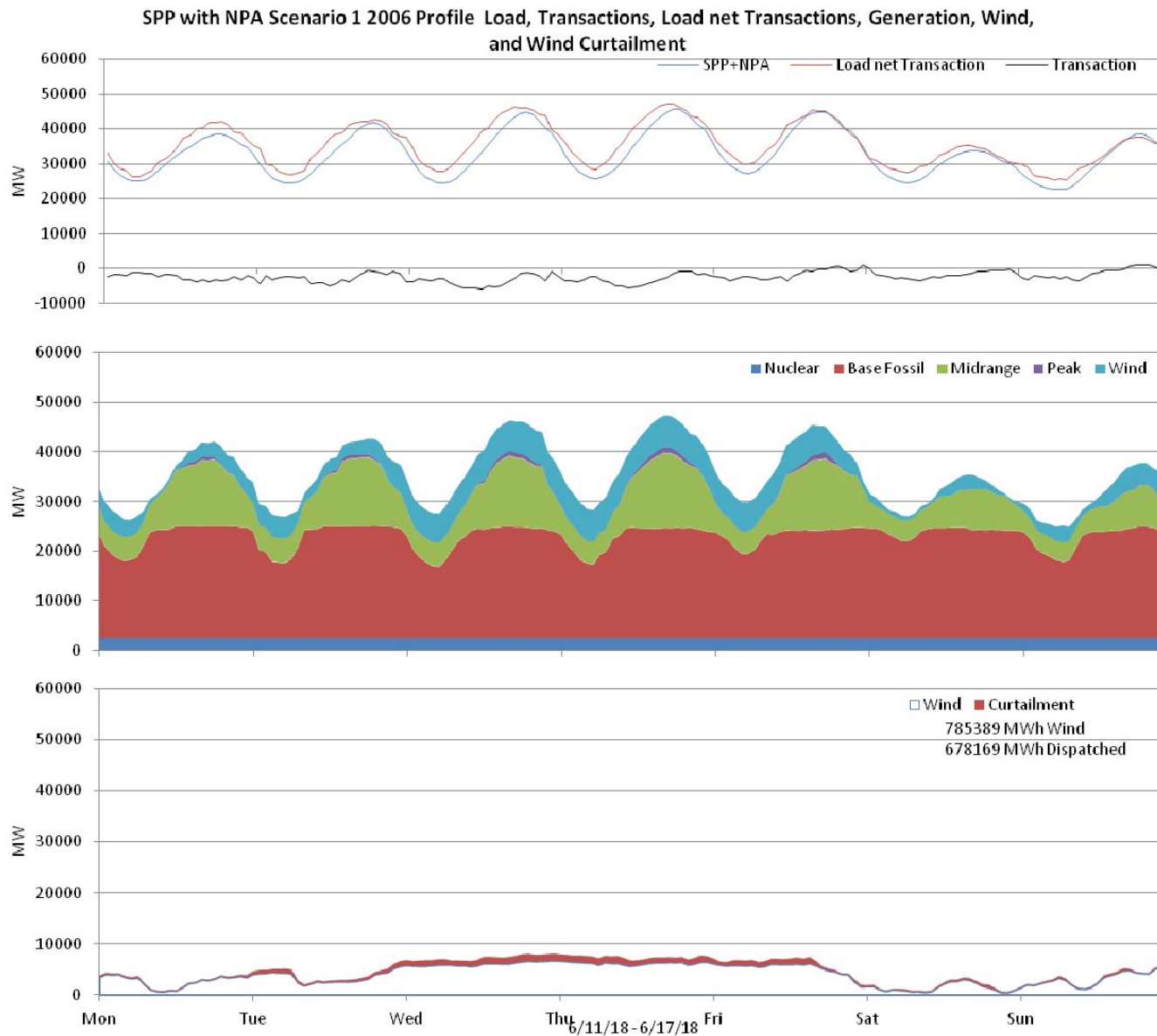


Figure 76: SPP 10% wind Penetration, 2006 Profile week of 6/11/2018

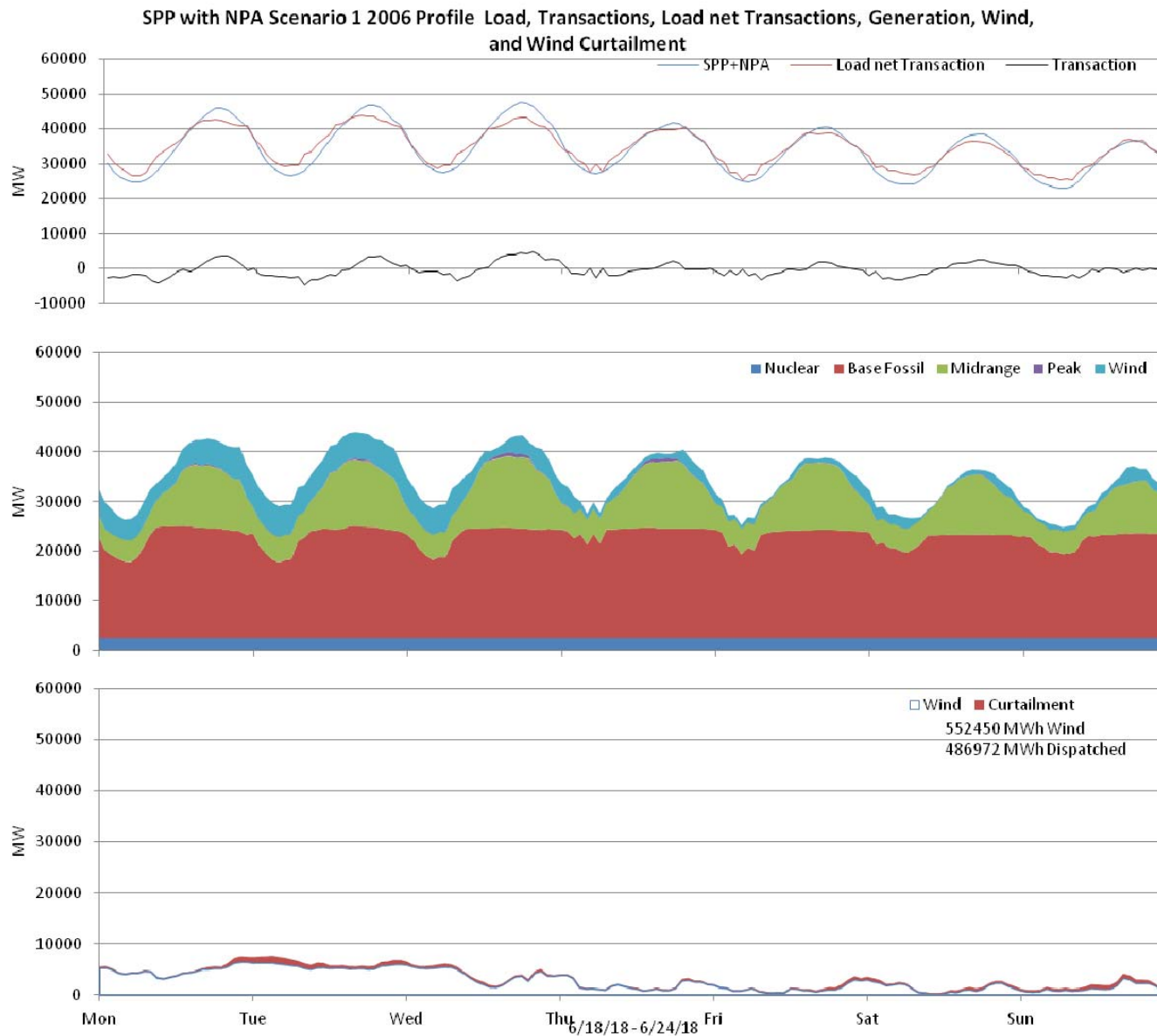


Figure 77: SPP 10% wind Penetration, 2006 Profile week of 6/18/2018

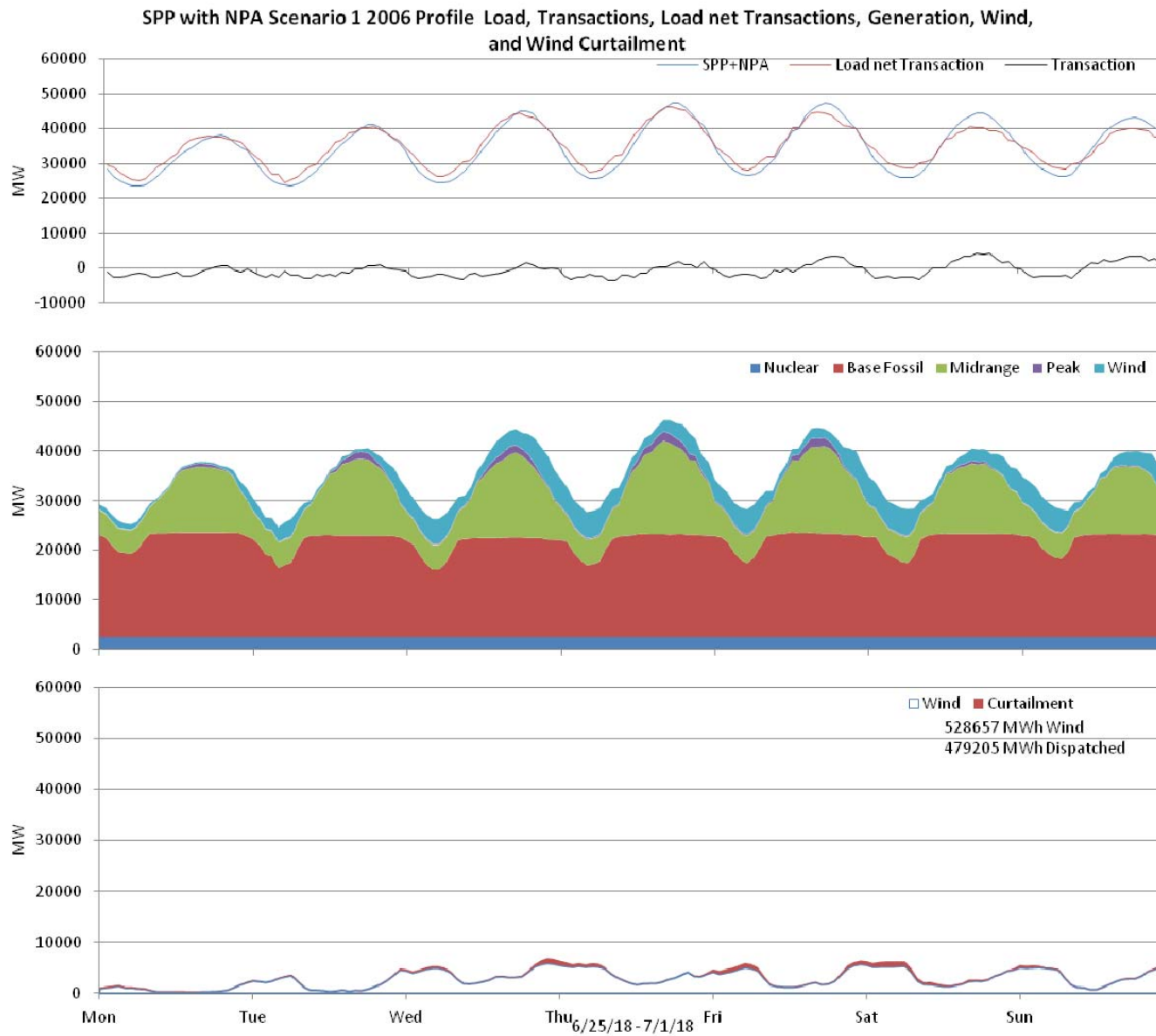


Figure 78: SPP 10% wind Penetration, 2006 Profile week of 6/25/2018

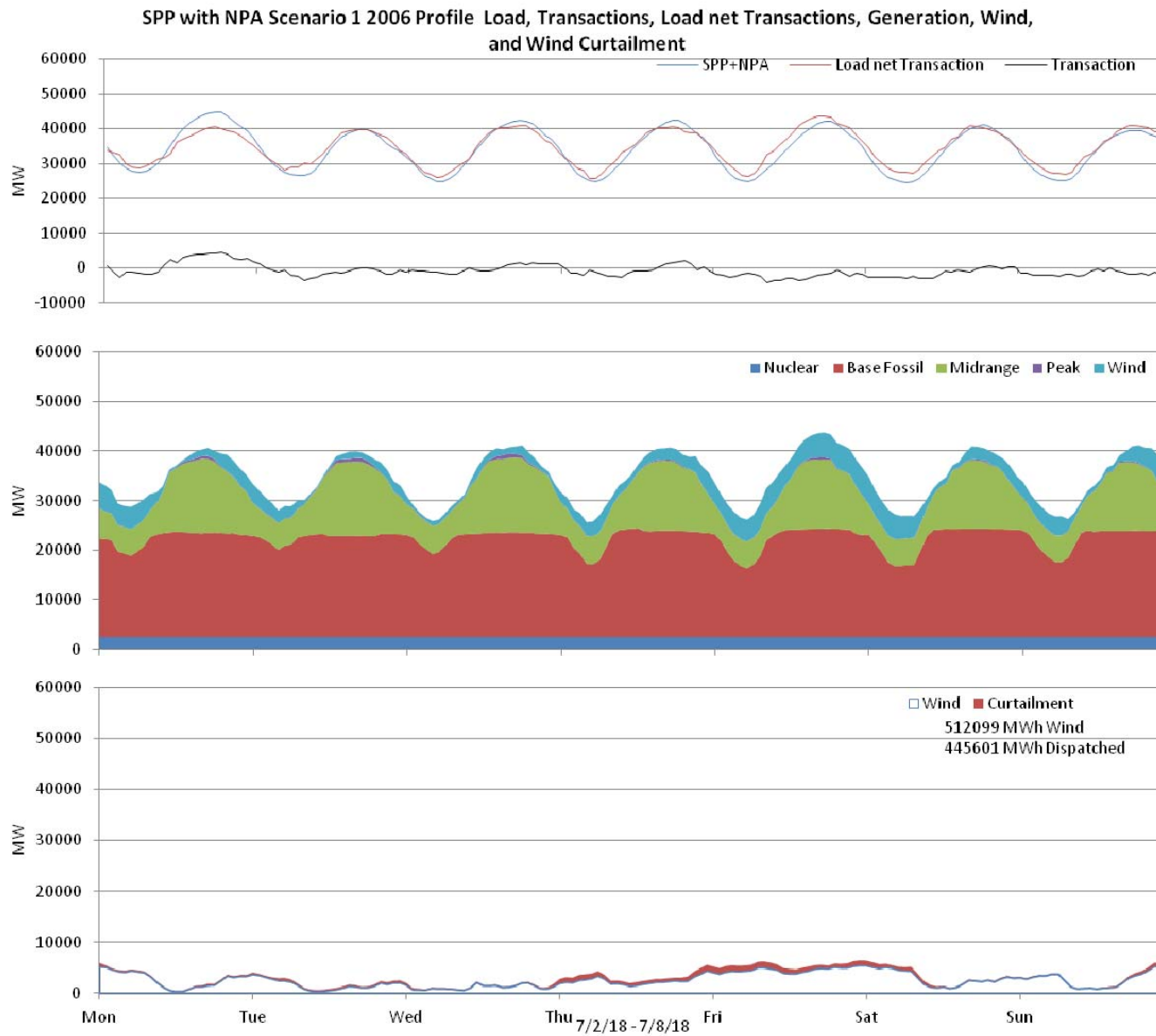


Figure 79: SPP 10% wind Penetration, 2006 Profile week of 7/2/2018

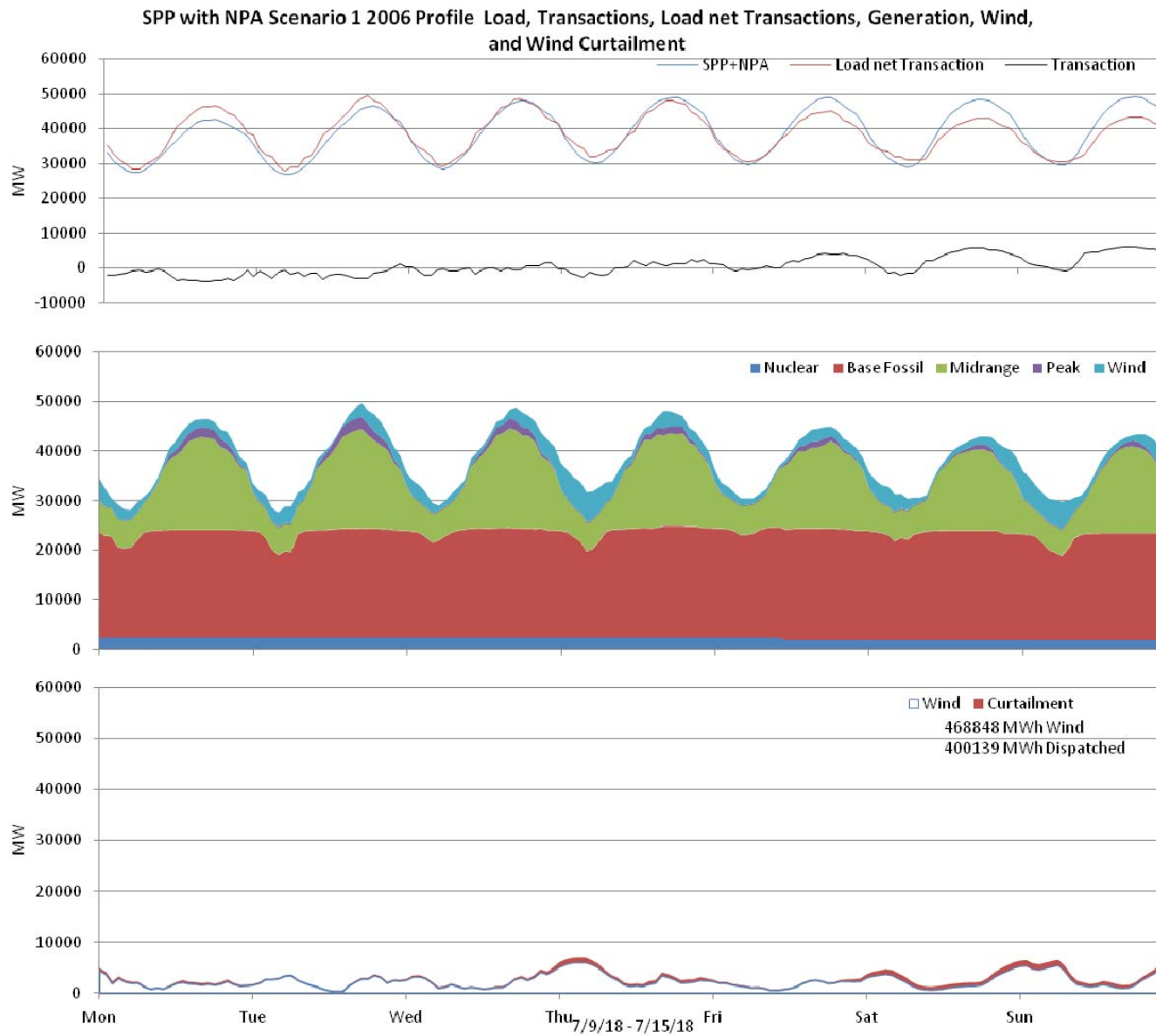


Figure 80: SPP 10% wind Penetration, 2006 Profile week of 7/9/2018

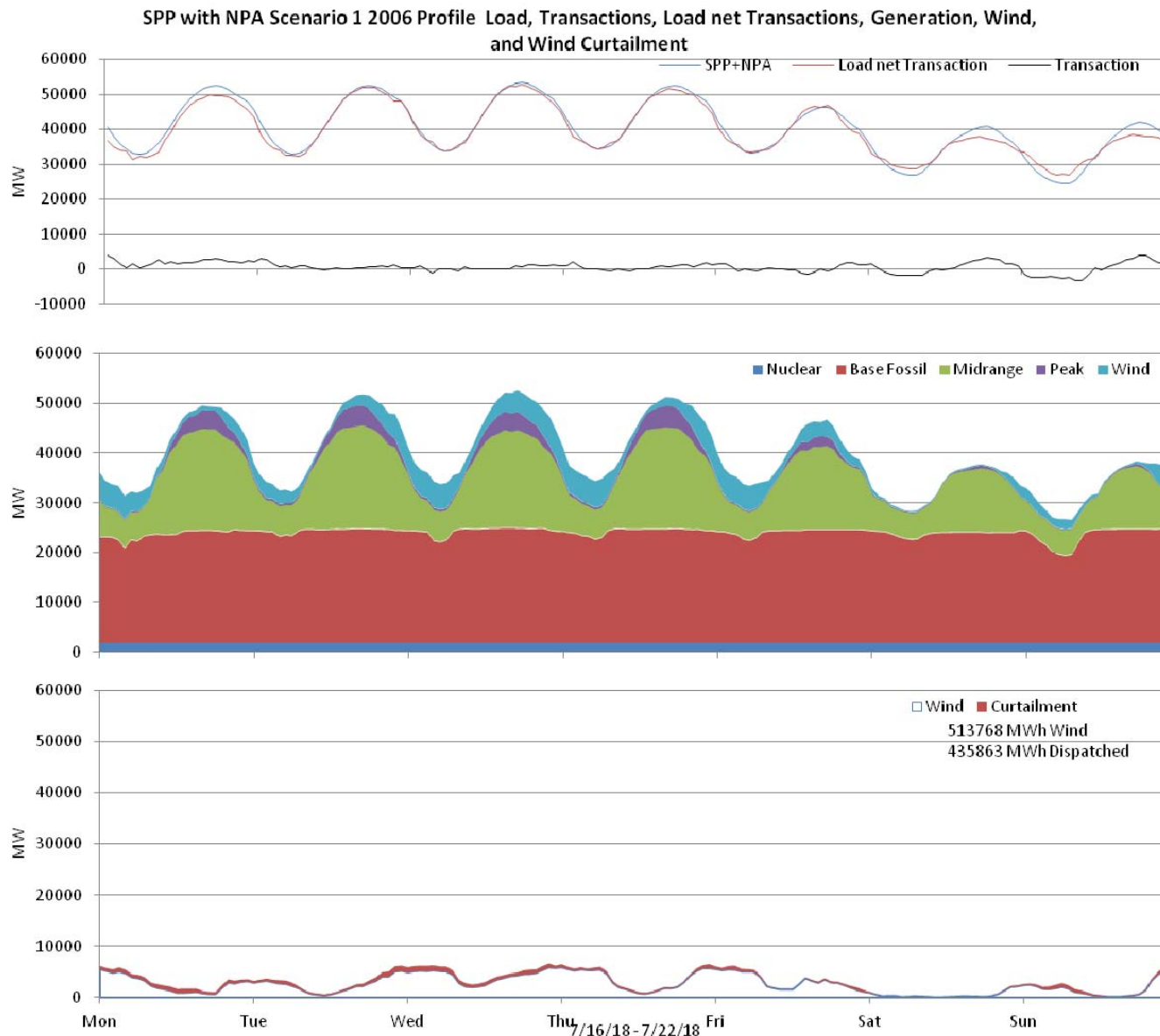


Figure 81: SPP 10% wind Penetration, 2006 Profile week of 7/16/2018

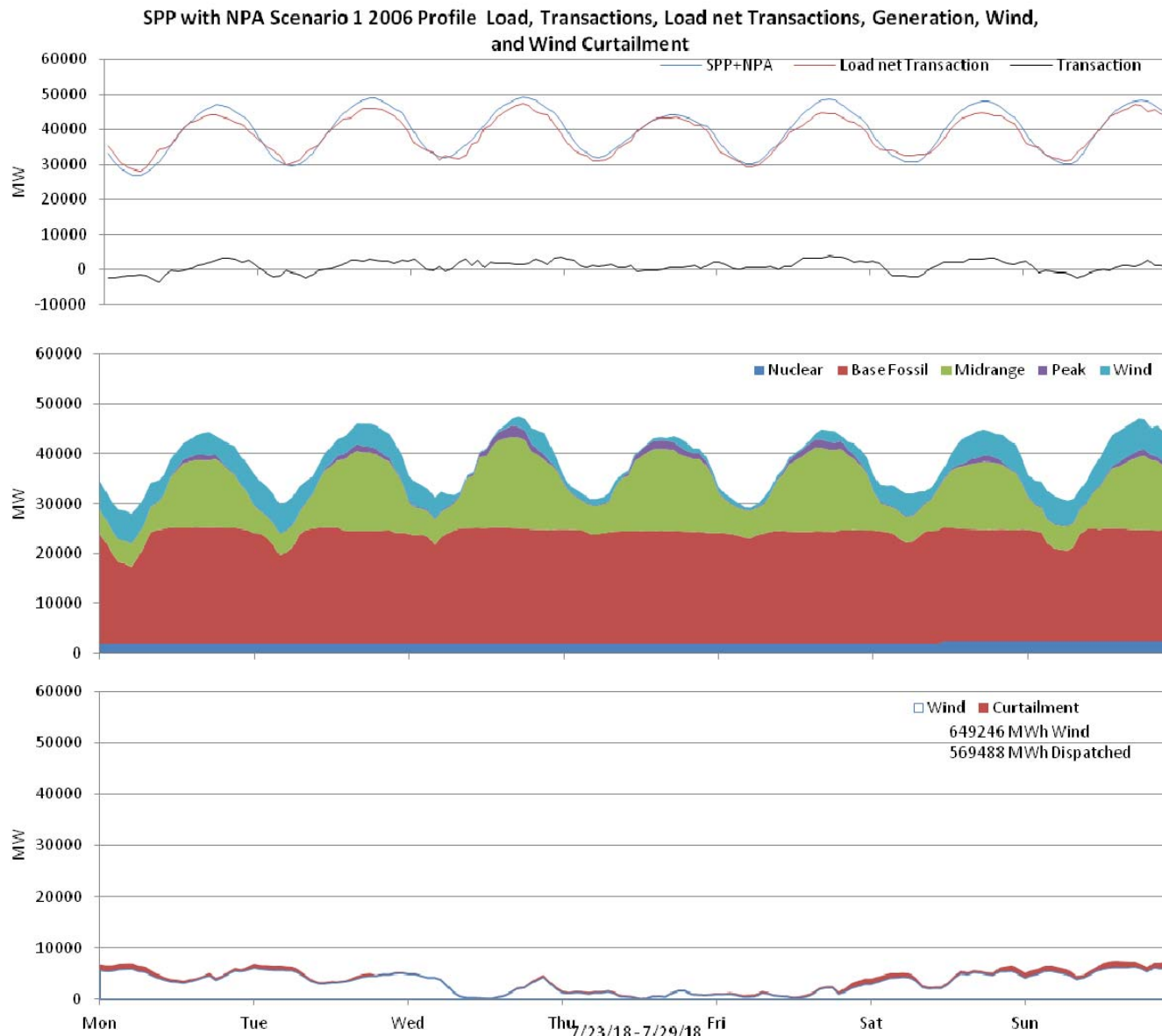


Figure 82: SPP 10% wind Penetration, 2006 Profile week of 7/23/2018

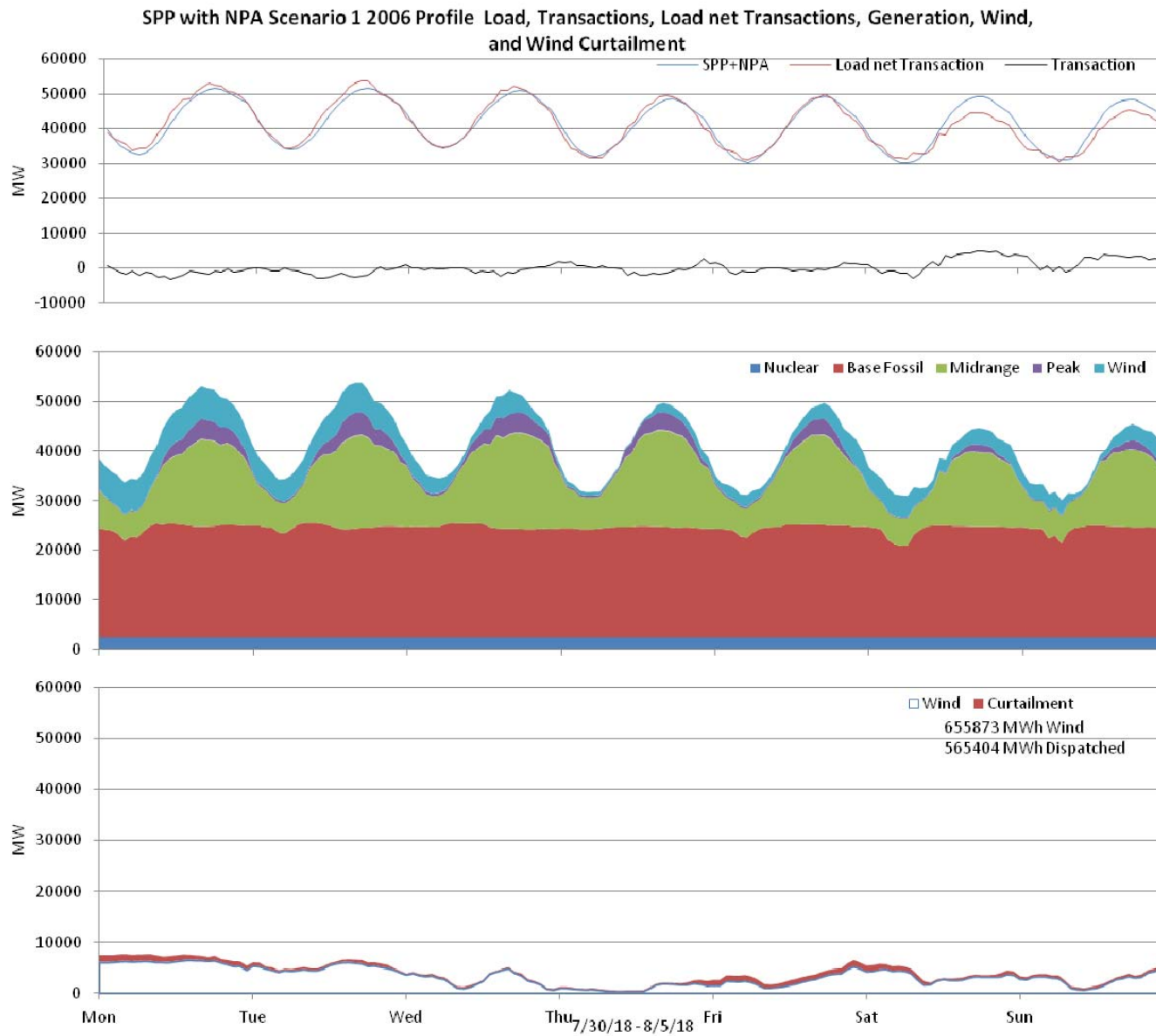


Figure 83: SPP 10% wind Penetration, 2006 Profile week of 7/30/2018

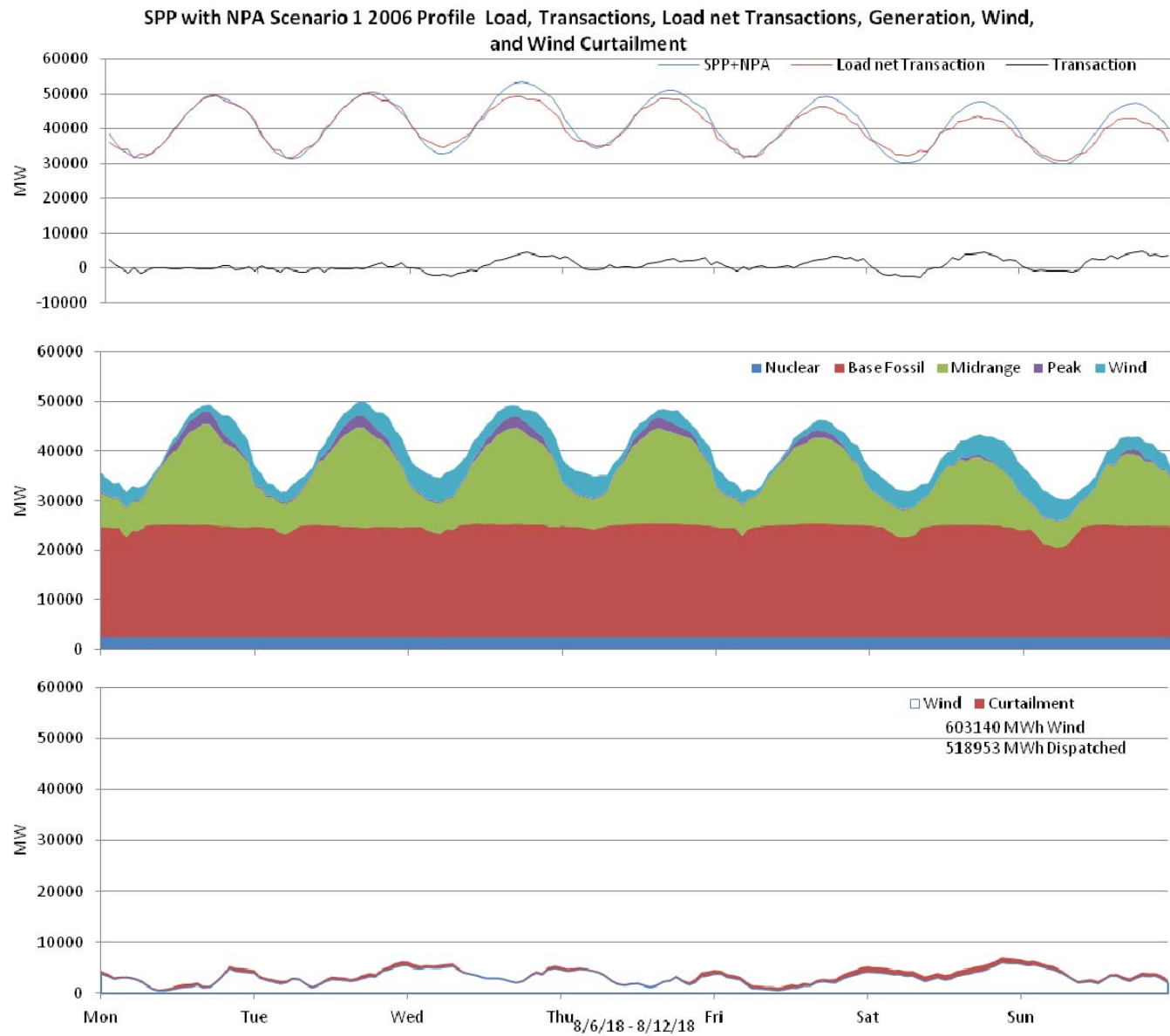


Figure 84: SPP 10% wind Penetration, 2006 Profile week of 8/6/2018

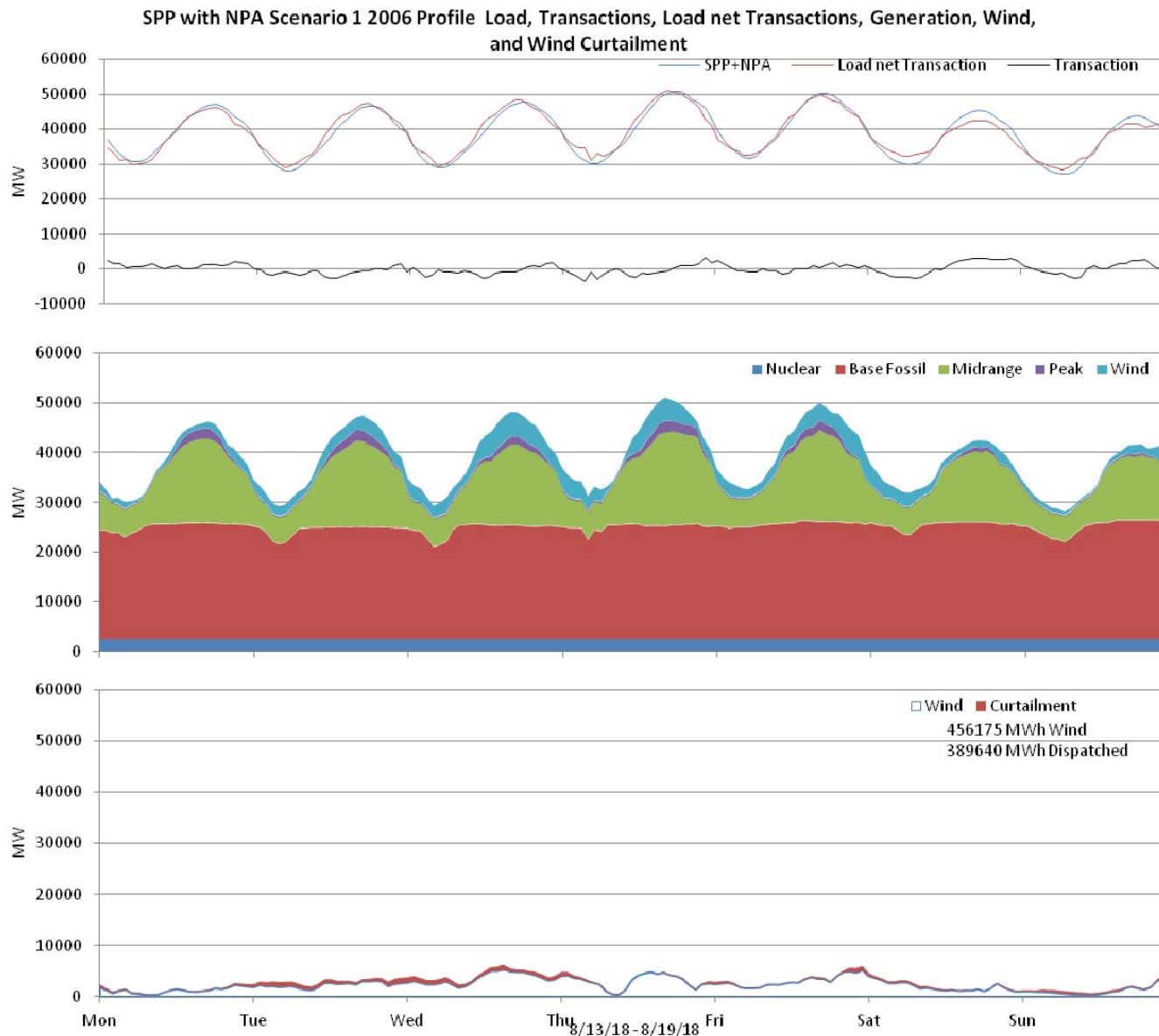


Figure 85: SPP 10% wind Penetration, 2006 Profile week of 8/13/2018

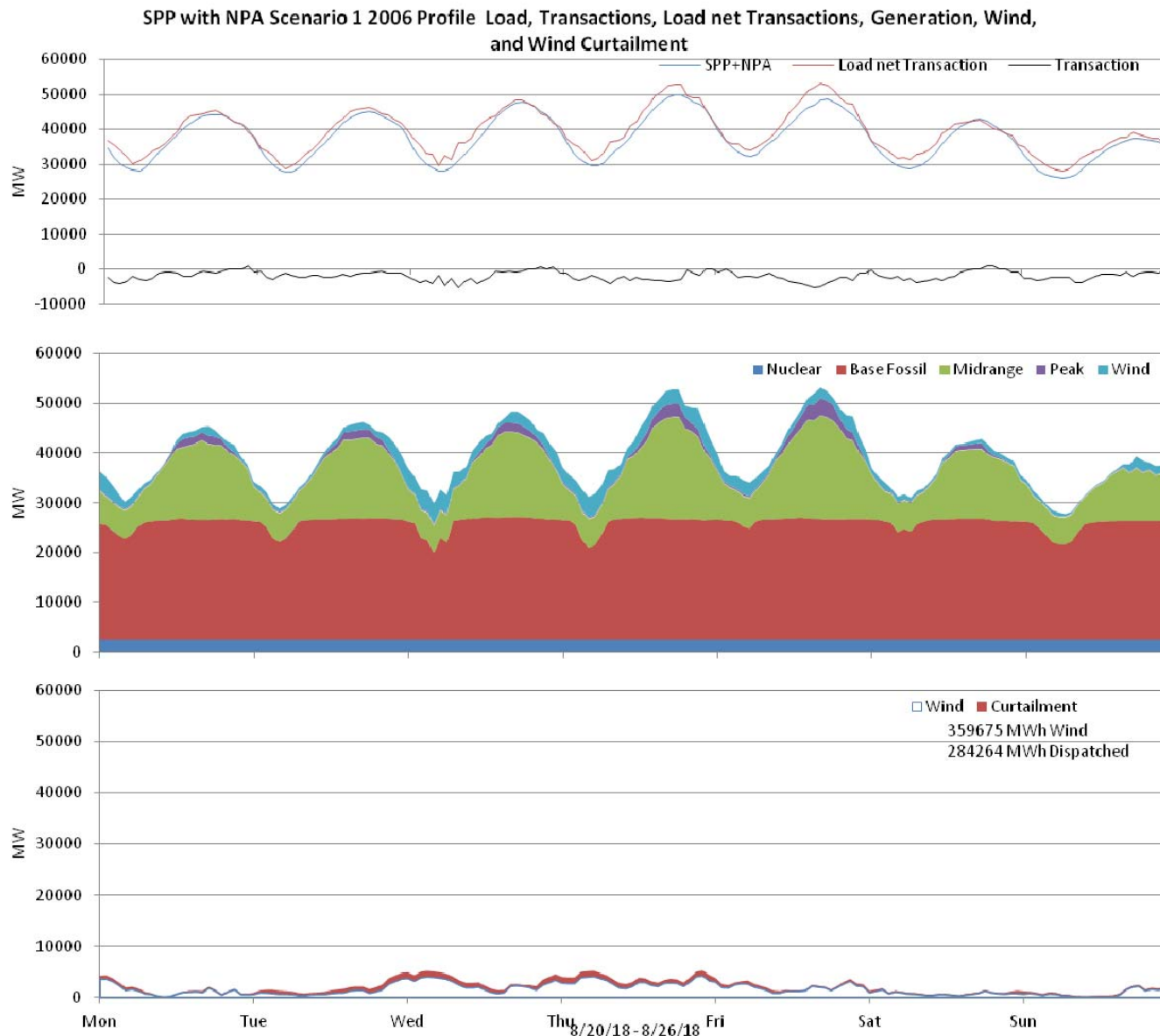


Figure 86: SPP 10% wind Penetration, 2006 Profile week of 8/20/2018

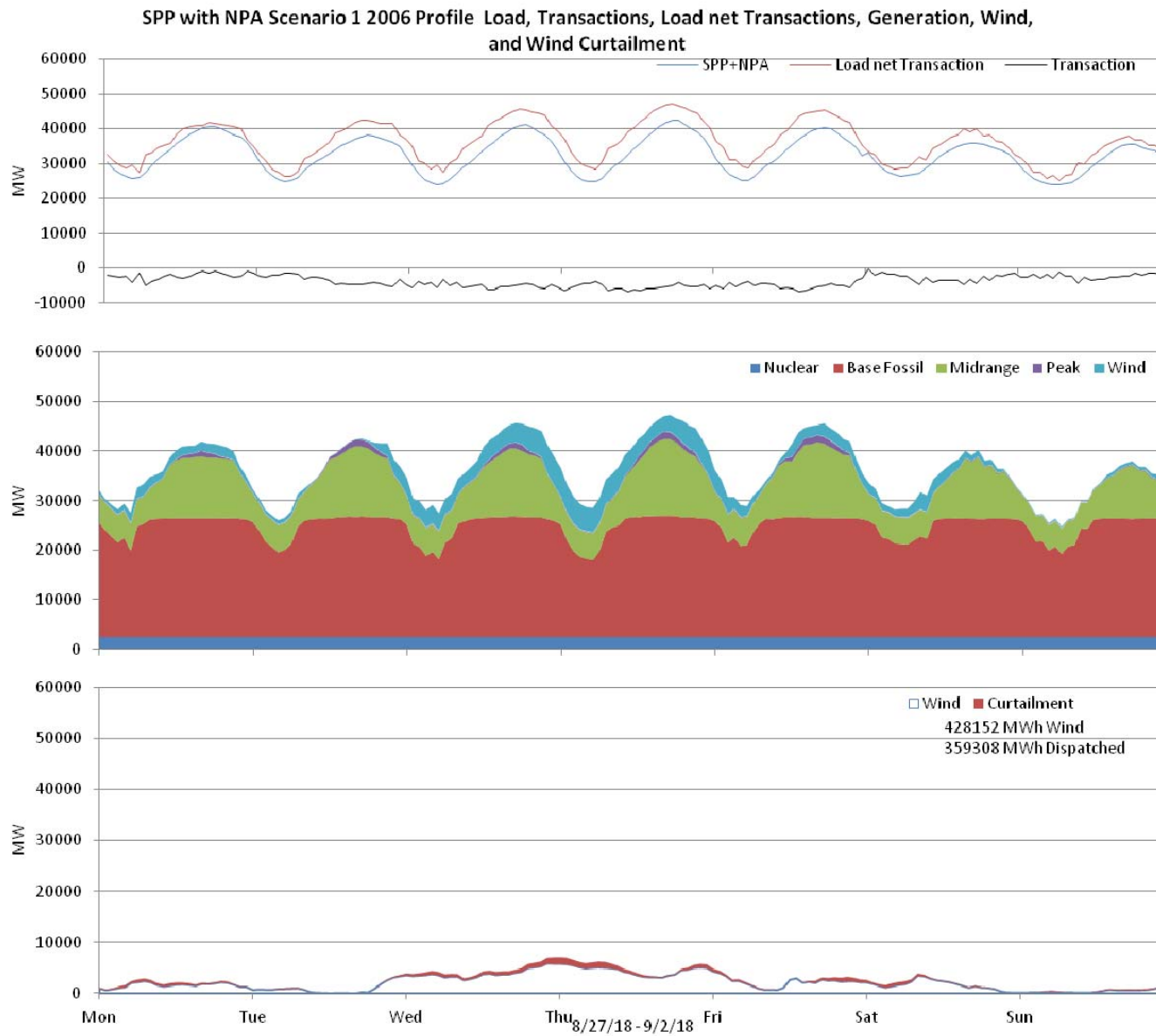


Figure 87: SPP 10% wind Penetration, 2006 Profile week of 8/27/2018

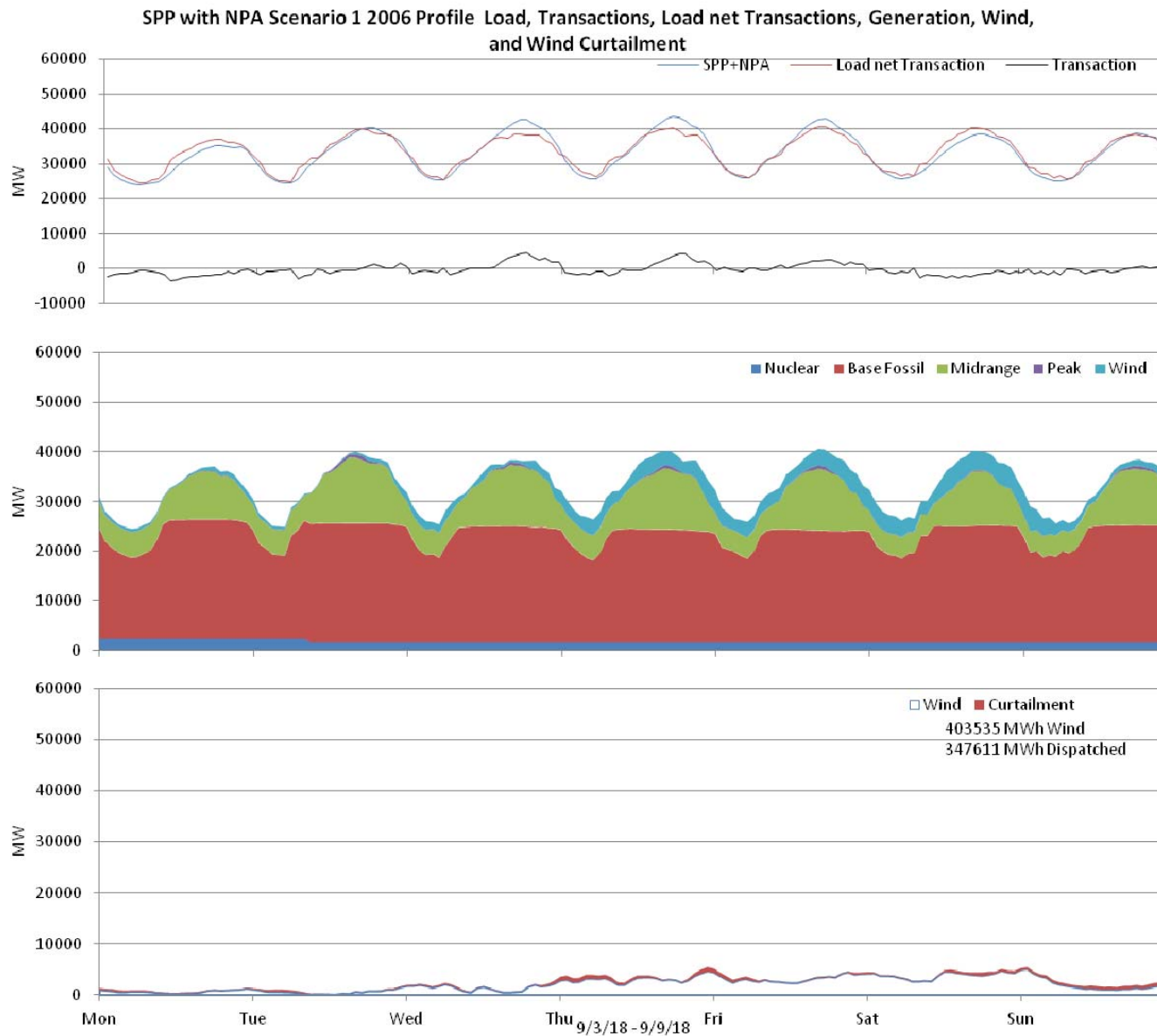


Figure 88: SPP 10% wind Penetration, 2006 Profile week of 9/3/2018

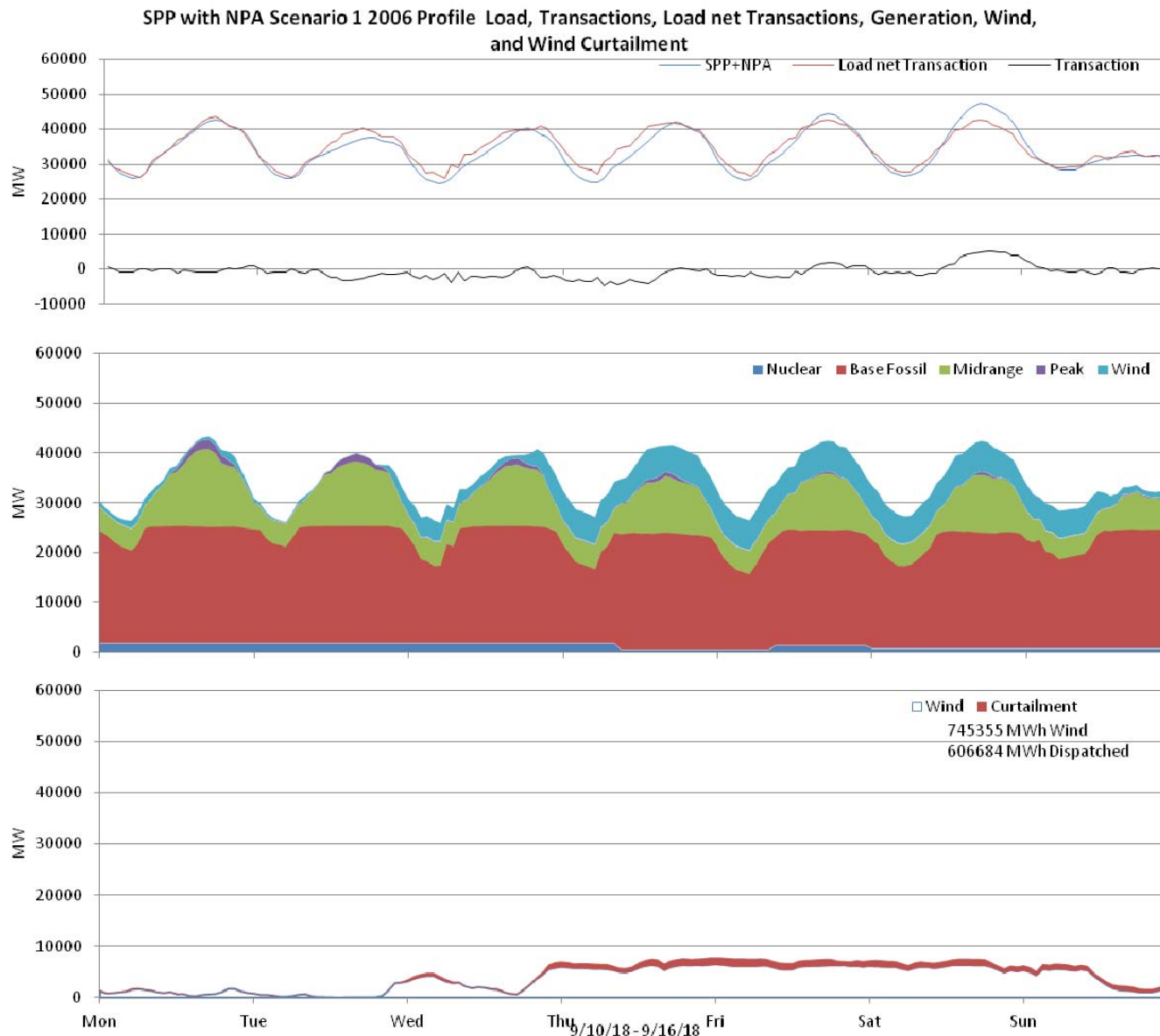


Figure 89: SPP 10% wind Penetration, 2006 Profile week of 9/10/2018

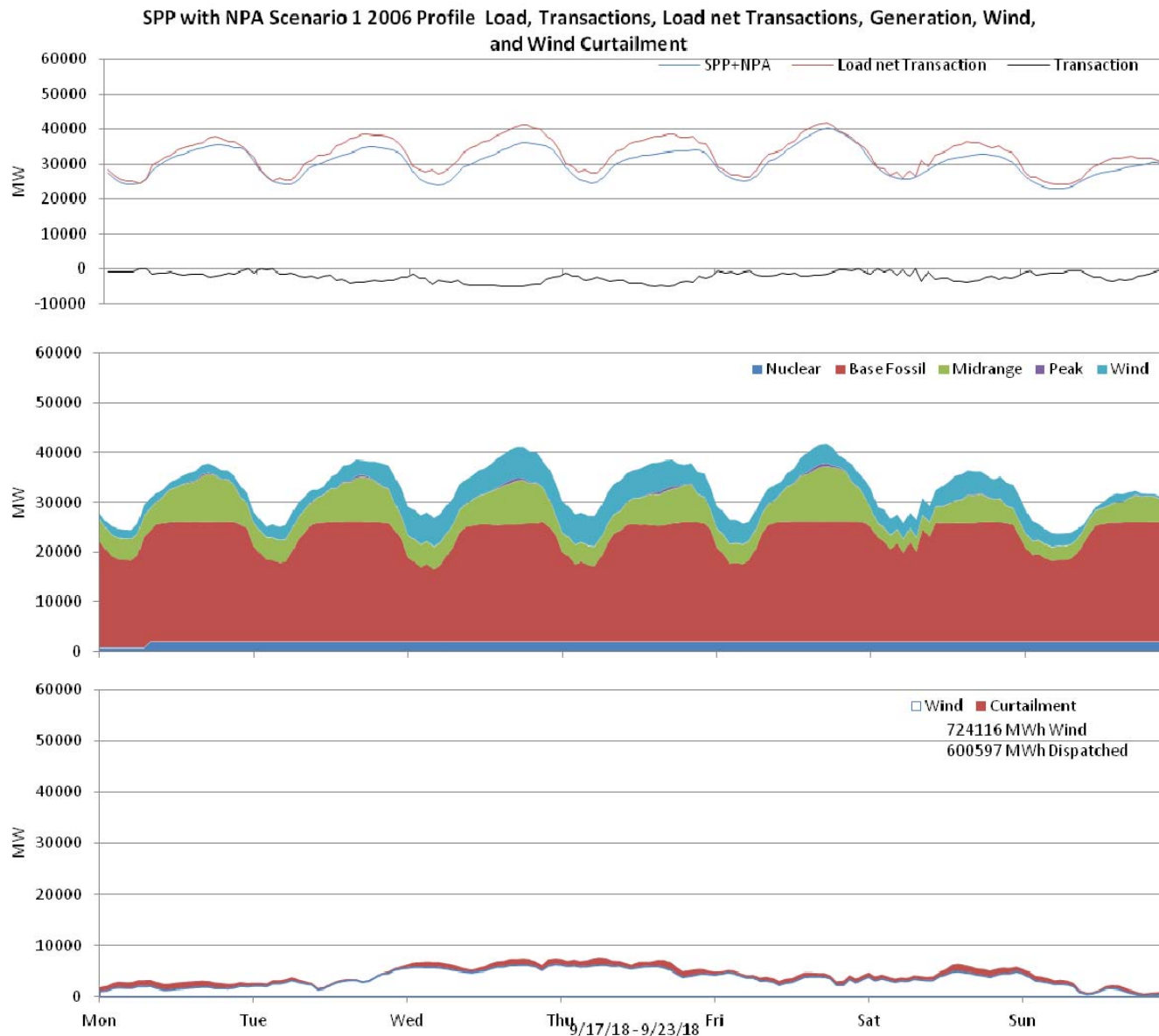


Figure 90: SPP 10% wind Penetration, 2006 Profile week of 9/17/2018

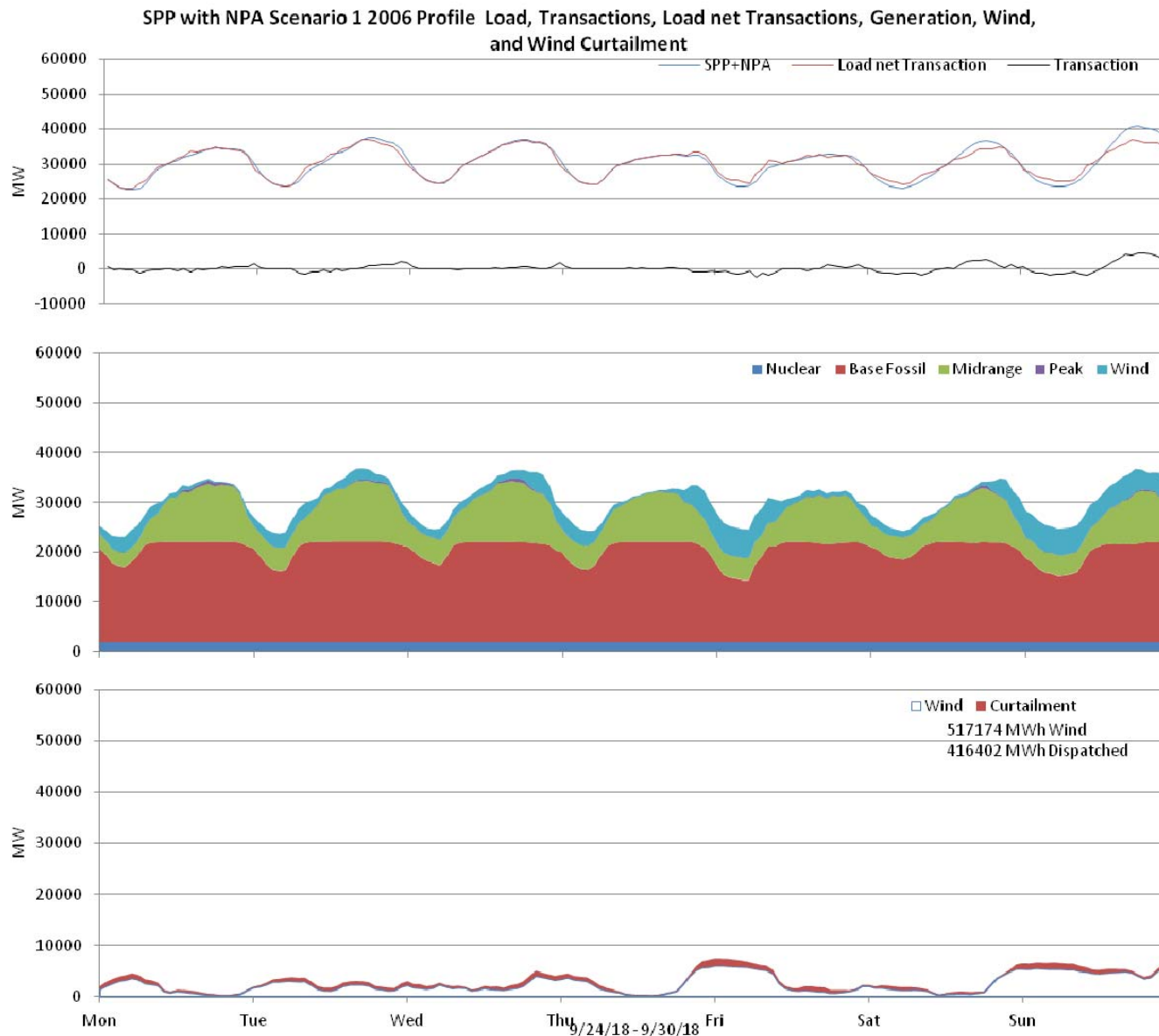


Figure 91: SPP 10% wind Penetration, 2006 Profile week of 9/24/2018

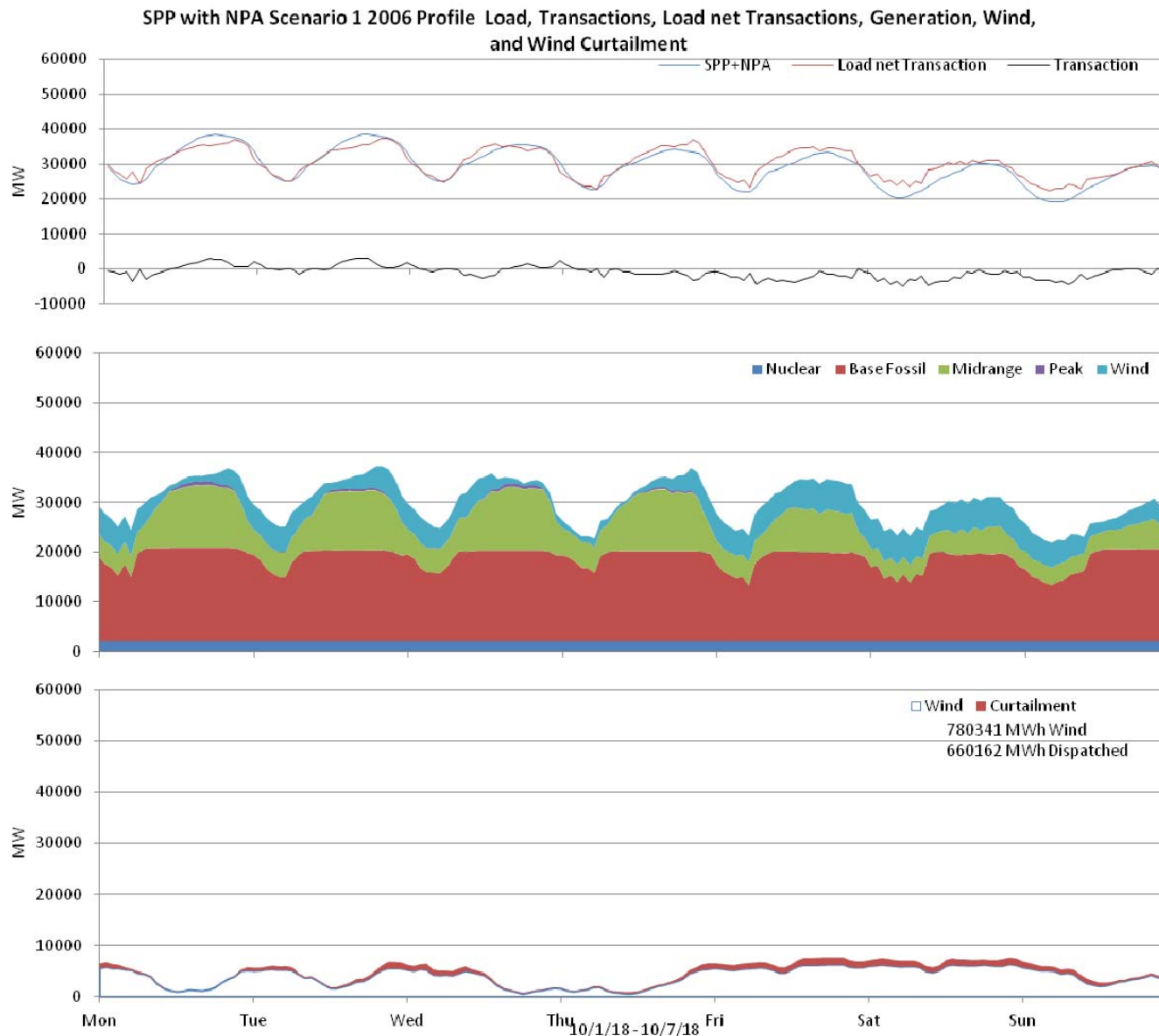


Figure 92: SPP 10% wind Penetration, 2006 Profile week of 10/1/2018

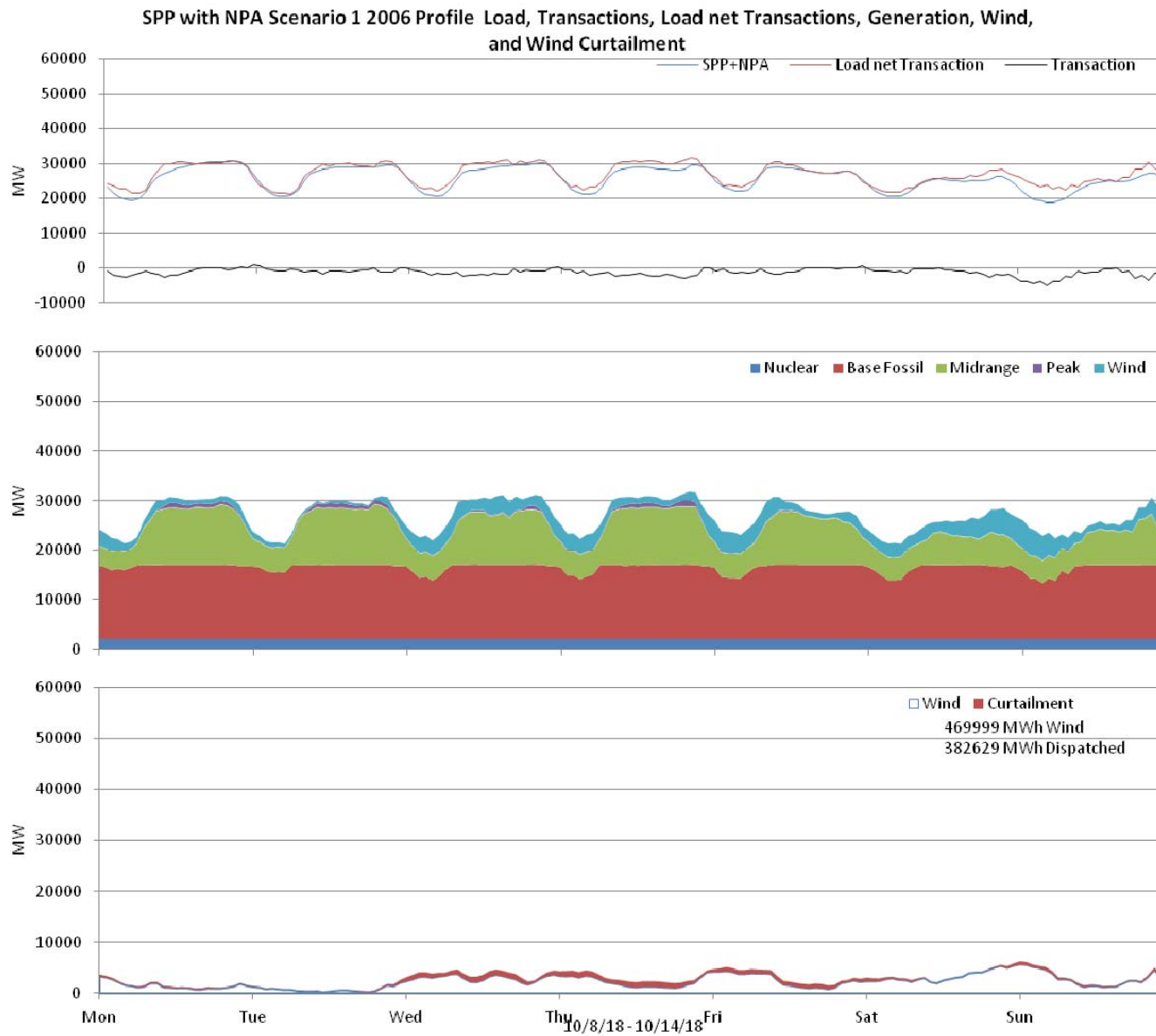


Figure 93: SPP 10% wind Penetration, 2006 Profile week of 10/8/2018

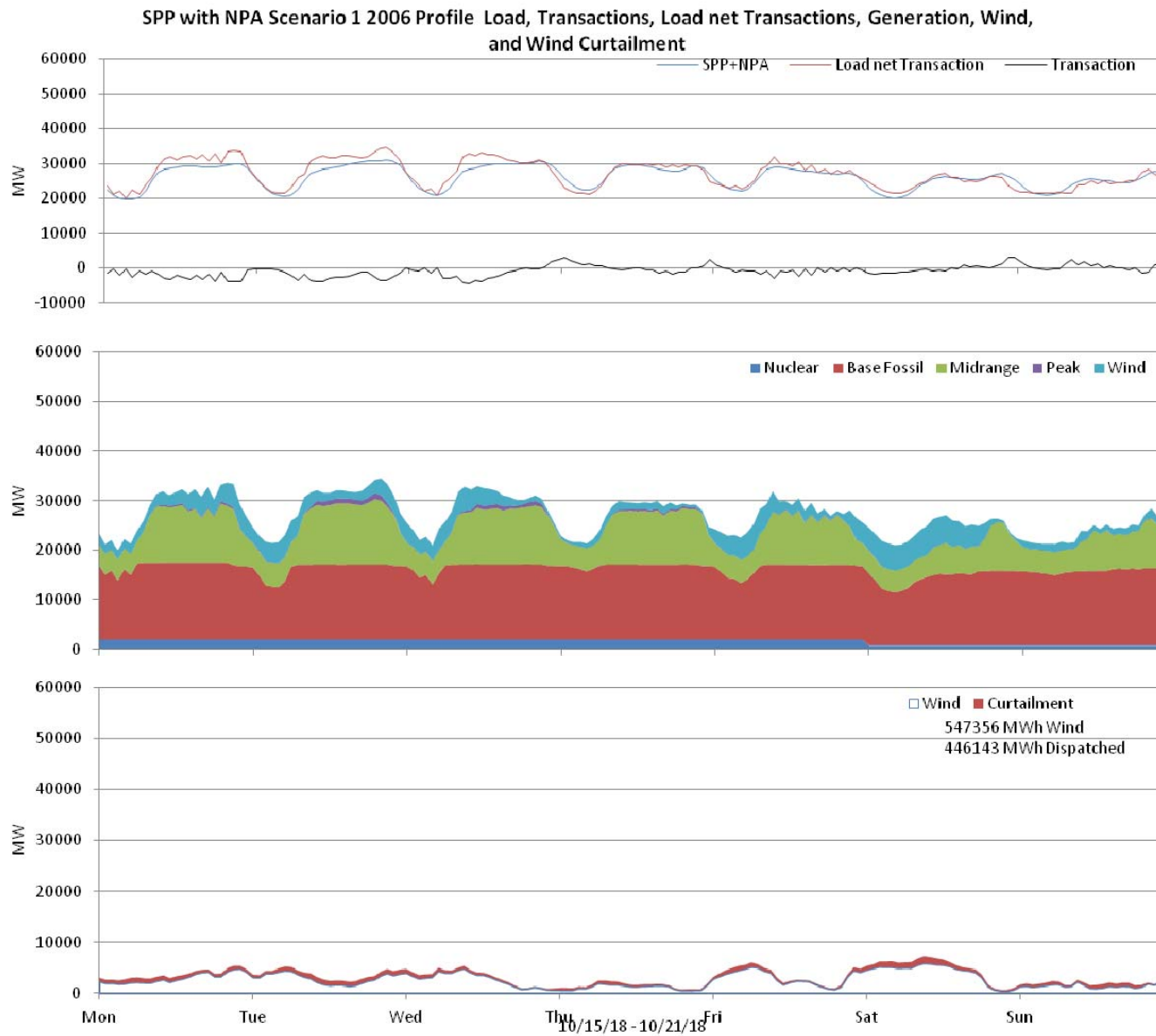


Figure 94: SPP 10% wind Penetration, 2006 Profile week of 10/15/2018

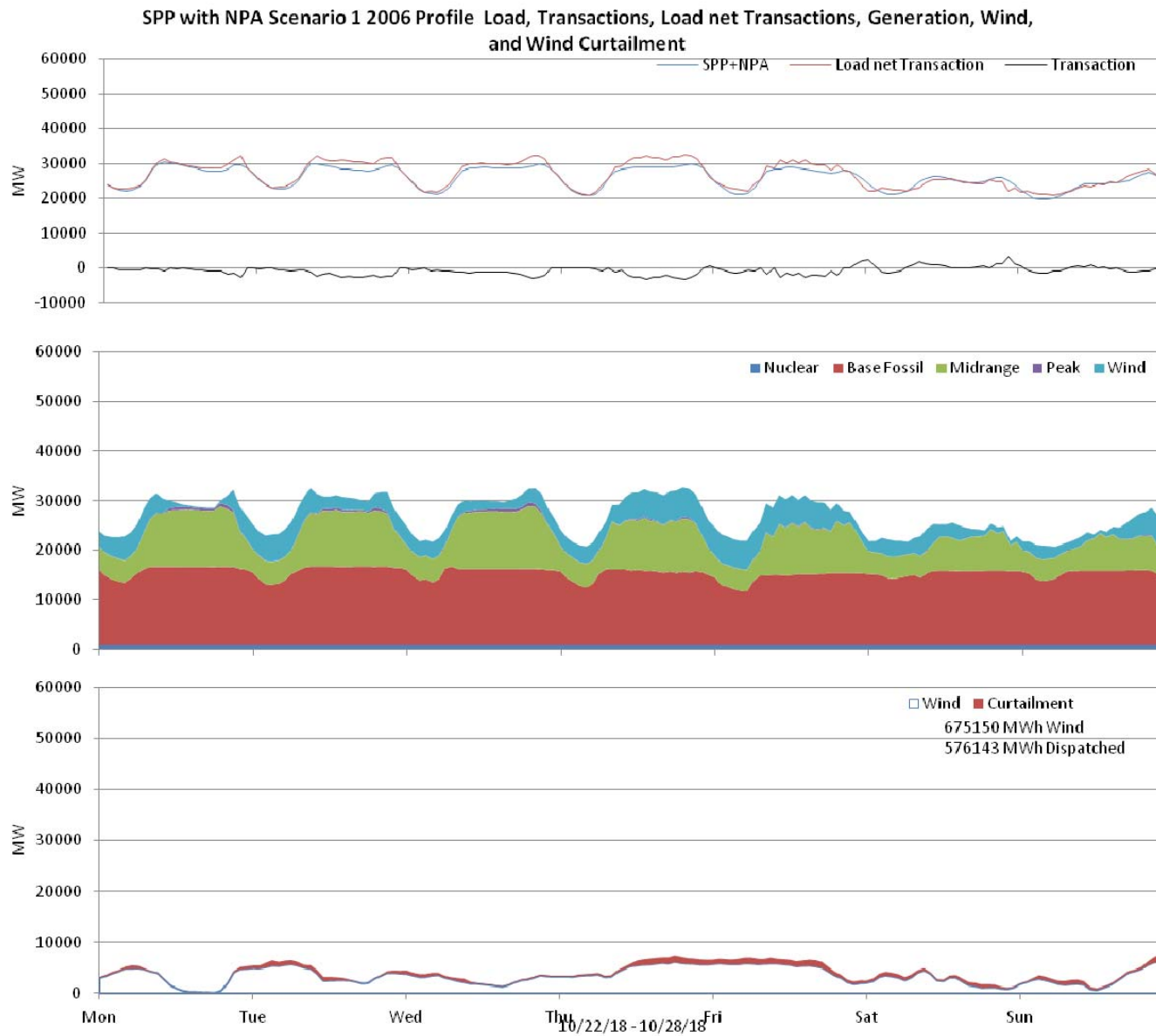


Figure 95: SPP 10% wind Penetration, 2006 Profile week of 10/22/2018

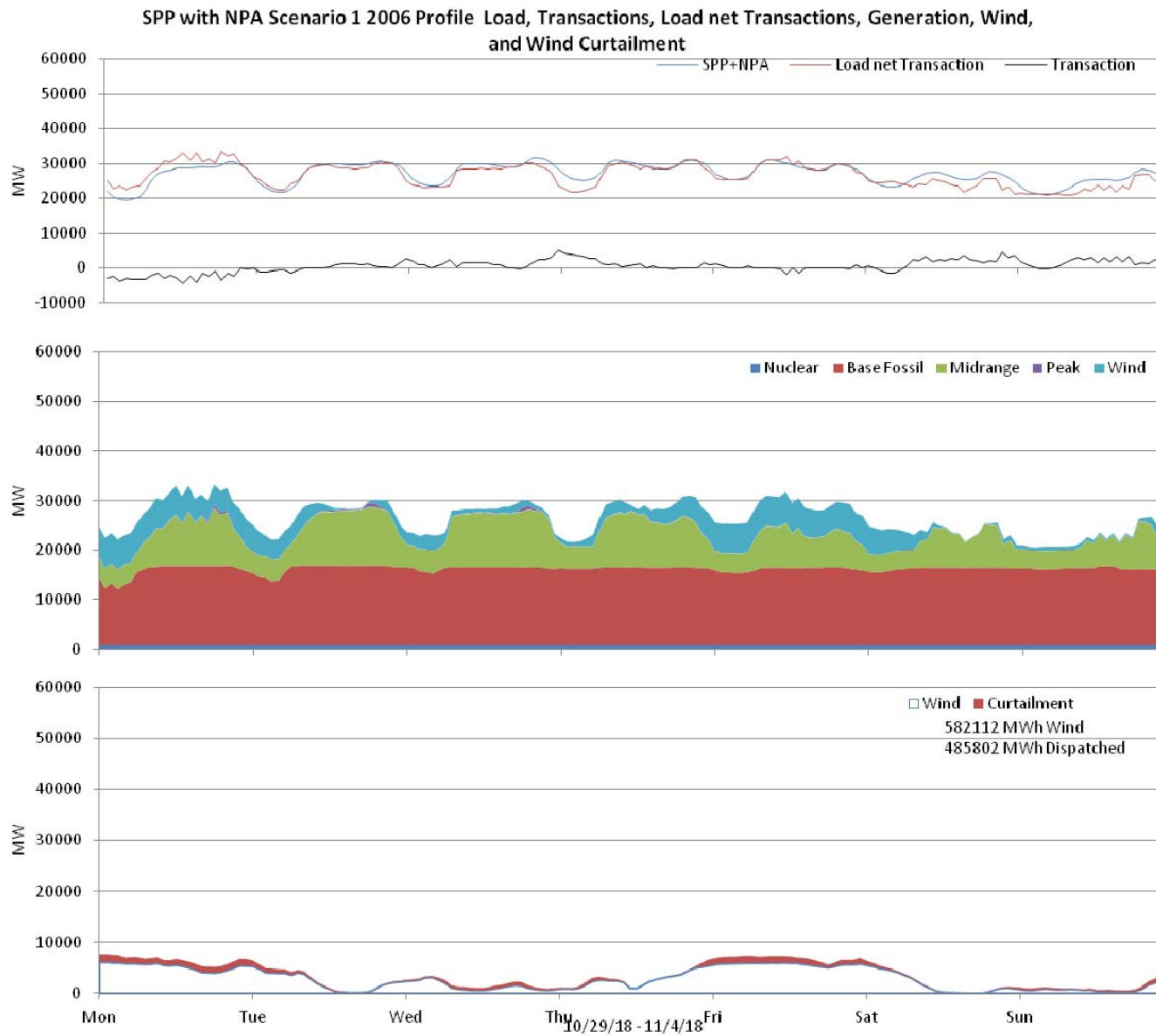


Figure 96: SPP 10% wind Penetration, 2006 Profile week of 10/29/2018

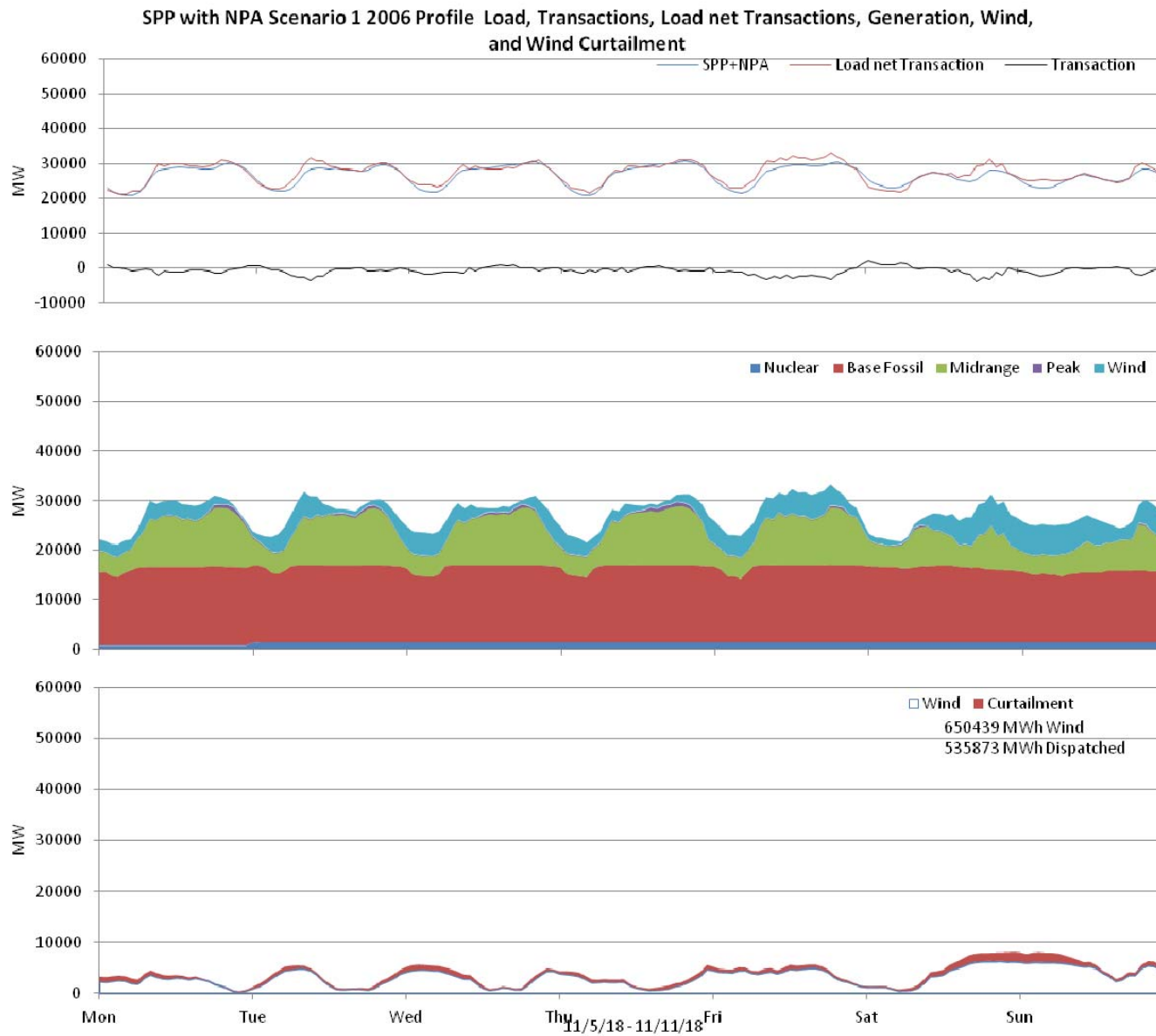


Figure 97: SPP 10% wind Penetration, 2006 Profile week of 11/5/2018

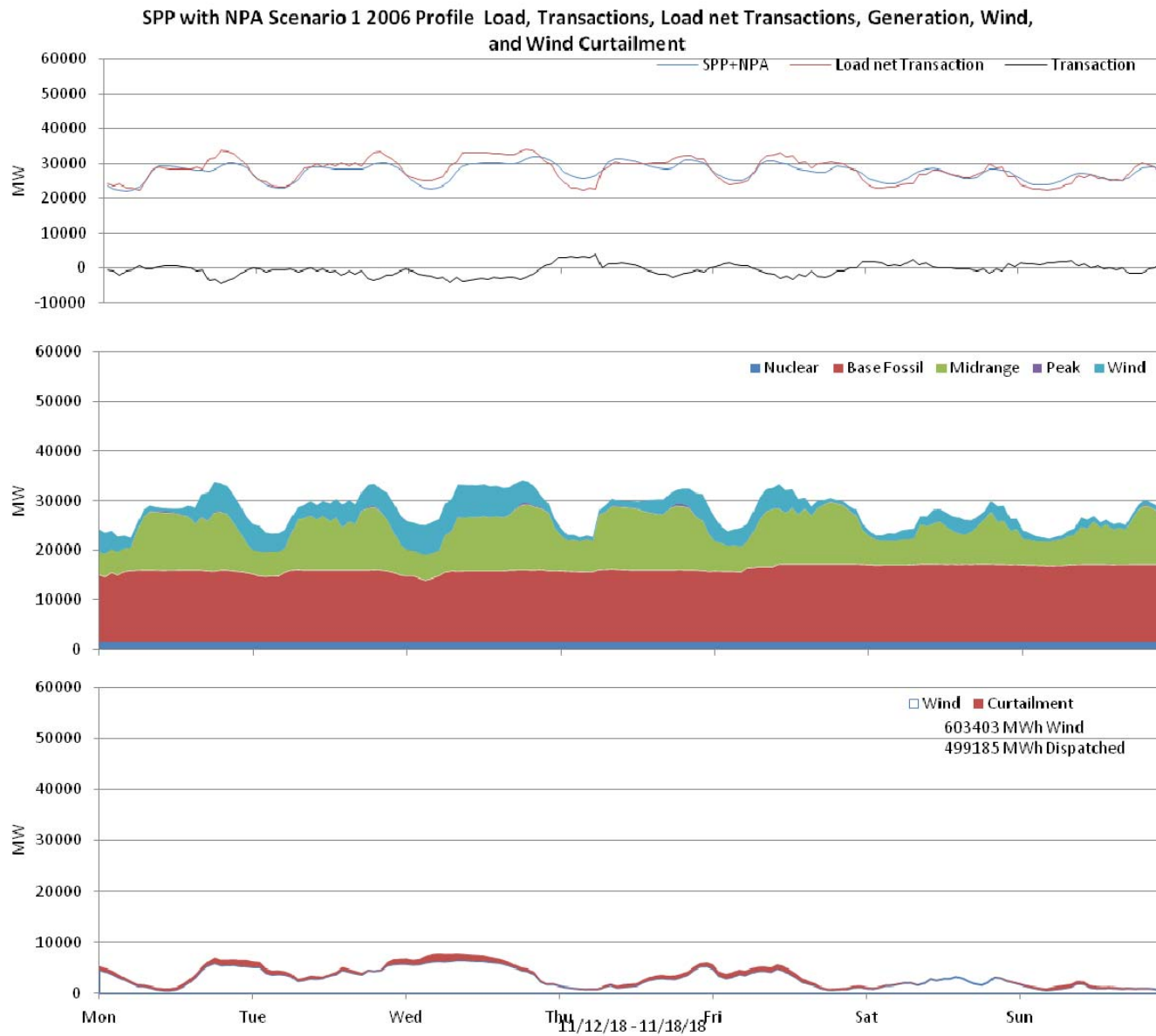


Figure 98: SPP 10% wind Penetration, 2006 Profile week of 11/12/2018

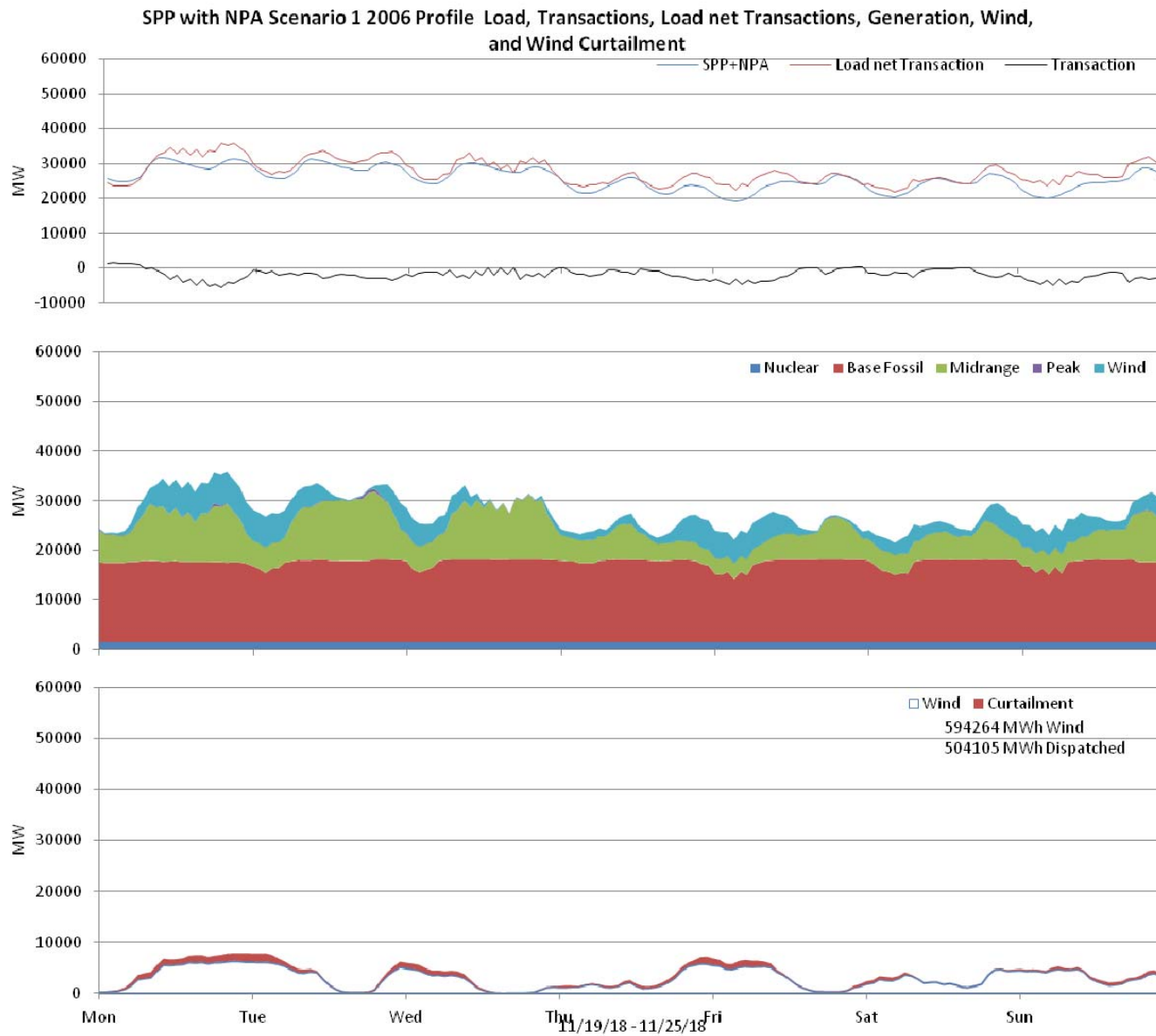


Figure 99: SPP 10% wind Penetration, 2006 Profile week of 11/19/2018

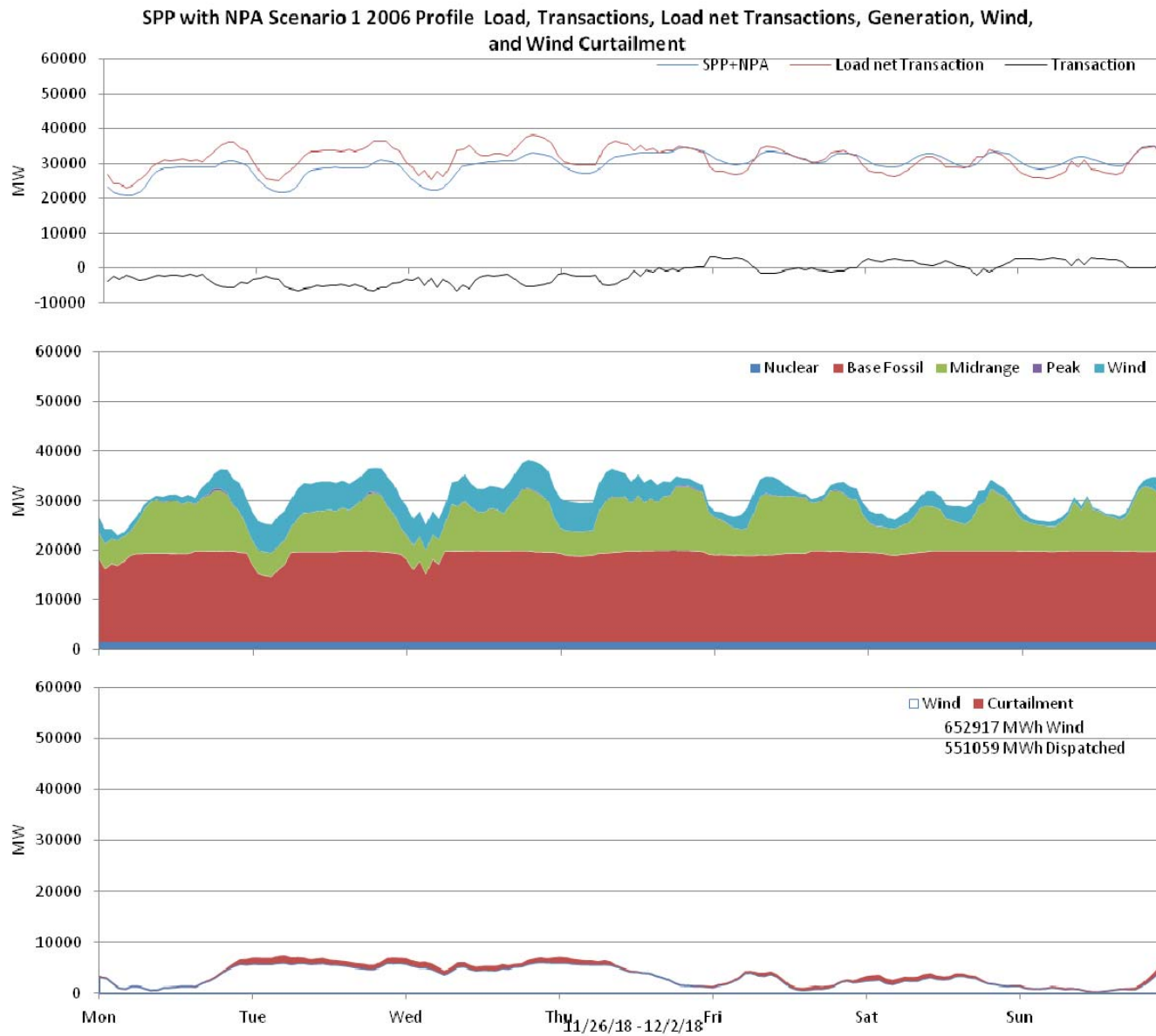


Figure 100: SPP 10% wind Penetration, 2006 Profile week of 11/26/2018

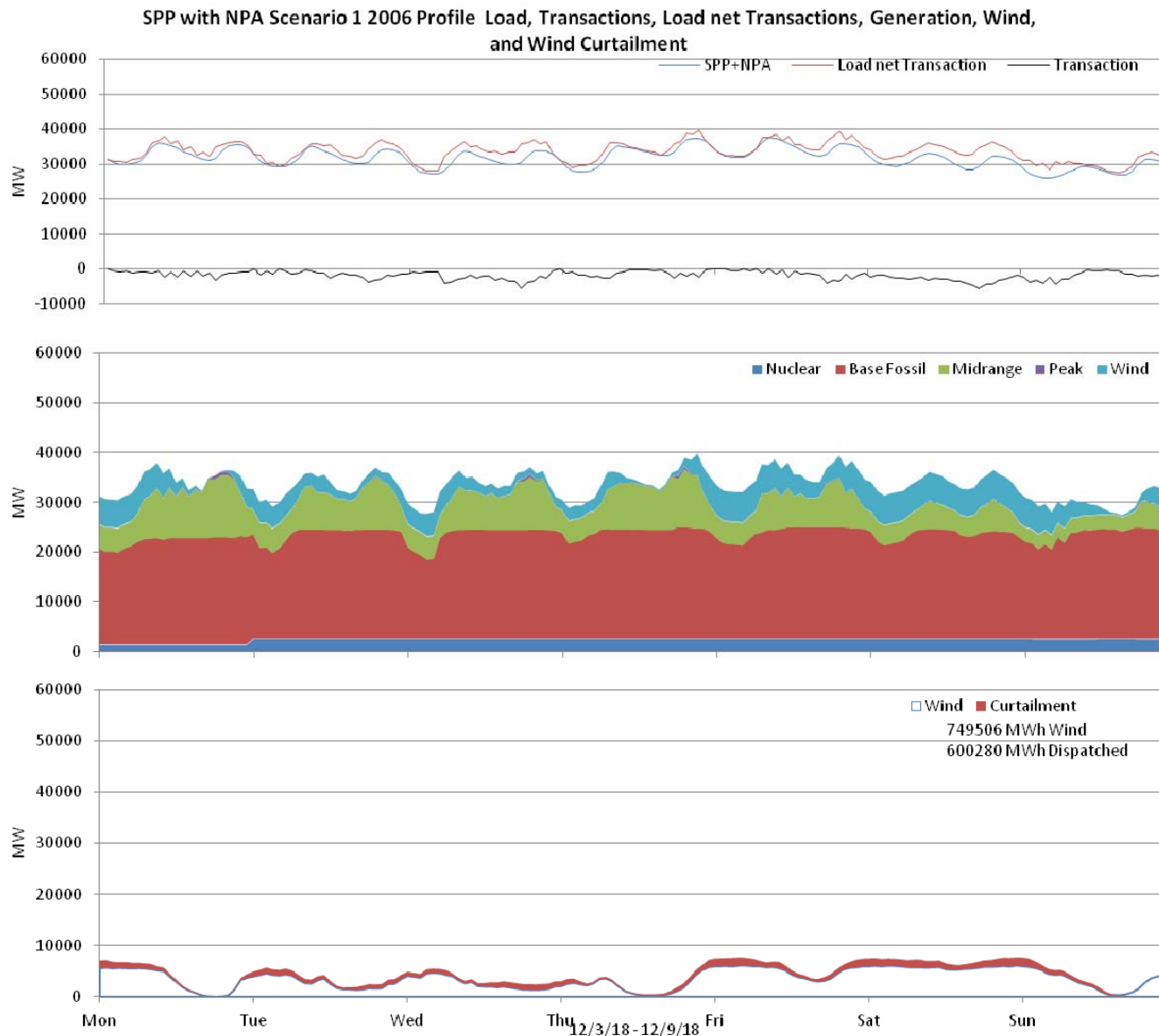


Figure 101: SPP 10% wind Penetration, 2006 Profile week of 12/3/2018

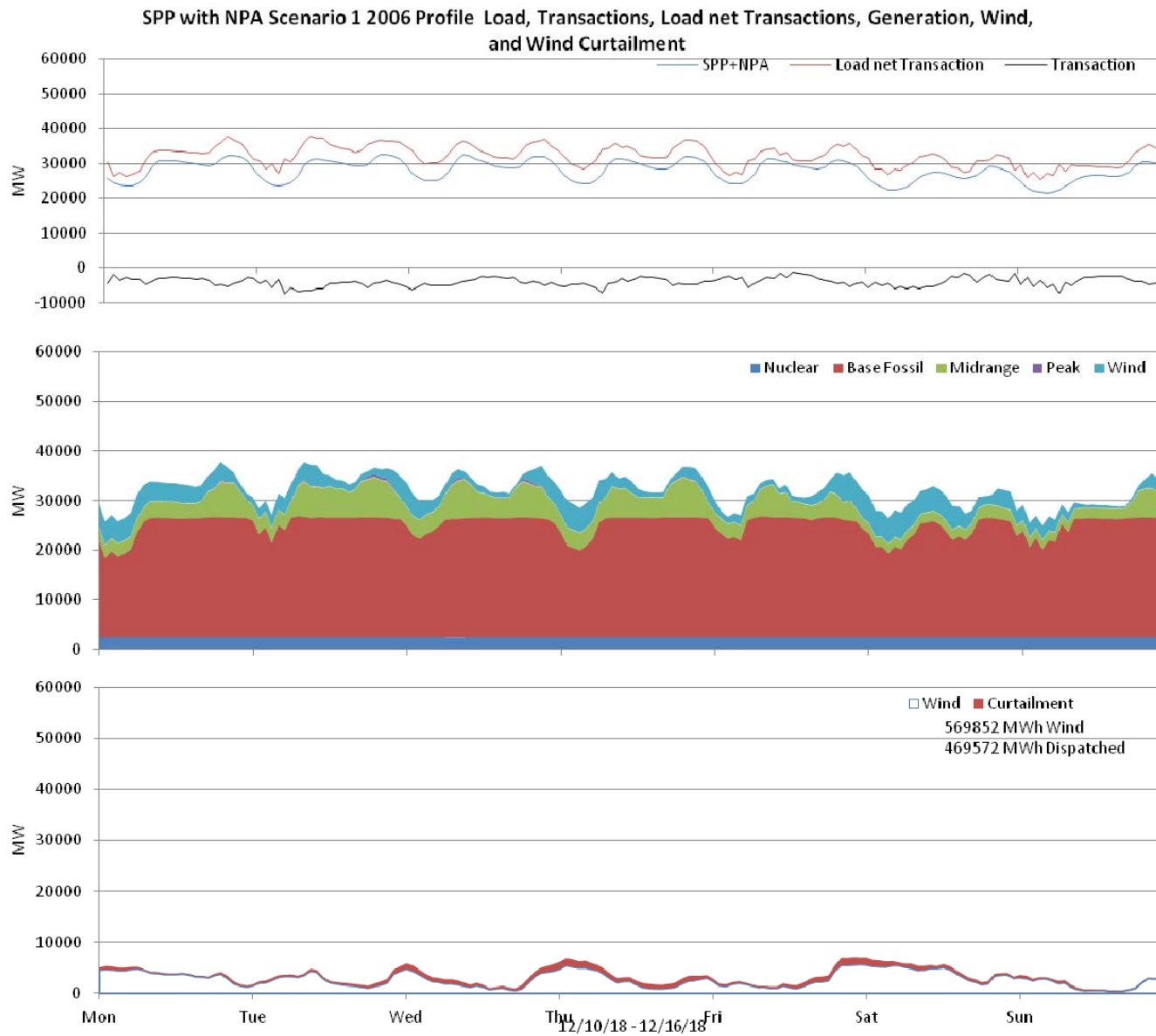


Figure 102: SPP 10% wind Penetration, 2006 Profile week of 12/10/2018

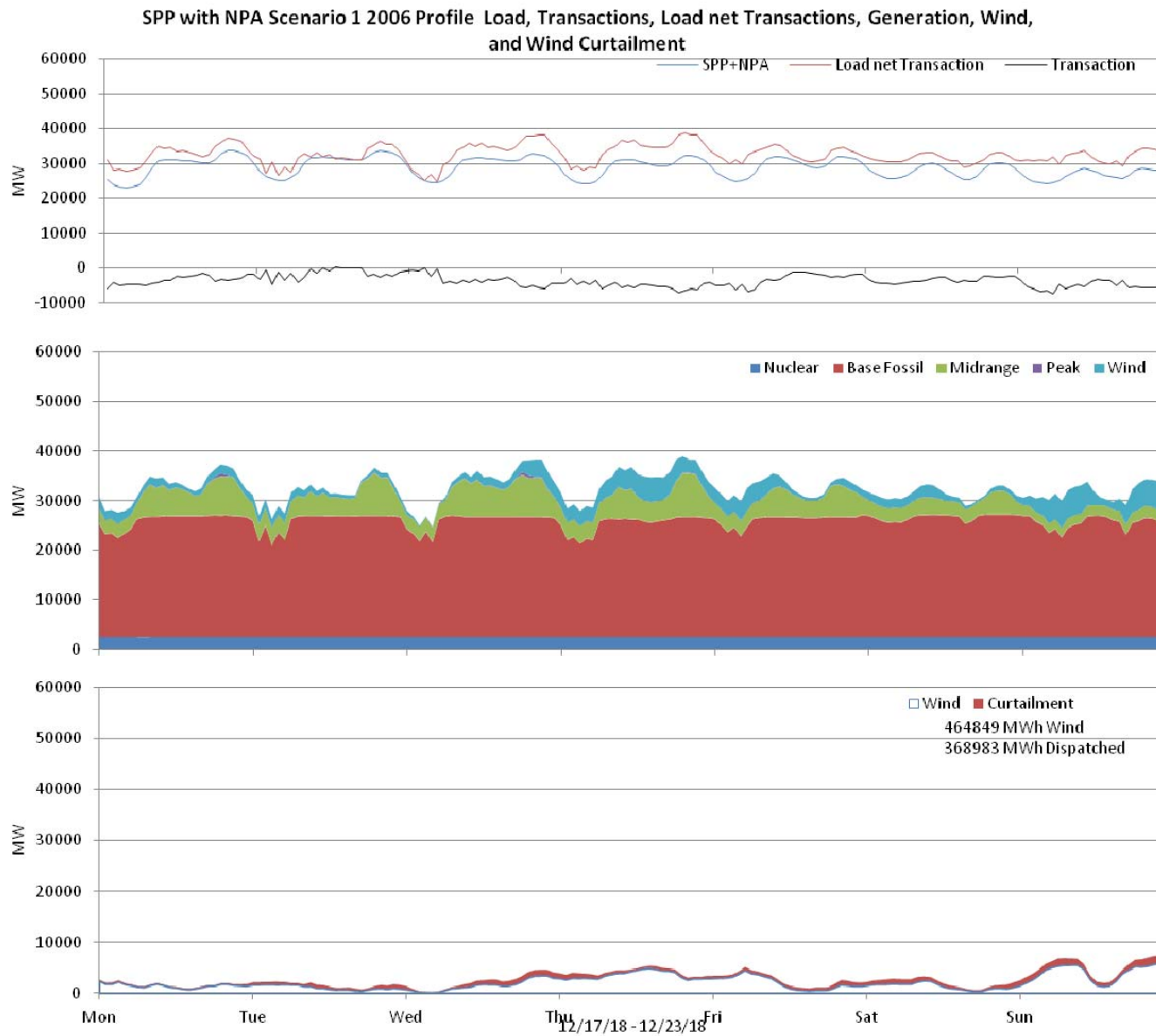


Figure 103: SPP 10% wind Penetration, 2006 Profile week of 12/17/2018

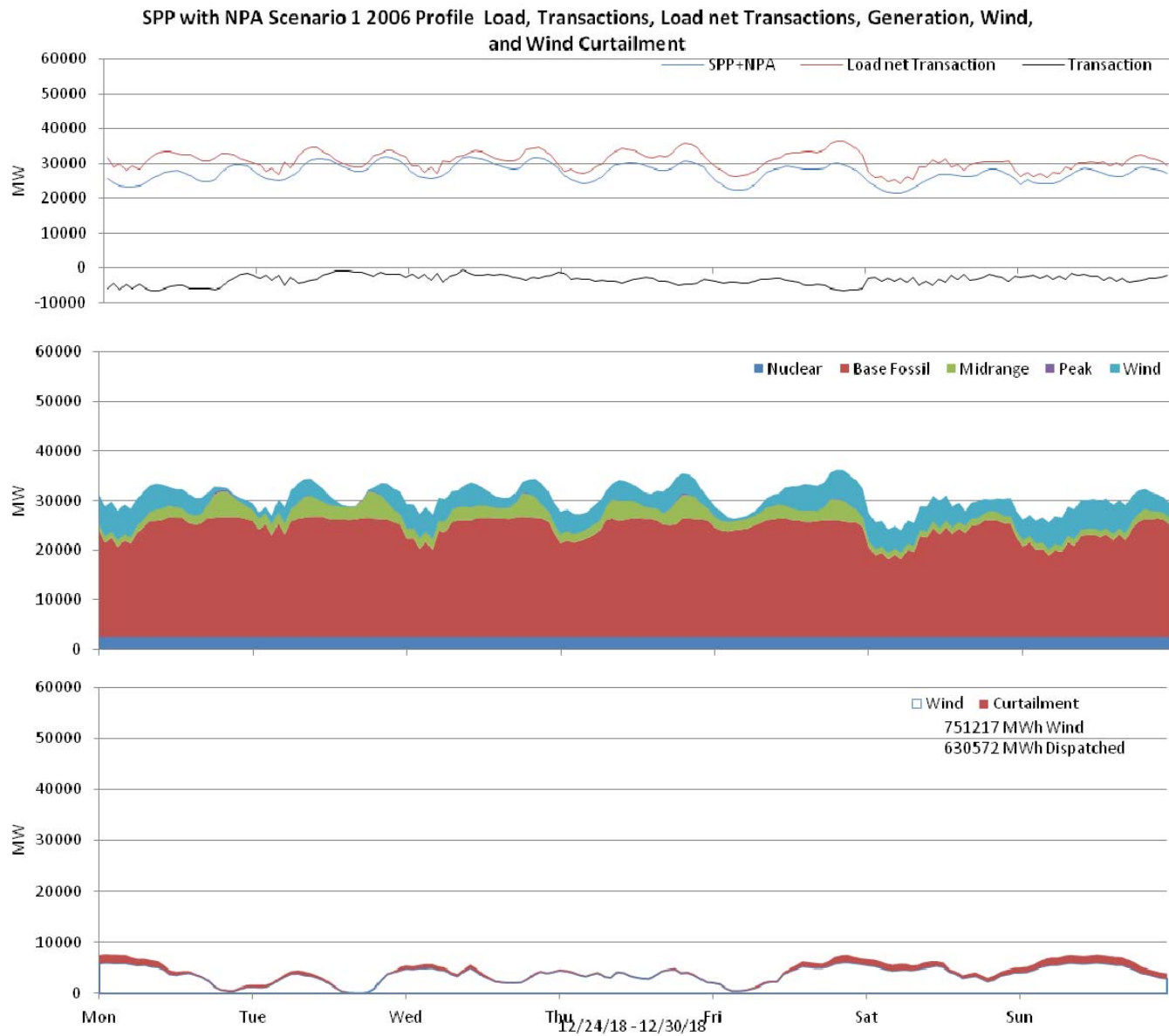


Figure 104: SPP 10% wind Penetration, 2006 Profile week of 12/24/2018