**MidAmerican Energy Policy for Transmission Outage Scheduling with Generator Impacts**

1. **Purpose**

Reduce the impact of MidAmerican Energy scheduled transmission facility outages on interconnected generators, by providing advance notice of scheduled outages that may affect generator output capability, and by providing flexible outage scheduling options where they can be reasonably and reliably accommodated. The approach will be applied consistently to all interconnected generators on the MidAmerican Energy transmission system.

1. **Background**

The primary requirement of the MidAmerican Energy Company (MEC) transmission outage scheduling process is to accommodate needs for scheduled work on the MEC transmission system in a manner that maintains reliability of the bulk electric system. Coordinating the outage schedules to also reduce generator and market impacts is an enhancement to the primary objective. MEC Transmission Operations has observed increased frequency of curtailments of wind generation to accommodate scheduled transmission outages, likely due to both increasing amounts of wind generation connected to the MEC transmission system, and an increase in scheduled outage needs required for compliance with reliability standards of the North American Electric Reliability Corporation (NERC). The intermittent availability of the wind resources provides an opportunity to reduce impact to generators where flexibility in outage scheduling exists.

1. **Scope**

This process will be applied to scheduling and implementation of MEC transmission facility outages for which MEC Transmission Operations requires a pre-contingent curtailment of a generator interconnected to the MEC transmission system. The pre-contingent curtailment may be due to removal from service of generator outlet transmission facilities, or may be needed to protect reliability of the transmission system (generally lower voltage (<100 kV) transmission facilities that are not under functional control of the Midcontinent Independent System Operator (MISO)). This process does not apply to scheduled outages which may lead to MISO-initiated generation curtailments or other MISO congestion management impacts.

1. **Process**
	1. **Identification and Coordination of Outages**

MEC Transmission Operations will make best efforts to identify and post on MEC’s OASIS page on the MISO OASIS node those scheduled transmission outages identified as requiring a generator curtailment imposed by MEC Transmission Operations. The goal is to identify and post these outages up to 12 months in advance of the scheduled outage; however, not all scheduled outage needs are known 12 months in advance. MEC Transmission Operations will coordinate with internal and external outage requestors throughout the year to update this list as additions or adjustments to the list arise.

It is recognized that some scheduled outage needs are more flexible than others (depending upon equipment requirements, workforce requirements, compliance requirements, in-service dates, etc.); therefore, MEC Transmission Operations will coordinate with requestors to identify information on schedule flexibility during the outage request process. In addition to the proposed start and stop dates, the following information will be collected as part of the outage request, pertaining to schedule flexibility of the requestor:

* Can the work be rescheduled to another season (within the same year)?
* Can the work be deferred 12 months or more?
* Deferral notice requirements - Number of business days prior to the scheduled outage start date required for a request to defer (may be listed as “Not Applicable” if the scheduled work cannot be deferred).

MEC Transmission Operations will perform outage coordination studies to confirm the system can reliably accommodate the proposed scheduled outages/dates along with other requests in the MISO Control Room Operations Window (CROW) outage reporting system. These studies will also identify the estimated curtailment amount (per MEC-connected generator).

* 1. **Opportunity Outage Candidates**

The MISO outage scheduling process allows for “Opportunity Outages” to be taken outside of typical advance notification requirements when system conditions provide for more reliable operation or reduced market impact. Wind availability can be considered as a system condition opportunity. Section 5.1.1 of the MISO Outage Operations Business Practices Manual states:

*“System condition opportunities are characterized as an opportunity to take a facility out-of-service due to an unexpected change in system conditions/topology that would otherwise or normally not allow the outage to proceed without significant reliability risk or efficient market operation.”*

It is not practical to consider all scheduled outages affecting a generator as candidates for an Opportunity Outage. MEC Transmission Operations will focus Opportunity Outage efforts on scheduled outages that meet the following criteria:

* + The scheduled outage can be completed in 3 days or less
	+ The scheduled outage can be deferred or accelerated within the year, or deferred 12 months
	+ The outage requestor can arrange for materials, equipment, workforce, etc. on short notice (3 days or less).

Once identified as an opportunity outage, MEC Transmission Operations will coordinate with both the outage requestor and affected generator(s) to identify opportunity windows as they are forecasted to arise based upon system conditions and input from the affected generator(s). If an opportunity is identified and can be accommodated by the outage requestor, MEC Transmission Operations will confirm the proposed outage opportunity is agreeable with the affected generator(s), and then seek final approval from MISO to proceed with the scheduled outage.

* 1. **OASIS Postings and Generator Coordination**

In addition to submitting the associated transmission outage requests to the MISO CROW, the scheduled outage information obtained through the above process will be communicated to the affected generator operator(s) and posted on OASIS in a list similar to the attached example (see Appendix 1). Generator operators will be able to request MEC Transmission Operations to study alternative dates/seasons where schedule flexibility exists. Approval of alternative dates will be subject to outage scheduling studies and confirmation with the outage requestor.

In situations where a generator operator requests a change to a scheduled transmission facility outage that affects more than one generator operator, MEC Transmission Operations will independently coordinate with each affected generator operator, without communicating confidential information, to determine a mutually agreeable date. If a mutually agreeable date cannot be reached, the original outage schedule submitted by MEC Transmission Operations will be retained.

In all situations MISO has final approval/denial rights up to the scheduled outage start time.

* 1. **Updates from Outage Requestors**

Efforts will be made to hold the agreed upon outage schedule as submitted to CROW and posted on OASIS; however, outage requestors may need to reschedule due to material availability, workforce availability, weather conditions, other forced outages etc. Similarly, new scheduled outage requests may be received that will require pre-contingent curtailment of generation (including Urgent or Emergency outage requests that must be taken on very short notice due to pending transmission facility risks). In either of these cases, MEC Transmission Operations will communicate the updates to the summary list of scheduled curtailments via OASIS and to the affected generator operator(s) as soon as practical.

* 1. **Short-term Requests by Generator Operator to Defer/Reschedule**

Where flexibility to defer a scheduled outage exists, the generator operator may request deferral for any reason, up to the deferral notice date. The generator operator may make this request via phone contact to the MEC Transmission Outage Scheduling desk at (515)-252-6489 or (515)-252-6746 or via email contact at TSharedMailbox6@midamerican.com. To maintain short-term deferral requests to a reasonable level the following criteria will be enforced:

* No cancellation or deferral once the scheduled outage has started.
* A specific scheduled outage request may only be deferred by the generator operator one (1) time within the same year (i.e. if the scheduled outage is submitted to CROW for March 15, and subsequently rescheduled to June 15 at the generator operator’s request, no further requests to defer will be allowed for that specific scheduled outage). An additional deferral is allowed to the following year, if the scheduled outage can be deferred 12 months or more.
* A request to reschedule may be denied if work must be completed within the same year, and outage scheduling studies cannot identify an alternative schedule that maintains reliability of the transmission system.

**MidAmerican Energy Transmission Planned Work Affecting Generators**

Last updated mm/dd/yyyy

The table below represents known scheduled work on the MidAmerican Energy transmission system that is expected to require a 24x7 curtailment of generator(s) issued by the MidAmerican Energy Transmission Operator to protect transmission facilities that are not under MISO functional control. Please contact the MidAmerican Energy Transmission Outage Coordinator to coordinate an outage schedule or request evaluation of a proposed schedule adjustment. Refer to the process document for additional details.

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| --- | --- | --- | --- | --- |
|  |  |  | **Schedule 2** | **Schedule Flexibility**  |
| **#** | **Generator Interconnection Point** | **Estimated** **Curtailment 1** | **Start Date** | **Stop Date** | **Can Work Be Rescheduled** | **Required Notice to Defer 3** | **Opportunity Outage 4** |
| 1 | Clipper Substation | Combined Limit 330 MW | 1/6/2017 | 1/6/2017 | Yes | 2 days | No |
| Pocahontas County Substation |
| 2 | Victory Substation | 47 MW | 2/6/2017 | 2/10/2017 | Yes | 2 days | No |
| Carroll County Substation | 72 MW |
| New Harvest Substation | 80 MW |
| 3 | Victory Substation | 76 MW | 2/27/2017 | 3/1/2017 | Yes | 2 days | No |
| Carroll County Substation | 118 MW |
| 4 | Charles City South  | 63 MW | 3/13/2017 | 3/17/2017 | Yes | 4 days | No |
| 5 | Charles City South  | 45 MW | 3/20/2017 | 3/24/2017 | Yes | 4 days | No |
| 6 | Clipper Substation | 0 MW | 3/20/2017 | 3/24/2017 | Yes | 2 days | Yes |
| 7 | Charles City South | 30 MW | 4/3/2017 | 4/4/2017 | Yes | 2 days | No |
| 8 | Carroll County Substation | 0 MW | 5/15/2017 | 5/18/2017 | Yes | 2 days | No |
| New Harvest Substation | 10 MW |
| 9 | Victory Substation | 49 MW | 7/17/2017 | 7/19/2017 | Yes | 2 days | No |
| Carroll County Substation | 73 MW |
| New Harvest Substation | 75 MW |
| 10 | New Harvest Substation | 30 MW | 7/20/2017 | 7/22/2017 | Yes | 2 days | Yes |

1. Estimated Curtailment Limits are based on preliminary studies, and may be subject to change based upon near-term studies prior to the outage.
2. MidAmerican Energy may need to adjust work schedules due to personnel availability, unanticipated work delays, forced outages, MISO approvals, etc. MidAmerican Energy will work with affected generator(s) if a schedule change is required.
3. Generator owner near-term requests to reschedule planned work must be submitted via email or phone contact to the MidAmerican Energy Outage Coordinator at least “X” business days prior to scheduled start date.
4. Opportunity outages are subject to MISO approval.