



Annex 9

Final Documentation

Macao Solar Installation

REVISION HISTORY

Revision Level	Change Summary	Elaborated by	Approved by	Date

Annex 9 – Final Documentation

1 General

All documentation shall be provided in electronic format.

For PDF documents where A4 size will be not enough to appreciate all the details and read all the letters, such as layouts and maps, bigger document sizes must be chosen.

Documentation shall be provided in accordance with the requirements of IEC62446.

2 O&M Manual

The Site Manual should be held on site and kept up to date throughout the project.

- Owner name & address (SPV)
- Project name
- Project Start date.
- Site address including post code
- GPS coordinates (of site entrance and Switchgear building)
- Rated system power (kW DC) (Total Installed Capacity)
- Total AC Capacity (Declared Net Capacity) (kVA AC) and Connection Voltage
- Hazardous Voltages Present (DC & AC)
- System Designer, (company, contact person, phone & address)
- Emergency Phone Numbers
- O&M Operator
- Senior Authorized Person in charge of switching operations
- Health and Safety Officer contact details
- Distribution Network Operator (DNO)
- Security Company
- Energization Target Date.
- Manufacturer, model, serial number rated power and quantity of:
 - Solar Modules
 - Inverters
 - Transformers
- Meter Model, Standards Accuracy & Serial Nos (Main and Backup)
- List all contractors (signed H&S information board should be displayed in the site office)
- General Layout
- Single Line Diagram
- List of latest drawings (including version number)

3 Documentation Required for Technical Design (Executive Design)

The following set of documentation should be made available by the Contractor inside the Executive Design to be issued:

1.1. Structural calculations for all structures and buildings (according NCh 2369 or NCh433 or UBC/IBC) including:

- a. Soil Mechanics taking into account:
 - i. Clear identification of the stratum suitable for foundation or the characteristics of the filling soil suitable for foundation (Parameters for calculation of admissible stresses and stability for any foundation geometry)
 - ii. Specific weight γ_s
 - iii. Cohesion c
 - iv. Internal Friction Angle ϕ
 - v. Poisson module ν
- b. Equation to determine admissible static and tension (for any geometry), from where $q_{adm-static}$ can be obtained
- c. Minimum level of seal of foundation.
- d. Type and characteristics of structural filling, if necessary, and for what type of elements (roads, foundations, etc.)
- e. Frost considerations and expected frost level depth.
- f. Slopes and recommended cuts.
- g. Civil-structural design criteria:
 - i. Standards and codes (National, foreign and others)
 - ii. Design loads (permanent, overload or use, wind, seismic, equipment, assembly, etc.)
 - iii. Combinations of loads (ASD, LRFD)
 - iv. Admissible deformations.
 - v. Materials (characteristics, qualities, etc.)
 - vi. Criteria for the design of foundations (safety factors for tipping, sliding, minimum compressed area)
 - vii. Design criteria for reinforced concrete.
 - viii. Design criteria for metal structures
 - ix. Drainage design criteria. Road design criteria.
 - x. Enclosures and gates.
- h. Technical Specifications of Reinforced Concrete:
 - i. Standards and definitions (cement, aggregate, armors, etc.)
 - ii. Materials (cement, water, aggregates, storing, additives, sealants, waterproofing)
 - iii. Reinforcing steel:
 - 1. Armor preparation
 - 2. Armor placement
 - 3. Union of armors
 - 4. Electrowelded mesh
 - 5. Inserts and anchors

- iv. Concrete:
 - 1. Classes
 - 2. Dosing and manufacturing
 - 3. Mixed
 - 4. Authorization to concrete
 - 5. Construction joints (between new, old concretes, etc.)
 - 6. Dilated joints
 - 7. Concreting in cold weather
 - 8. Concreting in hot weather
 - 9. Compaction
 - 10. Surface finish
 - 11. Control and curing
 - 12. Repair of concreting imperfections
 - 13. Replacement materials
 - 14. Resin injections in cracks or fissures
- v. Molded
 - 1. Qualities
 - 2. Installation
 - 3. Withdrawals
- vi. Grouteado of base plates and support, types of leveling mortar.
- vii. Inspection
- viii. Quality control
- i. Technical Specifications for steel structures
 - i. Standards and definitions (cement, aggregate, armors, etc.)
 - ii. Materials:
 - 1. Steel
 - 2. Bolts
 - 3. Nuts
 - 4. Golillas
 - 5. Welds
 - 6. Connections
 - iii. Detailing and manufacturing:
 - 1. Orientation plates
 - 2. Brands
 - 3. Holes
 - 4. Tolerances
 - 5. Straightening
 - 6. Cut

7. Profiles
 8. Manufacturing layouts
- iv. Assembly:
 1. Assembly marks
 2. Alignments and adjustments
 3. Tolerances
 - v. Painting scheme
 - vi. Repair painting on the ground
 - vii. Inspection
 - viii. Quality control
- j. Specifications for paints and coatings:
 - i. Standards and definitions
 - ii. Description of the products
 - iii. Application conditions
 - iv. Protection schemes
 - v. Paint schemes
 - vi. Surface preparation
 - vii. Seal of interstices
 - viii. Repair and touch up procedure
 - ix. Inspection
 - x. Quality control
 - k. Standard plan for reinforced concrete, must contain at least, and as appropriate: (if necessary, it can be more than one sheet)
 - i. General notes
 - ii. Materials
 - iii. Coatings
 - iv. Typical details and solutions
 - v. Anchors and overlaps
 - vi. Radieres
 - vii. Anchor bolts
 - viii. Abbreviations
 - ix. Symbologies
- I. Standard layout for metallic structures must contain:
 - i. General notes
 - ii. Materials
 - iii. Manufacturing
 - iv. Typical details and solutions
 - v. Connections (general-bolt-welding)

- vi. Stairs and grills
- vii. Abbreviations
- viii. Symbologies

1.2. ELECTRIC ENGINEERING

- a. Equipment list
- b. Cable List.
- c. Technical Specification for main Equipment. (for quotes)
- d. DataSheet (all Electrical Equipment).
- e. Drawings of underground electrical
- f. Signed and dated low voltage DC circuit functional tests in accordance with IEC 62446 (BS EN 62446:2009) 2016.
- g. Sizing calculation reports: Lines, cables, ground mesh, transformers, etc.
 - i. Protection coordination study (selectivity).
 - ii. HV Single Line diagrams (General and protections) (according NCh 4, NSEG5_71 & NTCO)
 - iii. LV Single Line diagrams (General of Auxiliary Services) (according NCh 4, NSEG5_71 & NTCO)
- h. Plans of protection and control of the connection in HV.
- i. Interconnection plans Inverters-Transformers- Switchgear.
- j. Interconnection plans for the modules-Box combiner-inverters.
- k. Force plans and control of the transformers.
- l. Geoelectric studies.
- m. Plans and memories of calculation of earth meshes.
- n. Earthing design including layout and calculations (according IEEE 80-2013)
- o. Design by IEC62548 Array Design (or 62738 Power Plant)
- p. MV line Lightning protection equipment specifications

In accordance to Scope of works.

1.3. Cable sections

- a. Cable section calculations (according to local codes and standards and also some international ones such as IEC 60364)) including:
 - i. Short-circuit capacity
 - ii. Load current capacity
 - iii. Voltage drop
- b. Short-circuit calculations (according IEC 60909) including:
 - i. Short-circuit level for all bus bars
- c. Electric protections study (according IEEE Std 242-2001, Std 399-1997 & Std C57.109-2008 & IEC 60076-5-2006) including:
 - i. Adjustment and coordination of protection systems of the plant

1.4. Civil works layouts and designs:

- a. Trenches Layout (according NCh 4)
- b. Detailed equipment layout plans with distancing.

4 Documentation Required for Technical Acceptance

The following set of documentation should be made available by the Contractor at the time of issuing the Mechanical Completion Certificate and request for Technical Acceptance.

- 4.1 Up to date versions of SLD, General Site Layout & Cable Trench Layout
- 4.2 Summary of changes between “As built” and the latest revision
- 4.3 List of any remaining works that still needs to be completed but, in the view of the Contractor, do not impact the commissioning of the Plant.
- 4.4 Static/dynamic loading calculations for the Support Structure performed by the manufacturer.
- 4.5 Galvanizing certificates for the support structures and results of pull out tests.
- 4.6 Product documentation (Datasheets, manuals and copies of shall be provided for the major items (Solar modules, Support Structure Inverter, Transformer’s, Switchgear)
- 4.7 Warranty certificates of the major items (modules, inverters, structure, transformer & switchgear) with reference to the serial numbers of the products installed (where applicable)
- 4.8 Declaration of Total Installed capacity (TIC) and Declared Net capacity (DNC)
- 4.9 Photovoltaic modules flash test results.
- 4.10 Grid Connection Offer letter send by the DNO and the acceptance letter sent by the developer in response. Both documents reserve the grid capacity for the current project.
- 4.11 All quality reports, procedures and checklists required for demonstrating that inspections and testing defined in Annex 22 have been satisfactorily completed.

5 Documentation Required for Commissioning

In addition to the documentation required for Section 3, the following set of documentation should be made available by the Contractor when claiming that the Commissioning of the site is completed.

- 5.1 Signed and dated commissioning document issued by the EPC contractor related to all HV and LV equipment installed at the plant. Any related commissioning procedure, testing protocols and testing results should be included.
- 5.2 Latest versions of SLD, General Site Layout & Cable Trench Layout
- 5.3 Signed and dated low voltage DC circuit functional tests in accordance with IEC 62446 (BS EN 62446:2009)
- 5.4 Inverter commissioning protocols (for both cold and hot commissioning) including any limitation implemented by software.
- 5.5 Signed and dated switchgear insulation test results and commissioning protocols.
- 5.6 Signed and dated Insulation Resistance test report (i.e. IR/cable pressure test) of High Voltage circuits.
- 5.7 The insulation of electric circuits and continuity according to IEC 60364 performed and signed and dated by a qualified and competent contractor.

- 5.8 Calibration certificates for all instrumentation used during the performance of all the tests.
- 5.9 Location and details of all electrical metering including meter type (make and model) and serial numbers
- 5.10 Signed and dated cold commissioning report of Plant Disconnection Relay from certified engineer verifying the parameters required by the DNO, the "Formulario 9".
- 5.11 Signed and dated version of the following contracts: Grid Connection Agreement, Adoption Agreement, Completion Certificate under Contestable Works and Joint Operating Agreement (if applicable).
- 5.12 Copies of all forms and studies presented to the DNO.
- 5.13 Detailed design calculations and drawings for earthing circuits.
- 5.14 Earthing test reports of Client substation and the PV side.
- 5.15 List of any remaining works that still need completing prior to starting the Provisional Acceptance Test and/or issuing of Provisional Acceptance Certificate complete with timeline for completion.

6 Documentation required for issuance of Provisional Acceptance Certificate

In addition to the documentation required for Section 4, the following set of documentation should be made available by the Contractor when claiming that the Provisional Acceptance is completed.

- 6.1 Complete set of As Built Drawings mutually agreed between the 2 parties.
- 6.2 Commissioning report signed by the installer/manufacturer & complete set of documentation for the monitoring system
- 6.3 Commissioning report signed by the installer/manufacturer & complete set of documentation for the Security system
- 6.4 The calibration certificates for the Pyranometers
- 6.5 Operation and maintenance information including,
 - 6.5.1 Procedures for verifying correct system operation,
 - 6.5.2 A checklist of what to do in case of a system failure.
 - 6.5.3 Emergency shutdown / isolation procedures.
 - 6.5.4 Maintenance and cleaning recommendations (if any).
- 6.6 Spare parts list with the amount of each item.
- 6.7 Health and Safety file defined as the site health and safety records pertaining to and made during construction and confirmation of site incident statistics.
- 6.8 Quality inspection reports

7 Requirements for General Layout

General layout including the geospatial coordinates taken by a certified topographer, and showing the exact position of all the elements of the plant including panels, structures, string boxes, inverters, transformers, cabins, MV cables, LV cables, earth cables, earth spears, fence, cameras, security systems, monitoring systems, security sensors, access doors, roads, manholes, cable ducts, conduits, draining elements, connection cables, delivery cabin, substation, meter, near roads, trees, hedges, land plots, and others.

8 Contractor Deliverables Table

Cat	Type	Num	Rev	Code \ Ref	Name Description	Document Type	Expected Delivery Dates	Review Period From Owner
					SUBSTATION			
HV	DRW	101	0	HV-DRW-101	S Station Layout	Technical Design & Specifications	according to Contract	according to Contract
HV	DRW	102	0	HV-DRW-102	S Station SLD	Technical Design & Specifications	according to Contract	according to Contract
HV	CAL	103	0	HV-CAL-103	S Station foundations	Technical Design & Specifications	according to Contract	according to Contract
HV	DRW	104	0	HV-DRW-104	S Station wiring and connection diagram	Technical Design & Specifications	according to Contract	according to Contract
HV	DRW	105	0	HV-DRW-105	Substation Interconnection Equipment Layout Cross Section	Technical Design & Specifications	according to Contract	according to Contract
HV	DRW	106	0	HV-DRW-106	LV/MV in plant Substation Wiring and Connection Diagram	Technical Design & Specifications	according to Contract	according to Contract
HV	CAL	107	0	HV-CAL-107	HV Monitoring Protective Relay Report with relay settings	Reports & Calculations	Before PAC	according to Contract
HV	DTS	108	0	HV-DTS-108	AUX TRANSFORMER datasheet	Technical Design & Specifications	according to Contract	according to Contract
HV	DRW	109	0	HV-DRW-109	AUX SLD	Technical Design & Specifications	according to Contract	according to Contract
HV	DTS	110	0	HV-DTS-110	HV Transformer (22kV/115KV)	Technical Design & Specifications	according to Contract	according to Contract
					MECHANICAL			
ME	REP	201	0	ME-REP-201	Tracker Numbering	Technical Design & Specifications	Before PAC	according to Contract
ME	DRW	202	0	ME-DRW-202	Tracker drawings	Technical Design & Specifications	according to Contract	according to Contract
ME	REP	203	0	ME-REP-203	Tracker installation manual	Technical Design & Specifications	according to Contract	according to Contract
ME	CAL	204	0	ME-CAL-204	Structural Calculations of PV Tracker	Reports & Calculations	according to Contract	according to Contract
ME	CAL	205	0	ME-REP-205	Foundations Calculations of PV Tracker	Technical Design & Specifications	according to Contract	according to Contract

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Cat	Type	Num	Rev	Code \ Ref	Name Description	Document Type	Expected Delivery Dates	Review Period From Owner
ME	REP	206	0	ME-REP-205	Pull out test report	Technical Design & Specifications	according to Contract	according to Contract
					CIVIL			
CW	DRW	301	0	CW-DRW-301	Grading (levelling) plans	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	302	0	CW-DRW-302	Drainage system layout	Technical Design & Specifications	according to Contract	according to Contract
CW	CAL	303	0	CW-CAL-303	Drainage calculations report	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	304	0	CW-REP-304	Storm water pollution prevention plan report	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	305	0	CW-DRW-305	Entrance and Fence design	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	306	0	CW-DRW-306	Layout Roads + details (cross sections)	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	307	0	CW-DRW-307	Fencing layout + details	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	308	0	CW-DRW-308	Layout MV Trench cross sections	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	309	0	CW-DRW-309	Layout LV Trench cross sections	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	310	0	CW-DRW-310	Conduit MV Layout	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	311	0	CW-DRW-311	Conduit LV Layout	Technical Design & Specifications	according to Contract	according to Contract
CW	CAL	312	0	CW-CAL-312	Power stations foundation calculations	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	313	0	CW-DRW-313	Power stations foundation drawings	Technical Design & Specifications	according to Contract	according to Contract
CW	REP	314	0	CW-REP-314	Hydrology report (Float risk assessment)	Technical Design & Specifications	according to Contract	according to Contract
CW	DRW	316	0	CW-DRW-316	Layout Temporary facilities	Technical Design & Specifications	according to Contract	according to Contract
CW	REP	317	0	CW-REP_317	Geological Survey Report	Technical Design & Specifications	according to Contract	according to Contract

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Cat	Type	Num	Rev	Code \ Ref	Name Description	Document Type	Expected Delivery Dates	Review Period From Owner
					ELECTRICAL			
EL	REP	401	0	EL-REP-401	Power Stations Operations and Maintenance Manual from supplier	Technical Design & Specifications	according to Contract	according to Contract
EI	REP	402	0	EL-REP-402	Inverter Manual	Technical Design & Specifications	according to Contract	according to Contract
EL	REP	403	0	EL-REP-403	Inverter Test data	Commissioning	before PAC	according to Contract
EI	DTS	404	0	EL-DTS-404	Inverter datasheet	Technical Design & Specifications	according to Contract	according to Contract
EL	REP	405	0	EL-REP-405	Ring Main Unit (HV Switchgear) Manual	Technical Design & Specifications	according to Contract	according to Contract
EI	DTS	406	0	EL-DTS-406	Ring Main Unit (HV Switchgear) Specification	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	407	0	EL-DRW-407	Ring Main Unit (HV Switchgear) Layout	Technical Design & Specifications	according to Contract	according to Contract
EI	DTS	408	0	EL-DTS-408	LV/MV Transformer Datasheet	Technical Design & Specifications	according to Contract	according to Contract
EI	CAL	410	0	EL-CAL-410	MV Monitoring protective relay Datasheet	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	411	0	EL-DRW-411	AC MV cable layout	Technical Design & Specifications	according to Contract	according to Contract
EI	DTS	412	0	EL-DTS-412	Power Transformer Station Specifications	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	413	0	EL-DRW-413	Power Transformer Station interconnection layout	Technical Design & Specifications	according to Contract	according to Contract
EI	REP	414	0	EL-REP-414	Power Transformer Station installation manual	Technical Design & Specifications	according to Contract	according to Contract
EI	DRW	416	0	EL-DRW-416	LV cable trench Layout	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	417	0	EL-DRW-417	DC cabling layout	Technical Design & Specifications	according to Contract	according to Contract
EI	DRW	418	0	EL-DRW-418	Monitoring Cabling layout	Technical Design & Specifications	according to Contract	according to Contract
EL	REP	419	0	EL-REP-419	Grounding study	Technical Design & Specifications	according to Contract	according to Contract

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Cat	Type	Num	Rev	Code \ Ref	Name Description	Document Type	Expected Delivery Dates	Review Period From Owner
EL	DRW	420	0	EL-DRW-420	Grounding and lightening protection Layout (if applicable)	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	421	0	EL-DRW-421	Grounding layout details	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	422	0	EL-DRW-422	LV-MV SLD	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	423	0	EL-DRW-423	DC SLD	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	424	0	EL-DRW-424	SLD Auxiliary Services	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	425	0	EL-DRW-425	Junction Box SLD	Technical Design & Specifications	according to Contract	according to Contract
EL	REP	426	0	EL-REP-426	Junction Box Manual	Technical Design & Specifications	according to Contract	according to Contract
EL	DTS	427	0	EL-DTS-427	Junction box Datasheets	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	428	0	EL-DRW-428	Module layout	Technical Design & Specifications	according to Contract	according to Contract
EL	DTS	429	0	EL-DTS-429	Module datasheet	Technical Design & Specifications	according to Contract	according to Contract
EL	REP	430	0	EL-REP-430	Indicative PVsyst simulation	Technical Design & Specifications	according to Contract	according to Contract
EL	CAL	431	0	EL-CAL-431	3Phase Short-Circuit Caity Calculation	Technical Design & Specifications	according to Contract	according to Contract
EL	DRW	432	0	EL-DRW-432	LV/HV SLD and Schematics (showing Protections & metering devices)	Technical Design & Specifications	according to Contract	according to Contract
MONITORING AND SECURITY								
MS	DRW	501	0	MS-DRW_501	Network architecture drawings	Technical Design & Specifications	according to Contract	according to Contract
MS	DRW	502	0	MS-DRW_502	SCADA field panel wiring details	Technical Design & Specifications	according to Contract	according to Contract
MS	DRW	503	0	MS-DRW_503	Monitoring System / Control Systems SLD	Technical Design & Specifications	according to Contract	according to Contract
MS	REP	504	0	MS-REP_504	Monitoring System equipment certificates and tests	Commissioning	Before PAC	according to Contract

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Cat	Type	Num	Rev	Code \ Ref	Name Description	Document Type	Expected Delivery Dates	Review Period From Owner
MS	DTS	505	0	MS-DTS_505	Monitoring System Datasheets	Technical Design & Specifications	according to Contract	according to Contract
MS	DRW	506	0	MS-DRW_506	Monitoring Cabling Layout (Fiber optic and RS485)	Technical Design & Specifications	according to Contract	according to Contract
MS	DRW	507	0	MS-DRW_507	Monitoring Junction Box drawings	Technical Design & Specifications	according to Contract	according to Contract
MS	REP	508	0	MS-REP_508	SCADA System configuration details (IPs, Modbus, ports, passwords, bus speeds and other parameters)	O&M Manual	Before PAC	according to Contract
MS	DRW	509	0	MS-DRW_509	Security System layout	Technical Design & Specifications	according to Contract	according to Contract
MS	DRW	510	0	MS-DRW_510	Security System Cam tower	Technical Design & Specifications	according to Contract	according to Contract
MS	DTS	511	0	MS-DTS_511	Security System Datasheets	Technical Design & Specifications	according to Contract	according to Contract
MS	CAL	512	0	MS-CAL_512	Security System Foundation Calculation	Technical Design & Specifications	according to Contract	according to Contract
MS	DRW	513	0	MS-DRW_513	Monitoring System SLD	Technical Design & Specifications	according to Contract	according to Contract
MS	DRW	514	0	MS-DRW_514	Security System SLD	Technical Design & Specifications	according to Contract	according to Contract
MS	REP	515	0	MS-REP_515	HV Monitoring System: List of Alarms (including type, delays, area, device and other details)	O&M Manual	Before PAC	according to Contract
MS	REP	516	0	MS-REP_516	PV Plant Monitoring System: List of Alarms (including type, delays, area, device and other details)	O&M Manual	Before PAC	according to Contract
BUILDINGS								
BD	DRW	601	0	BD-DRW-601	COMMS/Operations Center layouts	Technical Design & Specifications	according to Contract	according to Contract
BD	DRW	602	0	BD-DRW-602	Building Architectural Plans	Technical Design & Specifications	according to Contract	according to Contract
BD	CAL	603	0	BD-CAL-603	Foundation Structural Calculations	Technical Design & Specifications	according to Contract	according to Contract
BD	DRW	604	0	BD-DRW-604	Plumbing, electrical, HVAC (if applicable) plans	Technical Design & Specifications	according to Contract	according to Contract
REPORTS / MANUALS								

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Cat	Type	Num	Rev	Code \ Ref	Name Description	Document Type	Expected Delivery Dates	Review Period From Owner
RM	REP	701	0	RM-REP_701	O&M Manual (with cover, general notes, abbreviations and symbols)	O&M Manual	Before PAC	5 Business days
RM	REP	702	0	RM-REP_702	Power plant control Manual (if installed)	O&M Manual	Before PAC	5 Business days
RM	REP	703	0	RM-REP_703	Commissioning Test Procedures (includes Block Functionality Test Plan)	NA	15 days before Works Completion	5 Business days
RM	REP	704	0	RM-REP_704	Energy Test Procedures (includes Performance Test Plan)	NA	15 days before Works Completion	5 Business days
RM	REP	705	0	RM-REP_705	Energy Model Validation test (Comparison between yield analysis and real production)	Commissioning	Before PAC	5 Business days
RM	REP	706		RM-REP_706	Energy Production test / PR tests	NA	Before PAC	5 Business days
RM	REP	707	0	RM-REP_707	Environmental, Health & Safety plan	H&S	4 weeks after contract signature	5 Business days
RM	REP	708	0	RM-REP_708	Quality Control and Audit Plan	Q&A	4 weeks after contract signature	5 Business days
RM	REP	709	0	RM-REP_709	Factory test and inspection reports of main equipment (Inverters, Transformers and MV switch gears)	NA	Before PAC	5 Business days
RM	REP	710	0	RM-REP_710	Outage Plan	O&M Manual	Before PAC	5 Business days
RM	REP	711	0	RM-REP_711	Project execution Plan	Technical Design & Specifications	according to Contract	according to Contract
				GENERAL				
GE	DRW	801	0	GE-DRW_801	Facility Schedule Gantt Chart (including critical path)	Technical Design & Specifications	according to Contract	according to Contract
GE	REP	802	0	GE-REP_802	Spare parts List	Technical Design & Specifications	according to Contract	according to Contract
GE	REP	803	0	GE-REP_803	PV Modules Flash Test data	NA	Before PAC	5 Business days
GE	DRW	804	0	GE-DRW_804	General layout site plan	Technical Design & Specifications	according to Contract	according to Contract