

Compliance plan for ARC Innovations MEP – 2020

| Participants to Provide Accurate Information | | |
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| Non-compliance | Description | |
| <p>Audit Ref: 2.5</p> <p>With: Clause 11.2 and Clause 10.6</p> <p>From: 01-Mar-19</p> <p>To: 12-Nov-20</p> | <p>HHR data is inaccurate and the registry has not been updated as soon as practicable when certification was cancelled.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Once</p> <p>Controls: Moderate</p> <p>Breach risk rating: 4</p> | |
| Audit risk rating | Rationale for audit risk rating | |
| Medium | <p>Controls are recorded as moderate because there is room to improve processes.</p> <p>The impact on other participants is minor in relation to the registry updates, but the inaccurate HHR data has a moderate to high potential impact.</p> | |
| Actions taken to resolve the issue | | Completion date |
| <p>This non-conformance was raised during the March 2020 audit. Vector Metering (VM) immediately discussed the findings and sought guidance from the Authority (via a Zoom meeting with the Authority & auditor on 20 March 2020) on options to correct these non-conformances. It was agreed at that meeting that VM was to submit self-breach reports, which were submitted to the Compliance Committee on 6 April 2020.</p> <p>A follow up meeting was held on 6 August 2020 with the Authority's Market Operations team where it was agreed that Arc apply for exemptions for the non-conformances, for consideration by the Authority at their October 2020 board meeting. The exemptions were submitted to the Authority's General Manager, Market Operations on 9 September 2020.</p> | | Ongoing |
| Preventative actions taken to ensure no further issues will occur | | Completion date |
| <p>We are awaiting from the Authority the outcomes of our exemption applications. If favourable, these non-conformances will be cleared. If not, then we will continue to work with the Authority to correct these non-conformances.</p> | | Ongoing |
| | | Investigating |

| Metering Installation Design & Accuracy | | | |
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| Non-compliance | Description | | |
| <p>Audit Ref: 4.3</p> <p>With: Clause 4(1) of Schedule 10.7</p> <p>From: 01-Nov-14</p> <p>To: 09-Nov-20</p> | <p>The design of the metering installation (including data storage device and interrogation system) does not ensure the sum of the measured error and the smallest possible increment of the energy value of the raw meter data does not exceed 2.5%.</p> <p>Potential impact: High</p> <p>Actual impact: High</p> <p>Audit history: Once</p> <p>Controls: Weak</p> <p>Breach risk rating: 9</p> | | |
| Audit risk rating | Rationale for audit risk rating | | |
| High | <p>I had previously recorded that there were no controls in place. I have revised this rating and recorded the controls as weak, because Arc Innovations relied on the content of material change audit reports, ongoing audit reports, an exemption and ATH certification records. However, the effectiveness of these controls did not result in "mitigation of risk most of the time", which would be required for controls to be rated as "moderate".</p> <p>There is a moderate impact on settlement accuracy because HHR intervals are not accurate. The impact on other participants is high, because cancellation of certification causes a major problem for HHR only traders. 7,360 ICPs are with HHR only traders.</p> | | |
| Actions taken to resolve the issue | | Completion date | Remedial action status |
| <p>Whilst we have learned a valuable lesson and accept responsibility for this issue, we disagree that our controls are 'weak' when assessed against the Authority's audit guidelines.</p> <p>Arc Innovations as a participant followed the required steps prior to certifying these meter types as HHR. It is reasonable to assume we can rely on multiple other participants providing us with correct information, similar to the reference in clause 10.4 (2)</p> <p>The type testing was completed and 'Passed' as non-half hourly years earlier at an IANZ accredited laboratory:</p> <ul style="list-style-type: none"> Material change audit completed and 'Passed' by the Authority approved auditor Exemption applied for and approved by the Authority Approval received from all relevant Authorised Test Houses 5 annual MEP audits completed by the Authority approved auditor. | | Ongoing | Investigating |
| | | | <p>Post audit comment</p> <p>I have reviewed the comments about the control rating, and I accept that ARC has been let down by multiple parties, who should all have identified this issue. However, the control rating refers to the effectiveness of the controls and not just the effort. There was clearly considerable effort but the controls did not "...mitigate risk most of the time" which is the</p> |
| Preventative actions taken to ensure no further issues will occur | | Completion date | |

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| <p>No new metering equipment has been introduced into Arc metering installations for several years.</p> <p>Learnings have been shared with Vector's other divisions to ensure future occurrences are avoided.</p> | Ongoing | requirement for controls to be rated as moderate. |
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| Changes to Registry Records | | | |
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| Non-compliance | Description | | |
| <p>Audit Ref: 4.10</p> <p>With: Clause 3 of Schedule 11.4</p> <p>From: 01-Mar-20</p> <p>To: 30-Sep-20</p> | <p>Some records updated on the registry later than 10 business days.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p> | | |
| Audit risk rating | Rationale for audit risk rating | | |
| Low | <p>I have recorded the controls as moderate in this area because they reduce risk most of the time but there is still room for improvement.</p> <p>The impact on settlement and participants is minor; therefore, the audit risk rating is low.</p> | | |
| Actions taken to resolve the issue | | Completion date | Remedial action status |
| ARCS = 40%: The delay in updating the records in the registry was due to the distributor not notifying ARCS as MEP of the creation of new ICPs. We tried several times to work with the distributor to provide us with the ICP split information in a timely fashion. However, this has not been forthcoming, and we were only finding out about late updates when the retailer contacted us. We are now working with retailers so they can identify the ICP split and provide the paperwork to allow us to update the Registry within the required timeframes. | | Ongoing | Identified |
| Preventative actions taken to ensure no further issues will occur | | Completion date | |
| <p>The 10-business day delay is a factor of back dating corrections and not due to late updates by the MEP. VM does not install Arc legacy metering under any circumstances and has not done so for a couple of years.</p> <p>Arc smart metering is only installed in very limited situations and areas, for example, when there is no other comms in the area i.e. GSM, or if by removing a particular meter, other surrounding meters will be affected and potentially lose comms.</p> | | Ongoing | |

| Provision of Registry Information | | | |
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| Non-compliance | Description | | |
| <p>Audit Ref: 6.2</p> <p>With: Clause 7 (1), (2) and (3) of Schedule 11.4</p> <p>From: 01-Mar-20</p> <p>To: 31-Oct-20</p> | <p>Some registry records incomplete or incorrect.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p> | | |
| Audit risk rating | Rationale for audit risk rating | | |
| Low | <p>I have recorded the controls as strong in this area. The number of discrepancies is very small.</p> <p>Very few of the discrepancies have an impact on participants, customers or settlement. The only relevant ones in this regard are tariff related and there were only a small number. The audit risk rating is low.</p> | | |
| Actions taken to resolve the issue | | Completion date | Remedial action status |
| <p><u>Control device not populated:</u> after removing duplicates the number of these devices is 1,162 which is slightly less than last year. We believe this is an issue with the report template and explains why the number grew last year when we have had not installed Arc legacy meters for several years. It could be that the above table switched from reporting ICPs to CPEs, or possibly due to the change in auditors who interpreted the data differently.</p> <p>We believe a similar reporting issue was responsible for the numbers increasing in the Feb 2020 audit, up from 204.</p> <p>As stated in the last report, the 14,713 ICPs with maximum interrogation cycle of one day are compliant and are taken directly from the type test report for the G2 meter type. These are interrogated twice daily (within the max interrogation cycle) and although the memory is sufficient for 40 days, the clock was specified in the type testing as 1 day (+ 5). We have erred on the side of caution.</p> <p>48 ICPs with max interrogation cycle = 0: These should be set to 1 and will be corrected immediately.</p> <p>All in all, these numbers are declining, and we expect to see dramatic reductions over the next three years as the Arc displacement ramps up.</p> | | Ongoing | Identified |
| Preventative actions taken to ensure no further issues will occur | | Completion date | |
| These numbers are declining, and we expect to see dramatic reductions over the next three years as the Arc displacement ramps up. | | 2023 | |

| Cancellation of Certification | | |
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| Non-compliance | Description | |
| <p>Audit Ref: 6.4</p> <p>With: Clause 20 of Schedule 10.7</p> <p>From: 01-Mar-19</p> <p>To: 12-Nov-20</p> | <p>Certification cancelled and registry not updated for:</p> <p>17,782 HHR settled installations where the HHR data is inaccurate per interval by more than 2.5% due to the data storage devices only having one decimal place, and 13,476 Generation 2 installations where the data storage devices failed type testing.</p> <p>Potential impact: High</p> <p>Actual impact: High</p> <p>Audit history: Multiple times</p> <p>Controls: Strong</p> <p>Breach risk rating: 3</p> | |
| Audit risk rating | Rationale for audit risk rating | |
| High | <p>I have recorded the controls as strong because certification cancellation is occurring on an ongoing basis for the first four points listed in the table and exemption applications have been made in relation to inaccurate HHR installations and failed type testing, following consultation with the Authority..</p> <p>These issues have a large impact on other participants and on settlement. The audit risk rating is high.</p> | |
| Actions taken to resolve the issue | | Completion date |
| <p>All other ICPs that required cancellation were cancelled.</p> <p>As stated in audit ref: 2.5, we are awaiting from the Authority the outcome of our exemption applications associated with the above ICPs. If favourable, these non-conformances will be cleared. If not, then we will continue to work with the Authority to correct these non- conformances, and cancellation of the above ICPs will occur.</p> | | Ongoing |
| Preventative actions taken to ensure no further issues will occur | | Completion date |
| <p>We are awaiting from the Authority the outcome of our exemption applications. If favourable, these non-conformances will be cleared. If not, then we will continue to work with the Authority to correct these non-conformances, and cancellation of the above ICPs will occur.</p> | | Ongoing |
| | | Investigating |

| Certification and Maintenance | | | |
|---|--|-----------------|------------------------|
| Non-compliance | Description | | |
| <p>Audit Ref: 7.1</p> <p>With: Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7</p> <p>From: 01-Mar-19</p> <p>To: 12-Nov-20</p> | <p>2,183 installations with expired certification.</p> <p>Approx. 31,000 installations with cancelled certification.</p> <p>Potential impact: High</p> <p>Actual impact: High</p> <p>Audit history: Multiple times</p> <p>Controls: Weak</p> <p>Breach risk rating: 9</p> | | |
| Audit risk rating | Rationale for audit risk rating | | |
| High | <p>I have recorded the controls as weak in this area because certification has been expired for a number of years for some ICPs and because some of the expired installations were fully certified at one point.</p> <p>The impact on settlement is recorded as high because of the increased likelihood of failure or inaccuracy for metering installations with expired certification, therefore the audit risk rating is high. The issues leading to cancelled certification all have an impact on settlement accuracy.</p> | | |
| Actions taken to resolve the issue | | Completion date | Remedial action status |
| <p>The increase shown above can be associated with the following reasons;</p> <ol style="list-style-type: none"> 1. A number of ARCS (smart) ICPs being recently cancelled: <ul style="list-style-type: none"> • 41 cancelled in October 2020 due to large time errors • 65 cancelled in October 2020 due to repeated time sync errors • 6 others cancelled for other reasons. 2. Meter stock issues due to Covid 19 <p>Process for recertifying Arc metering is to switch MEP to NGCM and displace these meters with EDM1 meters. Earlier this year our stocks of EDM1 meters ran extremely low causing us to prioritise stock to faults to 'keep the lights on' so to speak. There were a number of Arc metering installations that expired in 2019 which have not yet been displaced. These will be displaced in the next few months as field resource allow.</p> <p>The majority (1,862) are old interim certified meters and are being managed together with the rest of the Vector Metering 'Interim certified' meters. The number of these meters is down slightly from the March audit.</p> | | Ongoing | Identified |
| Preventative actions taken to ensure no further issues will occur | | Completion date | |

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| We have established a new reporting tool providing more accurate forecasting of expiring sites, allowing us to improve our planning for recertifying expiring installations. | Ongoing | |
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| Certification Tests | | | |
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| Non-compliance | Description | | |
| <p>Audit Ref: 7.2</p> <p>With: Clause 10.38(b)</p> <p>From: 01-Mar-19</p> <p>To: 12-Nov-20</p> | <p>Appropriate testing not conducted for Generation 2 data storage devices.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Once</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p> | | |
| Audit risk rating | Rationale for audit risk rating | | |
| Low | <p>The controls are recorded as moderate. They need to be strengthened to achieve full compliance.</p> <p>The impact on settlement and participants is minor; therefore, the audit risk rating is low.</p> | | |
| Actions taken to resolve the issue | | Completion date | Remedial action status |
| <p>This non-conformance was raised during the March 2020 audit. We immediately discussed the findings and sought guidance from the Authority (via a Zoom meeting with the Authority & auditor on 20 March 2020) on options to correct these non-conformances. It was agreed at that meeting that VM was to submit self-breach reports, which were submitted to the Compliance Committee on 6 April 2020.</p> <p>A follow up meeting was held on 6 August 2020 with the Authority's Market Operations team where it was agreed that Arc apply for exemptions for the non-conformances, for consideration by the Authority at their October 2020 board meeting. VM submitted the exemption applications to the General Manager, Market Operations on 9 September 2020.</p> | | Ongoing | Investigating |
| Preventative actions taken to ensure no further issues will occur | | Completion date | |
| VM is awaiting the outcome of our exemption application from the Authority. That will determine how we proceed with this non-compliance. | | Ongoing | |

| Active and Reactive Capability | | |
|---|---|-----------------|
| Non-compliance | Description | |
| Audit Ref: 7.3 With: Clause 10.37(1) and 10.37(2)(a) From: 01-Mar-19 To: 12-Nov-20 | Generation 1 Category 2 meters not capable of measuring and recording reactive energy. Potential impact: None Actual impact: None Audit history: Once Controls: Moderate Breach risk rating: 2 | |
| Audit risk rating | Rationale for audit risk rating | |
| Low | The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. There doesn't appear to be any impact, therefore the audit risk rating is low. | |
| Actions taken to resolve the issue | | Completion date |
| VM accepts this finding and is already working to displace these meters with EDM I smart meters capable of complying with this clause. | | 2023 |
| Preventative actions taken to ensure no further issues will occur | | Completion date |
| VM began actively displacing Arc Cat 2 metering with EDM I smart meters last year and is halfway through this process. We will prioritize further upgrades this year and have now launched a full program to displace all remaining Arc metering. | | 2023 |
| | | Identified |

| Interim Certification | | |
|---|---|-----------------|
| Non-compliance | Description | |
| <p>Audit Ref: 7.19</p> <p>With: Clause 18 of Schedule 10.7</p> <p>From: 01-Apr-15</p> <p>To: 12-Nov-20</p> | <p>1,868 ICPs with expired interim certification.</p> <p>Potential impact: High</p> <p>Actual impact: Medium</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 4</p> | |
| Audit risk rating | Rationale for audit risk rating | |
| Medium | <p>I have recorded the controls as moderate in this area because certification has been expired for five years for these ICPs.</p> <p>The impact on settlement is recorded as moderate because of the increased likelihood of failure or inaccuracy for metering installations with expired certification, therefore the audit risk rating is medium.</p> | |
| Actions taken to resolve the issue | | Completion date |
| <p>VM has begun a program to displace all Arc metering, including any expired interim certified metering.</p> <p>We are finding many barriers to upgrading these older meters, we share this information with the EA on a regular basis. The majority of the expired metering installations stated above are in the Central Hawkes Bay region and will be addressed during 2021, as part of the Arc displacement project.</p> | | Ongoing |
| Preventative actions taken to ensure no further issues will occur | | Completion date |
| <p>VM has a programme to upgrade all expired interim certified meters including the ones identified above. Once completed, this programme will address this non-compliance.</p> | | Ongoing |
| | | Identified |

| Category 2 to 5 Inspections | | |
|--|---|-----------------|
| Non-compliance | Description | |
| <p>Audit Ref: 8.2</p> <p>With: Clause 46(1) of Schedule 10.7</p> <p>From: 14-Oct-20</p> <p>To: 14-Oct-20</p> | <p>Inspection not conducted within the allowable window for ICP 0007134517RN87F.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Once</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p> | |
| Audit risk rating | Rationale for audit risk rating | |
| Low | <p>The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement.</p> <p>The impact on settlement and participants could be minor; therefore, the audit risk rating is low.</p> | |
| Actions taken to resolve the issue | | Completion date |
| Cancellation was completed on 22 October 2020 for any Cat 2 installations not inspected for 10 years + 6 months, including ICP 0007134517RN87F. Unfortunately, the cancellation date was 8 days after the allowable inspection date for this particular ICP, hence the reason for this non-compliance. | | 22/10/2020 |
| Preventative actions taken to ensure no further issues will occur | | Completion date |
| The remaining few Cat 2 installations with a 15-year certification will be cancelled once the meters reach 10 years, or as part of the Arc displacement program, whichever happens sooner. This will address this non-compliance as no further Arc Cat 2 meters will have 15-year certifications. | | Ongoing |
| | | Cleared |

| Time Errors for Metering Installations | | |
|---|--|-----------------|
| Non-compliance | Description | |
| <p>Audit Ref: 10.7</p> <p>With: Clause 8(4) of Schedule 10.6</p> <p>From: 01-Sep-20</p> <p>To: 30-Sep-20</p> | <p>Clock errors greater than the threshold for 2,236 ICPs.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Twice</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p> | |
| Audit risk rating | Rationale for audit risk rating | |
| Low | <p>The controls are recorded as moderate because sound reporting is in place and resolution processes are in place.</p> <p>48 of the errors were great than a trading period but this is a small percentage of the overall quantity. The audit risk rating is low.</p> | |
| Actions taken to resolve the issue | | Completion date |
| <p>All clock errors are corrected during the interrogation and if they are outside the 'Code' limits, they are reported to each Retailer. Our internal thresholds are set lower than the limits stated in the Code, i.e. +/- 5 Secs Cat 2 & +/- 15 Secs Cat 1.</p> <p>Clock errors that repeatedly or excessively exceed the limits set out in the Code are investigated by our technical team. The team will attempt a manual correction, and if unsuccessful, will replace the device. We have reduced the period between the identification of these errors and their investigation.</p> | | Ongoing |
| Preventative actions taken to ensure no further issues will occur | | Completion date |
| Our time correction is predominantly automated. We have begun a full fleet replacement program which will address this non-compliance. | | 2023 |