

Background

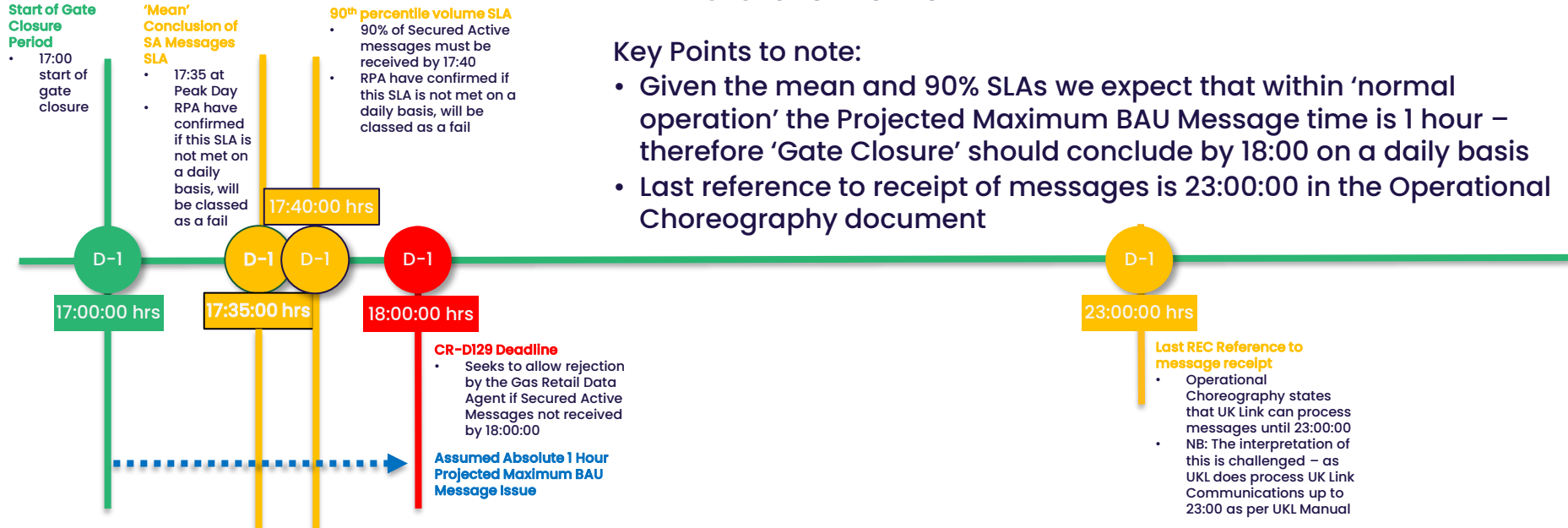
- From CSS Implementation, the Central Switching Service (CSS) will 'master' Registration for the majority of Supply Meter Points in Great Britain.
- The Gas Retail Data Agent (GRDS) (a role that the CDSP performs under the REC) will receive messages from CSS related to Registration. The critical period is referred to as 'Gate Closure' a period from 17:00:00 every evening (D-1) when Secured Active (and Inactive) messages are provided for Registrations that are due to Go Live the following Day.
- The REC Service Definitions specify the performance of the CSS and GRDS systems
 - There is no absolute deadline for receipt of messages from the CSS – we have raised CR-D129 to define a deadline after which messages can be rejected

Summary

- Such events described within the following slide deck should be extremely rare, but we think that it's right that parties are aware of the risk and the proposed activities that will take place in the event that we receive messages outside of the expected timescales (i.e. after Time Period 1)
 - We do not expect that this is a frequent event, and we do not expect that this will occur on consecutive days
- When we enter Time Period 2 or later we will communicate with our DSC Customers to ensure that parties are aware of the issue, and the potential actions that are required
 - Note: where we need to hold jobs the timings for Non CSS Supply Points will also be impacted
- When we enter Time Period 3, 4 or 5 this will impact CDSP systems and processes and so SLAs may be impacted – this will be reported at DSC Contract Management Committee where SLAs were impacted and excluded
- The timings described within this slide deck relate to normal day processing in UK Link, for last day of the month when large volumes of data are provided to Gemini the jobs need to start one hour earlier, therefore timings within Time Period 2, 3, 4 and 5 related to provision of data to Gemini will be brought forward by 1 hour
- We believe that we have identified solutions up to the maximum times envisaged by the REC – we have raised XRN5535 to propose solution options for any Gate Closure messages received after 02:59:59 on D
- We have made a series of recommendations that we will continue to progress through REC change control and the Programme and with DCC

Gate Closure Within Day Timings

REC Statements



Key Points to note:

- Given the mean and 90% SLAs we expect that within 'normal operation' the Projected Maximum BAU Message time is 1 hour – therefore 'Gate Closure' should conclude by 18:00 on a daily basis
- Last reference to receipt of messages is 23:00:00 in the Operational Choreography document

Time Behaviour (Response Time)	PERF050	CSS shall process the securing of switches and send synchronisation messages of secured switches at Gate Closure to Smart Metering (from the time of Gate Closure to the point at which CSS sends the last message) as follows: - at average daily volume, mean time of 20 minutes or less - at average daily volume, 90th percentile time of 25 minutes or less - at peak daily volume, mean time of 35 minutes - at peak daily volume, 90th percentile time of 40 minutes	CSS
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Gate Closure Within Day Timings

Recovery following Unplanned Outage – extracts from CSS Service Definition

4.4. In the event of an unplanned outage:

- (a) the [CSS Provider](#) shall notify the [Switching Operator](#) in accordance with the [Switching Service Management Schedule](#); and
- (b) the [CSS](#) shall resume normal operations within one hour.

5.2. The [CSS Provider](#) shall support the response and resolution times for the following [Switching Incident](#) categories.

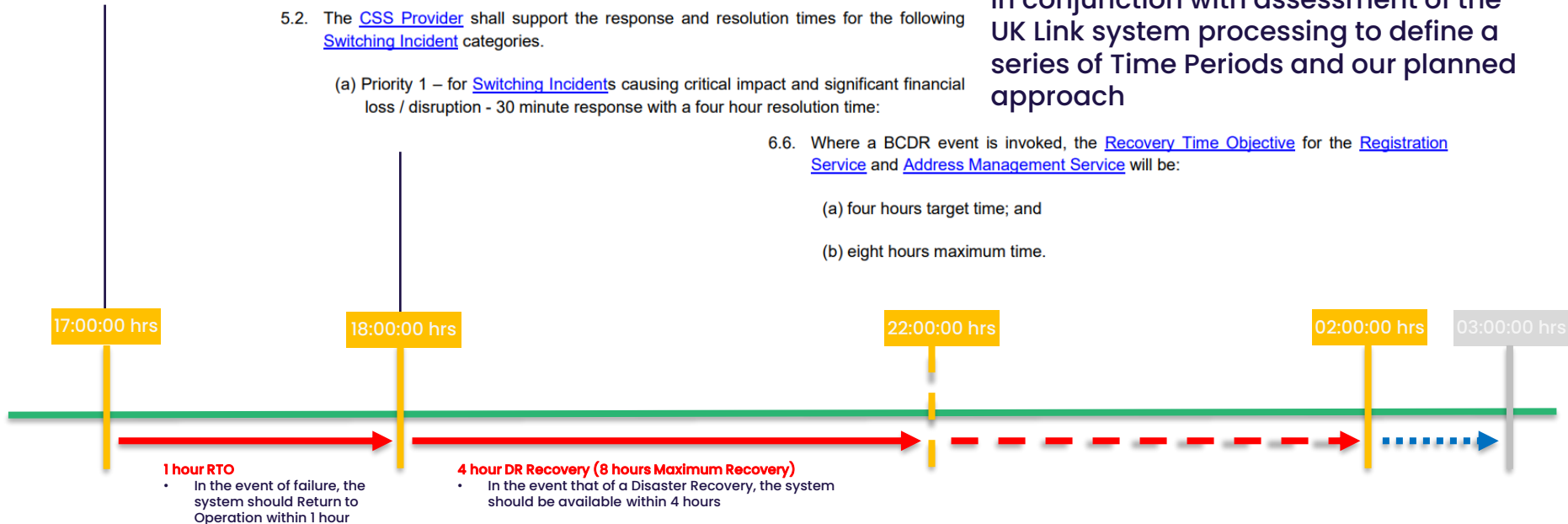
- (a) Priority 1 – for [Switching Incidents](#) causing critical impact and significant financial loss / disruption - 30 minute response with a four hour resolution time:

6.6. Where a BCDR event is invoked, the [Recovery Time Objective](#) for the [Registration Service](#) and [Address Management Service](#) will be:

- (a) four hours target time; and
- (b) eight hours maximum time.

Key Points to Note:

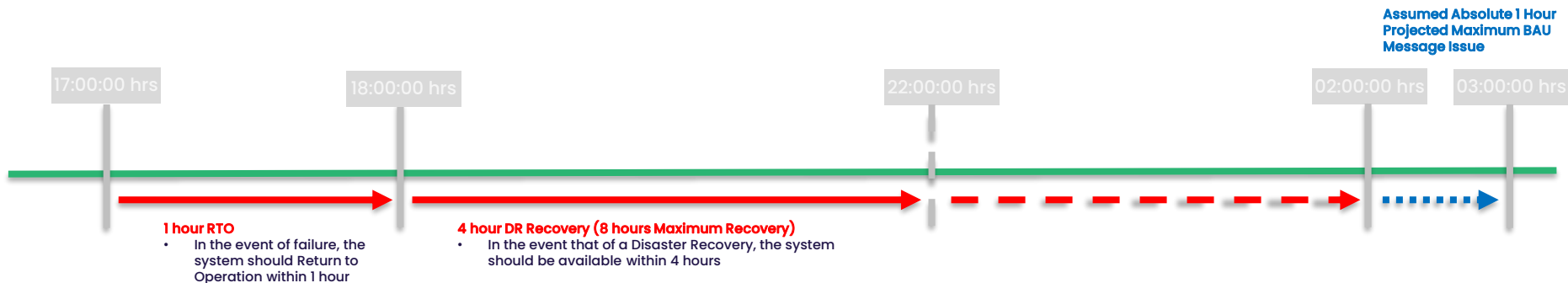
- The Return To Operation (RTO) statements require that the systems are highly resilient
- These RTO statements have been used in conjunction with assessment of the UK Link system processing to define a series of Time Periods and our planned approach



Gate Closure Within Day Timings

Maximum Envisaged Receipt of CSS Messages

- The Operational Choreography document does not envisage that Secured Active messages will be received beyond 23:00:00 on D-1
- Where all DR arrangements are enacted, where the incident begins at Gate Closure (17:00:00 hrs on D-1) then we should not receive any messages after 02:59:59 on D, this assumes:
 - DR is called in a prompt manner – and in any event within the RTO period where it is established that the 1 hour RTO capability may not recover the system within the RTO
 - Issue of Secured Active Messages after recovery will take no longer than 60 minutes
- Consequently, if a message is received after 02:59:59hrs we will have held UK Link jobs as long as possible, and we will not process messages for D



System Misalignment & Late Switches – Approach

Timelines for receipt of Secure Active Messages (SAMs) from CSSP *

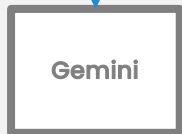
Time Period 1 (GREEN) Receipt of SAMs 17:00:00 to 19:29:59



- Submission on time, or by 19:29:59
- Confirmation 100% of messages sent by 19:29:59



- Pending vs received at 100% by 19:29:59
- Process run to schedule



- Process run to schedule

Customer Impact

- None

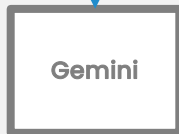
Time Period 2 (AMBER) Receipt of SAMs 19:30:00 to 21:59:59



- Late submission but by 21:59:59
- Confirmation <100% messages sent before 19:29:59
- Confirmation 100% of messages sent by 21:59:59



- Pending vs received at 100% by 21:59:59
- Processes held and compressed but can complete 'automated' processes



- Processes held and compressed but can complete 'automated' processes

Customer Impact

- TMC files (transfer notification) issued late to incumbent and new Shipper but within 4 hours of processing switch
- Gemini ACT file (new Gemini meter ID notification) issued late to Shipper but received by 00:00 impacting ability to nominate in Gemini
- Out of hours communications received and may need to be acted upon

Time Period 3 (RED) Receipt of SAMs 22:00:00 to 23:29:59



- Late submission but by 21:59:59
- Confirmation <100% won't be received by 21:59:59
- Confirmation 100% of messages sent by 23:29:59 PM



- Pending vs received at <100% by 21:59:59
- Processes held and compressed FURTHER but can complete 'automated' processes



- Processes held only to 21:59:59 and processed only for those received
- Those received 22:00:00 PM to 23:29:59 now need to be manually processed within D+5

Customer Impact (see slide 14 for detail)

- TMC files issued late to incumbent and new Shipper
- Gemini ACT file issued late to Shipper (but by 00:00) impacting ability to submit DM nominations in Gemini BUT only for those switches received up to 21:59:59.
- Switch received between 22:00:00 and 23:29:59 will not be included in nominations or allocations for D until manual correction is processed, impacting ability to nominate and possible impact on scheduling and balancing charges (detail in Customer Impacts side). ACT file not issued for these switches.
- Out of hours communications received and may need to be acted upon, ongoing communications received and may need to be acted upon regarding corrections

System Misalignment & Late Switches – Approach

Timelines for receipt of Secure Active Messages (SAMs) from CSSP *

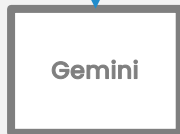
Time Period 4 (Disaster Recovery) Receipt of SAMs 23:30:00 D-1 to 02:59:59 D



- Confirmation that Disaster Recovery scenario has been declared and DR recovery now being progressed.
- Notification by 18:00:00
- Minimum recovery time: 4 hours (22:00:00, D-1)
- Maximum recovery time: 8 hours (02:00:00, D)



- Processes held until 01:59:59 D (DR maximum time up to 02:00:00 + 00:59:59 minutes for UKL processing of receive SAMs)
- Conclusion of processing of Gate Closure messages by 02:59:59, additional processing in UK Link up to 03:29:59
- Processes held and compressed FURTHER, can be complete via manual intervention and delays to downstream processes until catch up completes (expected by 11:30:00)



- Processes held to 4:29:59 AM, manual intervention then runs processes from 4:30:00 AM
- Gemini not reflective of switch data until MDS / AAQ has been processed (and included with 10:00:00 nomination run on D)

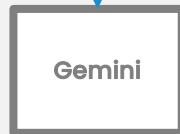
Time Period 5 (Fix Forward) Receipt of SAMs from 03:00:00 D



- Late submission after 02:59:59 D



- Option 1 – Process any late switches for the next calendar day
- Option 2 – Do nothing accept system misalignment
- Option 3 – Enable switches after D



- Option 1 – Process any late switches for the next calendar day
- Option 2 – Do nothing accept system misalignment
- Option 3 – Enable switches after D

Customer Impact (see slide 12 and 14)

- TMC files issued late to incumbent and new Shipper, TMC files will be issued on D and not D-1 (impact to Shipper's systems / processes?)
- Gemini ACT file issued late to Shipper, will be issued on D not D-1 impacting ability to submit DM nominations in Gemini before 10:00:00 on D (impact to Shipper's systems / processes?)
- Nominations submitted before 10:00:00 D will be overwritten when AAQ/MDS file processed, nominations have to be resubmitted by Shipper, possible impact on scheduling / balancing charges
- Out of hours communications received by customers will be taking place and will need to be acted upon (including non-CSS sites)
- Delays to downstream processes in UKL will occur and could result in UNC, SLAs and DSC obligations not being able to be met
- Impacts to downstream systems including BW, BDP, GES / DES and data replication in these systems, impacting ability to report and visibility of data to incorrect parties (GDPR issues)

Customer Impact (see slide 14)

- Unknown without detailed IA for all Options
- Option 1 is not feasible in the short to medium term without a high level of manual intervention. Would expect ongoing misalignment systems for the period until the switch is updated, creating queries, expectations, rejections, data misalignment and expected financial impacts.
- Option 2 would create misalignment and impacts as per Slide 14
- Option 3 is not feasible in the short to medium term, and expected to be highly complex to implement, Retro updates also expected to create some period of misalignment until the retro update is completed, resulting in additional adjustment and correction processes being needed

System Misalignment & Late Switches – Time Period 4 (DR)

Receipt of Secure Active Messages from 23:30:00 D-1 to 02:59:59 D : IMPACTS

UKL Scheduled Job / Process	BAU Start Time	Duration	TP4 Start Time	Impact to Xoserve / Correla	Impact Customer
AAQ/MDS (D-1) + Gemini Nominations	20:00:00 D-1	1 hr	03:30:00 D (+7.5 hrs)	Manually hold job, manual workaround will be needed to allow job to process on D, customer comms needed	Gemini updates delayed, nominations not accurate until 10:00:00 on D, ACT file issued late, Shipper nominations overwritten once AAQ/MDS loaded. Impacts all sites incl non-CSS
Meter Inspection Notification (MIN)	20:00:00 D-1	45 mins	03:30:00 D (+7.5 hrs)	Manually hold job – post all SAM receipt, MIN notification will be issued to the incoming Shipper of any meter inspection notices. IA needed to confirm if this can run on D for D day instead of D-1 (manual intervention may allow this)	Delayed receipt of MIN file issued to Shipper, Shippers systems may be expecting on D-1 not D
(Winter) Ratchet Process	21:00:00 D-1	TBC	Post 09:30:00 D	Manually hold job until UKL Move in job completes, delay issue of ratchet notifications	Delay in receipt of ratchet notifications
Transfer Read Estimates (MBR and URN)	00:15:00 to 04:00:00 D	4 hrs	04:30:00 D (+4.25 hrs)	Delays in sending transfer read estimates to Shippers, not issued until UKL Move in job commences.	Delay in receipt of transfer read estimates, Shippers systems may be expecting these earlier on D to process
WORKFLOW: Class Changes + Switching (Effective date on D)	00:15:00 to 02:30:00 D	2 hrs	03:30:00 D (+3.25 hrs)	Incorrect Class Change entry created in Gemini in absence of the delayed switch resulting in incorrect Gemini updates that would need to be manual corrected. Would need to identify these and understand how these can be correct - IA needed to validate	Incorrect nominations and allocations until correction is completed
Portfolio files (DPS)	04:00:00 D	1 hr	09:30:00 D (+5.5 hrs)	Domestic portfolio files issued to Shippers would have to be held manually until UKL Move in Job completes. Manually hold job.	Delay in receipt of portfolio files,, Shippers systems may be expecting these earlier on D to process
AQ Corrections (AQI/AQR)	07:00:00 D	30 mins	Post 09:30:00 D (+2.5 hrs)	Manually hold AQ corrections process job, delay in processing and issuing AQR response files	Delay in receipt of AQ correction response files (AQR)
RGMA Asset Updates (ONJOB / ONUPD)	07:00:00 D	1 hr	09:30:00 D (+2.5 hrs)	Manually hold RGMA asset updates job, delay in processing and issuing response files	Delay in receipt of RGMA response files
Monthly AQ NRL / NNL	07:00:00 D	Up to 4hrs	Post 09:30:00 D	Manually hold job until UKL Move in job completes, delay issue of NRL / NNL	Delay in receipt of NNL NRL notifications
DLC Class 1 Meter Reads (MDR File)	08:30:00 D	15 mins	Post 09:30:00 D (+2.5 hrs)	Manually hold job until UKL move in completes, MDR files will be issued on job completion need to be issued by 14:00:00 D day to meet SLA	MDR (DM Daily Read) files received late, normally received by 11:00:00AM, may impact downstream customer processes
Contact updates (CNC)	09:00:00 D	1 Hr	10:00:00 D (+1 hr)	Manually hold job, delay in updates to contact data - IA needed to understand the impact of late CO status to inflight contact data processing	Delay in contact updates not reflected in UKL
AAQ/MDS (D day)	08:00:00 PM D	1 hr	08:00:00 D	Workaround must be applied to avoid failure in Gemini due to 2 files issued on D day.	NONE
Withdrawal (Deactivation) Request	24 hrs	< 10 mins	NA	Monitoring needed to ensure Move out date is determined correctly. NOTE: impact to transportation billing if not processed in a timely manner	Inaccurate Transportation billing
System: BW	17:15:00 D-1 to 05:00:00 D	Variable	TBC UKL data catchup	Manual holding of updates to BW would need to be assessed based on the catchup complexity and performance OR date would be behind by 2 days (rather than 1)	Delays to reports being issued or inaccurate reports / data issued, not reflective of D-1, data reflective of D-2. Possible GDPR issues?
System: BDP	04:00:00, 10:00:00, 16:00:00 22:00:00	Variable	TBC UKL data catchup	Delays to BDP replication due to data catchup needed, BDP will not reflect latest data position and could result in data being accessible or shared by and with incorrect parties (GDPR). Manual monitoring required for adhoc runs to refresh data during DR period	Impacts any BDP services/products that look for switching information – data not accurate and potential GDPR issues
System: DES	Immediate	Variable	Immediate	Delays to DES replication due to data catchup needed, DES will not reflect latest data position resulting in data being accessible or shared by and with incorrect parties (GDPR)	Delays in reflecting latest Switching position in DES

- Manual monitoring/coordination in place to control file flow between EFT/AMT/PO/ISU and API's. Also to ensure sequential processing to avoid data inconsistencies or rejections
- Further downstream impacts could be seen to processes dependant on system performance and catchup – expectation is all processes and date catchups will have been caught up by 17:00:00 on D.
- Any monthly or annual jobs scheduled on the day may be impacted and could result in delayed processing and downstream impacts

System Misalignment & Late Switches – Customer Impacts

CSS & UK Link Aligned but Gemini Misaligned – Time Period 3 (RED) and 4 (DR)

- Dependent on the volume of manual Gemini corrections needed, corrections may not be completed until 18:59:59 on D+5 resulting in the impacts below being exacerbated the longer the correction takes
- NDM and DM: Gaining and losing registered Gas Shippers nominations and allocations will be impacted until the Gemini correction is completed i.e. gaining not nominating or allocating, losing expected to nominate and allocate. NDM nominations will not be accurate until corrected
- DM: Shippers could incur energy balancing charges if switches aren't processed on time (due to them not balancing to their expected portfolio) e.g. if they have a site that is due to move out of their portfolio they will not input gas into the system to balance for that site's output [option for reporting to be provided to SHP A and B to support?]
- DM: Dependent on the difference in nominations and final allocations exit scheduling charges could be incurred for Class 1 and 2 sites
- Shipper could be prompted to buy too much or too little gas until correction in Gemini is made if relying on Gemini portfolio data
- Communications would need to be issued to all Customers (incl. Non-CSS sites) when operating in these Time Periods (Gemini will only be reflective once the AAQ / MDS is loaded, nominations would have to be managed by the customer until Gemini is updated (note any submitted Noms are overwritten when the AAQ / MDS is processed also)
- Energy for a large DM site for a day could cost up to £50k per day, depending on date, usage and gas prices. For a medium-sized NDM site for a day could cost up to £200 per day. (Winter day gas allocation per day kWh/cost (i.e. worst case scenario), Peak day gas price 7.5p = average of Oct to Dec 2021 prices)
- There is a risk that National Grid would have to take additional balancing actions if customers aren't balancing due to their portfolio movements not being processed when they expect

UKL & Gemini aligned but CSS misaligned – Time Period 5 (Fix Forward)

In addition to the impacts detailed in Time Period 3 and 4:

- For average transportation and energy charge impacts incurred per day for site type (losing Shipper incurring, gaining Shipper not) (*see notes)
 - Domestic £2.49
 - Avg. I&C £68.35
 - Large DM £15,481.85
- Energy balancing charges incurred for Class 1 and 2 sites (nominations vs allocations)
- Capacity (ratchet) charges could be incurred
- Gaining Shipper unable to submit reads, resulting in estimated reads, charge impacts and transaction rejections
- Gaining Shipper unable to submit supply and meter point amendments including settlement data corrections, charge impacts and transaction rejections
- Incorrect contact, emergency, priority and broadcast contact data held and issued to DNs
- Higher volumes of resultant queries and exceptions across all stakeholders due to data misalignment
- Data protection and GDPR issues – files and reports issued to wrong Shipper, incorrect access to data via systems, data being provided to or held from incorrectly including inaccurate API registration data
- Dependent on the length of time to recover from DR and align all systems, greater the impact of the above and downstream process and SLA impacts.

Next Steps

- DSC Customers to provide contacts who they would like to be notified in the event that processing extends beyond Time Period 1
- We have identified mitigations to further reduced the risk impacts, which we will continue to pursue:
 - CR- D129, at this moment in time, is the only known option to protect UK Link w.r.t UK gas settlement accuracy – CDSP Recommendation #1
 - Whilst Xoserve/Correla await CR-D129, we are progressing the following recommendations:
 - CDSP Recommendation #2: CSSP or DCC to inform CDSP each day when it is expected that when 100% of SAM messages will not have been issued from the CSSP system by 18:00:00
 - CDSP Recommendation #2.1: Where such notice has been received, CSSP or DCC to inform CDSP when the Last Gate Closure message has been received
 - CDSP Recommendation #3: CSSP to distinguish the last daily SAM message being sent to UKL via some form of flag/data attribute
 - CDSP Recommendation #4: CSSP to permit 'resend / prioritisation' functionality to enable the CDSP to request SAM delivery for certain MPRNs (i.e. Class 1's, new Gemini activities DM and NDM.)
 - CDSP Recommendation #5: DCC/CSSP to facilitate incident/issue bridge calls the morning after the night before whenever the CDSP operate within TP2 or TP3
 - CDSP Recommendation #6: DCC to declare DR scenarios by 18:00:00
- We have raised XRN5535 – Processing of CSS Switch Requests Received in 'Time Period 5'
 - This will assess the approach for messages received after the timings envisaged in the REC
 - This needs to reflect the likelihood of this happening and the impact to DSC Customers and UK Link systems