Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Reefton

Circuit Branch: IGH-RFN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[120] Amps and [22.86] MVA [for summer period] and [120] Amps and [22.86] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07864] PU (using 100MVA as the base) Reactance [0.36448] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03851] PU (using 100MVA as the base) Reactance [0.10149] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: RFC-RFN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[120] Amps and [22.86] MVA [for summer period] and [120] Amps and [22.86] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00010] PU (using 100MVA as the base) Reactance [0.00037] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00006] PU (using 100MVA as the base) Reactance [0.00011] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Mount Roskill

Circuit Branch: HEP-ROS-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[800] Amps and [152.42] MVA [for summer period] and [800] Amps and [152.42] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01457] PU (using 100MVA as the base) Reactance [0.05947] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00555] PU (using 100MVA as the base) Reactance [0.01188] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEP-ROS-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[800] Amps and [152.42] MVA [for summer period] and [800] Amps and [152.42] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01407] PU (using 100MVA as the base) Reactance [0.06316] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00535] PU (using 100MVA as the base) Reactance [0.01131] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNG-ROS-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03184] PU (using 100MVA as the base) Reactance [0.12726] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01751] PU (using 100MVA as the base) Reactance [0.03822] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNG-ROS-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03182] PU (using 100MVA as the base) Reactance [0.12715] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01751] PU (using 100MVA as the base) Reactance [0.03820] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-ROS-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05132] PU (using 100MVA as the base) Reactance [0.15470] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02707] PU (using 100MVA as the base) Reactance [0.05975] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-ROS-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05087] PU (using 100MVA as the base) Reactance [0.19704] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02693] PU (using 100MVA as the base) Reactance [0.05899] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Roxburgh

Circuit Branch: CYD-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01525] PU (using 100MVA as the base) Reactance [0.08768] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00477] PU (using 100MVA as the base) Reactance [0.02856] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CYD-ROX-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01525] PU (using 100MVA as the base) Reactance [0.08767] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00477] PU (using 100MVA as the base) Reactance [0.02856] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: GOR-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.22961] PU (using 100MVA as the base) Reactance [0.91303] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12679] PU (using 100MVA as the base) Reactance [0.28215] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HWB-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.34497] PU (using 100MVA as the base) Reactance [1.32332] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.19050] PU (using 100MVA as the base) Reactance [0.44688] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HWB-ROX-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.34500] PU (using 100MVA as the base) Reactance [1.32345] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.19051] PU (using 100MVA as the base) Reactance [0.44688] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: INV-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05884] PU (using 100MVA as the base) Reactance [0.27204] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01842] PU (using 100MVA as the base) Reactance [0.11249] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: INV-ROX-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05779] PU (using 100MVA as the base) Reactance [0.32327] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01809] PU (using 100MVA as the base) Reactance [0.11214] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NSY-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[530] Amps and [201.99] MVA [for summer period] and [647] Amps and [246.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04612] PU (using 100MVA as the base) Reactance [0.23489] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01731] PU (using 100MVA as the base) Reactance [0.08303] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ROX-TMH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03791] PU (using 100MVA as the base) Reactance [0.23723] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00699] PU (using 100MVA as the base) Reactance [0.06329] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ROX-TMH-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03791] PU (using 100MVA as the base) Reactance [0.23757] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00699] PU (using 100MVA as the base) Reactance [0.06329] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: ROX-TF-T10

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	**HV** [144] Amps and [55.00] MVA [for summer period] and [154] Amps and [58.50] MVA [for winter period] **MV** [289] Amps and [55.00] MVA [for summer period] and [307] Amps and [58.50] MVA [for winter period] **LV** [570] Amps and [10.86] MVA [for summer period] and [570] Amps and [10.86] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	**HV** [131] Amps and [50.01] MVA **MV** [262] Amps and [50.01] MVA **LV** [570] Amps and [10.86] MVA

Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	**HV** Resistance [0.00363] PU (using 100MVA as the base) **HV** Reactance [0.21500] PU (using 100MVA as the base) **MV** Resistance [0.00363] PU (using 100MVA as the base) **MV** Reactance [-0.05653] PU (using 100MVA as the base) **LV** Resistance [0.01828] PU (using 100MVA as the base) **LV** Reactance [0.38590] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	**HV** Resistance [0.00363] PU (using 100MVA as the base) **HV** Reactance [0.21500] PU (using 100MVA as the base) **MV** Resistance [0.00363] PU (using 100MVA as the base) **MV** Reactance [-0.05653] PU (using 100MVA as the base) **LV** Resistance [0.00539] PU (using 100MVA as the base) **LV** Reactance [0.38838] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges ROX-TF-T10B ROX-TF-T10B-Tap Changer -- OFFLOAD -- MV	Tap voltage range: Maximum: [115] kV Minimum: [105] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.27]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges ROX-TF-T10R ROX-TF-T10R-Tap Changer -- OFFLOAD -- MV	Tap voltage range: Maximum: [115] kV Minimum: [105] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.27]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Tapping steps and ranges ROX-TF-T10Y ROX-TF-T10Y-Tap Changer -- OFFLOAD -- MV	Tap voltage range: Maximum: [115] kV Minimum: [105] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.27]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Rangipo

Circuit Branch: RPO-TNG-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02565] PU (using 100MVA as the base) Reactance [0.14274] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00803] PU (using 100MVA as the base) Reactance [0.04901] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: RPO-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[955] Amps and [363.85] MVA [for summer period] and [1042] Amps and [396.87] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03284] PU (using 100MVA as the base) Reactance [0.18268] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01028] PU (using 100MVA as the base) Reactance [0.06302] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Rangitoto Hills

Circuit Branch: ARI-RTO-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.11147] PU (using 100MVA as the base) Reactance [0.45164] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06177] PU (using 100MVA as the base) Reactance [0.14518] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ONG-RTO-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13884] PU (using 100MVA as the base) Reactance [0.55786] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07694] PU (using 100MVA as the base) Reactance [0.18082] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Retaruke

Circuit Branch: OKN-RTR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07958] PU (using 100MVA as the base) Reactance [0.32200] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04411] PU (using 100MVA as the base) Reactance [0.10086] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ONG-RTR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13615] PU (using 100MVA as the base) Reactance [0.54871] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07545] PU (using 100MVA as the base) Reactance [0.17731] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Southbrook

Circuit Branch: ASY-SBK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [38.02] MVA [for summer period] and [395] Amps and [45.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09001] PU (using 100MVA as the base) Reactance [0.35531] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04971] PU (using 100MVA as the base) Reactance [0.10628] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: ISL-SBK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[527] Amps and [60.21] MVA [for summer period] and [571] Amps and [65.23] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.19307] PU (using 100MVA as the base) Reactance [0.78559] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10662] PU (using 100MVA as the base) Reactance [0.22473] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: ISL-SBK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[527] Amps and [60.21] MVA [for summer period] and [571] Amps and [65.23] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.19305] PU (using 100MVA as the base) Reactance [0.78552] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10661] PU (using 100MVA as the base) Reactance [0.22470] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: SBK-WPR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [38.02] MVA [for summer period] and [395] Amps and [45.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.26285] PU (using 100MVA as the base) Reactance [1.06736] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14515] PU (using 100MVA as the base) Reactance [0.31037] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: South Dunedin

Circuit Branch: HWB-SDN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[875] Amps and [333.31] MVA [for summer period] and [971] Amps and [370.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00547] PU (using 100MVA as the base) Reactance [0.02887] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00171] PU (using 100MVA as the base) Reactance [0.01024] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Stratford Power Station

Circuit Branch: BRK-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04266] PU (using 100MVA as the base) Reactance [0.24387] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01336] PU (using 100MVA as the base) Reactance [0.07999] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BRK-SFD-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[610] Amps and [232.53] MVA [for summer period] and [752] Amps and [286.38] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04266] PU (using 100MVA as the base) Reactance [0.24388] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01336] PU (using 100MVA as the base) Reactance [0.07999] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BRK-SFD-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04301] PU (using 100MVA as the base) Reactance [0.20104] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01346] PU (using 100MVA as the base) Reactance [0.08140] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CST-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [399] Amps and [76.05] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09843] PU (using 100MVA as the base) Reactance [0.35588] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05435] PU (using 100MVA as the base) Reactance [0.11906] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HLY-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1195] Amps and [455.36] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12488] PU (using 100MVA as the base) Reactance [0.71431] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03910] PU (using 100MVA as the base) Reactance [0.23497] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HWA-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08109] PU (using 100MVA as the base) Reactance [0.29256] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04860] PU (using 100MVA as the base) Reactance [0.09764] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNI-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [495] Amps and [94.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14178] PU (using 100MVA as the base) Reactance [0.54306] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07830] PU (using 100MVA as the base) Reactance [0.16982] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: NPL-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1537] Amps and [585.68] MVA [for summer period] and [1537] Amps and [585.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01587] PU (using 100MVA as the base) Reactance [0.09727] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00294] PU (using 100MVA as the base) Reactance [0.02505] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NPL-SFD-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1537] Amps and [585.68] MVA [for summer period] and [1537] Amps and [585.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01588] PU (using 100MVA as the base) Reactance [0.09725] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00295] PU (using 100MVA as the base) Reactance [0.02509] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: SFD-TMN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1195] Amps and [455.36] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04872] PU (using 100MVA as the base) Reactance [0.27658] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01525] PU (using 100MVA as the base) Reactance [0.09232] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: SFD-TF-T10

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	**HV** [412] Amps and [157.10] MVA [for summer period] and [437] Amps and [166.50] MVA [for winter period] **MV** [709] Amps and [135.00] MVA [for summer period] and [751] Amps and [143.00] MVA [for winter period] **LV** [4251] Amps and [81.00] MVA [for summer period] and [4503] Amps and [85.80] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	**HV** [305] Amps and [116.40] MVA **MV** [525] Amps and [99.99] MVA **LV** [3149] Amps and [60.00] MVA

Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	**HV** Resistance [0.00048] PU (using 100MVA as the base) **HV** Reactance [0.02500] PU (using 100MVA as the base) **MV** Resistance [0.00152] PU (using 100MVA as the base) **MV** Reactance [0.02790] PU (using 100MVA as the base) **LV** Resistance [0.00441] PU (using 100MVA as the base) **LV** Reactance [0.07955] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	**HV** Resistance [0.00048] PU (using 100MVA as the base) **HV** Reactance [0.02500] PU (using 100MVA as the base) **MV** Resistance [0.00152] PU (using 100MVA as the base) **MV** Reactance [0.02790] PU (using 100MVA as the base) **LV** Resistance [0.00441] PU (using 100MVA as the base) **LV** Reactance [0.07955] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges SFD-TF-T10B SFD-TF-T10B-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]
Tapping steps and ranges SFD-TF-T10R SFD-TF-T10R-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]

Tapping steps and ranges SFD-TF-T10Y SFD-TF-T10Y-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]
Tapping steps and ranges SFD-TF-T10B SFD-TF-T10B-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges SFD-TF-T10R SFD-TF-T10R-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Tapping steps and ranges SFD-TF-T10Y SFD-TF-T10Y-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Site: STK

Circuit Branch: BLN-STK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[400] Amps and [76.21] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14963] PU (using 100MVA as the base) Reactance [0.66961] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05617] PU (using 100MVA as the base) Reactance [0.24010] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BLN-STK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[551] Amps and [104.89] MVA [for summer period] and [672] Amps and [127.97] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14553] PU (using 100MVA as the base) Reactance [0.66961] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05207] PU (using 100MVA as the base) Reactance [0.24010] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KIK-STK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection	[627] Amps and [238.85] MVA [for summer period] and

circuit branch	[765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02333] PU (using 100MVA as the base) Reactance [0.11401] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00731] PU (using 100MVA as the base) Reactance [0.04353] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: KIK-STK-2

Service Measure	**Service Level**
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02334] PU (using 100MVA as the base) Reactance [0.11405] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00731] PU (using 100MVA as the base) Reactance [0.04354] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: KIK-STK-3

Service Measure	**Service Level**
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.16025] PU (using 100MVA as the base) Reactance [0.57619] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09560] PU (using 100MVA as the base) Reactance [0.17996] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit	[110] kV

branch	
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: STK-TF-T7

Service Measure	**Service Level**
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	**HV** [472] Amps and [180.00] MVA [for summer period] and [494] Amps and [188.20] MVA [for winter period] **MV** [839] Amps and [159.85] MVA [for summer period] and [839] Amps and [159.85] MVA [for winter period] **LV** [1262] Amps and [24.04] MVA [for summer period] and [1262] Amps and [24.04] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	3 Winding **HV** [394] Amps and [150.00] MVA **MV** [787] Amps and [150.00] MVA **LV** [1262] Amps and [24.04] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	**HV** Resistance [0.00000] PU (using 100MVA as the base) **HV** Reactance [0.07010] PU (using 100MVA as the base) **MV** Resistance [0.00000] PU (using 100MVA as the base) **MV** Reactance [0.00500] PU (using 100MVA as the base) **LV** Resistance [0.02843] PU (using 100MVA as the base) **LV** Reactance [0.10386] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	**HV** Resistance [0.00009] PU (using 100MVA as the base) **HV** Reactance [0.07010] PU (using 100MVA as the base) **MV** Resistance [0.00112] PU (using 100MVA as the base) **MV** Reactance [-0.00487] PU (using 100MVA as the base) **LV** Resistance [0.01049] PU (using 100MVA as the base) **LV** Reactance [0.24918] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [239.8] kV Minimum: [198] kV
Tapping steps and ranges STK-TF-T7 STK-TF-T7-Tap Changer	Tap voltage range: Maximum: [242] kV Minimum: [198] kV Number of tapping steps: [17]

	Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [] If on-load tapping capability is automatic, is it auto selected? [] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges STK-TF-T7 STK-TF-T7-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [5] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Site: STU

Circuit Branch: GNY-STU-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[371] Amps and [70.76] MVA [for summer period] and [409] Amps and [77.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07611] PU (using 100MVA as the base) Reactance [0.24787] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04919] PU (using 100MVA as the base) Reactance [0.07338] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: STU-TIM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.23] MVA [for summer period] and [295] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.16721] PU (using 100MVA as the base) Reactance [0.54749] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10777] PU (using 100MVA as the base) Reactance [0.16161] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Southdown

Circuit Branch: HEN-SWN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2395] Amps and [912.62] MVA [for summer period] and [2395] Amps and [912.62] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00957] PU (using 100MVA as the base) Reactance [0.05950] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00178] PU (using 100MVA as the base) Reactance [0.01555] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-SWN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2395] Amps and [912.62] MVA [for summer period] and [2395] Amps and [912.62] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00227] PU (using 100MVA as the base) Reactance [0.01419] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00042] PU (using 100MVA as the base) Reactance [0.00367] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Takanini Transmission Tee Point

Circuit Branch: GLN-TAT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01203] PU (using 100MVA as the base) Reactance [0.05852] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00191] PU (using 100MVA as the base) Reactance [0.01952] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HLY-TAT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02356] PU (using 100MVA as the base) Reactance [0.11917] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00405] PU (using 100MVA as the base) Reactance [0.03861] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-TAT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2802] Amps and [1,067.71] MVA [for summer period] and [2802] Amps and [1,067.71] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00398] PU (using 100MVA as the base) Reactance [0.02060] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00039] PU (using 100MVA as the base) Reactance [0.00675] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-TAT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2000] Amps and [762.10] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00399] PU (using 100MVA as the base) Reactance [0.02064] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00039] PU (using 100MVA as the base) Reactance [0.00676] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: TIM

Circuit Branch: OPI-TIM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01441] PU (using 100MVA as the base) Reactance [0.08172] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00451] PU (using 100MVA as the base) Reactance [0.02736] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OPI-TIM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01441] PU (using 100MVA as the base) Reactance [0.08172] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00451] PU (using 100MVA as the base) Reactance [0.02736] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: STU-TIM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection	[253] Amps and [48.23] MVA [for summer period] and

circuit branch	[295] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.16721] PU (using 100MVA as the base) Reactance [0.54749] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10777] PU (using 100MVA as the base) Reactance [0.16161] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: TIM-TF-T5

Service Measure	**Service Level**
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[641] Amps and [122.10] MVA [for summer period] and [656] Amps and [124.94] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [630] Amps and [120.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.16948] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00481] PU (using 100MVA as the base) Reactance [0.16942] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges TIM-TF-T5 TIM-TF-T5-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [242] kV Minimum: [198] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is

	normally set? (Actual or expected position at winter peak demand) [9]

Transformer Branch: TIM-TF-T8

Service Measure	**Service Level**
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[653] Amps and [124.40] MVA [for summer period] and [676] Amps and [128.73] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [630] Amps and [120.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.16888] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00476] PU (using 100MVA as the base) Reactance [0.16882] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges TIM-TF-T8 TIM-TF-T8-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [242] kV Minimum: [198] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [9]

Site: Tekapo B

Circuit Branch: ISL-TKB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1461] Amps and [556.65] MVA [for summer period] and [1600] Amps and [609.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08491] PU (using 100MVA as the base) Reactance [0.38650] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01962] PU (using 100MVA as the base) Reactance [0.13391] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKB-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1461] Amps and [556.65] MVA [for summer period] and [1626] Amps and [619.59] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01013] PU (using 100MVA as the base) Reactance [0.04891] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00233] PU (using 100MVA as the base) Reactance [0.01605] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Takapu Road

Circuit Branch: HAY-TKR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2160] Amps and [411.46] MVA [for summer period] and [2266] Amps and [431.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01434] PU (using 100MVA as the base) Reactance [0.08536] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00313] PU (using 100MVA as the base) Reactance [0.01994] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAY-TKR-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2160] Amps and [411.46] MVA [for summer period] and [2266] Amps and [431.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01434] PU (using 100MVA as the base) Reactance [0.08550] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00313] PU (using 100MVA as the base) Reactance [0.01994] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: PNT-TKR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01854] PU (using 100MVA as the base) Reactance [0.07461] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01023] PU (using 100MVA as the base) Reactance [0.02159] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: PNT-TKR-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01858] PU (using 100MVA as the base) Reactance [0.07625] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01026] PU (using 100MVA as the base) Reactance [0.02164] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: TKR-WIL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1477] Amps and [281.44] MVA [for summer period] and [1595] Amps and [303.89] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02726] PU (using 100MVA as the base) Reactance [0.11230] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00605] PU (using 100MVA as the base) Reactance [0.03858] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: TKR-WIL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1477] Amps and [281.44] MVA [for summer period] and [1595] Amps and [303.89] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02731] PU (using 100MVA as the base) Reactance [0.11250] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00606] PU (using 100MVA as the base) Reactance [0.03865] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Tokaanu

Circuit Branch: BPE-TKU-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07968] PU (using 100MVA as the base) Reactance [0.40470] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02991] PU (using 100MVA as the base) Reactance [0.14342] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-TKU-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07964] PU (using 100MVA as the base) Reactance [0.40436] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02989] PU (using 100MVA as the base) Reactance [0.14334] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKU-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03325] PU (using 100MVA as the base) Reactance [0.16844] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01248] PU (using 100MVA as the base) Reactance [0.05988] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKU-WKM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03344] PU (using 100MVA as the base) Reactance [0.16954] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01255] PU (using 100MVA as the base) Reactance [0.06020] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Three Mile Hill

Circuit Branch: HWB-TMH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[875] Amps and [333.31] MVA [for summer period] and [971] Amps and [370.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00167] PU (using 100MVA as the base) Reactance [0.00955] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00052] PU (using 100MVA as the base) Reactance [0.00313] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TMH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[662] Amps and [252.26] MVA [for summer period] and [662] Amps and [252.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08820] PU (using 100MVA as the base) Reactance [0.39938] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02751] PU (using 100MVA as the base) Reactance [0.16771] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TMH-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[662] Amps and [252.26] MVA [for summer period] and [662] Amps and [252.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08820] PU (using 100MVA as the base) Reactance [0.50314] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02751] PU (using 100MVA as the base) Reactance [0.16771] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ROX-TMH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03791] PU (using 100MVA as the base) Reactance [0.23723] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00699] PU (using 100MVA as the base) Reactance [0.06329] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ROX-TMH-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03791] PU (using 100MVA as the base) Reactance [0.23757] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00699] PU (using 100MVA as the base) Reactance [0.06329] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Te Matai

Circuit Branch: OKE-TMI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07130] PU (using 100MVA as the base) Reactance [0.28349] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03937] PU (using 100MVA as the base) Reactance [0.08773] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KMO-TMI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04859] PU (using 100MVA as the base) Reactance [0.19327] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02683] PU (using 100MVA as the base) Reactance [0.05981] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Taumarunui

Circuit Branch: SFD-TMN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1195] Amps and [455.36] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04872] PU (using 100MVA as the base) Reactance [0.27658] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01525] PU (using 100MVA as the base) Reactance [0.09232] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TMN-TWH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1231] Amps and [469.17] MVA [for summer period] and [1292] Amps and [492.27] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06452] PU (using 100MVA as the base) Reactance [0.36962] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02020] PU (using 100MVA as the base) Reactance [0.12084] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Tangiwai

Circuit Branch: RPO-TNG-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02565] PU (using 100MVA as the base) Reactance [0.14274] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00803] PU (using 100MVA as the base) Reactance [0.04901] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Tarukenga

Circuit Branch: ATI-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [332.94] MVA [for summer period] and [970] Amps and [369.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01980] PU (using 100MVA as the base) Reactance [0.11412] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00620] PU (using 100MVA as the base) Reactance [0.03694] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ATI-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [332.94] MVA [for summer period] and [970] Amps and [369.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01980] PU (using 100MVA as the base) Reactance [0.11412] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00620] PU (using 100MVA as the base) Reactance [0.03694] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: EDG-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02950] PU (using 100MVA as the base) Reactance [0.16975] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00924] PU (using 100MVA as the base) Reactance [0.05519] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: EDG-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02950] PU (using 100MVA as the base) Reactance [0.16974] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00924] PU (using 100MVA as the base) Reactance [0.05518] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: LFT-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10011] PU (using 100MVA as the base) Reactance [0.40023] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05580] PU (using 100MVA as the base) Reactance [0.12960] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: LFT-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12038] PU (using 100MVA as the base) Reactance [0.47760] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06648] PU (using 100MVA as the base) Reactance [0.14799] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OKE-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05723] PU (using 100MVA as the base) Reactance [0.22639] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03160] PU (using 100MVA as the base) Reactance [0.07034] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KMO-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[610] Amps and [116.27] MVA [for summer period] and [752] Amps and [143.19] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07033] PU (using 100MVA as the base) Reactance [0.40162] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02201] PU (using 100MVA as the base) Reactance [0.13121] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KMO-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[610] Amps and [116.27] MVA [for summer period] and [752] Amps and [143.19] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07013] PU (using 100MVA as the base) Reactance [0.40030] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02195] PU (using 100MVA as the base) Reactance [0.13087] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: TRK-TF-T1

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	**HV** [651] Amps and [248.00] MVA [for summer period] and [693] Amps and [264.00] MVA [for winter period] **MV** [1302] Amps and [248.00] MVA [for summer period] and [1386] Amps and [264.00] MVA [for winter period] **LV** [200] Amps and [3.81] MVA [for summer period] and [200] Amps and [3.81] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	**HV** [525] Amps and [200.01] MVA **MV** [1050] Amps and [200.01] MVA **LV** [200] Amps and [3.81] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	**HV** Resistance [-0.00002] PU (using 100MVA as the base) **HV** Reactance [0.02802] PU (using 100MVA as the base) **MV** Resistance [0.00080] PU (using 100MVA as the base) **MV** Reactance [-0.00261] PU (using 100MVA as the base) **LV** Resistance [0.00344] PU (using 100MVA as the base) **LV** Reactance [0.06797] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	**HV** Resistance [-0.00002] PU (using 100MVA as the base) **HV** Reactance [0.02802] PU (using 100MVA as the base) **MV** Resistance [0.00080] PU (using 100MVA as the base) **MV** Reactance [-0.00261] PU (using 100MVA as the base) **LV** Resistance [0.00344] PU (using 100MVA as the base) **LV** Reactance [0.06797] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

Tapping steps and ranges TRK-TF-T1B TRK-TF-T1B-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]
Tapping steps and ranges TRK-TF-T1R TRK-TF-T1R-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]
Tapping steps and ranges TRK-TF-T1Y TRK-TF-T1Y-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]

Tapping steps and ranges TRK-TF-T1B TRK-TF-T1B-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.67] kV Minimum: [10.3] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [3.13]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges TRK-TF-T1R TRK-TF-T1R-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.67] kV Minimum: [10.3] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [3.13]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges TRK-TF-T1Y TRK-TF-T1Y-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.67] kV Minimum: [10.3] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [3.13]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Transformer Branch: TRK-TF-T2

Service Measure	**Service Level**

Overall 24 hour post contingency capacity rating of the interconnection transformer branch	**HV** [674] Amps and [256.80] MVA [for summer period] and [718] Amps and [273.50] MVA [for winter period] **MV** [1291] Amps and [246.00] MVA [for summer period] and [1375] Amps and [262.00] MVA [for winter period] **LV** [3873] Amps and [73.80] MVA [for summer period] and [4125] Amps and [78.60] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	**HV** [548] Amps and [208.80] MVA **MV** [1050] Amps and [200.01] MVA **LV** [3149] Amps and [60.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	**HV** Resistance [0.00025] PU (using 100MVA as the base) **HV** Reactance [0.02147] PU (using 100MVA as the base) **MV** Resistance [0.00064] PU (using 100MVA as the base) **MV** Reactance [-0.00316] PU (using 100MVA as the base) **LV** Resistance [0.00398] PU (using 100MVA as the base) **LV** Reactance [0.03651] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	**HV** Resistance [0.00025] PU (using 100MVA as the base) **HV** Reactance [0.02147] PU (using 100MVA as the base) **MV** Resistance [0.00064] PU (using 100MVA as the base) **MV** Reactance [-0.00316] PU (using 100MVA as the base) **LV** Resistance [0.00398] PU (using 100MVA as the base) **LV** Reactance [0.03651] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges TRK-TF-T2B TRK-TF-T2B-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [6] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Tapping steps and ranges TRK-TF-T2R TRK-TF-T2R-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [6] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges TRK-TF-T2Y TRK-TF-T2Y-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [6] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges TRK-TF-T2B TRK-TF-T2B-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.6] kV Minimum: [10.4] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5.45]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Tapping steps and ranges TRK-TF-T2R TRK-TF-T2R-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.6] kV Minimum: [10.4] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5.45]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges TRK-TF-T2Y TRK-TF-T2Y-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.6] kV Minimum: [10.4] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5.45]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Tuai

Circuit Branch: FHL-TUI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[549] Amps and [104.60] MVA [for summer period] and [549] Amps and [104.60] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.21417] PU (using 100MVA as the base) Reactance [1.04940] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07766] PU (using 100MVA as the base) Reactance [0.17860] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: RDF-TUI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.15] MVA [for summer period] and [366] Amps and [69.81] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.26980] PU (using 100MVA as the base) Reactance [1.11476] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14948] PU (using 100MVA as the base) Reactance [0.33993] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: RDF-TUI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.15] MVA [for summer period] and [366] Amps and [69.81] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.26981] PU (using 100MVA as the base) Reactance [1.10751] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14949] PU (using 100MVA as the base) Reactance [0.33994] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Te Kowhai

Circuit Branch: HLY-TWH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1231] Amps and [469.17] MVA [for summer period] and [1292] Amps and [492.27] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01338] PU (using 100MVA as the base) Reactance [0.07567] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00419] PU (using 100MVA as the base) Reactance [0.02506] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TMN-TWH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1231] Amps and [469.17] MVA [for summer period] and [1292] Amps and [492.27] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06452] PU (using 100MVA as the base) Reactance [0.36962] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02020] PU (using 100MVA as the base) Reactance [0.12084] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Tiwai

Circuit Branch: INV-TWI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00995] PU (using 100MVA as the base) Reactance [0.05320] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00227] PU (using 100MVA as the base) Reactance [0.01536] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: INV-TWI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00995] PU (using 100MVA as the base) Reactance [0.05868] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00227] PU (using 100MVA as the base) Reactance [0.01536] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TWI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01440] PU (using 100MVA as the base) Reactance [0.07695] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00330] PU (using 100MVA as the base) Reactance [0.02212] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TWI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01440] PU (using 100MVA as the base) Reactance [0.07695] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00330] PU (using 100MVA as the base) Reactance [0.02212] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Tararua Wind Central Tee

Circuit Branch: BPE-TWT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00429] PU (using 100MVA as the base) Reactance [0.02158] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00080] PU (using 100MVA as the base) Reactance [0.00698] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: LTN-TWT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00339] PU (using 100MVA as the base) Reactance [0.01709] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00063] PU (using 100MVA as the base) Reactance [0.00553] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Twizel

Circuit Branch: BEN-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1293] Amps and [492.85] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01841] PU (using 100MVA as the base) Reactance [0.09215] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00425] PU (using 100MVA as the base) Reactance [0.02953] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CML-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04424] PU (using 100MVA as the base) Reactance [0.29807] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00789] PU (using 100MVA as the base) Reactance [0.09383] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CML-TWZ-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04424] PU (using 100MVA as the base) Reactance [0.29807] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00789] PU (using 100MVA as the base) Reactance [0.09383] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHA-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[795] Amps and [302.94] MVA [for summer period] and [795] Amps and [302.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00359] PU (using 100MVA as the base) Reactance [0.02045] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00112] PU (using 100MVA as the base) Reactance [0.00681] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHA-TWZ-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[795] Amps and [302.94] MVA [for summer period] and [795] Amps and [302.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00359] PU (using 100MVA as the base) Reactance [0.02045] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00112] PU (using 100MVA as the base) Reactance [0.00681] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHB-TWZ-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00136] PU (using 100MVA as the base) Reactance [0.00573] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00025] PU (using 100MVA as the base) Reactance [0.00220] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHC-TWZ-4

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00448] PU (using 100MVA as the base) Reactance [0.01891] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00083] PU (using 100MVA as the base) Reactance [0.00725] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OPI-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02811] PU (using 100MVA as the base) Reactance [0.15375] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00522] PU (using 100MVA as the base) Reactance [0.04460] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OPI-TWZ-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02811] PU (using 100MVA as the base) Reactance [0.15375] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00522] PU (using 100MVA as the base) Reactance [0.04460] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKB-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1461] Amps and [556.65] MVA [for summer period] and [1626] Amps and [619.59] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01013] PU (using 100MVA as the base) Reactance [0.04891] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00233] PU (using 100MVA as the base) Reactance [0.01605] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Upper Hutt

Circuit Branch: GYT-UHT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08404] PU (using 100MVA as the base) Reactance [0.33647] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04641] PU (using 100MVA as the base) Reactance [0.09956] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: GYT-UHT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08404] PU (using 100MVA as the base) Reactance [0.34184] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04641] PU (using 100MVA as the base) Reactance [0.09956] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAY-UHT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[576] Amps and [109.74] MVA [for summer period] and [576] Amps and [109.74] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01851] PU (using 100MVA as the base) Reactance [0.08678] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00423] PU (using 100MVA as the base) Reactance [0.02471] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAY-UHT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[576] Amps and [109.74] MVA [for summer period] and [576] Amps and [109.74] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01861] PU (using 100MVA as the base) Reactance [0.08680] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00425] PU (using 100MVA as the base) Reactance [0.02475] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Woodville

Circuit Branch: BPE-WDV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06089] PU (using 100MVA as the base) Reactance [0.24537] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03371] PU (using 100MVA as the base) Reactance [0.07576] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-WDV-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06089] PU (using 100MVA as the base) Reactance [0.25060] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03371] PU (using 100MVA as the base) Reactance [0.07577] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: DVK-WDV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[256] Amps and [48.85] MVA [for summer period] and [313] Amps and [59.65] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07163] PU (using 100MVA as the base) Reactance [0.23462] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04630] PU (using 100MVA as the base) Reactance [0.06841] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: DVK-WDV-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[256] Amps and [48.85] MVA [for summer period] and [313] Amps and [59.65] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07475] PU (using 100MVA as the base) Reactance [0.24380] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04830] PU (using 100MVA as the base) Reactance [0.07189] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MGM-WDV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[221] Amps and [42.10] MVA [for summer period] and [270] Amps and [51.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10457] PU (using 100MVA as the base) Reactance [0.29862] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07236] PU (using 100MVA as the base) Reactance [0.08959] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Wellsford

Circuit Branch: HEN-WEL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.20994] PU (using 100MVA as the base) Reactance [0.78159] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12523] PU (using 100MVA as the base) Reactance [0.22076] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEN-WEL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.21235] PU (using 100MVA as the base) Reactance [0.80034] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12658] PU (using 100MVA as the base) Reactance [0.22348] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTO-WEL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08528] PU (using 100MVA as the base) Reactance [0.31312] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05084] PU (using 100MVA as the base) Reactance [0.09305] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTO-WEL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08528] PU (using 100MVA as the base) Reactance [0.31416] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05084] PU (using 100MVA as the base) Reactance [0.09305] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Western Road

Circuit Branch: WES-WET-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00007] PU (using 100MVA as the base) Reactance [0.00020] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00004] PU (using 100MVA as the base) Reactance [0.00008] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: WES-WET-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00010] PU (using 100MVA as the base) Reactance [0.00030] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00005] PU (using 100MVA as the base) Reactance [0.00012] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Western Road Transmission Tee Point

Circuit Branch: BOB-WET-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13906] PU (using 100MVA as the base) Reactance [0.51726] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08315] PU (using 100MVA as the base) Reactance [0.15987] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BOB-WET-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13908] PU (using 100MVA as the base) Reactance [0.51766] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08316] PU (using 100MVA as the base) Reactance [0.15989] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAM-WET-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08475] PU (using 100MVA as the base) Reactance [0.32142] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04957] PU (using 100MVA as the base) Reactance [0.09829] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAM-WET-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08476] PU (using 100MVA as the base) Reactance [0.32209] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04957] PU (using 100MVA as the base) Reactance [0.09831] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: WES-WET-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00007] PU (using 100MVA as the base) Reactance [0.00020] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00004] PU (using 100MVA as the base) Reactance [0.00008] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: WES-WET-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00010] PU (using 100MVA as the base) Reactance [0.00030] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00005] PU (using 100MVA as the base) Reactance [0.00012] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Wanganui

Circuit Branch: MTN-WGN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07635] PU (using 100MVA as the base) Reactance [0.30451] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04216] PU (using 100MVA as the base) Reactance [0.09244] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTN-WGN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07636] PU (using 100MVA as the base) Reactance [0.30597] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04217] PU (using 100MVA as the base) Reactance [0.09246] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: WGN-WVY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14535] PU (using 100MVA as the base) Reactance [0.52389] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08717] PU (using 100MVA as the base) Reactance [0.17529] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Whirinaki

Circuit Branch: RDF-WHI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1250] Amps and [476.31] MVA [for summer period] and [1250] Amps and [476.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00863] PU (using 100MVA as the base) Reactance [0.05145] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00160] PU (using 100MVA as the base) Reactance [0.01371] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: WHI-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1254] Amps and [477.69] MVA [for summer period] and [1440] Amps and [548.71] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04277] PU (using 100MVA as the base) Reactance [0.26417] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00794] PU (using 100MVA as the base) Reactance [0.06785] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Wilton

Circuit Branch: HAY-WIL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1941] Amps and [739.62] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01251] PU (using 100MVA as the base) Reactance [0.06845] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00232] PU (using 100MVA as the base) Reactance [0.01991] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: LTN-WIL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04886] PU (using 100MVA as the base) Reactance [0.25101] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00907] PU (using 100MVA as the base) Reactance [0.07917] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKR-WIL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1477] Amps and [281.44] MVA [for summer period] and [1595] Amps and [303.89] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02726] PU (using 100MVA as the base) Reactance [0.11230] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00605] PU (using 100MVA as the base) Reactance [0.03858] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: TKR-WIL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1477] Amps and [281.44] MVA [for summer period] and [1595] Amps and [303.89] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02731] PU (using 100MVA as the base) Reactance [0.11250] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00606] PU (using 100MVA as the base) Reactance [0.03865] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: WIL-TF-T8

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	**HV** [413] Amps and [157.30] MVA [for summer period] and [437] Amps and [166.70] MVA [for winter period] **MV** [709] Amps and [135.00] MVA [for summer period] and [717] Amps and [136.60] MVA [for winter period] **LV** [4251] Amps and [81.00] MVA [for summer period] and [4503] Amps and [85.80] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	**HV** [306] Amps and [116.55] MVA **MV** [525] Amps and [99.99] MVA **LV** [3149] Amps and [60.00] MVA

Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	**HV** Resistance [0.00059] PU (using 100MVA as the base) **HV** Reactance [0.02607] PU (using 100MVA as the base) **MV** Resistance [0.00145] PU (using 100MVA as the base) **MV** Reactance [0.02685] PU (using 100MVA as the base) **LV** Resistance [0.00455] PU (using 100MVA as the base) **LV** Reactance [0.07936] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	**HV** Resistance [0.00056] PU (using 100MVA as the base) **HV** Reactance [0.02611] PU (using 100MVA as the base) **MV** Resistance [0.00145] PU (using 100MVA as the base) **MV** Reactance [0.02685] PU (using 100MVA as the base) **LV** Resistance [0.00455] PU (using 100MVA as the base) **LV** Reactance [0.07936] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges WIL-TF-T8B WIL-TF-T8B-Tap Changer --ONLOAD--HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]
Tapping steps and ranges WIL-TF-T8R WIL-TF-T8R-Tap Changer --ON LOAD--HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]

Tapping steps and ranges WIL-TF-T8Y WIL-TF-T8Y-Tap Changer --ONLOAD--HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]
Tapping steps and ranges WIL-TF-T8B WIL-TF-T8B-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges WIL-TF-T8R WIL-TF-T8R-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Tapping steps and ranges WIL-TF-T8Y WIL-TF-T8Y-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Whakamaru AC Substation

Circuit Branch: ATI-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [333.13] MVA [for summer period] and [940] Amps and [358.32] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01169] PU (using 100MVA as the base) Reactance [0.04838] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00439] PU (using 100MVA as the base) Reactance [0.02107] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HAM-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1250] Amps and [476.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03618] PU (using 100MVA as the base) Reactance [0.19087] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00836] PU (using 100MVA as the base) Reactance [0.05423] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09342] PU (using 100MVA as the base) Reactance [0.47433] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03507] PU (using 100MVA as the base) Reactance [0.16851] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-WKM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09348] PU (using 100MVA as the base) Reactance [0.47530] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03509] PU (using 100MVA as the base) Reactance [0.16829] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHW-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1293] Amps and [492.85] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04706] PU (using 100MVA as the base) Reactance [0.24827] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01087] PU (using 100MVA as the base) Reactance [0.07049] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: PPT-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1106] Amps and [421.51] MVA [for summer period] and [1177] Amps and [448.60] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01459] PU (using 100MVA as the base) Reactance [0.06699] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00457] PU (using 100MVA as the base) Reactance [0.02802] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKU-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03325] PU (using 100MVA as the base) Reactance [0.16844] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01248] PU (using 100MVA as the base) Reactance [0.05988] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKU-WKM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03344] PU (using 100MVA as the base) Reactance [0.16954] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01255] PU (using 100MVA as the base) Reactance [0.06020] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Waipara

Circuit Branch: ASY-WPR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [38.02] MVA [for summer period] and [406] Amps and [46.41] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.21834] PU (using 100MVA as the base) Reactance [0.88206] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12058] PU (using 100MVA as the base) Reactance [0.25782] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: SBK-WPR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [38.02] MVA [for summer period] and [395] Amps and [45.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.26285] PU (using 100MVA as the base) Reactance [1.06736] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14515] PU (using 100MVA as the base) Reactance [0.31037] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: WPR-WTT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[913] Amps and [347.90] MVA [for summer period] and [913] Amps and [347.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00007] PU (using 100MVA as the base) Reactance [0.00032] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00002] PU (using 100MVA as the base) Reactance [0.00013] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: WPR-WTT-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[913] Amps and [347.90] MVA [for summer period] and [913] Amps and [347.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00009] PU (using 100MVA as the base) Reactance [0.00044] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00003] PU (using 100MVA as the base) Reactance [0.00017] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: WPR-TF-T12

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[925] Amps and [105.70] MVA [for summer period] and [967] Amps and [110.60] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [700] Amps and [80.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.15674] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00360] PU (using 100MVA as the base) Reactance [0.15670] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV

High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges WPR-TF-T12 WPR-TF-T12-Tap Changer - T12	Tap voltage range: Maximum: [236.5] kV Minimum: [187] kV Number of tapping steps: [18] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [7]

Transformer Branch: WPR-TF-T13

Service Measure	**Service Level**
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[925] Amps and [105.70] MVA [for summer period] and [967] Amps and [110.60] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [700] Amps and [80.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.15674] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00360] PU (using 100MVA as the base) Reactance [0.15670] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

Tapping steps and ranges WPR-TF-T13 WPR-TF-T13-Tap Changer - T13	Tap voltage range: Maximum: [236.5] kV Minimum: [187] kV Number of tapping steps: [18] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [7]

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Waipawa

Circuit Branch: DVK-WPW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14381] PU (using 100MVA as the base) Reactance [0.53770] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08625] PU (using 100MVA as the base) Reactance [0.16396] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: DVK-WPW-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14599] PU (using 100MVA as the base) Reactance [0.54610] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08752] PU (using 100MVA as the base) Reactance [0.16647] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: FHL-WPW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13805] PU (using 100MVA as the base) Reactance [0.51827] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08281] PU (using 100MVA as the base) Reactance [0.15655] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: FHL-WPW-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13800] PU (using 100MVA as the base) Reactance [0.51593] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08278] PU (using 100MVA as the base) Reactance [0.15754] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Wairakei

Circuit Branch: OHK-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [333.13] MVA [for summer period] and [940] Amps and [358.32] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01267] PU (using 100MVA as the base) Reactance [0.05235] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00475] PU (using 100MVA as the base) Reactance [0.02282] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: PPT-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1106] Amps and [421.51] MVA [for summer period] and [1177] Amps and [448.60] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00207] PU (using 100MVA as the base) Reactance [0.00951] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00065] PU (using 100MVA as the base) Reactance [0.00398] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: RDF-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1254] Amps and [477.69] MVA [for summer period] and [1440] Amps and [548.71] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05136] PU (using 100MVA as the base) Reactance [0.31543] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00953] PU (using 100MVA as the base) Reactance [0.08150] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: RPO-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[955] Amps and [363.85] MVA [for summer period] and [1042] Amps and [396.87] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03284] PU (using 100MVA as the base) Reactance [0.18268] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01028] PU (using 100MVA as the base) Reactance [0.06302] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: WHI-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1254] Amps and [477.69] MVA [for summer period] and [1440] Amps and [548.71] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04277] PU (using 100MVA as the base) Reactance [0.26417] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00794] PU (using 100MVA as the base) Reactance [0.06785] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Wiri Transmission Tee Point

Circuit Branch: BOB-WRT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [399] Amps and [76.05] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06655] PU (using 100MVA as the base) Reactance [0.26813] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03611] PU (using 100MVA as the base) Reactance [0.08080] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BOB-WRT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [399] Amps and [76.05] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06635] PU (using 100MVA as the base) Reactance [0.26748] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03600] PU (using 100MVA as the base) Reactance [0.08055] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-WRT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01163] PU (using 100MVA as the base) Reactance [0.04344] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00642] PU (using 100MVA as the base) Reactance [0.01408] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-WRT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01182] PU (using 100MVA as the base) Reactance [0.04738] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00653] PU (using 100MVA as the base) Reactance [0.01430] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Waitaki

Circuit Branch: AVI-WTK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00424] PU (using 100MVA as the base) Reactance [0.02100] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00155] PU (using 100MVA as the base) Reactance [0.00772] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BDT-WTK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13208] PU (using 100MVA as the base) Reactance [0.53115] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07294] PU (using 100MVA as the base) Reactance [0.15945] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: LIV-WTK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01627] PU (using 100MVA as the base) Reactance [0.08246] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00606] PU (using 100MVA as the base) Reactance [0.02940] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPC-WTK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08034] PU (using 100MVA as the base) Reactance [0.31730] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04437] PU (using 100MVA as the base) Reactance [0.09699] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: WTK-TF-T23

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	**HV** [366] Amps and [139.46] MVA [for summer period] and [366] Amps and [139.46] MVA [for winter period] **MV** [479] Amps and [91.18] MVA [for summer period] and [479] Amps and [91.18] MVA [for winter period] **LV** [3873] Amps and [73.80] MVA [for summer period] and [3970] Amps and [75.64] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	**HV** [307] Amps and [117.00] MVA **MV** [479] Amps and [91.18] MVA **LV** [3149] Amps and [60.00] MVA

Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	**HV** Resistance [0.00048] PU (using 100MVA as the base) **HV** Reactance [0.04914] PU (using 100MVA as the base) **MV** Resistance [0.00106] PU (using 100MVA as the base) **MV** Reactance [-0.00360] PU (using 100MVA as the base) **LV** Resistance [0.00429] PU (using 100MVA as the base) **LV** Reactance [0.06907] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	**HV** Resistance [0.00048] PU (using 100MVA as the base) **HV** Reactance [0.04914] PU (using 100MVA as the base) **MV** Resistance [0.00106] PU (using 100MVA as the base) **MV** Reactance [-0.00360] PU (using 100MVA as the base) **LV** Resistance [0.00429] PU (using 100MVA as the base) **LV** Reactance [0.06907] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges WTK-TF-T23B WTK-TF-T23B-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges WTK-TF-T23R WTK-TF-T23R-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Tapping steps and ranges WTK-TF-T23Y WTK-TF-T23Y-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges WTK-TF-T23B WTK-TF-T23B-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges WTK-TF-T23R WTK-TF-T23R-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Tapping steps and ranges WTK-TF-T23Y WTK-TF-T23Y-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Transformer Branch: WTK-TF-T24

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	**HV** [366] Amps and [139.46] MVA [for summer period] and [366] Amps and [139.46] MVA [for winter period] **MV** [319] Amps and [60.84] MVA [for summer period] and [319] Amps and [60.84] MVA [for winter period] **LV** [3873] Amps and [73.80] MVA [for summer period] and [3970] Amps and [75.64] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	**HV** [307] Amps and [117.00] MVA **MV** [319] Amps and [60.84] MVA **LV** [3149] Amps and [60.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	**HV** Resistance [0.00056] PU (using 100MVA as the base) **HV** Reactance [0.04749] PU (using 100MVA as the base) **MV** Resistance [0.00098] PU (using 100MVA as the base) **MV** Reactance [-0.00508] PU (using 100MVA as the base) **LV** Resistance [0.00422] PU (using 100MVA as the base) **LV** Reactance [0.06979] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	**HV** Resistance [0.00056] PU (using 100MVA as the base) **HV** Reactance [0.04749] PU (using 100MVA as the base) **MV** Resistance [0.00098] PU (using 100MVA as the base) **MV** Reactance [-0.00508] PU (using 100MVA as the base) **LV** Resistance [0.00422] PU (using 100MVA as the base) **LV** Reactance [0.06979] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

Tapping steps and ranges WTK-TF-T24B WTK-TF-T24B-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges WTK-TF-T24R WTK-TF-T24R-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges WTK-TF-T24Y WTK-TF-T24Y-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Tapping steps and ranges WTK-TF-T24B WTK-TF-T24B-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges WTK-TF-T24R WTK-TF-T24R-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges WTK-TF-T24Y WTK-TF-T24Y-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Site: Waipara Transmission Tee Point

Circuit Branch: CUT-WTT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01731] PU (using 100MVA as the base) Reactance [0.08865] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00542] PU (using 100MVA as the base) Reactance [0.03244] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CUT-WTT-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01731] PU (using 100MVA as the base) Reactance [0.08865] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00542] PU (using 100MVA as the base) Reactance [0.03244] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ISL-WTT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02599] PU (using 100MVA as the base) Reactance [0.13556] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00735] PU (using 100MVA as the base) Reactance [0.04801] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ISL-WTT-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02616] PU (using 100MVA as the base) Reactance [0.13520] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00752] PU (using 100MVA as the base) Reactance [0.04801] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: WPR-WTT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[913] Amps and [347.90] MVA [for summer period] and [913] Amps and [347.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00007] PU (using 100MVA as the base) Reactance [0.00032] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00002] PU (using 100MVA as the base) Reactance [0.00013] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: WPR-WTT-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[913] Amps and [347.90] MVA [for summer period] and [913] Amps and [347.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00009] PU (using 100MVA as the base) Reactance [0.00044] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00003] PU (using 100MVA as the base) Reactance [0.00017] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Waverley

Circuit Branch: HWA-WVY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10804] PU (using 100MVA as the base) Reactance [0.37257] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06481] PU (using 100MVA as the base) Reactance [0.13091] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: WGN-WVY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14535] PU (using 100MVA as the base) Reactance [0.52389] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08717] PU (using 100MVA as the base) Reactance [0.17529] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV