Duke Energy Carolinas, LLC & Duke Energy Progress, LLC
Docket NO. M-100, Sub 163
PSDR No. 2-15.b 2014-2015 Polar Vortexes vs. 2022 Winter Storm

Duke Meteorology

**2014 Polar Vortex event vs. 2022 event:**

The 2014 event occurred on a Monday night into Tuesday morning in early January.
The 2022 event occurred on a Friday night into Saturday morning across a holiday weekend in late December.

*DEC:*
In the 2014 event, there was an "atypical" AM high temp, PM low temp pattern on the day prior as temperatures fell during the daytime hours. On 1/5, the DEC system average temperature dropped from 42 @ 7am to 35 @ 4pm to 14 @ 10pm and continued to fall overnight, reaching 6 degrees @ 7am on the morning of 1/6. There was a 21 degree drop in temperature across the evening peak. Sustained wind speeds were around 15 mph throughout the day but then light overnight. Not aware of any wind-related outages prior to the event.

In the 2022 event, there was an "atypical" AM high temp, PM low temp pattern on the day prior as temperatures fell during the daytime hours. On 12/23, the DEC system average temperature dropped from 41 @ 7am to 26 @ 4pm to 16 @ 10pm and continued to fall overnight, reaching to 8 degrees @ 7am on the morning of 12/24. There was a 10 degree drop in temperature across the evening peak. Sustained wind speeds were around 15-20 mph throughout the day and the diminished to around 10 mph overnight. Significant wind-related outages occurred on the morning prior to the event.

*DEP:*
In the 2014 event, there was an "atypical" AM high temp, PM low temp pattern on the day prior as temperatures fell during the daytime hours. On 1/5, the DEP system average temperature dropped from 61 @ 7am to 45 @ 4pm to 28 @ 10pm and continued to fall overnight, reaching 13 degrees @ 7am the morning of 1/6. There was a 17 degree drop in temperature across the evening peak. Sustained wind speeds were around 15 mph throughout the day but then 5-10 mph overnight. Not aware of any wind-related outages prior to the event.

In the 2022 event, there was an "atypical" AM high temp, PM low temp pattern on the day prior as temperatures fell during the daytime hours. On 12/23, the DEP system average temperature dropped from 50 @ 7am to 30 @ 4pm to 21 @ 10pm and continued to fall overnight, reaching 12 degrees @ 7am on the morning of 12/24. There was a 9 degree drop in temperature across the evening peak. Sustained wind speeds were around 15-20 mph throughout the day but then diminished to around 10 mph overnight. Significant wind-related outages occurred on the morning prior to the event.