

66 kV busbar

QZ1

QA1

BC1

QZ2

QC9

BA11

VT2: 66kV/√3 - 110V/√3, CL.0.2, 10VA
 VT1: 66kV/√3 - 110V/√3, CL.0.2+3P, 50VA

- CT1: 1250 / 1A, 5PR20, 15VA
- CT2: 1250 / 1A, 5PR20, 15VA
- CT3: 400/600/800/1250 / 1A, 0,2Fs5, 15VA
- CT4: 400/600/800/1250 / 1A, 0,2Fs5, 15VA
- CT5: 400/600/800/1250 / 1A, 0,2Fs5, 15VA
- CT6: 400/600/800/1250 / 1A, 0,2Fs5, 15VA

TenneT
 Connected Party (CP)

Connection Point

Cable

To switchgear
 Connected Party

Bay Control
 Protection 51/51N
 Protection 87B
 PQ measurement

Revenue metering 1
 Revenue metering 2
 Protection relay
 Power Plant Controller

TRIP1
 TRIP2
 CBF Criteria 1 (general start protection)
 CBF Criteria 2 (trip protection)

LEGEND	
CBF	Circuit Breaker Failure
- - - - -	Scope limits
—————	Trip command
- · - · - ·	Voltage measurement
· · · · ·	Current measurement

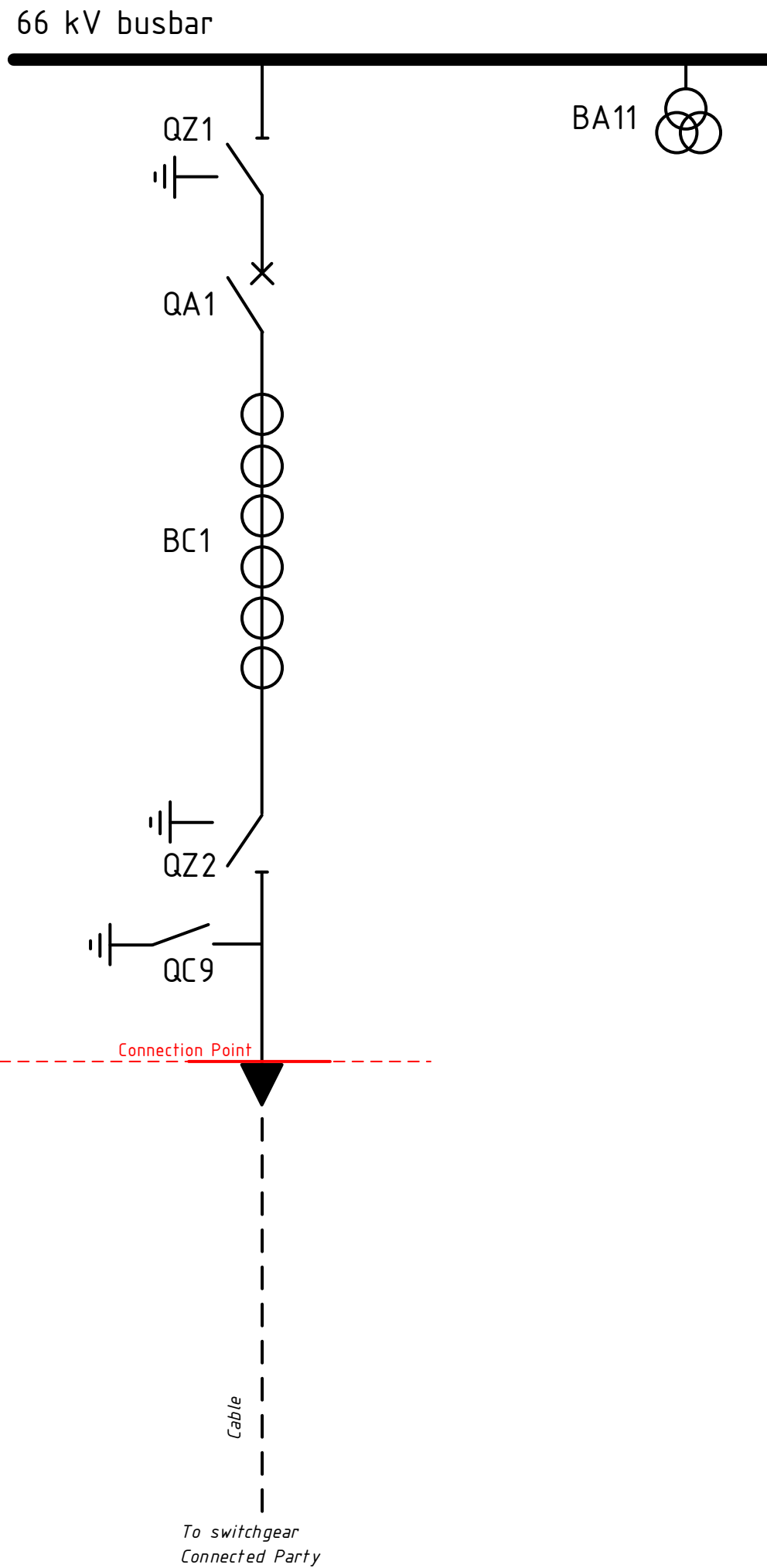
Status:	For consultation purposes only			
Description:	Offshore Grid Connection Scheme			
	0.2	Comments	08-10-2015	M. Kransse
	0.1	Measurements	02-10-2015	M. Kransse
Project:	Wind Op Zee	Scale: n.v.t.	Format: A3	
	Name: M. Kransse	Date: 30-09-15	

Tennet Taking power further

Drawing nr: TTB-03098 sheet 1

VISIO filename:vsd systnr:

Designations
 not final yet



TenneT
Connected Party (CP)

Switchgear on TenneT platform			
Component	TenneT (local)	TenneT (remote)	Connected Party
QZ1	Oper./Sign.	Oper./Sign.	--
QA1	Oper./Sign.	Oper./Sign.	Oper. ¹⁾
QZ2	Oper./Sign.	Oper./Sign.	--
QC9	Oper./Sign.	Oper./Sign.	--


1) Only switch off the circuit breaker by trip

Switchgear in wind turbines			
Component	TenneT (local)	TenneT (remote)	Connected Party
66 kV discon.	Sign. ²⁾	Sign. ²⁾	Oper./Sign.
66 kV earth.sw.	Sign. ³⁾	Sign. ³⁾	Oper./Sign.
66 kV circ.br.	--	--	Oper./Sign.

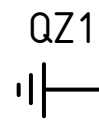
2) Position of disconnectors in the string shall be signalled to TenneT as a combined signal for interlocking purposes:
 - String disconnected (Earthing allowed) /
 - String connected (Earthing not allowed)

3) Position of earthing switches in the string shall be signalled to TenneT as a combined signal for interlocking purposes:
 - String connected to earth (Energization not allowed) /
 - String not connected to earth (Energization allowed)

Designations
not final yet

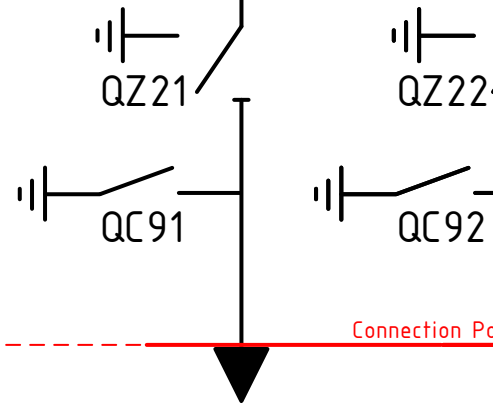
Status: For consultation purposes only				
Description: Offshore Grid Connection Scheme	0.2	Comments	08-10-2015	M. Kransse
	0.1	Measurements	02-10-2015	M. Kransse
Description: Operation and Signalling (1 cable)	Rev.	Change	Date	Name
Project: Wind Op Zee	Scale:	n.v.t.	Format: A3	
	Name:	M. Kransse	Date: 30-09-15	
		Drawing nr: TTB-03098		2
		VISIO filename:vsd		systnr:

66 kV busbar



QA1

BC1



BC91

BC92

BA11

VT2: 66kV/√3 - 110V/√3, CL.0.2, 10VA
 VT1: 66kV/√3 - 110V/√3, CL.0.2+3P, 50VA

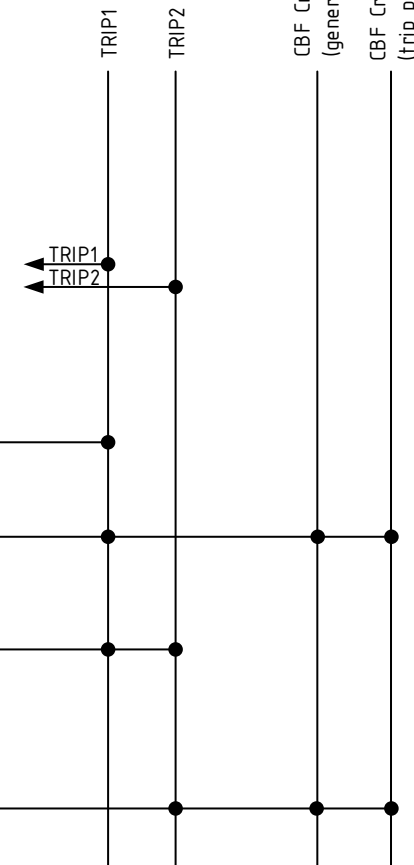
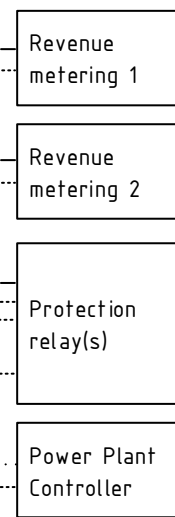
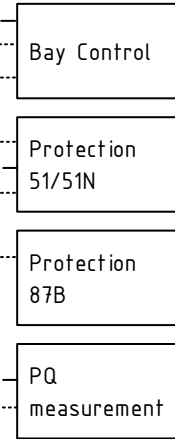
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- CT2: 1250 / 1A, 5PR20, 15VA
- CT3: 400/600/800/1250 / 1A, 0,2Fs5, 15VA
- CT4: 400/600/800/1250 / 1A, 0,2Fs5, 15VA
- CT5: 400/600/800/1250 / 1A, 0,2Fs5, 15VA
- CT6: 400/600/800/1250 / 1A, 0,2Fs5, 15VA

TenneT
Connected Party (CP)

CT: scope CP
 CT: scope CP

To switchgear
Connected Party

To switchgear
Connected Party



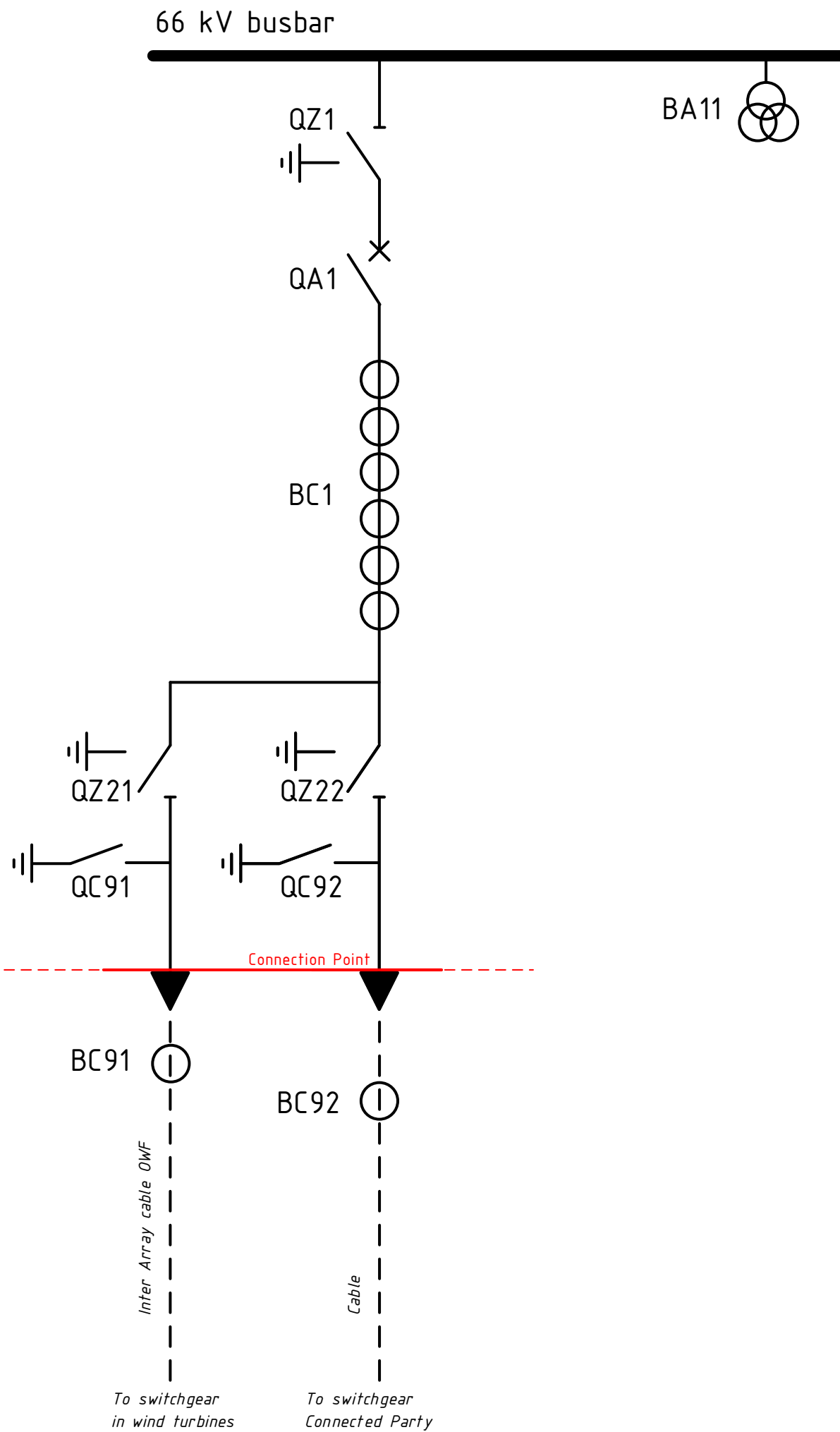
LEGEND			
CBF	Circuit Breaker Failure		
- - - - -	Scope limits		
—	Trip command		
- · - · - ·	Voltage measurement		
· · · · ·	Current measurement		

Status:	For consultation purposes only			
Description:	Offshore Grid Connection Scheme			
	0.2	Comments	08-10-2015	M. Kransse
Project:	Wind Op Zee			
	0.1	Measurements	02-10-2015	M. Kransse
	Rev. Change	Date	Name	
	Scale: n.v.t.	Format: A3		
	Name: M. Kransse	Date: 30-09-15		

Drawing nr: TTB-03098 sheet 3

VISIO filename:vsd systnr:

Designations
not final yet



Switchgear on TenneT platform			
Component	TenneT (local)	TenneT (remote)	Connected Party
QZ1	Oper./Sign.	Oper./Sign.	--
QA1	Oper./Sign.	Oper./Sign.	Oper. ¹⁾
QZ21	Oper./Sign.	Oper./Sign.	--
QZ22	Oper./Sign.	Oper./Sign.	--
QC91	Oper./Sign.	Oper./Sign.	--
QC92	Oper./Sign.	Oper./Sign.	--

1) Only switch off the circuit breaker by trip

Switchgear in wind turbines			
Component	TenneT (local)	TenneT (remote)	Connected Party
66 kV discon.	Sign. ²⁾	Sign. ²⁾	Oper./Sign.
66 kV earth.sw.	Sign. ³⁾	Sign. ³⁾	Oper./Sign.
66 kV circ.br.	Sign. ⁴⁾	Sign. ⁴⁾	Oper./Sign.

2) Position of disconnectors in the string shall be signalled to TenneT as a combined signal for interlocking purposes:
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 - String connected to earth (Energization not allowed) /
 - String not connected to earth (Energization allowed)

CT: scope OWF
 CT: scope OWF

Designations not final yet

Status: For consultation purposes only				
Description: Offshore Grid Connection Scheme	0.2	Comments	08-10-2015	M. Kransse
	0.1	Measurements	02-10-2015	M. Kransse
	Rev.	Change	Date	Name
Project: Wind Op Zee		Scale: n.v.t.	Format: A3	
Project:		Name: M. Kransse	Date: 30-09-15	
		Drawing nr: TTB-03098		4
		VISIO filename:vsd		systnr: