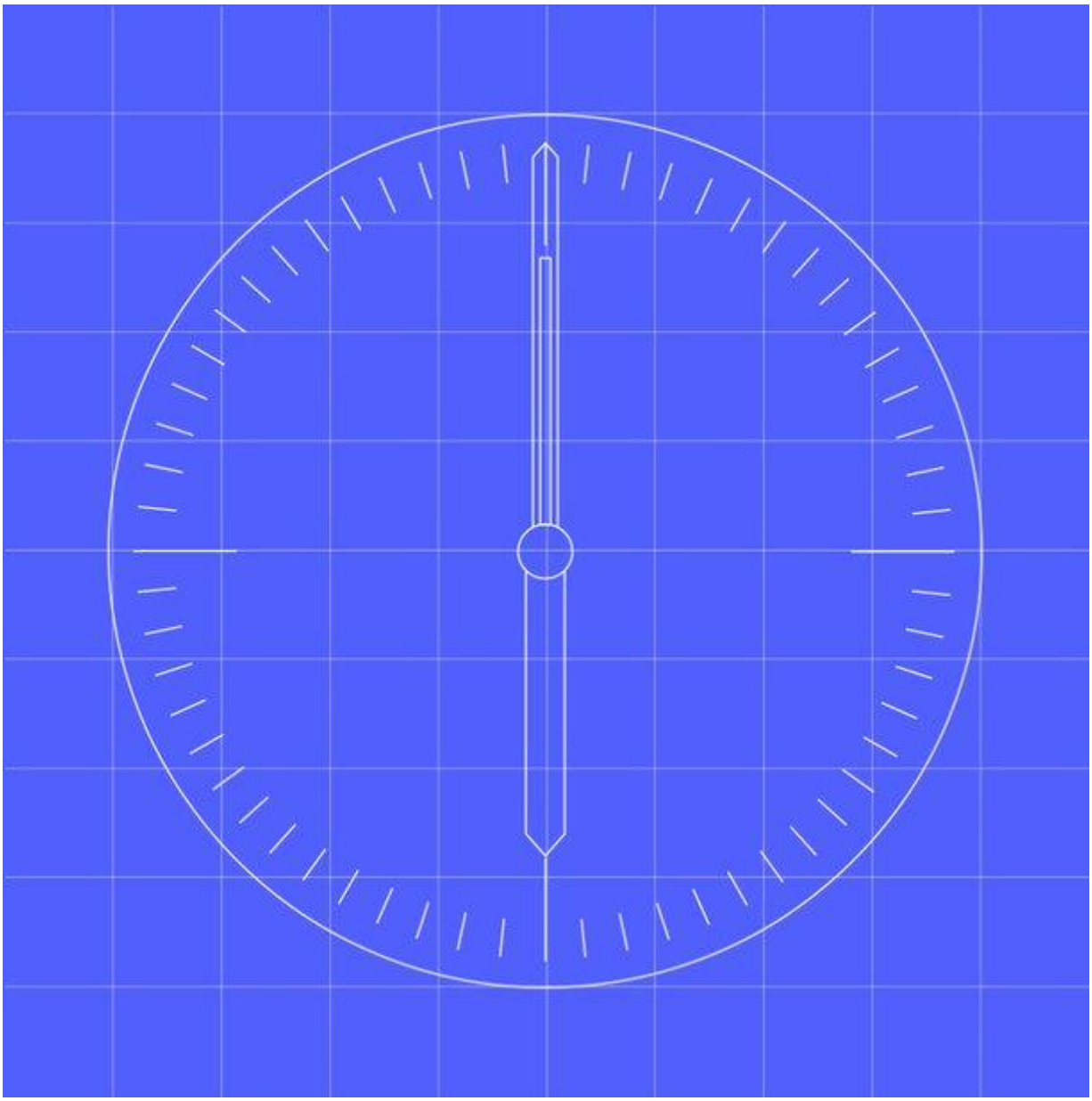
MHHS PROGRAMME
Industry-led, Elexon facilitated

Operational Choreography Version 5.1 – 31 May/23



Contents

1. Introduction

1.1 Scope

The objective of this document is to define any timing constraints for the operation of the MHHS business processes where they differ from the current arrangements. The principle drivers for these changes are as follows:

- Changes to Settlement Timeline informed by the processing and publication of UTC Period data provided by the Advanced Data Service, Unmetered Data Service and Smart Data Service. Constraints are also driven by the requirement for ECS services to consume and process UTC Period data ahead of data aggregation and settlement processing and volume allocation

- MHHS introduces processes where the Registration Service will mediate Service appointment processes initiated by Suppliers. Elements of this process will be time bound due to the dependency on the receipt of Faster Switching Secured Active messages into the Registration Service that inform the final stages of the Service Appointment processes.

- Other requirements have been identified across the landscape where more stringent SLA response times will be required than are currently defined in the equivalent services.

- Where a process incorporates multiple steps and actors the SLAs are constructed such that SLAs are bounded by the party's ability to meet those timescales. The start point for the SLA is described by the window that the party has the ability to action it ie a party should not be penalised for late delivery from an upstream process step.

All timings shown in this document are in clock time unless stated as UTC

2. New Settlement Timeline – Post Transition

2.1 Key Activities

A core element of the MHHS Programme will be the compression of the Settlement timetable. Much of the change enacted within MHHS design is to facilitate this changed timeline and enable the benefits doing so. The as is / to-be timescales for the Volume Allocation Run are as follows:

Settlement Activity	Current Timescale	To-Be Timescale
Interim Information (II) Run	4 WD	4 WD
Initial Settlement (SF) Run	15 WD	7 WD
Interim Reconciliation (R1) Run	39 WD (between 36 and 40 WD)	30 WD (between 27 and 31 WD)
Final Reconciliation (RF) Run	292 WD (between 289 and 293 WD)	84 WD (between 81 and 85 WD)

The areas of specific interest will be the activities preceding the II and SF runs. The challenge with both will be the collection and processing of sufficient UTC Period data to make these runs as accurate as possible. Note during Transition, the Current Timescales will still apply.

The II run should be informed by as much actual data as possible and be augmented with an accurate set of Load Shaping Data within its associated MDS run.

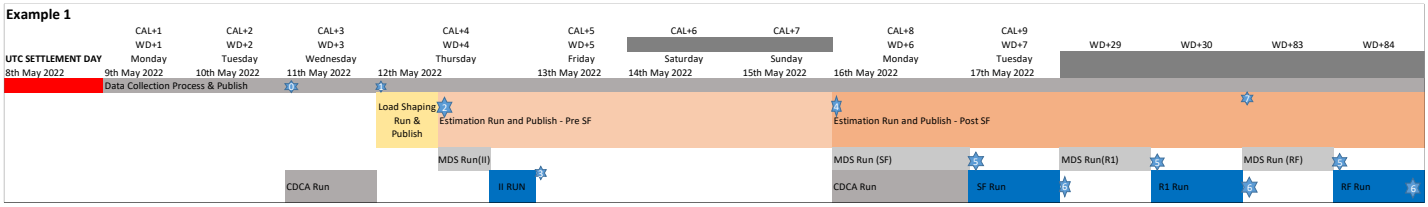
The SF run again should incorporate as much actual data as possible and furthermore incorporate Best Estimates generated by Data Services using accurate Load Shaping data derived from consumption collected from the UTC Settlement day in question.

The key activities considered within the Settlement timeline are as follows:

- Collection of UTC Period data from meters in the period following the UTC Settlement Day under consideration (D).
- Processing and publication of UTC Period data by Data Services to the Data Integration Platform (DiP)
- Consumption of UTC Period consumption data by Elexon (BSC) Central Services (ECS); Load Shaping Service (LSS) & Market-wide Data Service (MDS).
- Creation and publication of Load Shapes by the LSS.
- Creation and publication of estimated UTC Period data by Data Services where actual data has not been collected.
- MDS Aggregation Run.
- CDCA Run.
- II Settlement Run.
- Ongoing provision of actual and estimated UTC Period data.
- SF Settlement Run and associated MDS run.
- RF Settlement Run and associated MDS run.

2.2 Timing Constraints

A visual representation of this processing sequence is as follows:



0	SDS to collect and publish consumption data via IF-21 immediately following D ADS to collect and publish consumption data via IF-21 immediately following D UMS to collect and publish consumption data via IF-21 immediately following D - understood that these may be submitted in daily batches
1	Load shaping process will incorporate all actual consumption data received by 00:00 on CAL+4 - if the physical process to generate load shapes commences at a point after 00:00 there is no requirement to exclude available consumption received post 00:00
2	Load Shape will have been processed and published by 12:00 on CAL+4
3	MDS Run and II Run will have been completed with associated reports (See 2.3) issued by 17:00 on WD+4
4	Pre-SF Best Estimates will have been generated and published by Data Services by 00:00 on WD+6
5	MDS Runs to complete by 17:00
6	Settlement Runs to have been completed with associated notifications by 17:00
7	All actual consumption and best estimates to be provided by WD + 83

Embedded within this timeline are the following constraints:

ID	Activity
OPC_001	Data Services can collect, process and publish UTC Period data following the end of the UTC Settlement Day under consideration. Consumption to be provided following collection with publication rates governed by Non-Functional requirements
OPC_010	Consumption data received from all Data Services (ADS/SDS/UMSDS) by 00:00 on CAL+4 will be incorporated into the Load Shaping Run to be executed on CAL+4. The current view is that for the Smart and Advanced meters > 90% of actual consumption data will have been collected and processed by this point. UMS to publish appropriate sets of consumption data on a daily basis.
OPC_020	Load Shape will be published and available to subscribers by 12:00 on CAL+4
OPC_030	MDS & II run will be completed by 17:00 on WD+4
OPC_040	Where actual consumption data cannot be obtained Data Services will create and publish best estimates as defined by the appropriate Method Statement by 00:00 on WD+6. This allows Data Services at a minimum 36 hours to consume Load Shapes and publish Best Estimates ahead of the MDS (SF) run
OPC_050	MDS(SF) run will complete by 17:00 on WD+6
OPC_060	SF Settlement Run will complete by 17:00 on WD+7 incorporating validation window
OPC_070	Best Estimates and any retrieved actuals not previously issued will be provided ahead of R1 activity by 00:00 on WD+29
OPC_080	MDS(R1) run will complete by 17:00 on WD+29
OPC_090	R1 Settlement Run will complete by 17:00 on WD+30 incorporating validation window
OPC_100	Actual consumption data and improved best estimates not already provided to be published by 00:00 on WD+83, ahead of the RF Settlement run
OPC_110	MDS(RF) run will complete by 17:00 on WD+83
OPC_120	RF Settlement Run will complete by 17:00 on WD+84

2.3 Settlement Reports

There are a number of reports generated as part of each settlement run. These reports are to be generated within the timescales of the associated settlement run for each settlement run type (II, SF, R1 & RF).

The reports are documented in MHHSP - ERI011A - ECS Reports - Internal and MHHSP - ERI011B - ECS Reports – External.

2.4 Timings of Gate Closure Events

2.4.1 Considerations for the timing of the LSS run

Sufficient time to be allowed for the collection and processing of sufficient UTC Period data to enable valid Load Shapes to be calculated. It is felt that by 00:00 on CAL+4 a sufficient proportion of Smart & Advanced data will have been collected to inform all Load Shaping categories

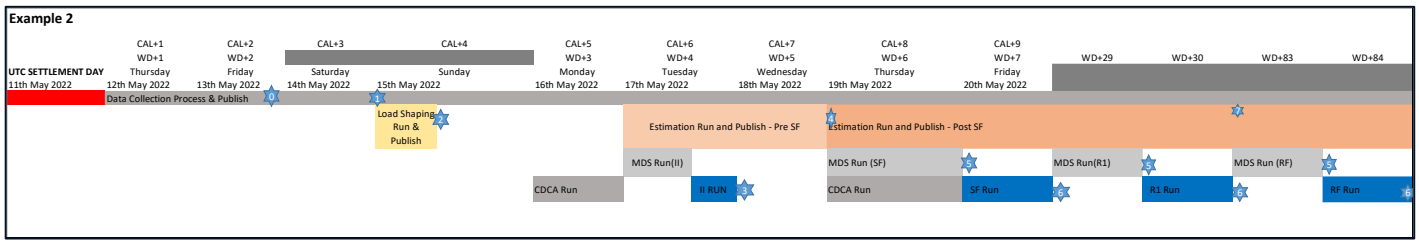
2.4.2 Considerations for the Provision of Estimated Data

In order for the SF run to be as accurate as possible best estimates are to be provided by 00:00 on WD+6. This allows for a sufficient window for estimate creation following the publication of the Load Shapes at 12:00 on CAL+4.

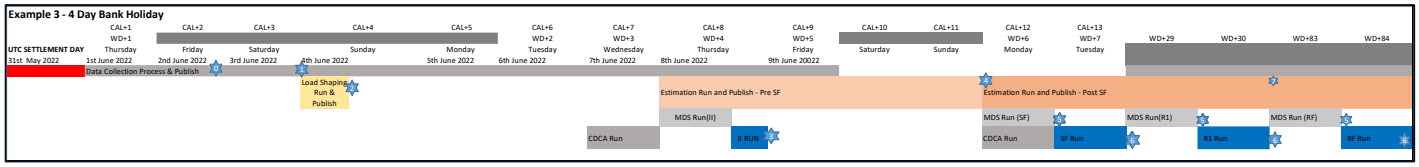
Following the completion of the SF Settlement Run, additional actual consumption data and improved estimates based upon updated data to be provided to inform the Final Settlement run 1 day prior to the RF run taking place.

2.4.3 Additional Timing Illustrations

Weekend falls in period prior to LS run



Four Day Bank Holiday



Following a weekend/ bank holidays it should be noted that there will be more than 1 MDS run required on a single day for the interim and Initial Settlement Runs. Following a four day bank holiday, it would need to cover up to 5 days.

3. New Settlement Timeline – Transition Period

3.1 Key Activities

Prior to the Settlement Timetable being updated following the completion of all Transition activity the high level Settlement Timelines will remain as-is. Below is a table illustrating the gate closure events that will be required in this period set against those post transition following the Settlement Timetable change.

	Activity	Transition Gate Closure	Post Transition Gate Closure
OPC_900	Load Shaping Run Consumption Gate Closure	**00:00 CAL +4**	00:00 CAL +4
OPC_910	Load Shape Publication	**12:00 CAL +4**	12:00 CAL+4
OPC_920	MDS & Settlement Run (II)	**17:00 WD +4**	17:00 WD +4
OPC_930	Best Estimate Provision (SF)	**00:00 WD +14**	00:00 WD +6
OPC_940	MDS Run (SF)	**17:00 WD +14**	17:00 WD +6
OPC_950	Settlement Run (SF)	**17:00 WD +15**	17:00 WD +7
OPC_960	Best Estimate Provision (R1)	**00:00 WD +38**	00:00 WD +29
OPC_970	MDS Run (R1)	**17:00 WD +38**	17:00 WD +29
OPC_980	Settlement Run (R1)	**17:00 WD +39**	17:00 WD +30
OPC_990	Best Estimate Provision (RF)	**00:00 WD +291**	00:00 WD + 83
OPC_1000	MDS Run (RF)	**17:00 WD +291**	17:00 WD + 83
OPC_1010	Settlement Run (RF)	**17:00 WD +292**	17:00 WD + 84

4. Secured Active Window – Processing Timeline and associated SLAs.

4.1 Key Activities

The processing of the CSS Secured Active Messages within the Registration Service is a key processing constraint within the MHHS design.

Prior to the receipt of the Secured Active message activity will be undertaken within the system to initiate Service Appointments ahead of a Change of Supplier. At the point of a Switch being set to a status of Pending Suppliers will be notified of the MPAN details enabling the Supplier to commence the Service Appointment Processes.

Suppliers and Services will be able to setup appointments ahead of the receipt of the Secured Active message. These pending appointments will be queued in the Registration Service and upon receipt of the Secured Active message will be enacted with the appointment confirmation flows being subsequently issued.

4.2 Key Constraints

The principle consideration for the derivation of processing times within these processes is the minimum timeframe in which a switch may be carried out. The process must enable the appointment of Services ahead of the Supply Start Date.

For the avoidance of doubt this period is derived on the basis that there will be a minimum of one working day Objection Window in any switch, with the one day objection window required for Domestic Sites and a two day window for non-domestic.

The latest point at which a Pending status can be issued therefore for a Domestic Switch at D is 23:59 on WD-2.

The Secured Active message for this switch will be issued following CSS gate closure at 17.00hrs (clock time) on WD-1.

Noting the requirement for Services to be appointed ahead of SSD the period 23:59 on WD-2 to 17:00 on WD-1 must incorporate a re-try of the Service Appointment process in the event the first requested appointment is unsuccessful.

4.3 Activity required prior to Secured Active window for the Minimum Switch Duration (Domestic – 1 Working Day Objection Window)

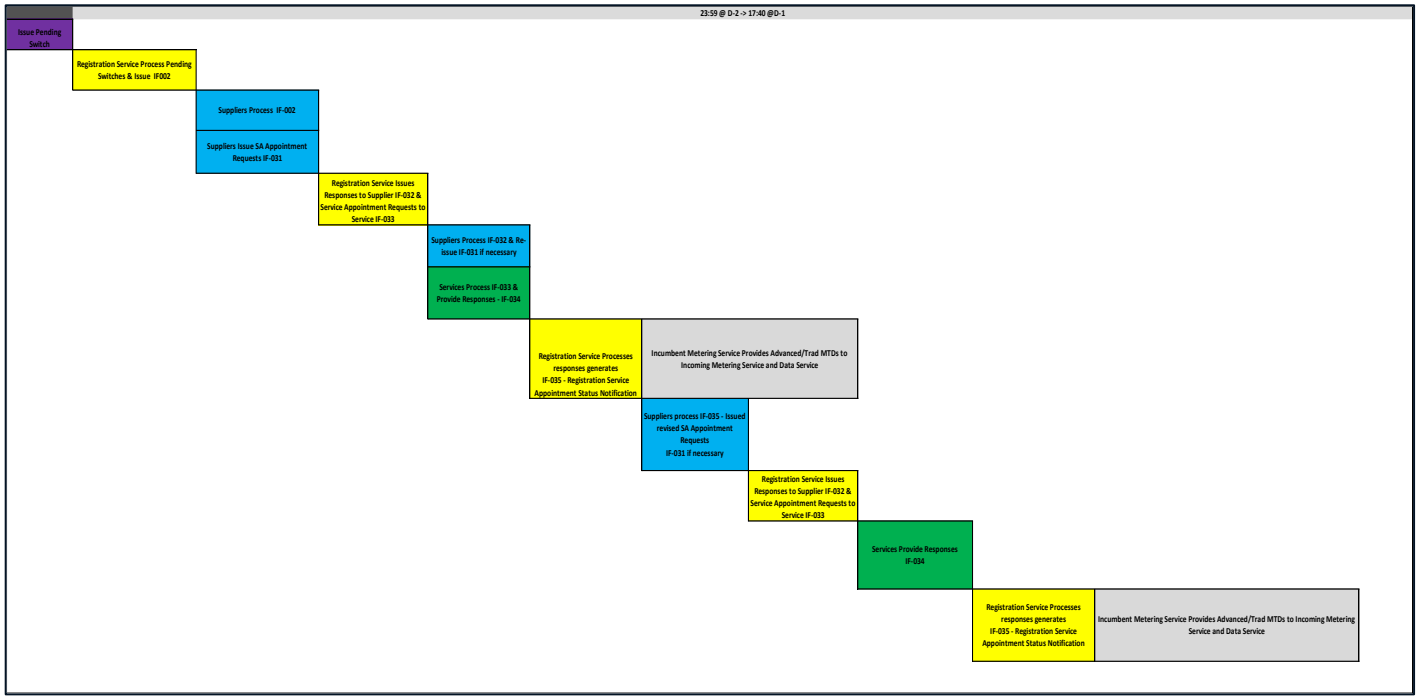
The following diagram articulates the Service Appointment process sequence required to be undertaken ahead of the Secured Active Window. These are an abstraction of the High Level process steps derived from BP002 and BP003.

The processing sequence must be able to be completed within 17 hours.

As can be seen there are numerous steps that are required to be undertaken in order that this process can complete in its entirety prior to the start of the Secured Active window.

The timeline has been constructed to incorporate more than one iteration of the Service Appointment sequence to accommodate instances where a service is unable to accept the proposed appointment.

There are multiple process steps involving multiple actors and on that basis this leads to a requirement for processing services to deal with these steps in a limited timeframe. For DiP mediated messages the time to process will be 60 minutes from receipt, for DTN flows the time to process will be 120 minutes



The process steps in the above diagram are detailed below with the required processing times.

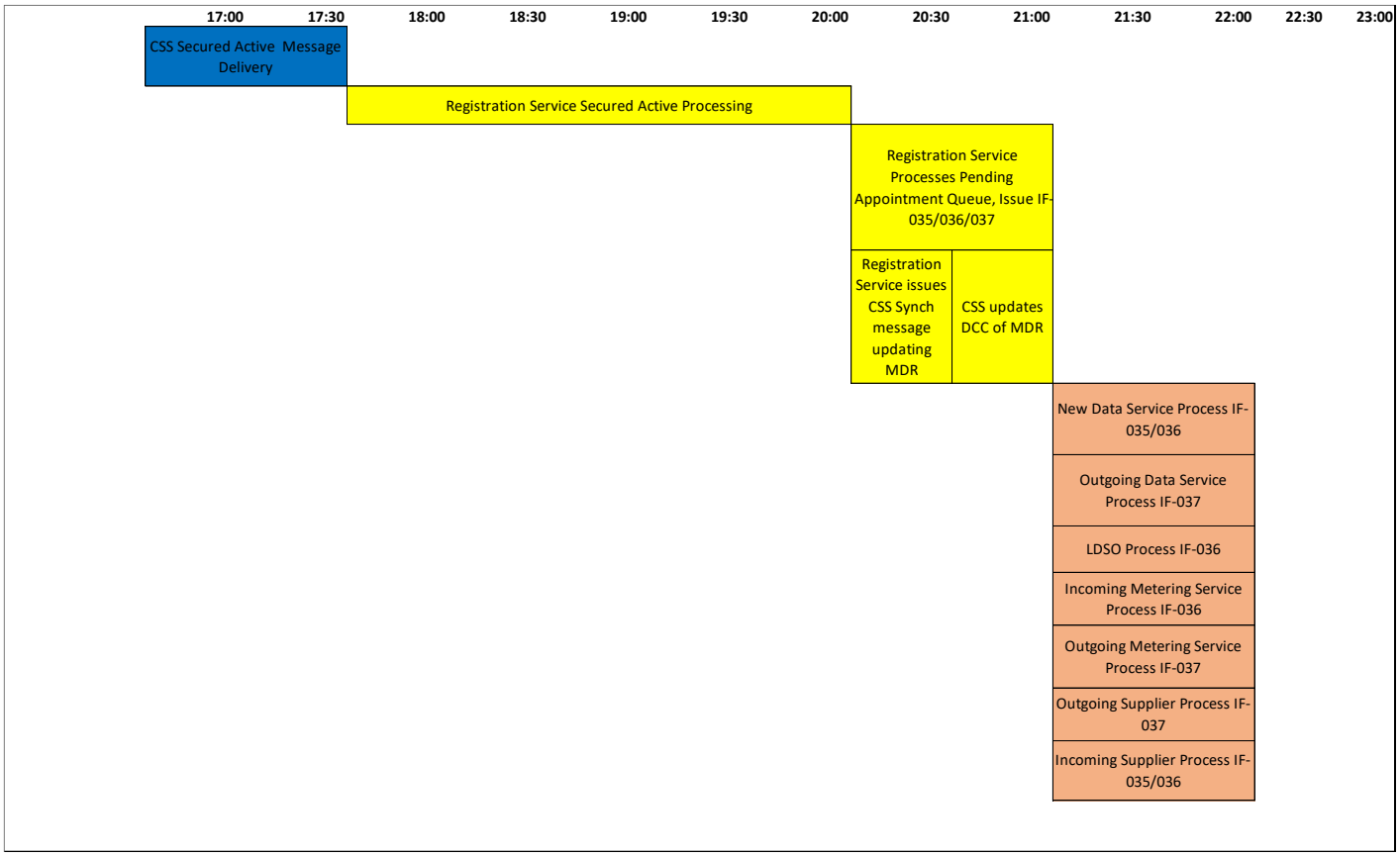
ID	Interface	Activity	Sending Party	Processor	Triggered Activity	SLA Description
OPC_120	MHHSP-IF-002	Notification to New Supplier of Site Information	Registration Service	Supplier	IF-031	Supplier to process and issue required IF-031 within 60 minutes
OPC_130	MHHSP-IF-031	Supplier Service Appointment Request	Supplier	Registration Service	IF-032 IF-033	Registration Service to process and issue required IF-032 / IF-033 within 60 minutes
OPC_140	MHHSP-IF-032	Registration Service Response to Supplier Service App Request	Registration Service	Supplier	IF-031	Supplier to process and issue any required IF-031 messages within 60 minutes It is noted that some requests may require manual work and may be as a result of incorrect appointments from the Supplier. The expectation will be 90% of requests are systemically processed within 60 minutes with the

						residual being processed by the end of the following working day

ID	Interface	Activity	Sending Party	Processor	Triggered Activity	SLA Description
OPC_150	MHHSP-IF-033	Registration Service Request for Service Appointment	Registration Service	Data/Metering Service	IF-034	Data/Metering Service to process and Issue required IF-034 messages within 60 minutes. It is noted that some requests may require manual work and may be as a result of incorrect appointments from the Supplier. The expectation will be 90% of requests are systemically processed within 60 minutes with the residual being processed by the end of the following working day
OPC_160	MHHSP-IF-034	Service Provider Response to Appointment Request	Data/Metering Service	Registration Service	IF-035	Registration Service to process and issue required IF-035 messages within 60 minutes
OPC_170	MHHSP-IF-035	Registration Service Appointment Status Notification	Registration Service	Incoming Data/Metering Services Incumbent Metering Services	Adv/Trad MTDs	Incumbent Metering Services and Prospective Data/Metering Services to process within 60 minutes. Incumbent Metering Service issues Advanced/Trad MTDs to Incoming Metering and Data Service where applicable within 120 minutes
OPC_175	MHHSP-IF-036	Registration Service Notification of Service Appointment & Supporting Info	Registration Service	UMSO	D0388	UMSO to process within 60 minutes and to issue D0388 to incoming UMSDS where applicable within 120 minutes

4.4 Activity required at Secured Active Window

Following on from the previous sequence of activities, at the point at which Secured Active messages are received by the Registration Service it will be expected that all proposed appointments are ready and queued within the registration Service. The sequence of activity to be undertaken is as follows:



To support appointment completion the following is required:

Registration Service will have processed all Secured Active Messages and processed the Pending Appointment Queue by 21:00. This will include the production and publication of all required IF-035, IF-036 and IF-037 messages.

On a Change of Supplier where the same Service Provider is being appointed, Registration Service will send both an IF-037 to de-appoint the Service Provider for the old Suppliers period of Supply and an appointment confirmation, IF-036, for the new Suppliers period of Supply. It is possible that these individual messages may arrive in any order. Participants can choose to design their systems to manage these events as they choose, but should take due regard to their SLA obligations.

ID	Interface	Activity	Sending Party	Processor	Triggered Activity	SLA Description
OPC_180	CSS Secured Active Message	Registration Service processes Secured Active Messages at Gate Closure	CSS	Registration Service	IF-035 IF-036 IF-037	Secured Active processing and associated IF-035 / IF-036 / IF-037 issued by 21:00
OPC_190	MHHSP-IF-035	Registration Service Appointment Status Notification (including Switch Status Updates e.g. Cancelled)	Registration Service	Incoming Data/Metering Services Incoming Supplier	N/A	Messages to be processed within 60 minutes
OPC_200	MHHSP-IF-036	Registration Service Notification of Service Appointment & Supporting Info	Registration Service	Incoming Data Service Incoming Metering Service Incoming Supplier LDSO	N/A	Messages to be processed within 60 minutes
OPC_210	MHHSP-IF-037	Registration Service Notification of Service De-Appointment	Registration Service	Outgoing Data Service Outgoing Metering Service Outgoing Supplier	N/A	Messages to be processed within 60 minutes

5. MHHS Interfaces – Processing SLAs

ID	Interface	Activity	Sending Party	Processor	Triggered Activity	SLA Description
OPC_220	MHHSP-IF-001	Notification of Change of Supplier	Registration Service	Supplier	N/A	Message to be processed within 60 minutes of delivery
OPC_230	MHHSP-IF-001	MPAN Creation in ECS	Registration Service	ECS	N/A	Message to be processed within 60 minutes of delivery
OPC_240	N/A	Physical Completion of Metering works by Metering Service	N/A	Metering Service	IF-005	Notification of works to be completed by D+3 Working Days (This should provide time for consumption to be provided using new MTDs ahead of the SF run.)
OPC_250	N/A	Physical Completion of Metering Works by LDSO	N/A	LDSO	D0383/ D0384/ DB flow or other agreed mechanism	Notification of works to be completed by D+3 Working Days (This should provide time for consumption to be provided using new MTDs ahead of the SF run.)
OPC_260	N/A	Notification to Metering Service of Meter Works carried out by LDSO	N/A	Metering Service	Advise Metering Service	Notification of works to be completed by D+3 Working Days
OPC_270	MHHSP-IF-005	Metering Service MTD Updates to Registration	Metering Service	Registration Service	IF-006	Message to be processed and triggered IF-006 messages to be generated within 60 minutes of receipt

ID	Interface	Activity	Sending Party	Processor	Triggered Activity	SLA Description
OPC_280	MHHSP-IF-006	Registration Service Notification of MTD Updates	Registration Service	Metering Service Data Service Supplier LDSO ECS	N/A	Message to be processed within 60 minutes of delivery
OPC_290	MHHSP-IF-007	Change of Energisation Status Outcome	Metering Service	Registration Service	IF-008	Message to be processed within 60 minutes of delivery
OPC_300	MHHSP-IF-008	Registration Service Notification of Change of Energisation Status	Registration Service	Metering Service Data Service Supplier LDSO ECS		Message to be processed within 60 minutes of delivery
OPC_310		CSS De-Activation	CSS	Registration Service	IF-009	Believe not critical - end of day issue from Registration Service should be sufficient IF-009 messages to be issued by midnight incorporating activity triggered from CSS messages received within that day
OPC_320	MHHSP-IF-009	Registration Service Notification of Disconnection	Registration Service	Metering Service Data Service Supplier LDSO ECS	N/A	Believe singular processing of end of day should be sufficient. Registration Service to issue by 00:00.
OPC_330		LDSO Attributes update in Registration Service	LDSO	Registration Service	IF-018	Registration service to process and issue IF-018 messages within 60 minutes

ID	Interface	Activity	Sending Party	Processor	Triggered Activity	SLA Description
OPC_340	MHHSP-IF-018	Notification of Registration Data Item Changes	Registration Service	Metering Service Data Service Supplier ECS	N/A	Files to be processed within 60 minutes
OPC_350	MHHSP-IF-021	UTC Settlement Period Consumption Data	Data Services	ECS	IF-014 on rejection of consumption	Governed by Soft Throughput limits and gate closure events described in Settlement timeline and End to End Architecture.
OPC_360	MHHSP-IF-022	LSS Period Data	ECS	Data Services Suppliers LDSO	N/A	Governed by requirements for delivery of Estimated consumption ahead of Gate Closure points (See OPC-020)
OPC_370	MHHSP-IF-023	LSS Totals Data	ECS	Data Services Suppliers LDSO	N/A	Governed by requirements for delivery of Estimated consumption ahead of Gate Closure points (See OPC-020)
OPC_380		Remote activation & De-activation Identification of LTV	N/A	Supplier	IF-024	IF-024 to be triggered within the day the condition has been identified
OPC_390	MHHSP-IF-024	Supplier Advisory Notification to DS	Supplier	Data Service	N/A	Processing timeline to be governed by gate closure points for provision of estimation. However would note that the duration could influence the level of re-estimation required noting the principle of best estimates being provided for Estimation gate closure ahead of Settlement runs

ID	Interface	Activity	Sending Party	Processor	Triggered Activity	SLA Description
OPC_390	N/A	Updates to Consent Granularity Update SMSO IHD Info	N/A	Supplier	IF-025	IF-025 to be triggered within the day the condition has been identified
OPC_400	N/A	Supplier becomes aware of attributes changing	N/A	Supplier	IF-025	Supplier notified Registration system within 1 working day of becoming aware of change
OPC_410	MHHSP-IF-025	Supplier Updates to Registration	Supplier	Registration Service	IF-026	Messages to be processed and IF-026 messages to be issued within 60 minutes
OPC_420	MHHSP-IF-026	Registration Service Notification of Supplier Data Chg.	Registration Service	Metering Service Data Service Supplier LDSO ECS	N/A	Messages to be processed within 60 minutes

ID	Interface	Activity	Sending Party	Processor	Triggered Activity	SLA Description
OPC_430	MHHSP-IF-038	Customer Direct Contract Advisory	Metering Service Data Service	Registration Service	IF-039	Message to be issued by Service Providers within 2 working days of the Direct Contract being agreed. Registration Service to process and issue IF-039 within 60 minutes
OPC_440	MHHSP-IF-039	Customer Direct Contract Advisory Response	Registration Service	Metering Service Data Service Supplier	N/A	Message to be processed within 60 minutes
OPC_450	N/A	Supplier obtains Customer own Read	N/A	Supplier	D0010	Supplier to send to Data Service by 17:00 at the end of the following working day of read receipt from customer
OPC_460	N/A	Supplier obtains Customer own Read as part of COS	N/A	Supplier	D0010	Data Service to be notified at the latest SSD+5
OPC_470	MHHSP-IF-041	Cumulative Meter Reading	Supplier	Data Service	N/A	Processing timeline to be governed by gate closure points for provision of estimation. However would note that the duration could influence the level of re-estimation required noting the principle of best estimates being provided for Estimation gate closure ahead of Settlement runs
OPC_480	N/A	LDSO Update of Connection Type within Registration System	LDSO	Registration Service	IF-043	Messages to be processed within 60 minutes of receipt.

ID	Interface	Activity	Sending Party	Processor	Triggered Activity	SLA Description
OPC_490	MHHSP-IF-043	Registration Service Notification of Change of Connection Type	Registration Service	Metering Service Data Service Supplier LDSO ECS	N/A	Messages to be processed within 60 minutes of receipt.
OPC_500	IF-006 & IF-043	Change of Segment determined complete by Registration Service (IF-006 & IF-43 received for Linked Change of Segment activity)	N/A	Registration Service	IF-044	On receipt of a paired Connection Type Change and Meter Exchange (referenced by Change of Segment Process) the change of segment will be deemed complete and IF-044 will be issued within 60 minutes. Note there is a strict time limit of 2WD (from prospective Appointment start date) for Change of Segment Process to be completed before a Supplier's service provider appointments are expired and would have to re-submitted
OPC_510	MHHSP-IF-044	Registration Service Notification of Change of Segment	Registration Service	Supplier LDSO ECS	N/A	Notifications to be processed within 60 minutes

ID	Interface	Activity	Sending Party	Processor	Triggered Activity	SLA Description
OPC_520	N/A	Registration Service Identification of Missing Service Providers / Misaligned Data	N/A	Registration Service	IF-045	Daily batch process following processing of Service Appointment queue post Secured Active window processing
OPC_530	MHHSP-IF-045	Registration Service Notification of Invalid Segment or No Agents Appointed	Registration Service	Supplier	N/A	Notifications to be processed within 60 minutes
OPC_540	N/A	ISD Data Updates Made available	N/A	ECS	IF-047	Published according to the ISD publication schedule
OPC_550	MHHSP-IF-47	Publish ISD	ECS	ALL	N/A	Consumed and processed prior to ISD Effective Date
OPC_560	N/A	Missing consumption data identified in MDS Run	N/A	ECS	MHHSP-IF-013	IF-013 to be issued following MDS run completion and before the end of the MDS window set out in OPC_30, 50, 80 and 110
OPC_570	MHHSP-IF-013	Defaults Report	ECS	Data Services Supplier	N/A	SLA's are driven by downstream activity governed by parties need to provide actual or estimated consumption for subsequent Settlement Runs
OPC_580	MHHSP-IF-014	Rejected Consumption report	ECS	Data Services Supplier	N/A	IF-014 to be issued by ECS within 180 minutes of corresponding IF-021 message being published. Extended time period to accommodate system peaks of consumption data provision

Agreed Readings:

OPC_590	As per, “BP003B Exchange of Readings following COS” participants are encouraged to attempt to obtain & exchange reading data as soon after the COS/ChgOfDS event as possible. In the event that the *Outgoing SDS* is unable to retrieve actual data from the meter after a period of 5 days following the COS/ChgOfDS event then he should issue estimated (Cumulative or Traditional Register) Reading(s) as appropriate. The cut off period for the exchange and consideration of a ‘Customer Reading’ or planned site reading on/around the transfer event, is also 5 days following the transfer event.
OPC_600	Expected timescales and escalation points associated with the D0300 process are subject to existing processes. However, the MHHS Design expectation is that Suppliers should seek to identify & resolve transfer reading disputes, via the D0300 process, as expeditiously as possible.

6. Service Data Retention Periods

The provisions specified in BSC PSL100 Section 10 will continue to apply to BSC Parties and Agents with a modification to the retention period.

https://www.elexon.co.uk/csd/generic-non-functional-requirements-for-licensed-distribution-system-operators-and-party-agents/

Currently the 40 month retention period is derived from a period twice the current settlement window plus a further 12 months. Noting the reduction in the Settlement Timetable post transition the retention period for Settlement Data will be 24 months. This will inform the requirement for Settlement purposes, it is noted that parties may be subject to other requirements which will exceed this period.

Change Record

Date	Author	Version	Change Detail
16/02/2023	SI Design	V5.0	Initial Version
31/05/2023	SI Design	V5.1	DIN 202, DIN369