

## Summary

This paper will briefly cover the mechanics around the offer capping of generation resources with particular emphasis on how these rules interact with wind generators. In summary, the specifics of the rules regarding offer capping make it practically impossible for a wind generator to ever be cost capped, and to date PJM has had no instances of a wind resource being offer capped.

## Offer Capping Specifics

When a transmission constraint occurs, PJM will adjust output levels of generating units and, if necessary, bring on additional generation to control that constraint and prevent any overload from occurring. All generators are required to submit a cost-based offer into the PJM Energy Market according to rules specified in Manual 15. If a generator is brought on to control a constraint, it may be run on its cost-based offer if the owner is found to have potential market power. The Three Pivotal Supplier Test (TPS Test) is run automatically as any constraint begins to bind. If the results of the TPS Test show the generation owner has potential market power, the unit may be cost capped.

In order for a generator to be cost capped, several conditions must be met:

1. The unit must have a cost-based offer that is lower than the price-based offer. (If the price-based offer is lower, the unit will be run on the lower offer and is not considered offer capped.)
2. The generation owner must have failed the TPS test.
3. To be included in the generator must have a distribution factor (dfax) of more than 3% as a “raise helps”. In other words, raising the output of the generation unit must help relieve the constraint and 3% or more of the output of the unit must flow on the constrained line. Units that provide constraint relief by backing down “lower helps” are not offer capped and would not be called on to provide constraint relief, as they would provide little benefit.
4. The generator must be called on to provide constraint relief. A unit that is already running will not be capped and will continue to run on the schedule it was originally called on with. (Note: If the unit was already running but has run past its economic commitment - i.e. day-ahead commitment or minimum run time – and is needed for constraint relief, it may be asked to continue to run for constraint relief and be offer capped provided the other conditions above are met.)

## Interaction with Wind Resources

Given the circumstances above, it becomes unlikely if not impossible that a wind resource would be offer capped.

It is possible for the first and second conditions to be met. However the third condition is another matter. Prevailing power flows in PJM tend to be from west to east, and so constraints tend to occur in the same direction. Wind units tend to be found more frequently in the western area of PJM’s system. As a result, it would be uncommon for a wind unit to meet the “3% raise helps” criteria.

The fourth condition however is the most limiting. Units that are already running are not subjected to offer capping. Only when a unit is brought on to provide constraint relief can it possibly be capped. It’s reasonable to assume that a wind resource would already be running any time it had wind to do so. (If there was no wind available, then PJM wanting the unit to run would be irrelevant in any case.) As a result, it’s implausible to believe a wind unit would ever be “brought on” to provide constraint relief, and as such would never be offer capped.



# Offer Capping and Wind Units

## Historical Results

PJM has reviewed the historical data and has found no instances of a wind generator being offer capped.