



Addendum to SEMO's
response to SEM-20-086
regarding SEMO Capital
Expenditure 2018 -
2021

21 January 2021

This is an addendum to SEMO's responses to the SEM
Committee's consultation SEM-20-086 regarding the SEMO
Capital Expenditure for 2018 – 2021.

1. Additional Market Environments' project

There appears to be confusion around this initiative, most likely related to the title of the business case "Additional Market Environments". The Business Case calls out specific adjustments to our current environments as below, as opposed to requesting the provisioning of additional environments:

MMS/CSB Architecture Enhancement

The aim of this initiative is to deploy the MMS and CSB databases on separate dedicated servers (currently they are co-located on the same infrastructure). There are a number of reasons for doing this:

1. **Improved Performance:** Both databases are subject to high data volumes, significant transactions levels and intensive processing overheads. Performance levels of these activities on the same database servers is constrained due to the sharing of computing resources (e.g. CPUs, server memory etc.), impacting overall performance of the market systems. Deploying these databases to separate infrastructure components will remove this performance bottleneck by increasing dedicated computing resources available for database activities.
2. **Provide more flexibility when essential maintenance is required.** Currently if maintenance is required in the CSB database for example it will result in an outage to all Market Systems due to the current consolidated configuration. Implementing a distributed configuration at the database level will allow outages to take place in CSB without impacting the other 24x7 operational systems (e.g. Pricing and Scheduling, Participant Reporting etc).

SEMO is planning to deploy this change in conjunction with Release H in October of 2021 (subject to vendor scope agreement).

MMS/CSB P2 Environment

SEMO operates two Production environments Production 1 (P1) and Production 2 (P2). This is similar in approach to the one taken in the previous SEM where large releases could be promoted to the alternate environment ahead of the deployment date, reducing the outage time required for larger releases. However, for both P1 and P2 to be operational Production environments they require the capability to switch from one datacentre to another (Dublin-Belfast-Dublin) for both Disaster Recovery (DR) and Business Continuity (BC) purposes.

This initiative facilitates the implementation of switchover capability, initially in P2 for verification and testing of the switchover process and then in the current Production environment (P1) to make it operational. This work was **successfully concluded** in early January 2021 resulting in:

- Full verification of the P2 environment and introduction of DR/BC capability on same and
- Rollout of the DR/BC capability on the P1 environment.

MMS/CSB Training Environment:

This initiative discusses the re-purposing of one of our existing test environments for training purposes, thereby removing the requirement for an additional environment for this purpose. This can be done without further investment.

Oracle Middleware Environment Pre-Production:

Currently, on SEMO's pre-production environment, the Oracle Middle Ware is deployed on a single node, effectively a single server. Oracle Middle Ware is a critical component of the Central Market Systems, facilitating the timely submission and retrieval of data across the market and between component systems and applications. The pre-production configuration does not reflect the Production configuration where the Oracle Middle Ware is hosted on a clustered (multi-server) configuration for resilience and robustness.

During previous release cycles testing was conducted successfully on the pre-production (single node) environment. However, when the new software was promoted to Production the software did not function as expected on the multi-node clustered environment. Consequently, this resulted in longer services outages as the Oracle Middle Ware components had to be rolled back to the previous version.

This initiative requests that SEMO be able to expand the pre-production Oracle Middle Ware configuration to a clustered configuration, mirroring the Production configuration. This will give the following benefits:

- Testing will be on a like-for-like configuration as Production, enabling SEMO to accurately verify that, when promoted to Production, the new release software will behave as expected;
- Reduce potential outage time by eliminating these issues, removing the necessity to rollback software updates. Consequently, this will contribute to fewer outages.

SEMO would consider this initiative critical to ensure a controlled and systematic deployment of change in a key component of the overall Market Systems solution.

2. Website Development Project

SEMO note the comments around the initiation of, and timeline for delivery, of the website project. As discussed at our meeting of January 20th our priority to date has been to establish and underpin the stability of the Central Market Systems and supporting processes to ensure our core obligations under the Code and Agreed Procedures are delivered.

However, we would like to clarify that the website has evolved and has been continually improved as a result of a number of smaller operational projects. The website will continue to evolve aligning with the emerging needs of the SEM - for example when new market rules are developed, additional reporting requirements are specified etc., the website may need to be updated to reflect these. In addition, further integration and coupling of our core systems and the SEMO website will be required to deliver on additional business cases (and market functionality) being proposed for the Price Control period 2021-2024.

In this context SEMO will consider all approved changes to the SEMO website and, where possible, consolidate these from a delivery perspective to maximise efficiencies that can be realised. These include for example grouping reporting changes together to deliver test efficiencies etc.

3. Market System Release Capital

There is currently no further information available regarding Release H. Discussions with ABB will begin shortly regarding release H.

Regarding market participants being involved in pre-release testing and the impact on SEMO's resource requirements, SEMO currently don't have that facility available to us.

It is important to clarify that this Business Case does not propose the provision of an externally facing, scaled test environment for Participants to test pre-production software versions. Whilst Participants have stated this may help reduce SEMO testing costs, providing this capability would involve the following:

- The procurement, build and maintenance of an additional Production-scale environment (hardware, licencing etc)
- Potentially new builds of up-stream and down-stream systems (e.g. EDIL, EMS etc) may be required and configured to ensure data flows to the test environment can be provided without placing additional burden on live operational systems. Again, this may result in additional hardware and licencing costs.
- Additional resources would be required to ensure the environment(s) is maintained.
- Market Operations resources would be needed to "shadow operate" the test systems to facilitate any test phase of value.