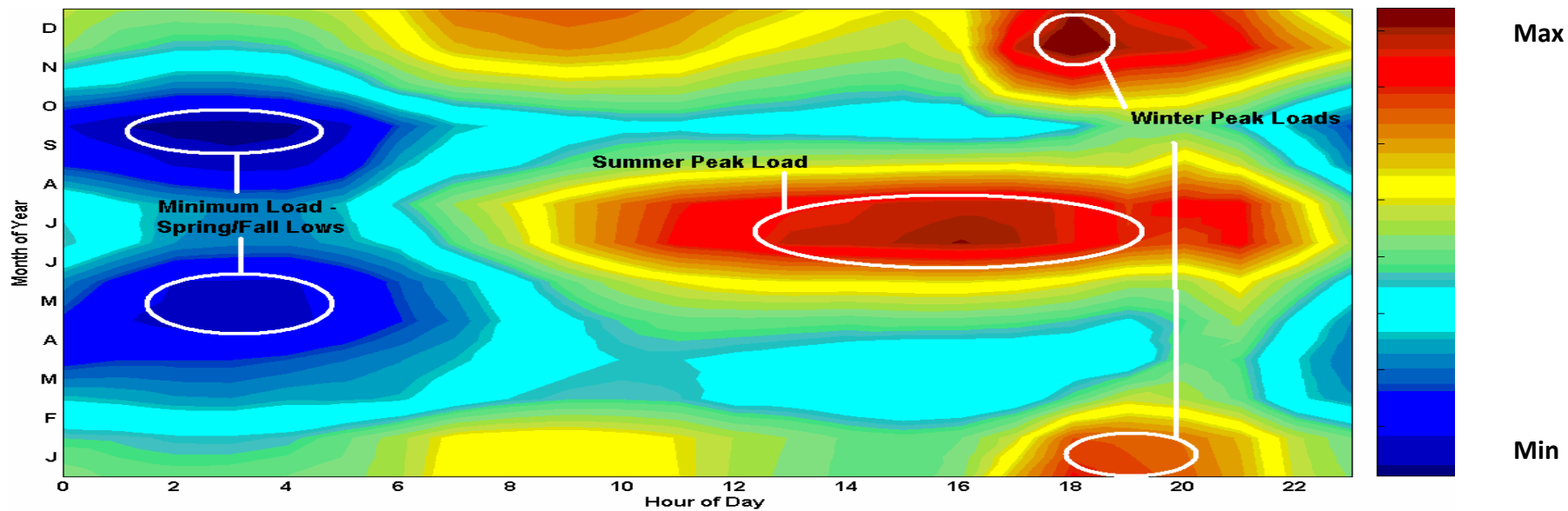
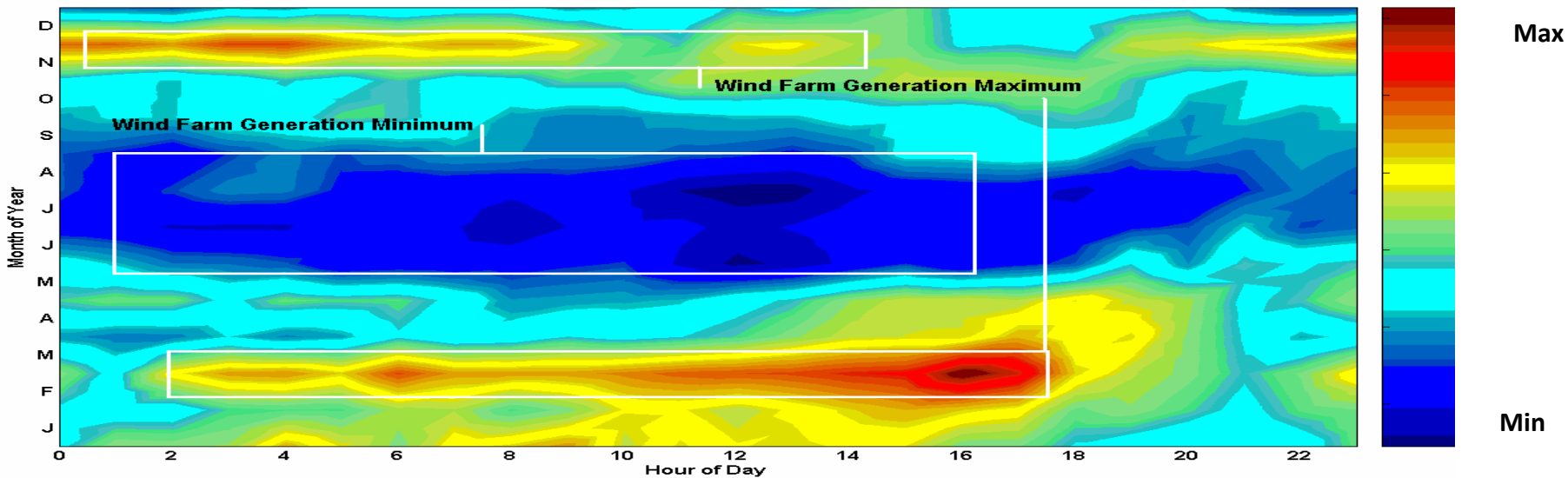


There is a potential beneficial relationship
between wind and gas power electric
generation in Wyoming

Wind is intermittent and biased away from peak



Wind Farm D - 2004



Supply of wind is variable during the day

- Xcel Energy system for Colorado has 775 MW of wind generation capacity
- Observed maximum one hour increase in output has been 96% of nameplate capacity
- Observed maximum one hour decrease in output has been 63% of nameplate capacity
- Gas fired generation used to fill the unexpected gaps in wind output

Gas gen needs storage to operate

- Pipelines sold out of guaranteed short notice service
- Gas storage slaved to power plants solves problem
- Denver front range has example – Totem/High Plains
- Storage expansion requires 10+ year commitments
- Working with the Wyoming Infrastructure Authority