Reactive Capability (D-Curve) Examples **12/03/19**

All values shall be in net MWs and MVARs at the low-side of the generating unit step-up transformer consistent with the PJM EMS model

Example of a dispatchable generating unit

	MW	Minimum MVAR	Maximum MVAR	Comment
Point 1	50	-80	250	Typical net Economic Minimum operating point
Point 2	100	-75	240	
Point 3	150	-70	230	
Point 4	200	-65	220	
Point 5	250	-60	210	
Point 6	300	-55	190	
Point 7	350	-50	180	Typical net Economic Maximum operating point
Point 8	375	-45	170	Maximum possible unit net output considering ideal operating conditions such as winter ambient temperatures, low cooling water temperatures, optimum fuel conditions, etc.

Example of a non-dispatchable generating unit (Economic Minimum = Economic Maximum)

	MW	Minimum MVAR	Maximum MVAR	Comment
Point 1	44	-10	20	
Point 2	45	-10	20	
Point 3	46	-10	20	
Point 4	47	-10	20	
Point 5	48	-10	20	
Point 6	49	-10	20	
Point 7	50	-10	20	Typical net Econ Max and Econ Min operating point
Point 8	55	-9	19	Maximum possible unit net output considering ideal operating conditions such as winter ambient temperatures, low cooling water temperatures, optimum fuel conditions, etc.

Example of a generating unit that also can operate as a synchronous condenser (note: negative MWs should not be entered)

	MW	Minimum MVAR	Maximum MVAR	Comment
Point 1	0	-50	150	Synchronous Condensing operating point
Point 2	70	-25	100	Typical net Economic Minimum operating point
Point 3	75	-22	90	
Point 4	80	-20	80	
Point 5	85	-18	70	
Point 6	90	-15	60	
Point 7	95	-12	50	Typical net Economic Maximum operating point
Point 8	100	-10	40	Maximum possible unit net output considering ideal operating conditions such as winter ambient temperatures, low cooling water temperatures, optimum fuel conditions, etc.

Example of a synchronous condenser (note: negative MWs should not be entered)

	MW	Minimum MVAR	Maximum MVAR	Comment
Point 1	0	-50	150	Synchronous Condensing operating point
Point 2	1	-50	150	
Point 3	2	-50	150	
Point 4	3	-50	150	
Point 5	4	-50	150	
Point 6	5	-50	150	
Point 7	6	-50	150	
Point 8	7	-50	150	

Example of an Inverter-based Energy Storage Resource

	MW	Minimum MVAR	Maximum MVAR	Comment
Point 1	-20	-22	22	Maximum Active Power CHARGING (Min MW)
Point 2	-14	-26	26	
Point 3	-7	-29	29	
Point 4	0	-30	30	Inverter MVA Capability Curve Rating
Point 5	6	-29	29	
Point 6	12	-27	27	
Point 7	18	-24	24	
Point 8	25	-17	17	Maximum Active Power DISCHARGING (Max MW)