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## BM GLOBAL a.s.

Industrial Control Systems · Critical-Component Upgrade · Cybersecurity

### Sohar 1 — GT & BOP Upgrade

*SPPA-T2000 DCS / PLC Critical-Component Upgrade and Spares — Technical Proposal*

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|              |                                                              |
|--------------|--------------------------------------------------------------|
| Document No. | C010-036-001-1                                               |
| Date         | 29 June 2026                                                 |
| Customer     | Suez-Tractebel Operation and Maintenance Oman LLC (STOMO)    |
| Site         | Sohar Power Complex, Sultanate of Oman                       |
| Attention    | Mr. Mahmood Mohammed Al Rawahi                               |
| Subject      | GT & BOP Upgrade — SPPA-T2000 DCS / PLC at Sohar 1           |
| Issued by    | BM Global a.s., Holandská 878/2, 639 00 Brno, Czech Republic |



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## Letter of Offer

To whom it may concern,

Following our review of the equipment lists, server inventory, field component records and the technical evaluation provided for the Sohár 1 power and desalination complex, we are pleased to submit this technical proposal for the GT & BOP upgrade covering the Siemens SPPA-T2000 distributed control system and the associated PLC, controller and field equipment.

The Sohár 1 control layer has reached the end of its supported life. Operator and engineering stations run OM 650 on SCO-Unix and HP-Unix, ES 680 on legacy workstations, and Windows XP, Windows Server 2003 and Windows 98 across servers and programming devices. The S5 AS620 controllers, SIMADYN-D gas-turbine controllers and S5-95F / S5-95U safety controllers remain in service but are no longer manufactured. The BOP data archive server is no longer working.

This proposal addresses these tasks in separately deliverable work packages. The operator interface is upgraded to the OMLEX platform, engineering station can be delivered as refurbished spare computer or emulated running on the modern DELL Servers. The controllers and field equipment are kept in service through a managed held-spares service, the network switches are upgraded and the control network isolated, the data archive is restored, and on-site and remote support is defined. Each position can be ordered on its own and in any sequence.

This document covers the engineering scope only. A commercial proposal with prices and delivery terms will follow separately once the scope is agreed.

We remain at your disposal for any clarification.

Yours sincerely,

### **Petr Roupec**

Managing Director

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## 1. Programme Overview

The programme is organised into three supply work packages and a structured support package. Each work package is grouped so it can be ordered, engineered and delivered on its own and in any sequence:

- **Work Package A — Control Interface & Computing Upgrade.** Operator and engineering stations are upgraded to the OMLEX platform; the processing, historian and OPC servers, the programming devices and the printers are upgraded; and the data archive is restored as a redundant pair. Each of these is set out as a separate, independently orderable position.
- **Work Package B — Controller & Field Component Spares (Service).** The AS620, SIMADYN-D and S5-95F / S5-95U controllers, the CM104 communication modules and the panel-mounted TXP / PLC modules are kept in service through a managed held-spares service. The controllers are not replaced. Each controller family is set out as a separate position with its own defined process and procedure.
- **Work Package C — Network Upgrade and Isolation.** The ageing network switches are replaced like-for-like with economical industrial managed switches of a single type across the plant — 43 switches in total (gas-turbine 15, balance-of-plant 28) — with the gas-turbine and balance-of-plant rings kept fully separate, monitoring (SPAN) ports on each network, and the control network isolated by data diodes.
- **Support Package.** On-site and remote support — four site visits a year (one summer and three winter, unit-aligned), on-call assistance, and a defined multi-year extension (Support 80 / 85 / 90), drawing on the spares inventory held at the Customer's facilities.

Technical scope is set out across the positions below. A scope tag on each line shows whether the item is included as standard (Base), held against failure (Emergency) or advised for a later stage (Recommended).

This upgrade follows the BM Global ICS / OT Business Continuity approach: operational resilience through critical-component upgrade, unified asset management, documented processes and procedures for each component, and vulnerability management — keeping the plant operational, supportable and recoverable as the installed equipment ages.

A number of points are still open and are listed in Section 2, Points for Clarification, for discussion with the Customer at a clarification meeting. These chiefly concern the boundary between this upgrade and the Sohar I remote-control project (Ref. C010-035) and the OMLEX OT / MX supply (Ref. C010-037), so that no equipment is supplied twice.

A Revision Record at the end of this document lists the changes made in this revision following the Customer's Technical Evaluation, with the reason for each change.

### Scope Summary

| ID  | Scope Item                                                                    |
|-----|-------------------------------------------------------------------------------|
| A10 | HMI / Operator Interface — OMLEX Upgrade                                      |
| A11 | Engineering Station — OMLEX Upgrade or Virtualisation                         |
| A15 | Processing & Historian Servers — Upgrade and Spares                           |
| A16 | OPC Server & Interface — Upgrade (redundant OPC server quoted under C010-033) |
| A17 | Programming Devices — Repair or Replacement                                   |
| A18 | DCS Printers — (shared between operator and engineering stations)             |



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| ID         | Scope Item                                                                 |
|------------|----------------------------------------------------------------------------|
| A25        | Data Archive Restoration — redundant DELL pair (GT MOD / BOP VMOD)         |
| B30        | AS620 Automation System — Held-Spares Service                              |
| B31        | SIMADYN-D Controller — Held-Spares Service                                 |
| B32        | S5-95F / S5-95U Safety Controller — Held-Spares Service                    |
| B33        | CM104 Communication Module — Held-Spares Service                           |
| B35        | Panel-mounted TXP / PLC Component — Held-Spares Service                    |
| C50        | Network Upgrade & Isolation (43 managed switches, data diodes, SPAN ports) |
| Support 80 | Structured Support & On-Call Assistance                                    |
| Support 85 | On-site Maintenance Visits (four per year)                                 |
| Support 90 | Support — seven-year extension (Years 2–9)                                 |



## **A10 HMI / Operator Interface — OMLEX Upgrade**

*OM 650 operator working stations on the gas-turbine and balance-of-plant DCS*

### **Scope Description**

A10 upgrades the obsolete operator working stations on the gas-turbine and balance-of-plant DCS to the OMLEX platform. The existing OM 650 operator displays are carried onto current hardware and a supported operating system. The system works as of today — no changes to displays, tag names, graphics or operating behaviour.

### **Technical Description**

The gas-turbine operator working stations (Celsius M420, SCO-Unix, OM 650) and the balance-of-plant operator working stations (Celsius M420, Red Hat / SCO 5.0.6a) are upgraded to OMLEX MX operator terminals, with all OM functionality preserved as-is. The gas-turbine operator stations are supplied at six — three in the central control room and three in the power-control centre, each with twin screens — to mirror the Sohar II layout. These gas-turbine operator terminals are now supplied under this upgrade and are no longer carried under the Sohar I remote-control project (Ref. C010-035); the Sohar II terminals remain under C010-035.

The closed-circuit television and tariff-metering monitors at the operator stations are shown on the upgraded terminals so the operator keeps the existing combined view.

| #     | Tag / Location         | Description                                                  | Model / Type            | Qty | Scope |
|-------|------------------------|--------------------------------------------------------------|-------------------------|-----|-------|
| A10-1 | GT — CCR (3) + PCC (3) | GT Operator Working Station (OM 650, SCO-Unix), twin screens | Celsius M420 → OMLEX MX | 6   | Base  |
| A10-2 | BOP — CCR              | BOP Operator Working Station (OM 650)                        | Celsius M420 → OMLEX MX | 7   | Base  |
| A10-3 | GT — CCR / PCC         | Additional OT (six GT stations vs five existing)             | OMLEX MX                | 1   | Base  |
| A10-4 | GT / BOP — CCR         | CCTV / tariff-metering are shown on MX displays via network  |                         | —   | Base  |

### **Deliverables**

- Six gas-turbine and seven balance-of-plant OMLEX MX operator terminals, installed and commissioned in place of the existing operator stations.
- One additional OT
- Existing OM 650 displays, and the CCTV and tariff-metering monitor views, carried over and verified against the live system; displays, tag names and operating behaviour unchanged.

### **Exclusions**

- Sohar II operator terminals, which remain under the Sohar I remote-control project (C010-035).



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## **A11 Engineering Stations**

*ES 680 engineering working stations on the gas-turbine and balance-of-plant DCS*

### **Scope Description**

A11 can be delivered as one two options:

- Deliver one spare refurbish computer with two ready-made-cloned disks
- Virtualised HP Unix on DELL server

| #     | Tag / Location | Description                                                                | Model / Type               | Qty | Scope           |
|-------|----------------|----------------------------------------------------------------------------|----------------------------|-----|-----------------|
| A11-1 | CCR Eng. Room  | GT + BOP Engineering spare Working Station (ES 680 content) with two disks | HP B2600 – refurbish spare | 1   | Base – Option 1 |
| A11-2 | CCR Eng. Room  | Virtualized HP Unix                                                        | DELL                       | 1   | Base – Option 2 |



## **A15 PU & SU Servers — Upgrade and Spares**

*Gas-turbine and balance-of-plant processing / historian servers*

### **Scope Description**

A15 upgrades the PU and SU servers of the gas-turbine and balance-of-plant DCS. These servers run on obsolete hardware and operating systems and are no longer supportable. They are upgraded onto current supported hardware with the existing function preserved, and a tested set of spare servers is held against failure.

### **Technical Description**

Eight processing / historian servers are confirmed and upgraded on current supported hardware: the gas-turbine processing / historian servers (2), the balance-of-plant processing servers (4) and the balance-of-plant historian servers (2), all Celsius M420 on SCO-Unix. The OPC server and interface are addressed under A16. The WinTS performance servers (Windows Server 2003) are confirmed as required and are included as base scope. A Dolphin data logger (3) is added for plant data logging. A common pool of two spare DCS servers is held against failure; because the gas-turbine SCO-Unix servers and the balance-of-plant servers differ, a single shared spare is not feasible, so two spares cover the common pool.

| #     | Tag / Location | Description                                            | Model / Type | Qty | Scope           |
|-------|----------------|--------------------------------------------------------|--------------|-----|-----------------|
| A15-1 | CCR Elec. Room | GT Processing / Historian Server A & B                 | Celsius M420 | 2   | Base            |
| A15-2 | CCR Elec. Room | BOP Processing Server A & B                            | Celsius M420 | 4   | Base            |
| A15-3 | CCR Elec. Room | BOP Historian Server A & B                             | Celsius M420 | 2   | Base            |
| A15-4 | GT (WinTS)     | WinTS performance servers (Windows Server 2003)        | PS150-01979  | 3   | Base            |
| A15-5 | GT / BOP       | Dolphin data logger                                    | Dolphin      | 3   | Need an update? |
| A15-6 | CCR Eng. Room  | Spare DCS servers — common pool (held against failure) | Celsius M420 | 2   | Emergency       |

### **Deliverables**

- Eight processing and historian servers upgraded on current supported hardware with the existing function preserved.
- WinTS performance servers upgraded as base scope and a Dolphin data logger added for plant data logging.
- A tested common pool of two spare DCS servers, purchased and held by the Customer at site and re-tested at the maintenance visits.

### **Exclusions**

- The OPC server and interface, addressed under A16.
- Network upgrade, addressed under C50.



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## A16 OPC Server — Upgrade

*The OPC server and data interface between the DCS and external systems*

### Scope Description

A16 upgrades the OPC server that pass plant data from the DCS to external systems such as the performance, reporting and tariff applications. The OPC server (Celsius M430, Windows XP) and its software are obsolete and are upgraded together so the interface can be ordered on its own.

### Technical Description

The OPC server is upgraded on current supported hardware with the existing tag set and data items preserved. The connections to the gas-turbine and balance-of-plant DCS and to the external client applications are re-verified against the live system. A redundant OPC server compatible with TXP / T2000 is quoted separately under Ref. C010-033; its price is carried into this upgrade at the clarification stage so that the server is not supplied twice.

| #     | Tag / Location | Description                        | Model / Type | Qty | Scope |
|-------|----------------|------------------------------------|--------------|-----|-------|
| A16-1 | CCR Elec. Room | OPC Server (Windows XP) — upgraded | Celsius M430 | 1   | Base  |

### Deliverables

- OPC server upgraded on current supported hardware and the OPC interface re-established on a current supported OPC layer with the existing tag set preserved.
- Connections to the DCS and to the external client applications re-verified against the live system.

### Exclusions

- The redundant OPC server hardware, quoted separately under Ref. C010-033.
- Changes to the external client applications themselves.



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## **A17 Programming Devices — Repair**

*Simatic PG 740 programming devices for the existing controllers*

### **Scope Description**

A17 upgrades the programming devices needed to maintain the existing controllers. They run on an obsolete operating system and are upgraded to current supported equipment configured for the existing controllers.

### **Technical Description**

The two Simatic PG 740 programming devices (Windows 98) — used for AS620, SIMADYN-D and S5 programming, gas-turbine commissioning and tuning — are repaired.

| #     | Tag / Location | Description                                | Model / Type | Qty | Scope |
|-------|----------------|--------------------------------------------|--------------|-----|-------|
| A17-1 | CCR Eng. Room  | Simatic PG programming device (Windows 98) | PG 740 PIII  | 2   | Base  |

### **Deliverables**

- Two supported programming devices are repaired



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## A18 DCS Printers

*ES 680 and DCS printers shared between the operator and engineering stations*

### Scope Description

A18 upgrades the ES 680 and DCS printers that support day-to-day operation. The existing printers are obsolete and are upgraded to current supported equipment. The printers are shared between the operator and engineering stations.

### Technical Description

The ES 680 / DCS printers (gas-turbine and balance-of-plant). The CUPS based printer server (software) will be installed on VMOD computer or separate small printer server will be delivered. The physical PS (postscript) printer will be supplied locally and is not part of delivery

| #     | Tag / Location  | Description                                           | Model / Type   | Qty | Scope |
|-------|-----------------|-------------------------------------------------------|----------------|-----|-------|
| A18-1 | CCR / Eng. Room | ES 680 & DCS printers (shared operator / engineering) | HP M553 / M551 | 4   | Base  |

### Deliverables

- ES 680 and DCS printer server (software)

### Exclusions

- Physical printer device



## **A25 Data Archive Restoration — GT VMOD / BOP VMOD**

*Restoring historical data archiving for the gas-turbine and balance-of-plant DCS*

### **Scope Description**

A25 restores the long-term data archive. The balance-of-plant archive server is no longer working, so balance-of-plant DCS data is currently not being stored. The gas-turbine archive uses magneto-optical drives that are themselves obsolete.

### **Technical Description**

The non-working balance-of-plant VMOD archive server (Sunfire X4150) is replaced by new DELL server. The gas-turbine MOD archive drives (2) are addressed by establishing a supported historian for the gas-turbine and balance-of-plant data on the redundant pair, removing the dependence on obsolete magneto-optical media.

| #     | Tag / Location | Description                               | Model / Type         | Qty | Scope |
|-------|----------------|-------------------------------------------|----------------------|-----|-------|
| A25-1 | BOP — CCR Eng. | BOP DCS data archive server (not working) | Sunfire X4150 → DELL | 1   | Base  |
| A25-2 | GT — DCS       | GT DCS data archive drive (obsolete MOD)  | Siemens / Sony DELL  | 1   | Base  |

### **Deliverables**

- DELL archive servers with archiving restored and verified.
- A supported historian covering gas-turbine and balance-of-plant data..

### **Exclusions**

- Recovery of data from media – this is time consuming activity and can be optionally provided on T&M basis



## **B30 AS620 Automation System — Held-Spares Service**

*Keeping the gas-turbine and balance-of-plant AS620 controllers in service*

### **Scope Description**

B30 keeps the Simatic S5 AS620 automation systems in service as they are through a managed held-spares service. The AS620 is no longer manufactured, and on failure the affected unit cannot be started. There is no replacement of the AS620; the Customer holds tested spares at site as a common gas-turbine and balance-of-plant pool, and BM Global re-tests them and re-validates the change-over procedures at the maintenance visits so a failed unit can be returned to service quickly.

### **Technical Description**

Tested AS620 spares are held as a single common pool serving both the gas-turbine and the balance-of-plant, rather than separate gas-turbine and balance-of-plant holdings, since the units are common. The spare holding is set against the installed base counted net of the MSF modules that are out of service and being removed; those MSF modules are removed, tested and preserved so any serviceable units add to the held spares. Each spare is bench-tested and held by the Customer at site; BM Global re-tests the spares and re-validates the change-over procedures at the maintenance visits. The AS620 itself is not modified or replaced; the existing configuration and behaviour are unchanged.

| #     | Tag / Location | Description                                                       | Model / Type  | Qty            | Scope |
|-------|----------------|-------------------------------------------------------------------|---------------|----------------|-------|
| B30-1 | GT / BOP       | Simatic S5 Automation System (AS620)<br>— common held-spares pool | SPPA-T2000 S5 | Common<br>pool | Base  |

### **Process & Procedure**

- Installed AS620 base counted net of the MSF modules out of service; MSF modules removed, tested and preserved.
- Installed AS620 configuration recorded and matched to the Customer-held common-pool spare.
- Spares re-tested at each maintenance visit; the change-over procedures — including MAC-address programming and CPU change — re-validated.
- On a reported failure, a common-pool spare is fitted following the validated procedure and the faulty unit assessed.
- Common-pool spare holding reviewed at each visit so cover is maintained across the gas-turbine and balance-of-plant.

### **Deliverables**

- A common gas-turbine and balance-of-plant pool of tested AS620 spares.
- MSF modules removed, tested and preserved; serviceable units added to the held spares.
- Spares purchased and held by the Customer at site; re-tested and procedures re-validated at the maintenance visits.
- A documented held-spares procedure for the AS620 common pool.

### **Exclusions**

- Any modification or replacement of the AS620 itself; the existing system is kept in service as it is.
- No new site survey is required; the existing equipment records are used.



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## **B31 SIMADYN-D Controller — Held-Spares Service**

*Keeping the gas-turbine SIMADYN-D controllers in service*

### **Scope Description**

B31 keeps the gas-turbine SIMADYN-D controllers in service as they are through a managed held-spares service. The SIMADYN-D is no longer manufactured, and on failure the affected gas turbine cannot be started. There is no replacement of the SIMADYN-D; the Customer holds tested spares at site and BM Global re-tests them and re-validates the change-over procedures at the maintenance visits.

### **Technical Description**

Tested spare sets are provided for the gas-turbine SIMADYN-D controllers (2 sets), revised from three against the installed base and held stock. Each spare is purchased and held by the Customer at site; BM Global re-tests the spares and re-validates the change-over procedures at the maintenance visits. The SIMADYN-D itself is not modified or replaced; the existing configuration and behaviour are unchanged.

| #     | Tag / Location | Description               | Model / Type | Qty    | Scope |
|-------|----------------|---------------------------|--------------|--------|-------|
| B31-1 | GT             | GT Controller (SIMADYN-D) | SIMADYN-D    | 2 sets | Base  |

### **Process & Procedure**

- Installed SIMADYN-D configuration recorded and matched to the Customer-held spare.
- Spares re-tested at each maintenance visit; the change-over procedures — including MAC-address programming and CPU change — re-validated.
- On a reported failure, the Customer-held spare is fitted following the validated procedure and the faulty unit assessed.
- Spare holding reviewed at each visit so cover is maintained.

### **Deliverables**

- Tested spare sets (2) for the gas-turbine SIMADYN-D controllers.
- Spares purchased and held by the Customer at site; re-tested and procedures re-validated at the maintenance visits.
- A documented held-spares procedure for the SIMADYN-D.

### **Exclusions**

- Any modification or replacement of the SIMADYN-D itself; the existing controller is kept in service as it is.
- No new site survey is required; the existing equipment records are used.



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## **B32 S5-95F / S5-95U Safety Controller — Held-Spares Service**

*Keeping the gas-turbine fail-safe and Argus valve controllers in service*

### **Scope Description**

B32 keeps the gas-turbine S5-95F fail-safe protection controllers and the S5-95U Argus valve controllers in service as they are through a managed held-spares service. These controllers are no longer manufactured and are critical to safe gas-turbine operation. There is no replacement; the service holds tested spares at site and BM Global re-tests them and re-validates the change-over procedures at the maintenance visits.

### **Technical Description**

Tested spare sets are provided for the gas-turbine S5-95F fail-safe controllers (1 set) and the S5-95U Argus valve controllers (1 set), revised against the installed base and held stock. Each spare is purchased and held by the Customer at site; BM Global re-tests the spares and re-validates the change-over procedures at the maintenance visits. The controllers themselves are not modified or replaced; the existing safety configuration and behaviour are unchanged.

| #     | Tag / Location | Description                     | Model / Type | Qty   | Scope |
|-------|----------------|---------------------------------|--------------|-------|-------|
| B32-1 | GT             | Fail-safe protection controller | S5-95F       | 1 set | Base  |
| B32-2 | GT             | Argus valve controller          | S5-95U       | 1 set | Base  |

### **Process & Procedure**

- Installed S5-95F / S5-95U safety configuration recorded and matched to the Customer-held spare.
- Spares re-tested at each maintenance visit; the change-over procedures — including MAC-address programming and CPU change — re-validated.
- On a reported failure, the Customer-held spare is fitted following the validated procedure and the faulty unit assessed.
- Spare holding reviewed at each visit so cover is maintained.

### **Deliverables**

- Tested spare sets for the S5-95F fail-safe (1 set) and S5-95U Argus valve (1 set) controllers.
- Spares purchased and held by the Customer at site; re-tested and procedures re-validated at the maintenance visits.
- A documented held-spares procedure for the S5-95F / S5-95U controllers.

### **Exclusions**

- Any modification or replacement of the controllers themselves; the existing safety controllers are kept in service as they are.
- Re-certification of the safety function, which remains with the Customer.



## **B33 CM104 Communication Module — Held-Spares Service**

*Keeping the balance-of-plant CM104 communication modules in service*

### **Scope Description**

B33 keeps the balance-of-plant CM104 third-party communication modules in service as they are through a managed held-spares service. The CM104 is no longer manufactured, and on failure the affected communication link is lost. There is no replacement; the Customer holds tested spares at site and BM Global re-tests them and re-validates the change-over procedures at the maintenance visits.

### **Technical Description**

Two tested spare CM104 third-party communication modules are recommended. The CM104 is not held in the Sohar 1 store and there is no drop-in alternate, so the spares are sourced specifically. The Customer purchases and holds the spares at site; during the maintenance site visits BM Global re-tests the spares and re-validates the change-over procedures. The CM104 modules themselves are not modified or replaced; the existing communication configuration and behaviour are unchanged.

| #     | Tag / Location | Description                      | Model / Type | Qty | Scope |
|-------|----------------|----------------------------------|--------------|-----|-------|
| B33-1 | BOP            | Third-party communication module | CM104        | 2   | Base  |

### **Process & Procedure**

- Installed CM104 communication configuration recorded and matched to the Customer-held spare.
- Spares re-tested at each maintenance visit and the change-over procedures re-validated.
- On a reported failure, the Customer-held spare is fitted following the validated procedure and the faulty module assessed.
- Spare holding reviewed at each visit so cover is maintained.

### **Deliverables**

- Two tested spare CM104 communication modules, sourced specifically as the module is not held in the Sohar 1 store.
- Spares purchased and held by the Customer at site; re-tested and procedures re-validated at the maintenance visits.
- A documented held-spares procedure for the CM104.

### **Exclusions**

- Any modification or replacement of the CM104 itself; the existing modules are kept in service as they are.
- A drop-in alternate module, which is not available.



## **B35 Panel-mounted TXP / PLC Component - Spares Helds in Storage Service**

*Module-level held-spares service for the SPPA-T2000 / S5 / SIMADYN field cabinets*

### **Scope Description**

B35 provides a module level spares helds in storage service for the panel mounted TXP, S5 and SIMADYN components across the gas-turbine and balance-of-plant cabinets. In line with the BM Global ICS / OT business continuity approach and the Customer's rule, two units of each module type are purchased and held by the Customer at site, recorded against the installed asset list, so a failed module can be exchanged without waiting for a long lead time. BM Global re-tests the spares and re-validates the change-over procedures at the maintenance visits, and each held module type is tested at least once a year.

### **Technical Description**

The complete installed component list - power supplies, CPUs, interface and communication modules, input / output modules and SIMADYN modules - is set out in the bill of material below with Siemens part numbers, installed quantities and SAP references. The installed quantity shown is counted net of the MSF modules that are out of service and being removed. Two units of each item are purchased and held by the Customer at site and tested at least annually. The installed modules are kept in service as they are; no module is modified or replaced as part of the service except on failure.

### **Process & Procedure**

- Each installed module type recorded against the asset list with part number, installed quantity (net of MSF) and SAP reference.
- Two units of each module type purchased and held by the Customer at site.
- Spares re-tested and the change-over procedures re-validated at each maintenance visit; each held module type tested at least once a year.
- On a reported failure, the Customer-held module is fitted following the validated procedure and the faulty module assessed.

| Item Description               | Part No.           | Installed | Held Spares | SAP No.       |
|--------------------------------|--------------------|-----------|-------------|---------------|
| Power Supply                   | 6ES5955-7NC12      | 50        | 2           | 806893        |
| Interface Module IM308         | 6ES5308-3UC21      | 21        | 2           | 770815        |
| Interface Module IM314         | 6ES5314-3UR11      | 12        | 2           | 770816/804262 |
| Communication Processor        | 6GK1543-1AA01      | 6         | 2           | 803126        |
| CPU 948R                       | 6ES5948-3UR23      | 44        | 2           | 770838        |
| Interface Module IM324         | 6ES5324-3UR11      | 22        | 2           | 770819/803416 |
| Communication Processor CP1430 | 6GK1143-0TB01      | 44        | 2           | 770859        |
| Interface Module IM304         | 6ES5304-3UB11      | 72        | 2           | 770814/804261 |
| Monitoring Interface           | 6ES5482-UA20       | 9         | 2           | 770825/803422 |
| Communication Processor        | 6ES530-3LA12       | 6         | 2           | 803420        |
| Interface Module IM153-2       | 6ES7153-2AA02-0XB0 | 144       | 2           | 803421        |
| Digital Input/Output           | 6ES7323-1BL00-0AA0 | 93        | 2           | 770849        |
| Analog Input                   | 6ES7331-7KF02-0AB0 | 63        | 2           | 770850        |



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| Item Description                  | Part No.           | Installed | Held Spares | SAP No.       |
|-----------------------------------|--------------------|-----------|-------------|---------------|
| Automation System AG-95F          | 6ES5095-8FB01      | 12        | 2           | 770785        |
| Digital Input/Output              | 6ES5482-8MA13      | 39        | 2           | 803462        |
| Digital Input                     | 6ES55431-8FA11     | 60        | 2           | 770823        |
| Interface Module IM 316           | 6ES5316-8FA12      | 24        | 2           | 770817/804267 |
| Digital Input 32CH                | 6ES7321-1BL00-0AA0 | 18        | 2           | 770847        |
| Digital Input 16CH                | 6ES7321-1BH02-0AA0 | 72        | 2           | 770846        |
| Digital Output                    | 6ES5450-8FA12      | 60        | 2           | —             |
| CPU PM6                           | 6DD1600-0AK0       | 6         | 2           | 803408        |
| EM11                              | 6DD1640-0AC0       | 6         | 2           | 803409        |
| EA12                              | 6DD1642-0BC0       | 6         | 2           | 803410        |
| CS7                               | 6DD1662-0AB0       | 6         | 2           | 803412        |
| SS52                              | 6DD1688-0AE2       | 6         | 2           | 803414        |
| CSH11                             | 6DD1661-0AB1       | 6         | 2           | 803411        |
| CS12                              | 6DD1660-0BA0       | 3         | 2           | 803413        |
| CS22                              | 6DD1660-0B00       | 3         | 2           | 803419        |
| Input/Output Module ADD7-FEM      | 6DL3100-8AA        | 12        | 2           | 701390        |
| Interface Module                  | 6ES5318-8MB13      | 3         | 2           | —             |
| High Speed Subcontrol             | 6ES5265-8MA01      | 6         | 2           | 803461        |
| 8xTC, 1xPT100                     | 6ES7331-7PF10-0AB0 | 21        | 2           | 806776        |
| Analog Input (Ex)                 | 6ES7331-7SF00-0AB0 | 51        | 2           | 770851        |
| Digital Output                    | 6ES7322-1BH01-0AA0 | 3         | 2           | 770848        |
| Compact Unit S5-95U               | 6ES5095-8MB04      | 6         | 2           | 701395        |
| Digital Input/Output              | 6ES7332-5HD01-0AB0 | 3         | 2           | —             |
| CM 104                            | —                  | 6         | 2           | 803426        |
| FUM 280                           | 6DP1280-8AB        | 66        | 2           | 803406        |
| FUM 230                           | 6DP1230-8CC        | 194       | 2           | 700833/803405 |
| FUM 210 GB & FUM 210 ESG          | 6DP1210-8BC        | 334       | 2           | 700834/803404 |
| IM 614                            | 6DP1614-8BB        | 102       | 2           | 803427        |
| FUM 511                           | 6DP1511-8AA        | 15        | 2           | 700831/803407 |
| DI/DO Monitoring Module S5-DEDA   | —                  | 13        | 2           | —             |
| Power Supply 8P22 (SIMADYN racks) | 6DD1683-0CC0 Rev B | 6         | 2           | —             |

#### Deliverables

- Two tested units of each panel-mounted module purchased by the Customer and held at site.
- Spares re-tested and the change-over procedures re-validated at the maintenance visits, and each held module type tested at least annually, following the documented per-component procedure.
- Bill of material with Siemens part numbers, installed quantities (net of MSF) and SAP references.

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### Exclusions

- Replacement of complete cabinets or backplanes.
- Modules not listed in the bill of material.



## C50 Network Upgrade & Isolation

*Upgrading the gas-turbine and balance-of-plant network switches and isolating the control network*

### Scope Description

The Customer asked for the DCS upgrade to be treated as an independent project and for all network switches to be provided. The ageing network switches are therefore replaced like-for-like with economical industrial managed switches, and the control network is isolated from external connections by data diodes.

### Technical Description

A single type of managed industrial switch is used across the complete power plant. The complete installed switch base is replaced like-for-like — 43 managed switches in total: gas-turbine 15 (10 plant-bus, 5 terminal-bus) and balance-of-plant 28 (18 plant-bus, 10 terminal-bus). The gas-turbine and balance-of-plant rings are kept fully separate; hardware and network are shared only where redundancy is not compromised. The proposed switch is the FS IES3100-16TM, a 16-port Gigabit Layer-2 managed DIN-rail switch with SFP uplinks, an industrial temperature range and redundant-ring support. It is comparable to Hirschmann managed switches in function and quality, is more economical and is readily available, which makes it a sound choice for the upgrade period. Monitoring (SPAN / mirror) ports are provided on each individual network for cyber-security monitoring. The control network is isolated from any external connection by data diodes, in line with the BM Global ICS / OT separation approach. The existing fibre and copper cabling is reused where it is serviceable; only degraded segments are re-laid. A detailed switch list is given in the bill of material; this scope is coordinated with the related network and security offers (Ref. C010-033 / C010-035 / C010-037) so that no equipment is supplied twice.

| #     | Tag / Location     | Description                                                                                                           | Model / Type        | Qty | Scope |
|-------|--------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------|-----|-------|
| C50-1 | GT — plant bus     | GT plant-bus ring switches                                                                                            | FS IES3100-16TM     | 10  | Base  |
| C50-2 | GT — terminal bus  | GT terminal-bus ring switches                                                                                         | FS IES3100-16TM     | 5   | Base  |
| C50-3 | BOP — plant bus    | BOP plant-bus ring switches                                                                                           | FS IES3100-16TM     | 18  | Base  |
| C50-4 | BOP — terminal bus | BOP terminal-bus ring switches                                                                                        | FS IES3100-16TM     | 10  | Base  |
| C50-5 | Network boundary   | ICS Secure Data Transfer – Network Monitoring, OPC Data transfer, Log files – total network isolation (non-redundant) | Data diode solution | 2   | Base  |

### Deliverables

- Complete like-for-like replacement of the installed switch base — 43 managed industrial switches (gas-turbine 15, balance-of-plant 28) of a single type (FS IES3100-16TM).
- Gas-turbine and balance-of-plant rings kept fully separate; monitoring (SPAN) ports provided on each network.
- Control network isolated from external connections by data diodes; existing cabling reused where serviceable, degraded segments re-laid.
- Network redlined drawings

### Exclusions

- External / corporate network equipment beyond the isolated control-network boundary.



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## **Support 80 On-site & Remote Support — On-Call Assistance**

*On-site and remote assistance for the delivered scope*

### **Scope Description**

Support 80 provides structured support for the equipment delivered under the supply positions. It combines an on-site support framework with remote and on-call support for fault diagnosis and advice, drawing on the inventory of spares held by the Customer at site.

### **Technical Description**

Support is provided both on site and on call for the delivered OMLEX terminals, servers, controllers and held spares. The spares inventory is purchased and held by the Customer at site, so a replacement module can be fitted promptly when needed.

### **Deliverables**

- On-site and on-call remote support for the delivered equipment.
- Spares held by the Customer at site.

### **Exclusions**

- On-site attendance other than the scheduled maintenance visits under Support 85.

## **Support 85 On-site Maintenance Visits — Four per Year**

*Scheduled on-site maintenance of the delivered scope*

### **Scope Description**

Support 85 provides four scheduled on-site maintenance visits a year — one in summer and three in winter, aligned with the unit outages — to check the delivered equipment, confirm the held spares are serviceable and address any open items.

### **Technical Description**

During each visit the delivered OMLEX terminals, servers and controller spares are checked, the spares store is reviewed and any faults found are recorded and advised. Where modules are power-cycled, this is done in a staged manner to minimise the risk of failures on restart.

### **Deliverables**

- Four scheduled on-site maintenance visits per year (one summer, three winter), unit-aligned.
- Staged power-cycling of modules to minimise failures on restart.
- A visit record after each visit with findings and recommendations.

### **Exclusions**

- Corrective works arising from the visit, which are advised separately.



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## **Support 90 Support — Seven-Year Extension (Years 2–9)**

*Continuation of Support 80 and Support 85 over a seven-year extension*

### **Scope Description**

Support 90 continues the structured on-site and remote support and the four annual maintenance visits as a defined seven-year extension, covering Years 2 to 9, on the same terms as Support 80 and Support 85.

### **Technical Description**

The on-call support and the four annual maintenance visits continue year by year across the seven-year extension (Years 2–9), keeping the delivered equipment and held spares serviceable.

### **Deliverables**

- Continued on-site and on-call support and four annual maintenance visits per year across the seven-year extension (Years 2–9).

### **Exclusions**

- Supply of new equipment beyond replenishment of held spares on notice of use.



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## 2. Points for Clarification

The following points are open and are to be discussed and agreed with the Customer at a clarification meeting before the commercial proposal is issued. They do not affect the technical approach but determine the final quantities and the boundary with the other Sohar I projects.

### **Boundary with C010-035 (Sohar I remote control)**

- The gas-turbine operator terminals are now supplied under this upgrade (A10); the Sohar II operator terminals and the Sohar II printers remain under C010-035. The terminals and printers common to both scopes are to be confirmed so that none is supplied twice.

### **Boundary with C010-037 (OMLEX OT / MX supply)**

- C010-037 supplies the OT MX unit, OMLEX HMI server upgrade, spare unit and communication processors. The items shared with A10 / A15 are to be confirmed and credited against this upgrade. If C010-037 is issued as a separate purchase order, the shared items are deducted from the final contract.

### **Redundant OPC server (A16 / C010-033)**

- A redundant OPC server compatible with TXP / T2000 is quoted separately under Ref. C010-033. Its price is to be carried into this upgrade so that the server is not supplied twice.

### **Network detail (C50)**

- The installed switch base is replaced like-for-like with a single type of managed industrial switch (FS IES3100-16TM) — 43 switches in total (gas-turbine 15, balance-of-plant 28), with the gas-turbine and balance-of-plant rings kept fully separate, monitoring (SPAN) ports on each network and the control network isolated by data diodes. The exact uplink optics and any degraded cabling segments are confirmed at detailed design.

### **Reporting and site logistics**

- A report is issued within two weeks of each site visit. The Customer (STOMO) arranges visas and gate passes for the site visits, and an as-built HMI architecture drawing is provided by BM Global. Data is backed up during the maintenance visits.



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### 3. General Conditions & Customer Obligations

- The scope above is engineering scope only. A separate commercial proposal will set out prices, payment terms and a firm delivery schedule once the scope is agreed.
- The Customer provides safe access to the control rooms, electronic rooms and field locations, and arranges the necessary work permits.
- The Customer makes available the existing configuration, displays, logic and back-ups needed to carry over the operator and engineering content.
- Existing tag names, displays and operating behaviour are preserved; any change to control logic or set-points is subject to the Customer's separate approval.
- Spares are purchased by the Customer and held at the Customer's facilities; BM Global re-tests the spares and re-validates the change-over procedures (including MAC-address programming and CPU change) during the maintenance site visits.

### 4. General Exclusions

- Civil, structural, mechanical and electrical works other than the direct replacement of the listed equipment.
- Supply of items not listed in the positions above or in the bill of material.
- Any new site survey — the existing equipment records are used.
- Operation of the plant during the works, which remains with the Customer.

### 5. Delivery, Warranty & Validity

|                  |                                                                                                      |
|------------------|------------------------------------------------------------------------------------------------------|
| <b>Delivery</b>  | Confirmed in the commercial proposal; positions can be delivered independently and in any sequence   |
| <b>Warranty</b>  | Twelve (12) months on supplied equipment from acceptance                                             |
| <b>Validity</b>  | This technical proposal is valid for sixty (60) days from the date of issue                          |
| <b>Standards</b> | Works carried out to the applicable Siemens SPPA-T2000 practices and recognised industrial standards |

### 6. Confidentiality

This document and all information contained in it are confidential and remain the property of BM Global a.s. It is provided to Suez-Tractebel Operation and Maintenance Oman LLC (STOMO) solely for the evaluation of this proposal and may not be copied, disclosed to any third party or used for any other purpose without the prior written consent of BM Global a.s.



## 7. Revision Record

This revision (Rev 5) incorporates the Customer's technical-evaluation comments. The table below lists what has changed against the previous issue and why. The same changes are reflected in the bill of material (C010-036-002).

| Area                               | Change made                                                                                                                                                                                                                         | Reason                                                                                                                                              |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title &amp; terminology</b>     | Renamed to 'Sohar 1 — GT & BOP Upgrade'; 'life extension / renewal / obsolescence management' changed to 'upgrade / critical-component upgrade' throughout.                                                                         | Customer requested the project be presented as an upgrade, not as maintenance or obsolescence management.                                           |
| <b>A10 — Operator terminals</b>    | Gas-turbine operator stations increased from 5 to 6 (3 in the central control room, 3 in the plant control centre, twin screens); moved into this offer from C010-035; one additional OT licence; CCTV and tariff carry-over added. | Sohar I operator terminals to mirror the Sohar II layout and to be quoted here rather than under C010-035.                                          |
| <b>A10 — Engineering interface</b> | Three engineering stations replaced by one combined gas-turbine + balance-of-plant engineering computer plus one live-tested spare, with a documented change-over and consistency procedure.                                        | STOMO prefers a single integrated engineering computer with a maintained spare.                                                                     |
| <b>A15 — Servers &amp; spares</b>  | Eight processing / historian servers confirmed; spare DCS servers reduced from 5 to 2 (held as a common pool); WinTS confirmed as required (base scope); Dolphin data logger added.                                                 | Spares revised against the Customer's stores; WinTS confirmed; the Dolphin data logger required.                                                    |
| <b>A15 — OPC server</b>            | Kept cross-referenced to Ref. C010-033 as a single enquiry, not duplicated here.                                                                                                                                                    | STOMO to decide the package with the SPC; held under C010-033 for now.                                                                              |
| <b>A18 — Printers</b>              | DCS printers shared between the operator and engineering positions; the Sohar II printers moved to C010-035.                                                                                                                        | Shared printers reduce quantity; the Sohar II printers belong to the separate scope.                                                                |
| <b>A25 — Data archive</b>          | New DELL archive server changed to a redundant pair (1 → 2); redundancy and storage-capacity notes added.                                                                                                                           | Archiving must not be a single point of failure; storage capacity queried at clarification.                                                         |
| <b>B30–B33 — Controllers</b>       | SIMADYN-D reduced from 3 to 2 sets; AS620 held as a common gas-turbine / balance-of-plant pool with a held-spares procedure; S5-95F and S5-95U one set each; CM104 increased to 2; MSF modules removed, tested and preserved.       | Spares revised against stores; MSF out of service; held-spares procedure agreed; no drop-in alternate for CM104.                                    |
| <b>B35 — Panel components</b>      | Two spares of each component type; tested at least annually; installed base shown net of MSF.                                                                                                                                       | Customer rule of at least two of each type, tested at least once a year.                                                                            |
| <b>B30 — Future controllers</b>    | The previously 'not priced' deep-obsolescence migration reframed as an optional, separately-scoped future upgrade phase.                                                                                                            | Customer asked why the deeper obsolescence step was not offered.                                                                                    |
| <b>C50 — Network</b>               | 43 managed switches supplied (gas-turbine 15, balance-of-plant 28) with the rings kept fully separate, monitoring (SPAN) ports on each network and existing cabling reused where serviceable.                                       | Customer wants the DCS upgrade treated as an independent project, with all switches provided, rings separate and a monitoring port on each network. |
| <b>Support — visits &amp; term</b> | On-site maintenance framework with remote on-call added; visits increased from 2 to 4 per year (1 summer, 3 winter, unit-aligned), with staged power-cycling; multi-year extension provided (7 years, Years 2–9).                   | Customer requires an on-site framework, a summer / winter cadence and a multi-year extension.                                                       |
| <b>New items — A10 / A15</b>       | HOPF master clock (5A, synchronising both networks), backup / restore tools with a KVM note, and the Dolphin data logger added.                                                                                                     | New items the Customer added or highlighted in the bill of material.                                                                                |



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## Authorisation

For and on behalf of BM Global a.s.:

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### Petr Roupec

Managing Director

BM Global a.s.

Date: 29 June 2026

*Appendix: BM Global a.s. General Conditions (attached).*