

Example: MHEX_S - System Intact System Operating Limit & Scheduling Limit Calculations

Component	Value MW
Total Transfer Capability	2500
Reliability Margin (RM)	325
System Operating Limit (SOL)	2175
Contingency Reserve Sharing Group (CRSG):	150
Deadband + Losses	75
Recallable	0
Operating Margin (OM) = Recallable + Deadband + Losses	75
TRM = CRSG + OM + RM	550
Firm Schedule Limit = TTC - TRM	1950
Non-Firm = Recallable	0
Schedule Limit = Firm + Non Firm	1950
TLR1 Trigger = 0.99 * TLR3	2005
TLR3 = SOL - CRSG ¹	2025

Example - MHEX_N - System Intact System Operating Limit & Scheduling Limit Calculations

Component	Value MW
Total Transfer Capability	1050
Reliability Margin (RM) ²	150
System Operating Limit (SOL)	900
Contingency Reserve Sharing Group (CRSG):	500
Load Uncertainty + Losses + Deadband	50
Releasable (Non - Firm)	45
Operating Margin (OM) = Releasable + Losses + Deadband	95
TRM = CRSG + OM + RM	745
Firm Schedule Limit = TTC - TRM	305
Non Firm Released + CRSG Release	545
Schedule Limit = Firm + Non Firm	850
TLR1 Trigger 93% of SOL	837
TLR3 Trigger 95% of SOL	855
IROL = SOL / 0.90	1000

¹ TLR3 for MHEX_S is set to ensure MHEB can deliver reserves.

² RM increases to 195 MW if MISO VSAT is not available.

Example: System Operating Limit & Scheduling Limit Calculations (System Intact)

Component	MH_ONT_E Export (MW)	MH_ONT_W Import (MW)
Generation Pattern	450 – 591 MW	125 – 220 MW
Total Transfer Capability	300	300
Reliability Margin (RM)	12	32
System Operating Limit (SOL) = TTC - RM	288	268
Phase Shifter Bandwidth	25	25
Releasable	63	193
Operating Margin (OM) = Releasable + Phase Shifter Bandwidth	88	218
TRM = OM + RM	100	250
Firm Schedule Limit = TTC -TRM	200	50
Non Firm Scheduling Limit = TTC – TRM + Releasable	263	243

Example: System Intact Calculations for MH_SPC_W Export

Component	Export MH_SPC_W Value MW Firm Only
Total Transfer Capability	525
Reliability Margin (RM)	300
Transfer Limit = TTC - RM which is System Operating Limit (SOL)	225
Operating Margin for SPC Load = Minimum OM	75
Total Operating Margin (OM) = OM for SPC Load + Non-Firm	75
TRM = OM + RM	375
Firm Schedule Limit = TTC -TRM	150
Non-Firm = Releasable	0
Schedule Limit = Firm + Non-Firm	150
TLR1 Trigger	209
TLR3 Trigger	214

Example: System Intact Calculations for MH_SPC_E Import

Component	Import MH_SPC_E Value MW	Import MH_SPC_E Value MW	Import MH_SPC_E Value MW
Grand Rapids + Power to Ponton & Herblet Lk -- "GRPTPH"	< 775	775 to 855	855 to 940 max
Total Transfer Capability	525	525	525
Reliability Margin (RM)	125	259	400
Transfer Limit = TTC - RM which is System Operating Limit (SOL)	400	266	125
Operating Margin for SPC Load = Minimum OM	75	75	75
Total Operating Margin (OM) = OM for SPC Load + Non-Firm	350	216	75
TRM = OM + RM	475	475	475
Firm Schedule Limit = TTC -TRM	50	50	50
Non-Firm = Releasable	275	141	0
Schedule Limit = Firm + Non-Firm	325	191	50
TLR1 Trigger	372	247	116
TLR3 Trigger	380	253	119