SVG/18/227

Meeting name	SVG
Date of meeting	9 July 2002
Paper Title	CORRECTING SWAPPED REGISTERS
Purpose of Paper	For Decision
Synopsis	This identifies processes that could be used to correct registers that have been incorrectly mapped for Settlement purposes. SVG is asked to agree the preferred method for operational use and for incorporation into the Trading Arrangements.

1. BRIEF HISTORY AND EXPLANATION

1.1 Some metering systems have been identified as having their registers incorrectly mapped from Supplier billing systems to NHHDC systems at the 1998 Operational Date.

1.2 There are approximately 1,600 known instances of large EACs and AAs in one GSP Group caused by use of a non-robust method of correction. This is the major cause of erroneously large EACs and AAs in this GSP Group. The number of instances in other GSP Groups is not known.

1.3 There are other reasons for incorrect mapping, meaning that this problem will not only be caused by initial migration, but may be created in the live environment.

1.4 Where some readings have been used in Final Reconciliation it is not possible to withdraw all readings, correct the register mapping and re-apply the readings to the corrected mappings. NHHDC agents need to be able to execute a robust method of swapping the registers that will not have adverse consequences on Suppliers' liabilities.

1.5 Section 2 of this paper identifies three possible processes for correcting swapped registers, while section 3 identifies the benefits and disadvantages of each and identifies the preferred method.

1.6 Section 4 identifies the main considerations in determining which set of readings should be used as the basis for correcting the swapped registers.

1.7 Section 5 discusses the impact on Suppliers' energy allocations.

1.8 Section 6 discusses five examples and proposes a method of dealing with each.

2. POSSIBLE PROCESSES FOR CORRECTING SWAPPED REGISTERS

2.1 Validate register readings and transpose register readings

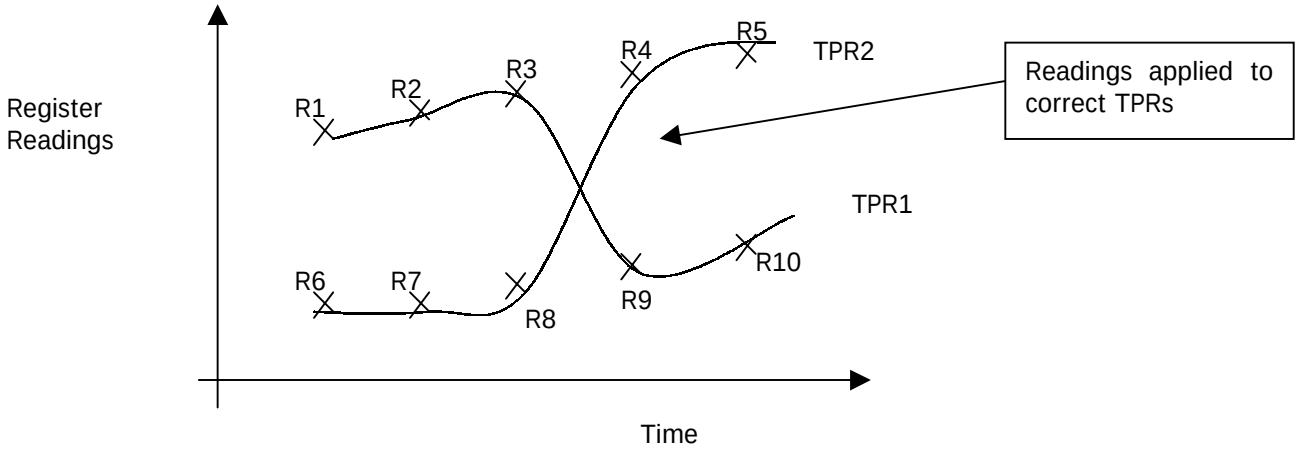
2.1.1 This process would entail validating register readings against the incorrectly mapped registers, and processing the readings against the corrected registers. It would create incorrect advances between the last reading with incorrect mapping and the first reading with the corrected mapping.

2.1.2 The overall volume of energy through the meter is correct. However, the volume of energy at TPR level is incorrect, and there is potential for extreme AA values for the Meter Advance Period where the mapping is corrected (one large positive and one large negative).

2.2 Validate register readings and transpose register readings but with altered advances

2.2.1 This method is similar in nature to the process described in section 2.1, but with some added complexity to ensure that the volume of energy at TPR level is correct.

2.2.2 In this example the register readings have been migrated incorrectly causing transposed TPRs.



The valid reading sequence for TPR2 should have been: R1, R2, R3, R4, R5 and the valid reading sequence for TPR1 should have been: R6, R7, R8, R9, R10.

2.2.3 This method of correction involves validating and processing the corrected register readings from site against an MPAN that has readings that have previously been transposed. The following calculation would be used to create an adjusted compensatory advance (which will be used to calculate more accurate compensatory settlement values) between valid readings R3 and R9, and between R8 and R4:

Adjusted advance (R3 -> R9) = (R9 – R6) – (R3 – R1)

Adjusted advance (R8 -> R4) = (R4 – R1) – (R8 – R6)

2.2.4 R1 and R6 would be the reading used for the 1998 Operational Date, or the Initial readings for a metering system, whichever is the later.

2.2.5 The overall volume of energy is correct. Additionally, by creating this adjusted advance and using that to calculate compensatory Settlement values the consumption at TPR level is correct. However, there is still potential for extreme AA values, although these are likely to be smaller than with method 2.1.

2.2.6 This assumes that the history has not already been transposed previously, and that the migrated Initial readings were correct. In practice an algorithm to implement this solution may be fairly complex and is not a standard part of NHHDC systems.

2.2.7 This process will not work where there is a Change of Supply reading, which must not be altered.

2.3 Validate register readings, create Final reading, correct register mapping, create Initial reading

2.3.1 A set of readings could be treated as Final against the incorrect mapping. The same readings could then be swapped and treated as Initial against the corrected mapping. The EAC values would also need to be swapped.

2.3.2 This overall volume of energy is correct; however, the volume of energy at TPR level is incorrect. There will be no extreme AA values using this method.

3. ADVANTAGES AND DISADVANTAGES OF EACH METHOD

3.1 The table below summarises the benefits and disadvantages of each method.

Method	Gross volume of energy / meter	Gross volume of energy / register	EAC/AA spikes	NHHDC validation implications	Supplier validation implications	Supplier estimation implications
2.1	Correct	Incorrect	Yes	Requires replacement of EAC prior to correction	Difficult	Potentially severe
2.2	Correct	Correct	Yes, less extreme than 2.1.	Requires replacement of EAC prior to correction	Difficult	Less severe than 2.1
2.3	Correct	Incorrect	No	Requires swapping final EACs	Reasonable / simple	Reasonable?

3.2 The preferred method of correcting swapped registers is 2.3 which, although does not correct the gross volume of energy across registers, should allow Suppliers to validate meter readings / advances reasonably simply, and has less severe implications on Suppliers' energy allocations than methods 2.1 and 2.2.

4. DETERMINING THE READINGS TO USE WHEN CORRECTING REGISTER MAPPING

4.1 There are four major considerations when determining which set of readings to use as the basis for correcting register-mapping problems.

4.2 Is the consumption on each register reasonably similar?

4.2.1 If the consumption on each register is reasonably similar, there will be insignificant impact on Settlement if historical errors are not corrected. In this case, the corrective action can be

applied from the next reading. No other factors need to be considered. This should be the simplest corrective action. This is described in Section 6.1.

4.3 Is there a Change of Supplier within RF?

4.3.1 If there is a Change of Supplier within RF, readings before the CoS must not be used for the corrective action. This is because the CoS readings must not be altered. This is described in Section 6.2.

4.4 Are there readings prior to RF?

4.4.1 If there are no readings prior to RF, and there has been no Change of Supplier, it is possible to withdraw all meter readings, correct register mappings, and re-apply the meter readings against the corrected register mappings. This is described in Section 6.3.

4.5 Are there readings within, and close to, RF?

4.5.1 If there are readings that are within, and close to, RF; these can be used as the basis for the corrective action. This method means that the error is corrected at the earliest possible point in time. This is described in Section 6.4.

4.5.2 However, if there is no read within RF, or there is a significant time between RF and the next reading, it may be better to deem a reading within RF, and use this as the basis for the corrective action. This method allows the error to be corrected at the earliest possible point in time. This is described in Section 6.5.

5. IMPACT ON SUPPLIER ENERGY ALLOCATION

5.1 In all cases, correcting the error at the earliest possible point in time, rather than correcting the error from the next reading, will have some effect on the Suppliers' energy allocations. The corrective action may involve the NHHDC:

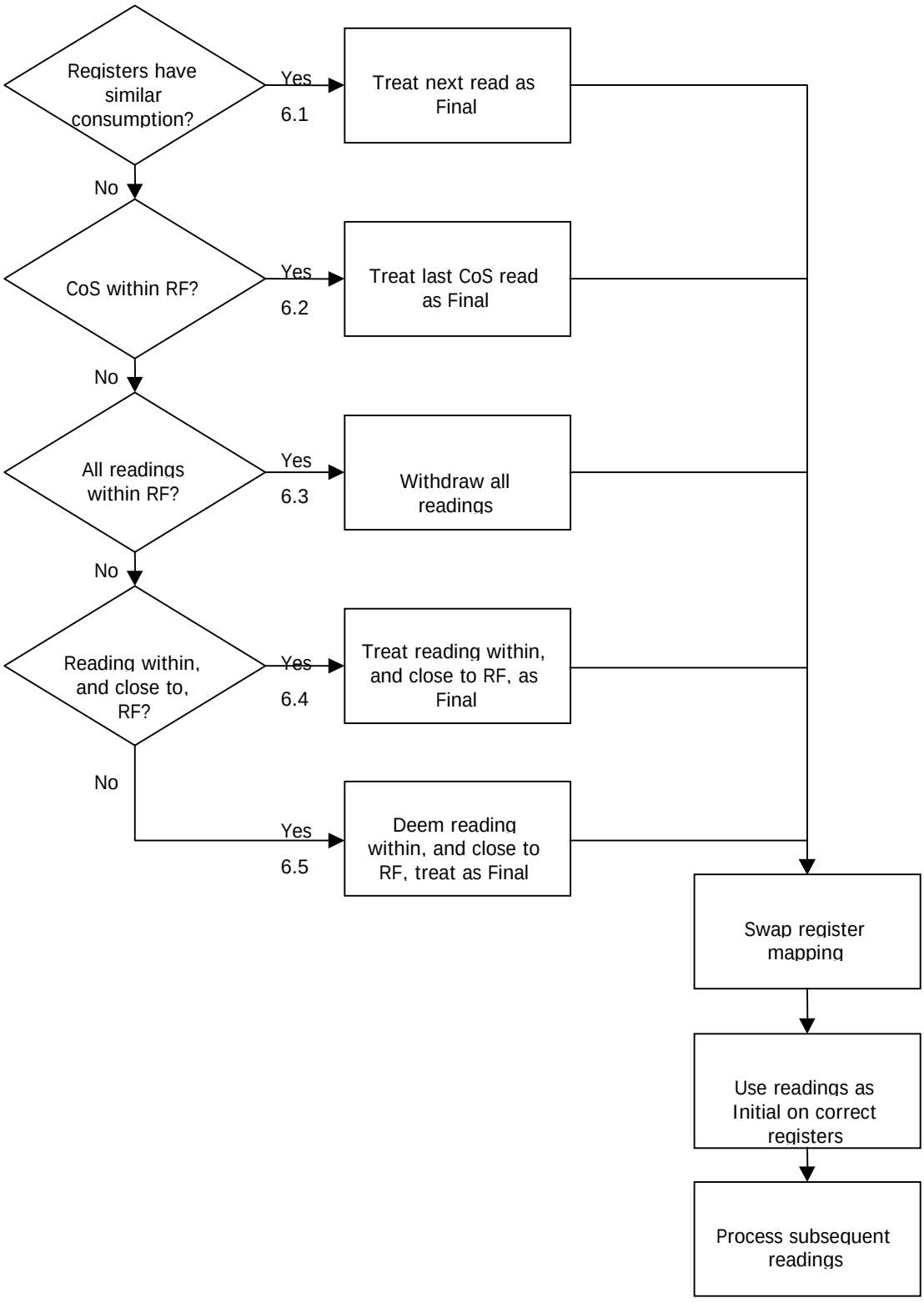
- withdrawing the readings where none of the associated Meter Advance Period has undergone it last Reconciliation Run; or
- correcting the problem from the next reading.

5.2 The benefit of the first method is that the error will be corrected at the earliest possible stage, although operational overhead may be incurred in withdrawing all readings and re-applying them. However, Suppliers may prefer that the error is not corrected at this stage, as the assumptions on which they have contracted to purchase energy will become incorrect, potentially causing energy imbalance.

5.3 The benefit of the second method is that this should be easier to perform and will incur less operational overhead. Additionally, the assumptions that Suppliers used when contracting to purchase energy will remain true. However, the accuracy of Settlement is degraded if the error is allowed to remain after the earliest possible date of correction.

6. EXAMPLES

This section gives examples of potential scenarios that would need correcting. The flow diagram should be used to help determine the corrective actions that need to be taken. The references within the flow diagram relate to the examples.



6.1 Example 1 - Similar consumption per register.

6.1.1 In this example, the next set of meter readings after identifying the problem would be the set of readings chosen to make the correction. The reason being that the cost of performing reading withdrawal would be significant compared to the benefit to Settlement in performing the action.

6.1.2 These readings would be validated against the information held in NHHDC, and the readings treated as Final readings.

6.1.3 The NHHDC then effects a change of Metering System, changing the register mapping and applying the original readings to the corrected register mappings as Initial readings.

6.2 Example 2 - CoS readings within RF.

6.2.1 Where there has been a Change of Supply, the CoS meter readings must not be altered.

6.2.2 The CoS readings (last set, if multiple RF) are treated as Final readings.

6.2.3 The NHHDC then effects a change of Metering System, changing the register mapping and applies the CoS readings to the corrected register mappings as Initial readings.

6.3 Example 3 - All readings within RF.

6.3.1 In this scenario, all meter readings may be withdrawn, the register mapping corrected, and the meter readings applied to the corrected register mapping.

6.4 Example 4 - Some readings prior to RF; significant consumption difference per register; readings within, and close to, RF.

6.4.1 In this example, the first set of readings where none of the associated Meter Advance Period has undergone its last Reconciliation Run would be the set of readings chosen to make the correction. The reason being that the benefit to Settlement in performing the action outweighs the cost of performing the action.

6.4.2 The readings where none of the associated Meter Advance Periods have undergone their last Reconciliation Run are withdrawn.

6.4.3 The NHHDC then effects a change of Metering System, considering the last set of readings that are not withdrawn as Final readings.

6.4.4 The NHHDC changes the register mapping and applies the withdrawn readings to the corrected register mappings, with the first set being treated as Initial readings.

6.5 Example 5 - Some readings prior to RF; significant consumption difference per register; no reading since RF (or significant time between RF and next reading).

6.5.1 In this example, it is unwelcome to allow the error to continue for such a long period of time.

6.5.2 Therefore, a reading is deemed at RF, per the current requirements for deeming a reading where the last meter reading is older than RF. This deeming process should use the incorrect register mapping, as this has been used in RF Settlement of the EAC.

6.5.3 The NHHDC then effects a change of Metering System, considering the deemed readings as Final readings.

6.5.4 The NHHDC changes the register mapping and applies the deemed readings to the corrected register mappings, with the first set being treated as Initial readings.

7. RECOMMENDATIONS

7.1 SVG is invited to:

a) NOTE the possible Processes for Correcting Swapped Registers, in section 2;

b) AGREE that the preferred solution is that using Final and Initial Readings, described in section 2.3;

c) APPROVE the use of this method for use in the operational environment to resolve this issue;

d) AGREE whether the earliest set of meter readings should be used as the basis for the corrective action, or to effect the corrective action using the next set of readings, described in sections 5 and 6; and

e) APPROVE that this method be considered as the basis of a Change Proposal, for incorporation into the Trading Arrangements.

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List of enclosures
none