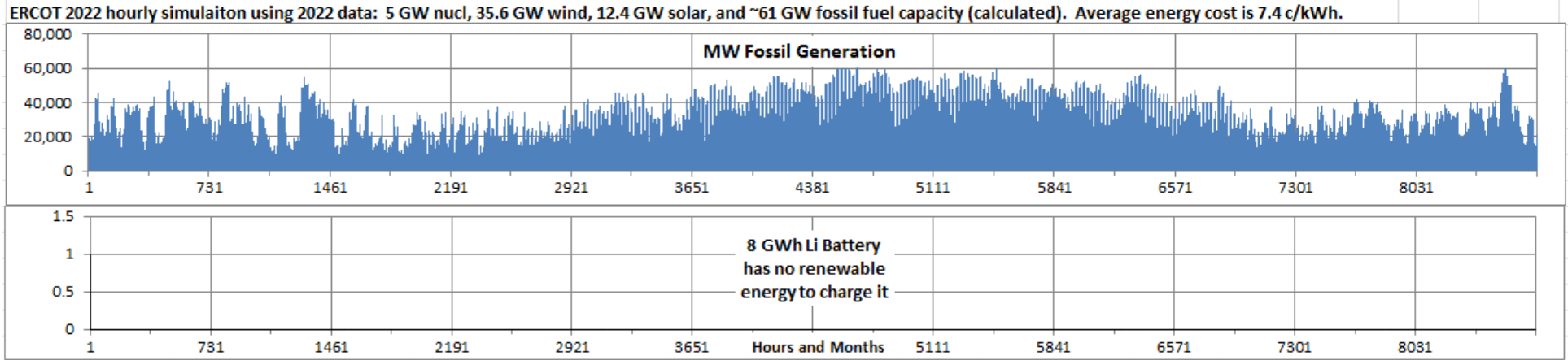
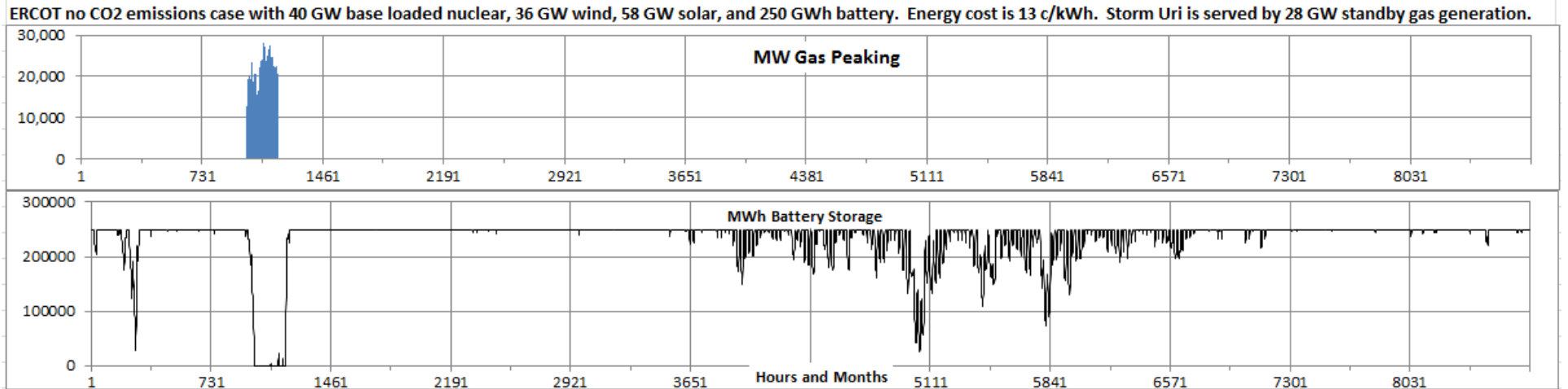


These files show the value of gas peaking generation when used to maintain reliability yet keep a low capacity factor.

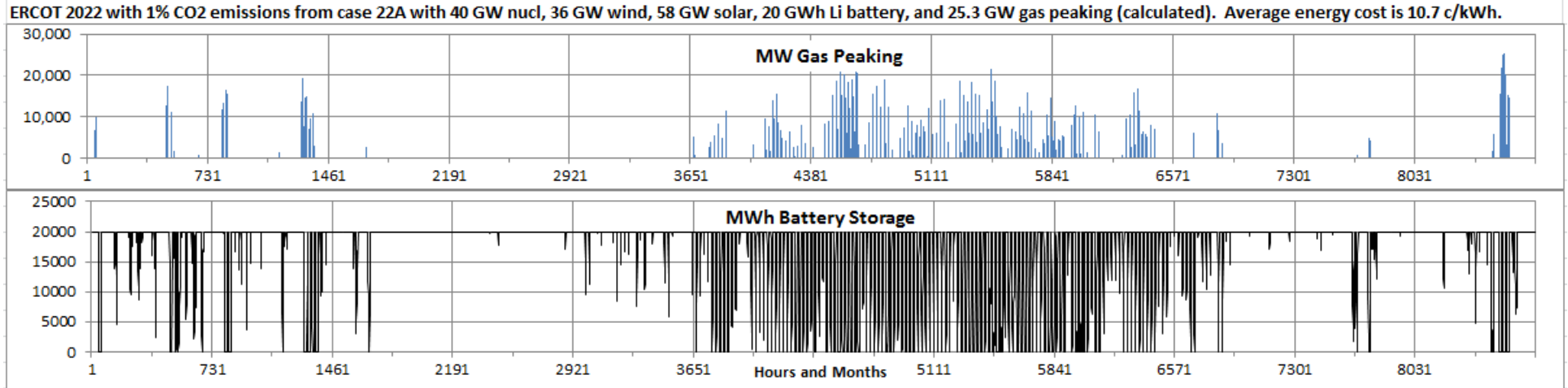
Case 22A - the current system with ~60% fossil energy.



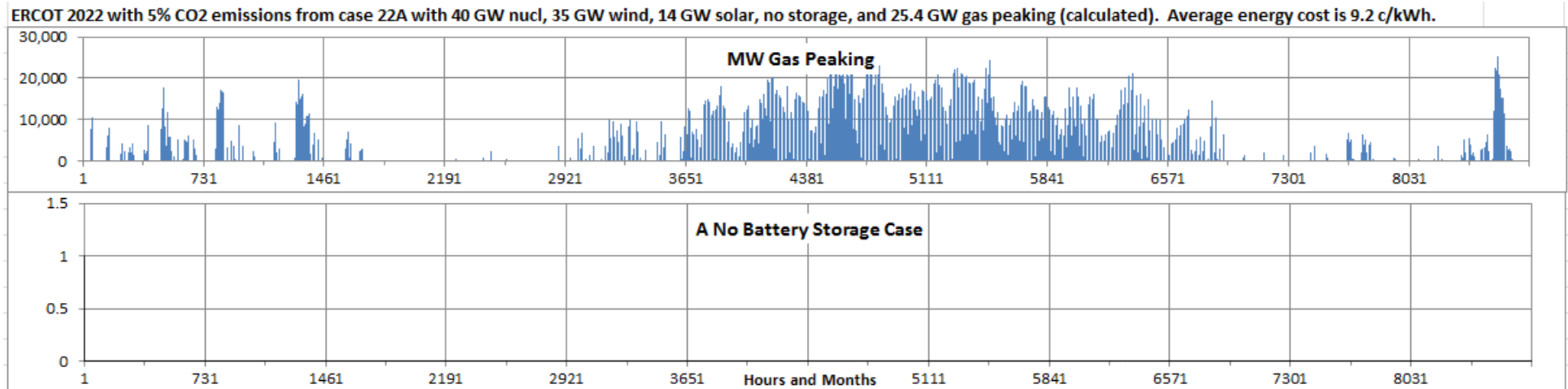
Case 22B - 0% CO2 with 40 GW nuclear and a giant Li battery leaves storm Uri to be served by gas peaking generation.



Case 22A2 - 1% CO2 with 40 GW nuclear and small Li storage utilizes better the gas peaking generation needed for Uri.



Case 22A2a – 5% CO2 with nuclear and no Li storage the gas peaking generation needed for Uri much more often.

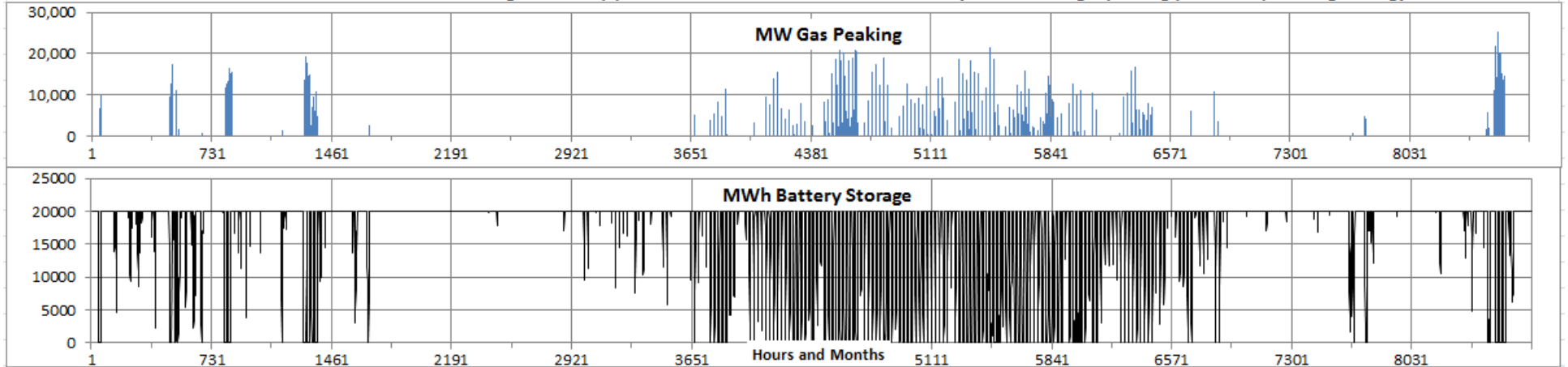


Case 22A2 is the preferred case because it's the lowest CO2 case that is affordable and easiest to construct. ERCOT will already have the small storage in place soon so we don't need to have any special provisions for this storage to happen.

Additional Cases of Interest:

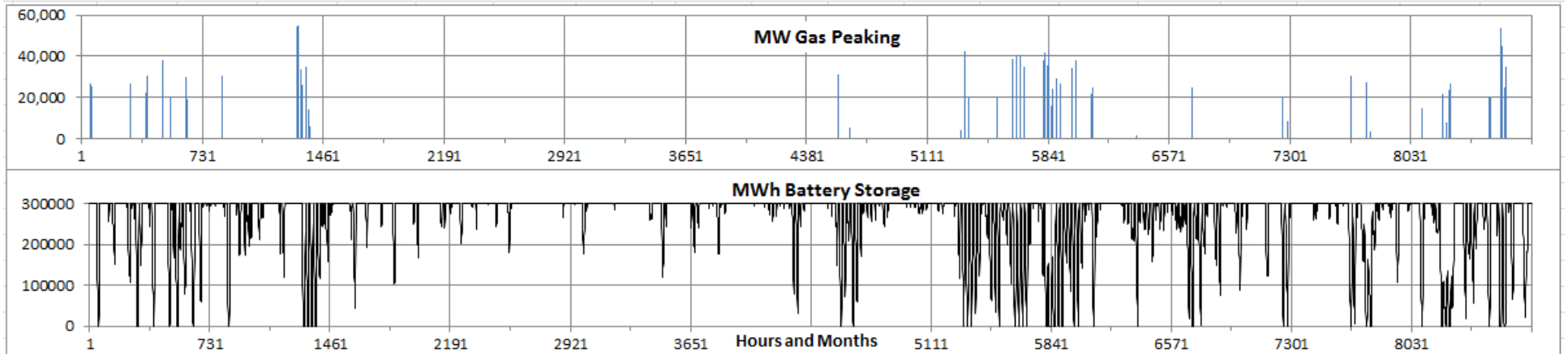
Case 22A3 – 1% CO2 40 GW geothermal base loaded generation replaces 40 GW base loaded nuclear in Case 22A2.

ERCOT 2022 with 1% CO2 emissions from case 22A with 40 GW geothermal(4), 36 GW wind, 58 GW solar, 20 GWh battery and 25.3 GW gas peaking (calculated). Average energy cost is 12.1 c/kWh.



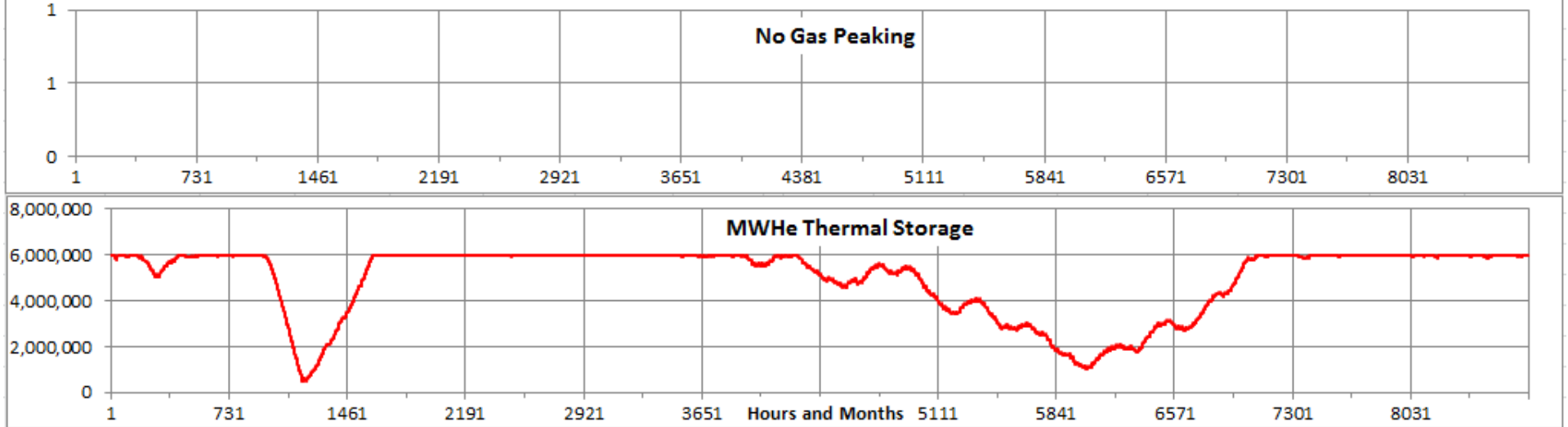
Case 22A1 – 1% CO2 no nuclear with a huge amount of wind and solar and giant Li battery is not transmission feasible.

ERCOT 2022 with 1% CO2 emissions with no nuclear, 150 GW wind, 300 GW solar, 200 GWh Li battery, and 55 GW gas peaking capacity. Average energy cost is 16.4 c/kWh - omit transmission costs.



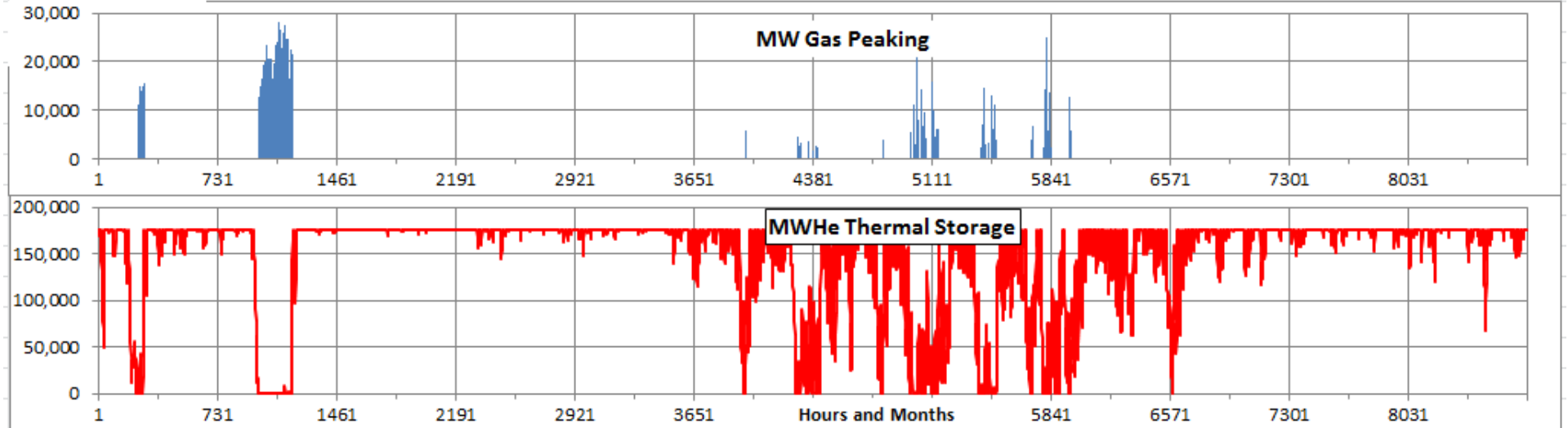
Case 22C – 0% CO2 uses 30 GW nuclear giant thermal storage and serves Uri without needing gas peaking generation.

ERCOT no CO2 emissions case with 30 GW 200 hour nuclear thermal storage and 36 GW wind and 58 GW solar. Energy cost is 10.1 cents per kWh. Storm Uri is served.



Case 22C1 – 1% CO2 small nuclear thermal storage uses gas peakers for reliability in the same manner as previous cases.

ERCOT 1% CO2 emissions case with 35 GW 5 hour nuclear thermal storage and 36 GW wind and 58 GW solar. Energy cost is 9.7 cents per kWh. Storm Uri is served.



This is the lowest cost 1% CO2 emissions plan if the small thermal storage can be made to work as desired.