Allowable Weston U4 Output with Weston Units 31 and 32 Out of Service[1] No Competing Generation In-Service[2]			
	Arrowhead – Weston Completed?	Allowable G4 Output (MW)	Projects Required
No Transfer Trip	No	250[3]	1. O-41 Weston – Sherman St. 2. Z-52 Weston – Morrison Ave. – Sherman St. 3. Multiple 345kV and 115kV circuit breaker and relay replacements
	Yes	395[4]	1. Z-52 Weston – Morrison Ave. – Sherman St. 2. T-20 Weston – CW8 – Northpoint – Rocky Run 3. F-110 Weston – Kelly 4. J-36 Kelly – Whitcomb 5. Multiple 345kV and 115kV circuit breaker and relay replacements
Transfer Trip[5]	No	500	1. O-41 Weston – Sherman St. 2. Z-52 Weston – Morrison Ave. – Sherman St. 3. F-110 Weston – Kelly 4. Multiple 345kV and 115kV circuit breaker and relay replacements
	Yes	500	1. O-41 Weston – Sherman St. 2. Z-52 Weston – Morrison Ave. – Sherman St. 3. F-110 Weston – Kelly[6] 4. B-106 Plover – Whiting Ave. 5. Multiple 345kV and 115kV circuit breaker and relay replacements

Notes:

1. Operating restriction on concurrent operation of Weston Units 31 and 32 and Unit 4 will be required. The allowable Weston unit 4 output presented is based on light load stability simulations.
2. Competing generation is GIC011 (between Rocky Run and North Appleton) and GIC014 (Arpin). Dispatch of competing generation does not change stability response.
3. Limited by stability response.
4. Stability limitation is 400 MW. Transfer limitation with projects identified is 395 MW. To obtain 400 MW, B-106 Plover – Whiting Ave project would have to be completed.
5. Weston U4 tripping scheme would be installed on the Rocky Run – Weston and Rocky Run – North Appleton 345kV lines. For the outage of either of these lines, Weston U4 would be tripped. Without the Arrowhead-Weston 345kV line, Weston U3 would require a separate trip scheme for faults on either of the Weston 345/115kV transformers.
6. J-36 Kelly – Whitcomb and T-20 Weston – Rocky Run are parallel to the 345kV lines included in the transfer trip scheme. The loading on these two facilities decreases with the trip of the Weston unit. Therefore, upgrade of these facilities due to Weston U4 is not required with the transfer trip.

Why Interim Projects Are Not The Preferred Long Term Solution

- Per ATC planning criteria, generator unit transfer trip protection scheme is not an acceptable long-term generation/transmission system solution.
- Provide little or no margin for load growth.
- Require WPS to limit generation at the Weston power plant due to dynamic instability. In addition, current studies indicate that the Weston plant will be thermally limited to approximately 1050 MW out of the 1065 MW of installed capacity at Weston.
- Limit the operating flexibility of the transmission system in the central part of the state. Restrict the ability to perform preventative maintenance on the transmission system.
- Result in a fully subscribed transmission system in this area. Therefore, the full import capability benefits of the Arrowhead - Weston 345kV line and related upgrades could potentially be negatively impacted.