

10.10 Operational Envelope – Reactive Power Capability in 3.6 MW Power Optimized Mode (PO1)

The reactive power capability for the 3.6 MW Power Optimized Mode (PO1) is as illustrated in Figure 10-7:

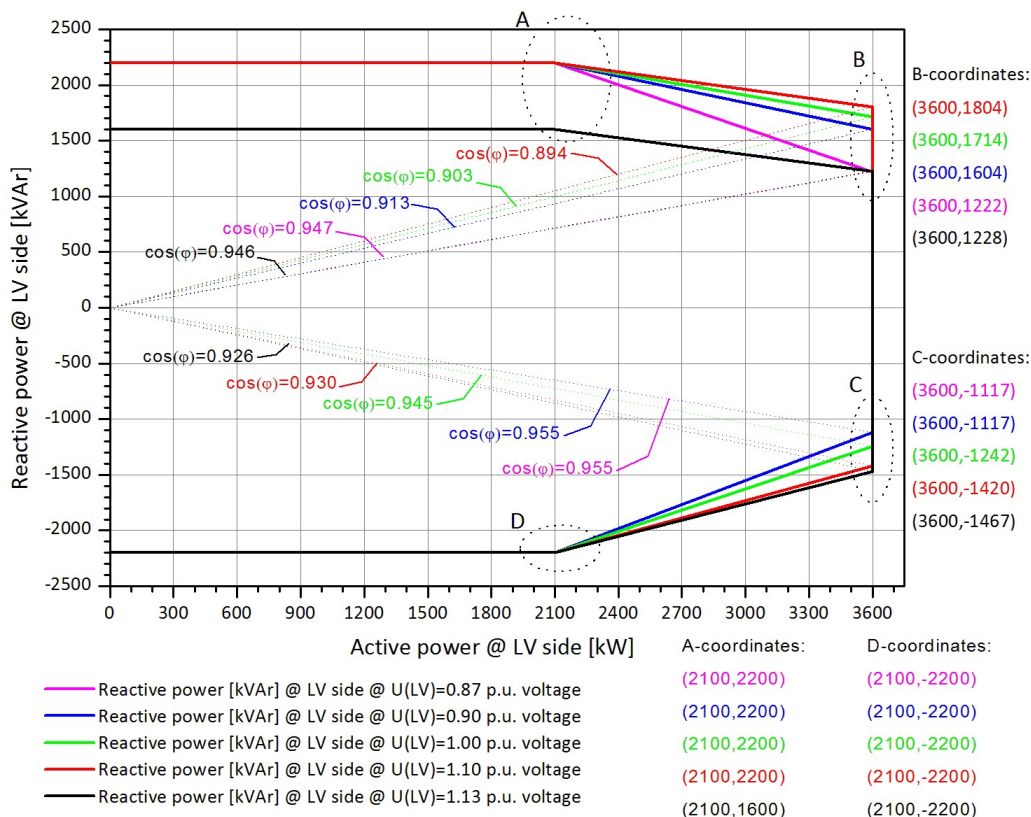


Figure 10-7: Reactive power capability for 3.6 MW Power Optimized Mode (PO1).

When operating at 3.6 MW in Power Optimized Mode (PO1) at LV side of the HV transformer, the reactive power capability on the high voltage side of the HV transformer is approximately:

- $\cos\phi(\text{HV}) = 0.96$ capacitive @ U(HV) = 0.87 p.u. voltage
- $\cos\phi(\text{HV}) = 0.95/0.94$ capacitive/inductive @ U(HV) = 0.88 p.u. voltage
- $\cos\phi(\text{HV}) = 0.95/0.92$ capacitive/inductive @ U(HV) = 0.90 p.u. voltage
- $\cos\phi(\text{HV}) = 0.93/0.92$ capacitive/inductive @ U(HV) = 1.00 p.u. voltage
- $\cos\phi(\text{HV}) = 0.96/0.91$ capacitive/inductive @ U(HV) = 1.10 p.u. voltage
- $\cos\phi(\text{HV}) = 0.98/0.90$ capacitive/inductive @ U(HV) = 1.13 p.u. voltage

The turbine is able to maintain the reactive power capability at low wind with no active power production.

NOTE

3.6 MW Power Optimized Mode (PO1) derates above +20°C ambient temperature for ≤ 1250 m.a.s.l. according to Figure 10-2.

3.6 MW Power Optimized Mode (PO1) is mutually exclusive with 3.45 MW Reactive Power Optimized Mode (QO1) (since Q is traded for P).