Network Event & Alarm Transparency (NEAT) WP5 D1 Trials & Analysis Report

April 2023 Version 1.0

Electricity Distribution

nationalgrid

Version Control

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Contents

1 Introduction

1.1 Purpose of NEAT

The Network Event and Alarm Transparency (NEAT) project aims to use analytical methods on alarms and events to discover the root causes of alarms on the Active Network Management (ANM) and System Voltage Optimisation (SVO) system when they are not operating optimally. These systems are relatively new and have been developed as the Distribution Network Operator (DNO) develops additional roles as part of the transition to a Distribution System Operator (DSO). It is expected that further, similar systems may need to be developed to support other future DSO functions.

At present, while there real-time data exchanges with the control system, PowerOn, to both ANM and SVO when the systems fail to operate correctly it is difficult to determine the cause of the problem as the alarm and event logs for each system do not contain any contextual data from PowerOn or elsewhere to help determine the root cause. Once the root cause of an issue is identified, not only can the immediate issue be resolved more quickly but subsequent recurrences can be identified and resolved faster. Therefore NEAT purpose is to improve understanding of the root causes of alarms which will in turn help reduce the frequency of system problems, reduce alarm and event volumes and ensure ANM and SVO are operating optimally.

The NEAT tool combines data from several National Grid Electricity Distribution (NGED) systems to be used in complex analytics and modelling, for instance, correlating ANM/SVO alarms and events with information from the asset register and control room. The system has been deployed to NGED's estate and operates via a web-browser displaying dashboards that allow for drilling down into event details.

1.2 SVO system discontinuation and ANM system enhancement

During the course of the NEAT project there were two major changes that affect the System Trial. The first was that the SVO system, which had been continuing to operate after the end of the Equilibrium project under which it was developed and installed, was switched off. This was due to the high cost of licenses. The long-term aim is to re-establish the SVO functionality from within PowerOn which will have the benefit of then only requiring one network model to be maintained. This means that at the time of the System Trial the SVO system is not providing alarm and event data that can be investigated in real-time. However the trial will reformat historical SVO data to be processed through the system in order to show how that data was successfully combined with historic data from PowerOn. To allow for the time to reformat the SVO data this took place at the end of the System Trial.

The second change relates to the Cornwall ANM system. When the ANM systems were originally assessed it was found that neither systems developed by SGS nor systems developed by ZIV provided reporting facilities to routinely and automatically export additional alarm and event data that was held internally within the systems but not shared with PowerOn. It was determined that the ZIV system for Cornwall could be enhanced to make this data visible via inclusion of additional items on the Inter Control-System Communications Protocol (ICCP) link which connects the ZIV ANM system with PowerOn. While this enhancement began in November 2021 it was not until December 2022 that the enhancement made new data available due to delays in work to upgrade the Cornwall ANM system. This meant that data was only available to the trial after that point but no additional events were detected.

1.3 System set up and related documentation

The System Trial followed on from User Acceptance Testing (UAT) which is documented in the Deployment and Test Report.
The System Design document recorded the NEAT Use Cases and functional requirements. The way in which the system supports these has been replicated in Appendices 1 & 2.

2 NEAT Trial

2.1 Trial purpose

The System Trial aims to gather experience of using the system with real data and real users. The UAT has already demonstrated that the system navigates between dashboards and event details correctly including filtering events and creating related graphics.

The purpose of the trial is to;

- investigate the events that the system identifies
- confirm whether the system is supporting the functional requirements documented in Appendix 1 as expected. E.g. if root causes which have already been determined are correctly associated with similar subsequent events
- consider the requirements of a user supporting ANM and SVO systems and evaluate whether improvements could be made to the design of the system

2.2 Trial methodology

The System Trial took place over a 12 week period with integrated review cycles to allow, where possible, tweaks to the system to be deployed to reflect learning that was captured early.

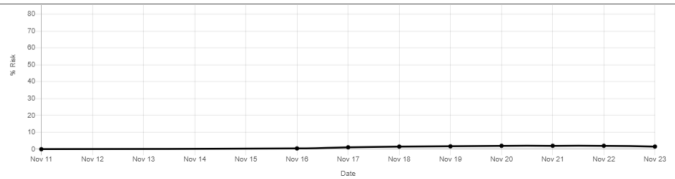
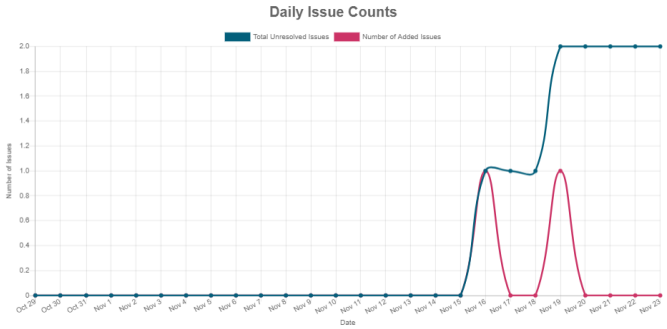
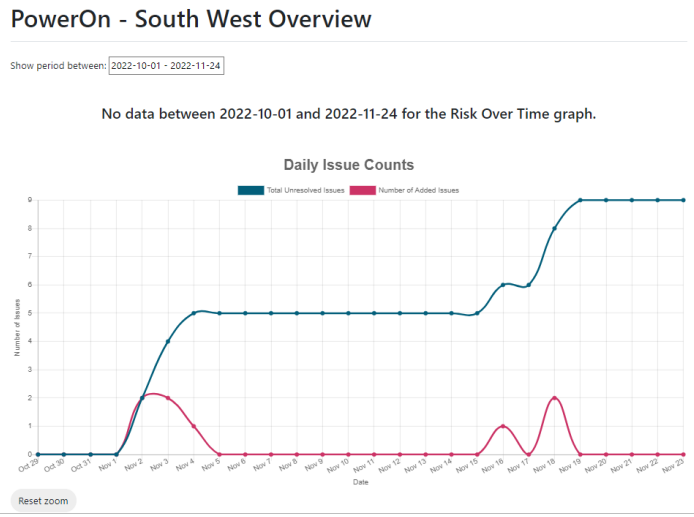
During the System Trial the Trial Log was updated whenever the system was assessed. This assessment was undertaken by the NEAT project manager from NGED. Cybersecurity limited access to the system to NGED and Harmonic therefore no testing could be carried out by PSC.

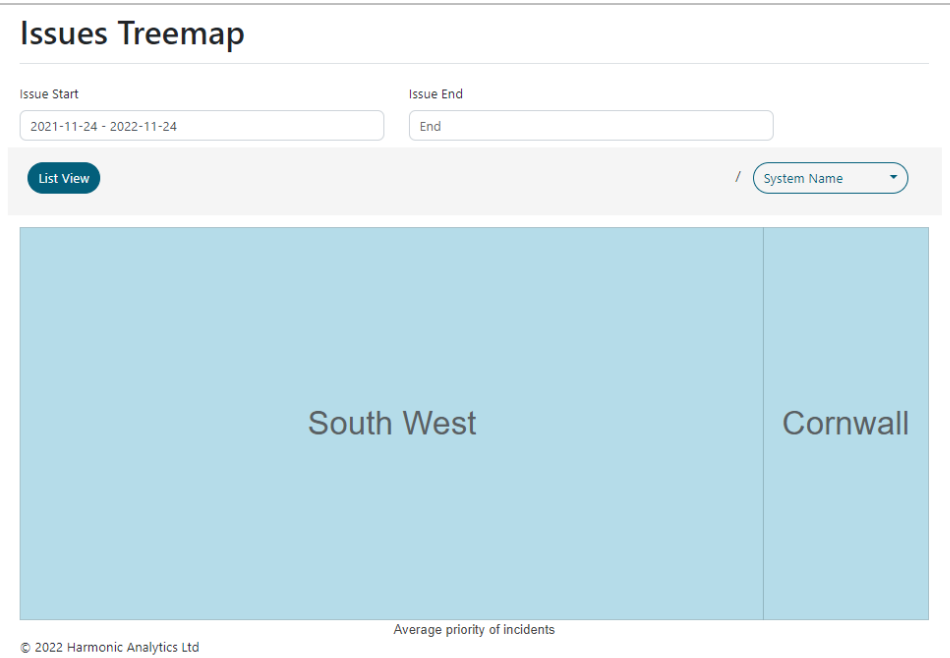
Routine assessment of the events was complemented by User Reviews by other members of staff within NGED. Unfortunately no member of staff has a role that is exactly equivalent to the foreseen role of the NEAT user. However, these user reviews brought additional perspectives from those who;

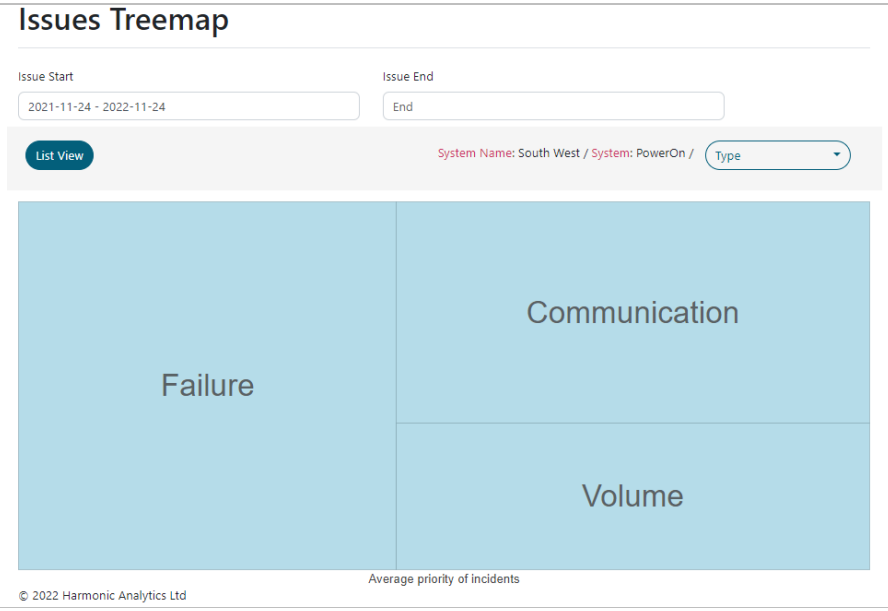
- currently design and deploy ANM systems,
- are involved in innovation projects, or
- are involved in supporting our existing control system.

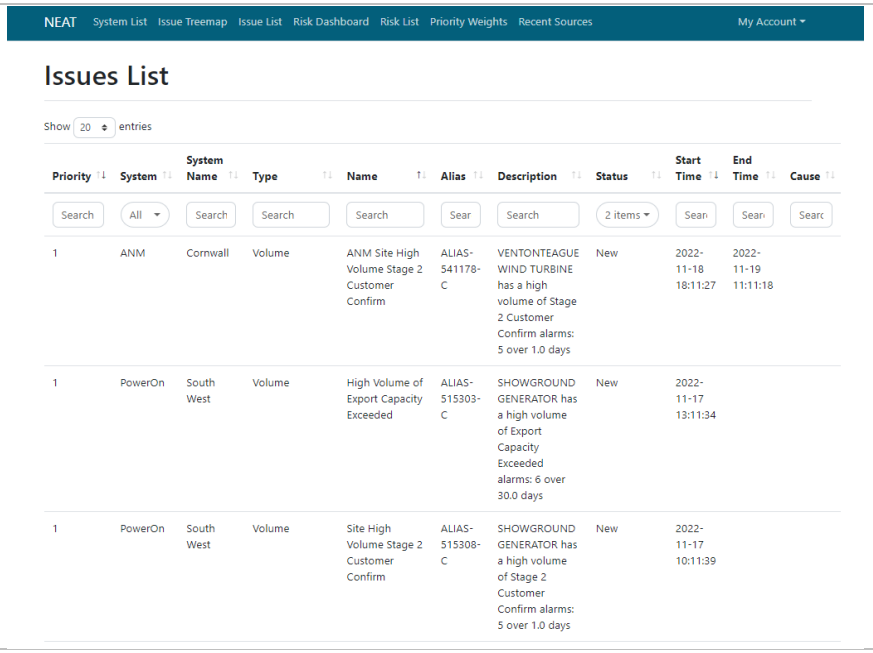
3 Trial Log

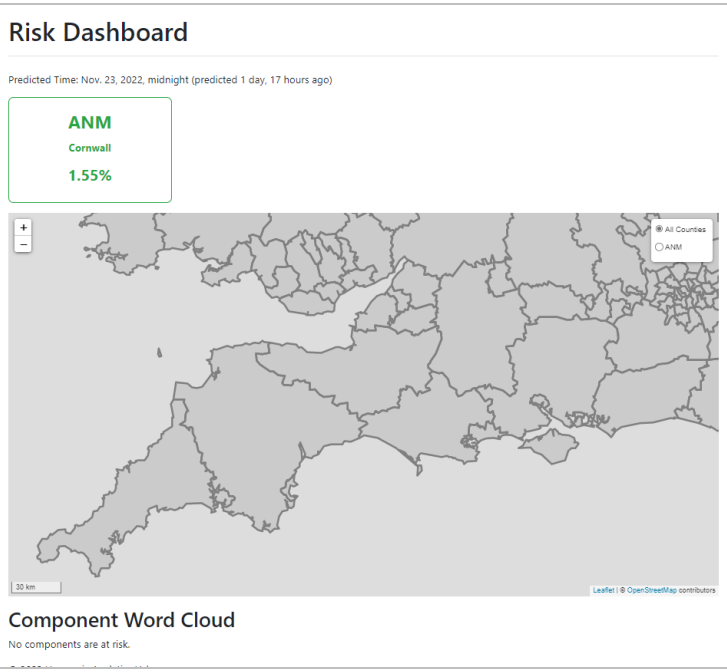
3.1 Real Time Data

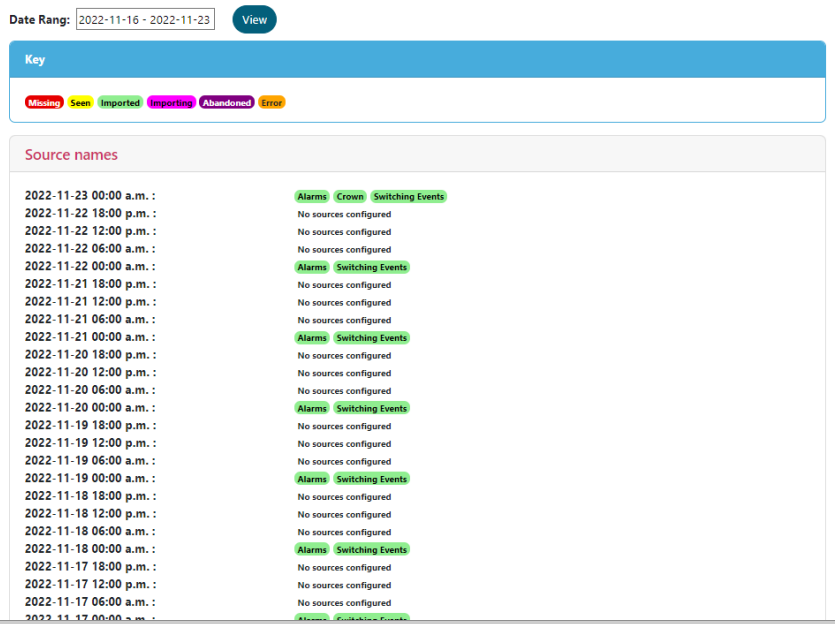
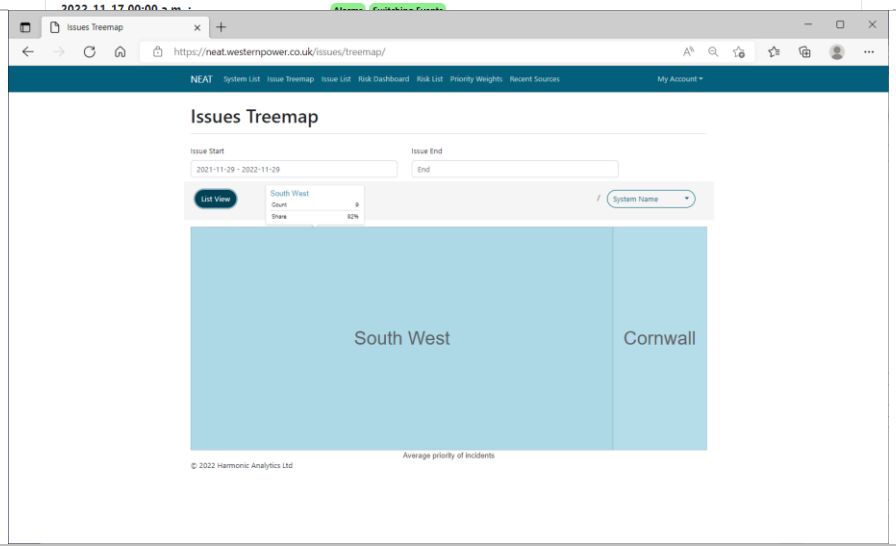
Date	Component	Observation	
24/11/22	ANM Cornwall overview	 	No additional events in the last few days. Risk rating was only slightly above zero at the time of the events.
24/11/22	PowerOn		Again, there have not been any events in the last couple of days. One of the PowerOn events coincides with the ANM event on 16th November -(investigate to confirm whether these are related) The other events occur on the 18th and 19th suggesting they may not be related (investigate incidents to confirm) Risk over time chart is not working

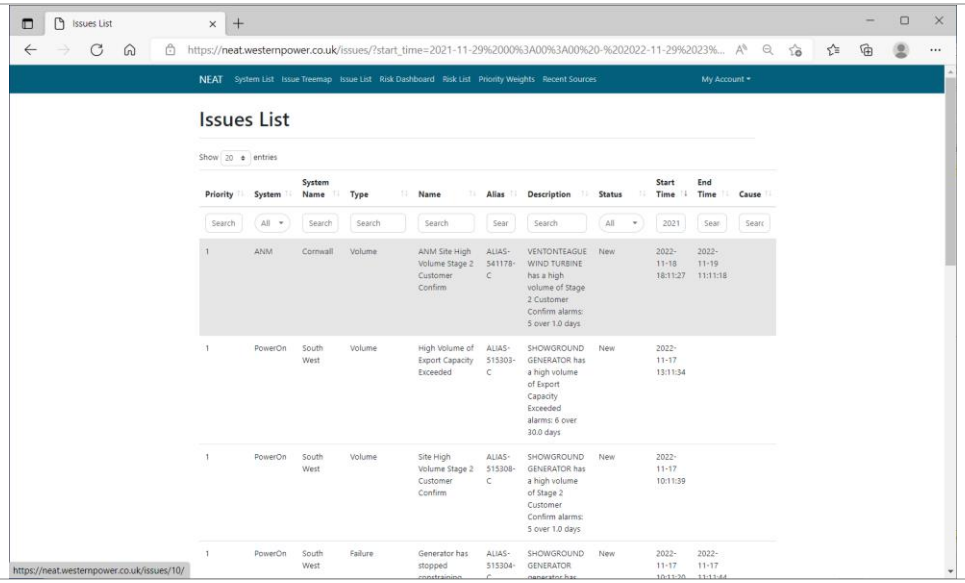
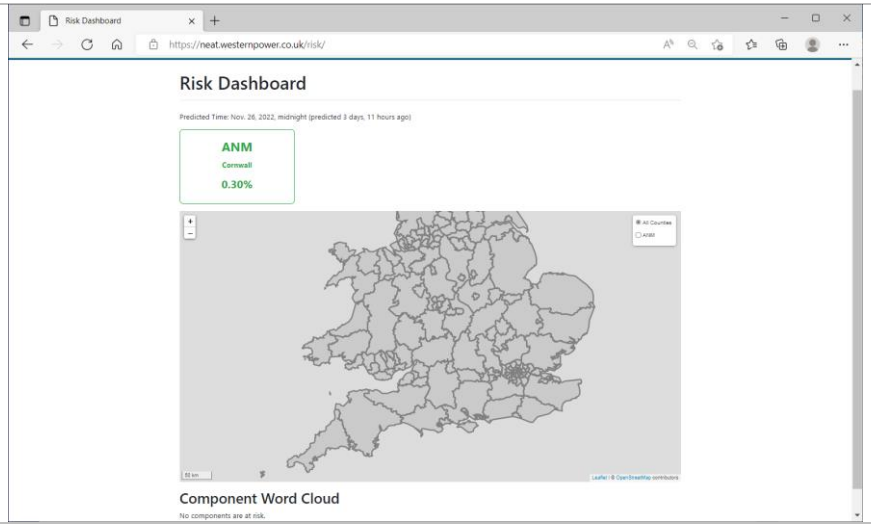
Date	Component	Observation	
24/11/22	Treemap		As suggested by the initial charts – many more PowerOn issues than ANM related issues are observed.

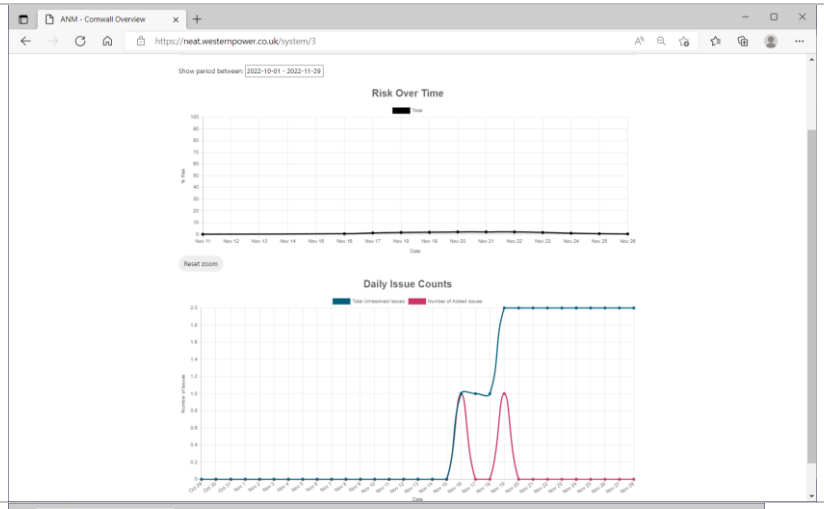
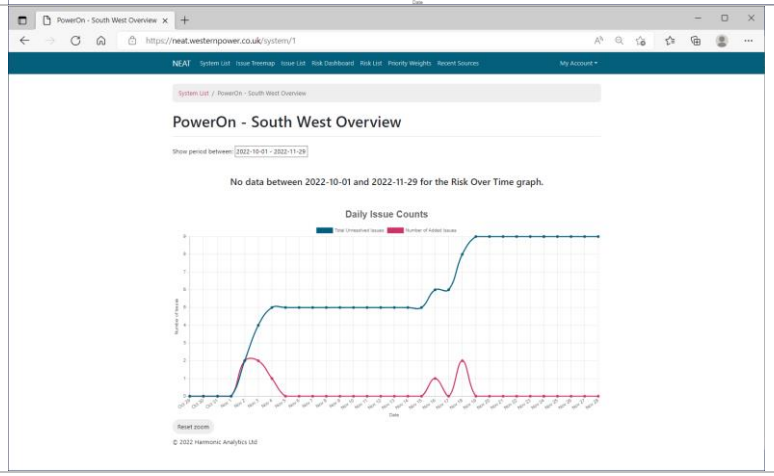
Date	Component	Observation	
24/11/22	Treemap		The balance of issue types has changed since UAT reflecting the larger sample size of issues.

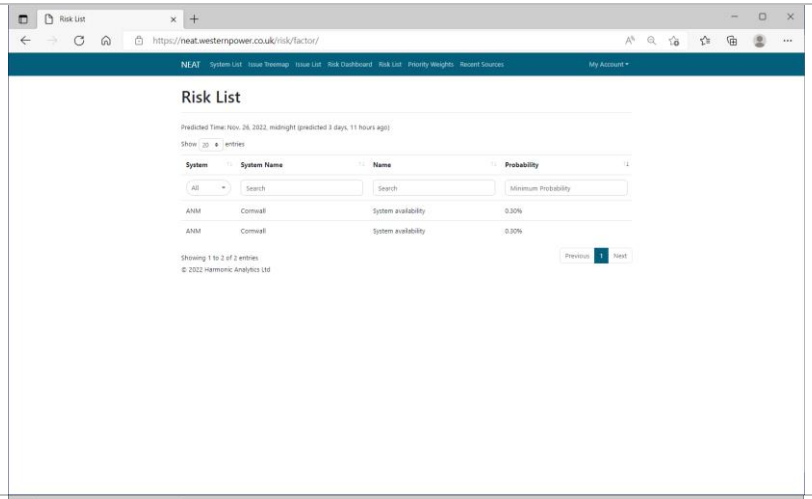
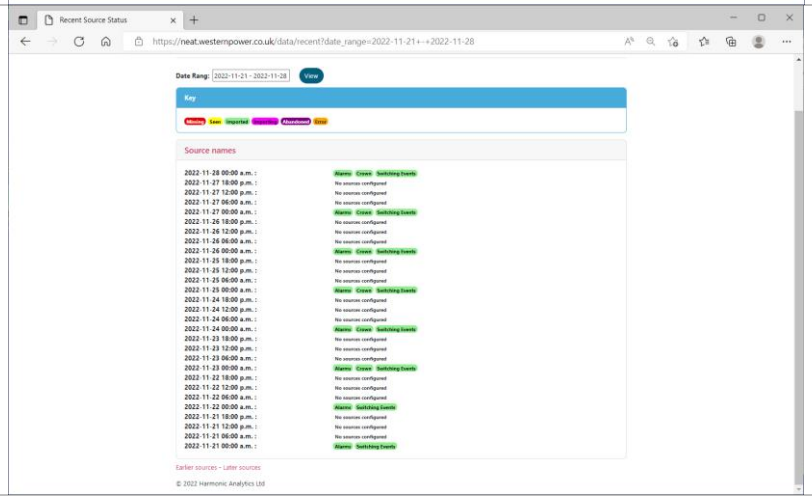
Date	Component	Observation
24/11/22	Issues List	 All Issues are priority 1.

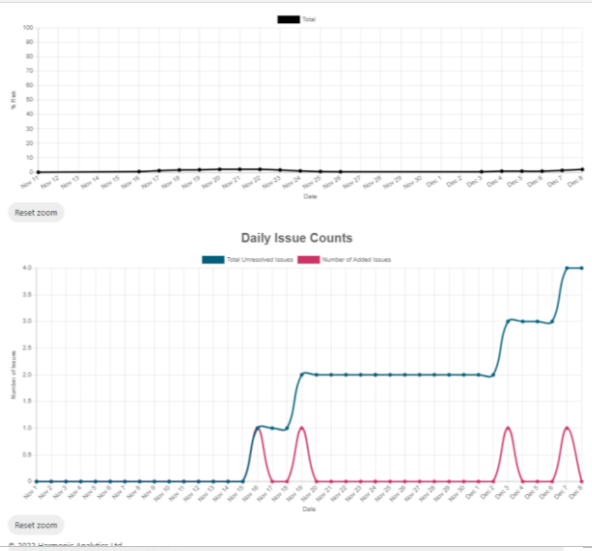
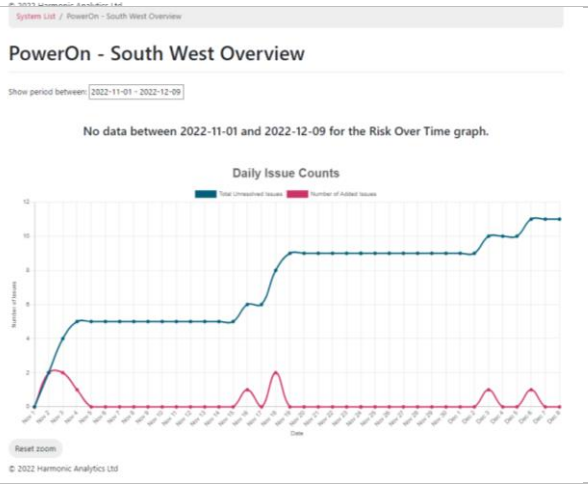
Date	Component	Observation	
24/11/22	Risk Dashboard		No components are at risk but the overall risk is non-zero. Is this due to the risk from telecoms which may have items that are not within the component list? No risk for PowerOn – confirmed to reflect the system design as PowerOn already has a support team.

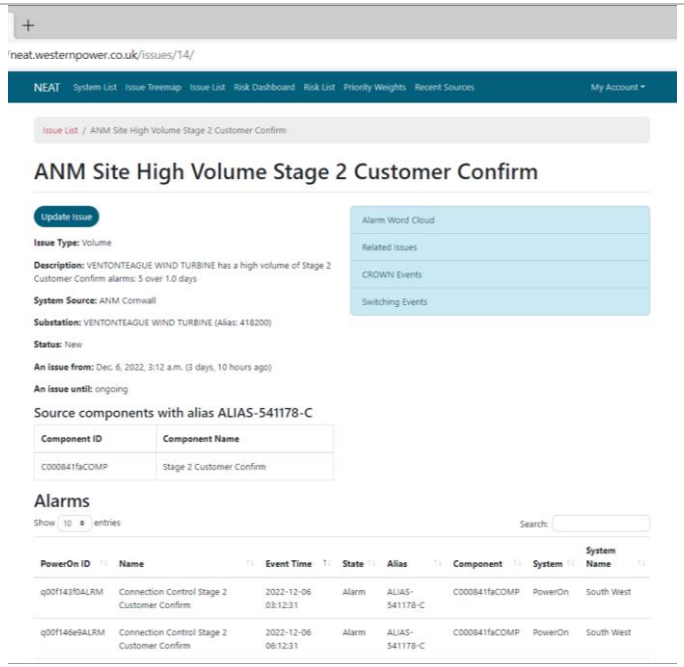
Date	Component	Observation	
24/11/22	Recent Source Status		This is the first time the CROWN source has been seen to import successfully on 23/11/2022. Alarm and Switching events routinely importing daily. The three rows of “no sources configured” relate to an expected 6 hourly frequency of data updates, however it was only practical to run reports daily, hence there are no additional reports for the other 6 hourly reporting points.
29/11/22	Issues Treemap		No additional issues are apparent since 24/11 9 issues for South West 2 issues for PowerOn

Date	Component	Observation	
29/11/22	Issues List		No additional issues are confirmed by the most recent date of issue start being found to be 18/11/2022 by using the sort function on the “start time” field.
29/11/22	Recent Sources		
29/11/22	Risk Dashboard		Risk has increased since 24/11/2022 up to 0.3% from 1.55% though no specific components are identified.

Date	Component	Observation	
29/11/22	ANM Cornwall overview		Very similar position to 24/11/2022 – no new issues
29/11/22	PowerOn		No recent issues for PowerOn in the overview

Date	Component	Observation	
29/11/22	Risk List		ANM risk appears to be listed twice. Is this intended?
29/11/22	Data Sources		Typo/ label size issue – “Date Rang” rather than “Date Range” on the label for date selection Data is being imported each day. This is consistent with previous testing on 24th in that the most recent file is for the previous day. (23/11/22) On 29/11/2022 , most recent file is for **2022-11-28 00:00 a.m.** Though the system is being accessed past 00:00am on 29/11/2022.

Date	Component	Observation	
09/12/22	System List ANM		Additional events are seen to have occurred in December (3rd and 7th). These may relate to the commissioning of the upgraded ANM system.
09/12/22	System List PowerOn		Two new events are also seen for PowerOn but on December 3rd and December 6th.

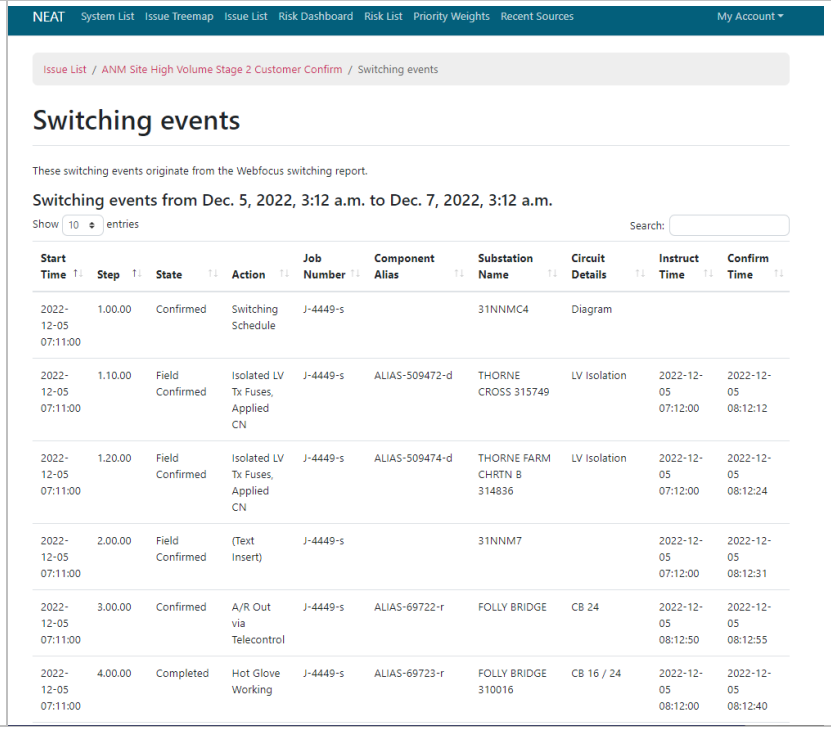
Date	Component	Observation
09/12/22	ANM issue	

One of the new issues is investigated.

This shows that a Stage 2 Customer Confirm alarms: 5 over 1.0 days

Examination of the alarm data shows alarms and normal states between 6th and 8th December. It can be seen that the alarm and normal states are often paired within the same minute. Extraordinarily all the alarms shown occur at 12 minutes past the hour which suggests they relate to a routine scheduled process.

06/12/2022 03:12	Alarm
06/12/2022 06:12	Alarm
06/12/2022 06:12	Normal
06/12/2022 12:12	Normal
06/12/2022 12:12	Alarm
06/12/2022 13:12	Alarm
06/12/2022 13:12	Normal
06/12/2022 13:12	Alarm
06/12/2022 16:12	Normal
07/12/2022 10:12	Normal
07/12/2022 10:12	Alarm
07/12/2022 11:12	Alarm
07/12/2022 12:12	Alarm
07/12/2022 12:12	Normal
07/12/2022 13:12	Alarm
07/12/2022 13:12	Normal
07/12/2022 14:12	Alarm
07/12/2022 14:12	Normal
07/12/2022 14:12	Alarm
07/12/2022 14:12	Normal
07/12/2022 18:12	Alarm
07/12/2022 18:12	Normal

Date	Component	Observation
		07/12/2022 22:12 Normal 08/12/2022 00:12 Alarm 08/12/2022 16:12 Normal
09/12/22	ANM issue	 The event shows related switching events. The fact that all the instruct and confirm times occur at 12 minutes past the hour suggests this may be an error in data processing rather than relating to a scheduled event on another system.

NEAT System List Issue Treemap Issue List Risk Dashboard Risk List Priority Weights Recent Sources My Account

Issue List / ANM Site High Volume Stage 2 Customer Confirm / Switching events

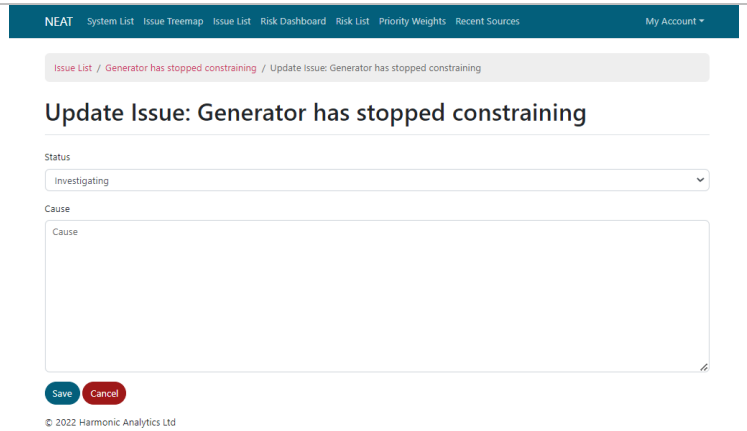
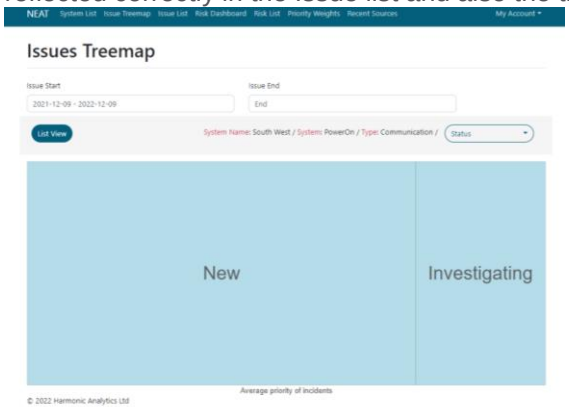
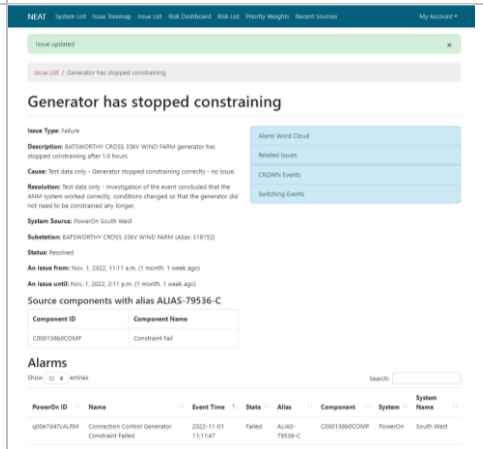
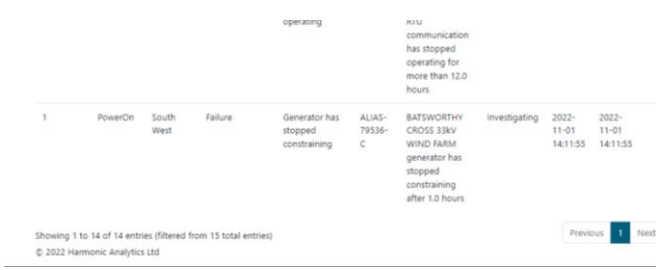
Switching events

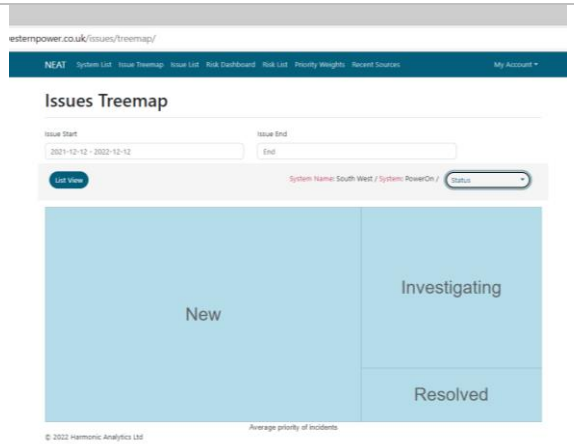
These switching events originate from the Webfocus switching report.

Switching events from Dec. 5, 2022, 3:12 a.m. to Dec. 7, 2022, 3:12 a.m.

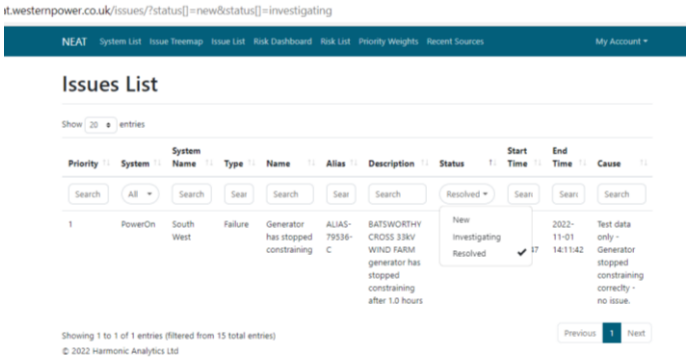
Show 10 entries Search:

Start Time	Step	State	Action	Job Number	Component Alias	Substation Name	Circuit Details	Instruct Time	Confirm Time
2022-12-05 07:11:00	1.00.00	Confirmed	Switching Schedule	J-4449-s		31NNMC4	Diagram		
2022-12-05 07:11:00	1.10.00	Field Confirmed	Isolated LV Tx Fuses, Applied CN	J-4449-s	ALIAS-509472-d	THORNE CROSS 315749	LV Isolation	2022-12-05 07:12:00	2022-12-05 08:12:12
2022-12-05 07:11:00	1.20.00	Field Confirmed	Isolated LV Tx Fuses, Applied CN	J-4449-s	ALIAS-509474-d	THORNE FARM CHRTN B 314836	LV Isolation	2022-12-05 07:12:00	2022-12-05 08:12:24
2022-12-05 07:11:00	2.00.00	Field Confirmed	(Text Insert)	J-4449-s		31NNM7		2022-12-05 07:12:00	2022-12-05 08:12:31
2022-12-05 07:11:00	3.00.00	Confirmed	A/R Out via Telecontrol	J-4449-s	ALIAS-69722-r	FOLLY BRIDGE	CB 24	2022-12-05 08:12:50	2022-12-05 08:12:55
2022-12-05 07:11:00	4.00.00	Completed	Hot Glove Working	J-4449-s	ALIAS-69723-r	FOLLY BRIDGE 310016	CB 16 / 24	2022-12-05 08:12:00	2022-12-05 08:12:40

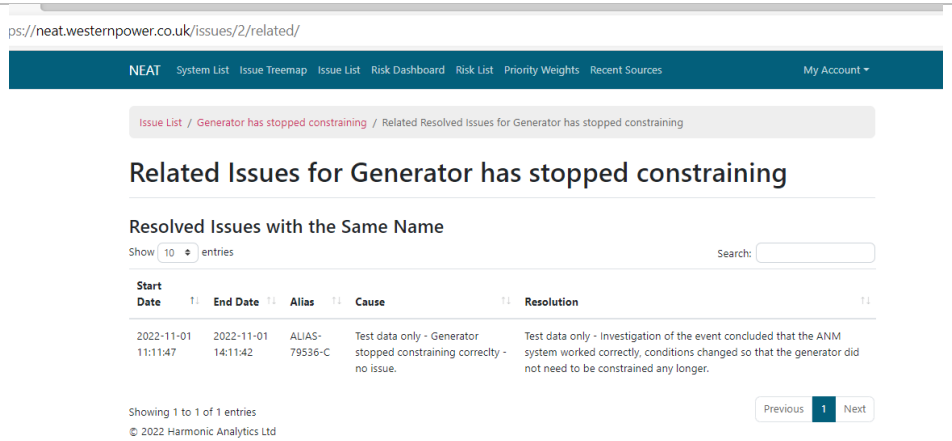
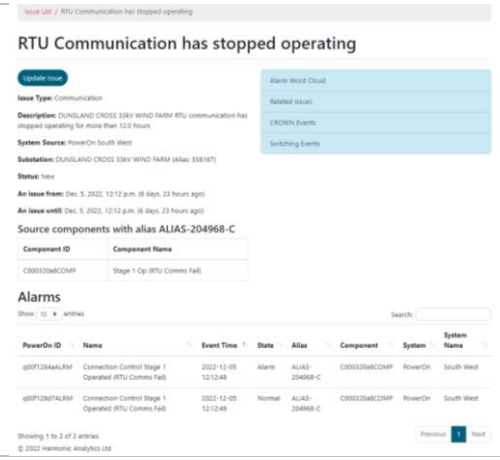
Date	Component	Observation
09/12/22	Issue detail	 Issues can be updated to the status of Investigating which is then reflected correctly in the Issue list and also the tree map views. 
12/12/22	Issue detail	 Further dummy entries made to give info on cause and then issue marked as resolved. Green “Issue Updated” notification on screen. Cause and resolution text added to issue detail on screen. Issue then filtered out of Issue List. 

<table>
<tr><th>Date</th><th>Component</th><th>Observation</th></tr>
<tr><td>12/12/22</td><td>Treemap following issue resolution</td><td>


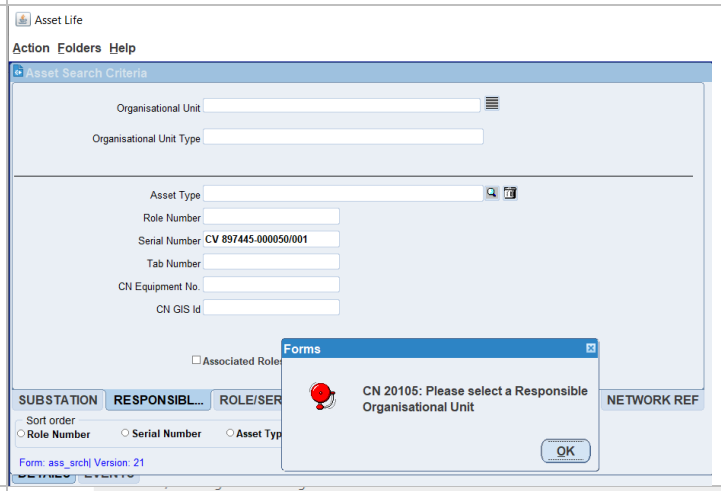
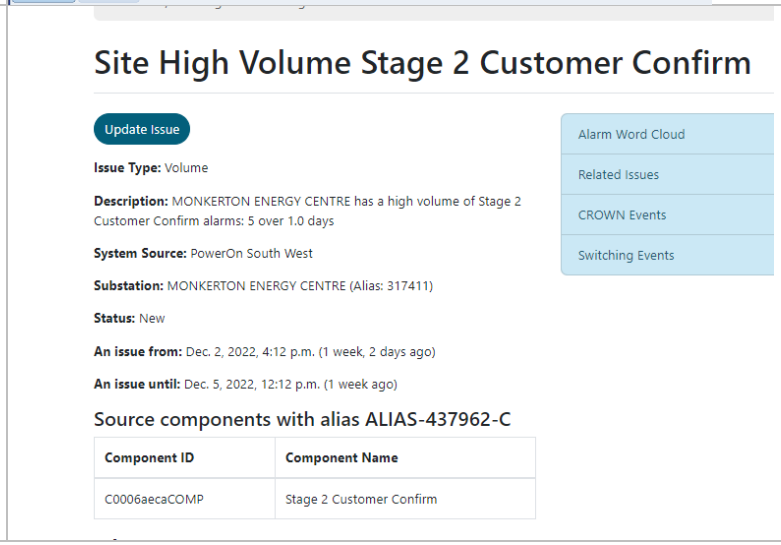
Following issue resolution the treemap correctly shows a new item by status of Resolved.

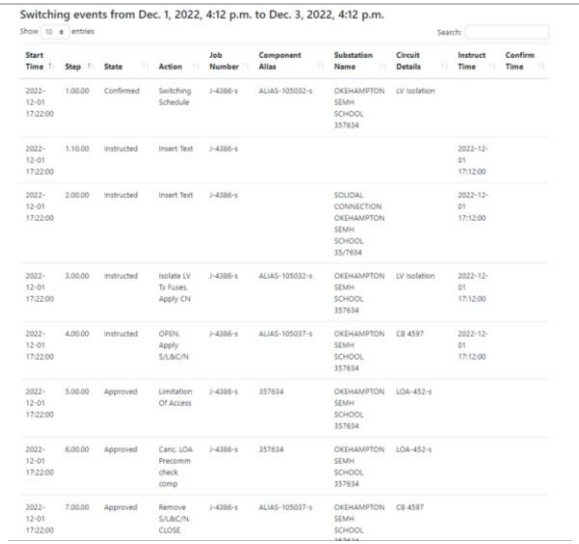
The Issue list can be set up to filter to include resolved items or only show resolved items correctly as given below.


</td></tr>
<tr><td>12/12/22</td><td>Issue List</td><td>Issue types – even with a low number of issues there are some issue types that are more frequently observed.
<table>
<tr><th></th><th>Count</th><th>Comment</th></tr>
<tr><td>ANM Site High Volume Stage 2 Customer Confirm</td><td>4</td><td>All at the same location - Ventonteague</td></tr>
<tr><td>Generator has stopped constraining</td><td>4</td><td>Across three different locations Batsworthy Cross 33kV Wind Farm (x2) and Stoneshill 33KV Solar Park, Showground Generator</td></tr>
<tr><td>RTU Communication has stopped operating</td><td>3</td><td>3 separate locations - old stone farm solar park, place barton farm solar park, dunsland cross wind farm</td></tr>
<tr><td>Site High Volume Stage 2 Customer Confirm</td><td>2</td><td>Showground Generator and Monkerton Energy Centre</td></tr>
</table>
</td></tr>
</table>

Date	Component	Observation
		Showground Generator has been involved in three different issue types. ● Generator has stopped constraining ● High Volume of Export Capacity Exceeded ● Site High Volume Stage 2 Customer Confirm
12/12/22	Related issues	 Now that an issue is resolved, it appears as a related issue for the live issues with the same name.
12/12/22	CROWN events	 For an event where the RTU at a generation site stopped responding, the CROWN events are seen to all have dates significantly earlier than the event and all on the same day. As these relate to inspections this is possible but the lack of easy to interpret locational data makes it hard to know whether any of these events are relevant – the only hint is that one inspection took place at Dunsland/steps and the RTU event relates to Dunsland Cross Windfarm.

Date	Component	Observation
		.westernpower.co.uk/issues/15/crown/events/ **Component ID** / **Component Name** C000320a8COMP / Stage 1 Op (RTU Comms Fail) No assets directly related to the issue **Events on substation: DUNSLAND CROSS 33kV WIND FARM** Show 10 entries Search: **Date** / **Event Type** / **Asset ID** / **Asset Type** / **Serial Number** / **Role Number** 29/11/2022 / Inspection - Site And Asset / 5185594 / SWEB Asset Types, Operables, Circuit Breakers, GM, EHV, NX plus / CV 897445-000050/001 / 1L5 29/11/2022 / Inspection - Site And Asset / 5185612 / SWEB Asset Types, Windings, Voltage Transformer, Switch mtd, EHV, 4MU16XD / 16/31047323 / 1M0 VT3 L1 29/11/2022 / Inspection - Site And Asset / 5185615 / SWEB Asset Types, Windings, Voltage Transformer, Switch mtd, EHV, 4MU16XD / 16/31047324 / 1M0 VT3 L2 29/11/2022 / Inspection - Site And Asset / 5185616 / SWEB Asset Types, Windings, Voltage Transformer, Switch mtd, EHV, 4MU16XD / 16/31047325 / 1M0 VT3 L3 29/11/2022 / Inspection - Site And Asset / 5185621 / SWEB Asset Types, Ancillaries, Battery Charger, PCS15-48-030-41 / 22521-2/4810 / BC 48V 29/11/2022 / Inspection - Site And Asset / 5185622 / SWEB Asset Types, Ancillaries, Battery Charger, PCS15-110-025-41 / 24166-1/6071 / BC 110V 29/11/2022 / Inspection - Site And Asset / 5185628 / SWEB Asset Types, Ancillaries, Battery, Powersafe SBS C11 / NOT APPLICABLE / BATT 48V 29/11/2022 / Inspection - Site And Asset / 5185629 / SWEB Asset Types, Ancillaries, Battery, Powersafe SBS C11 / NOT APPLICABLE / BATT 110V 29/11/2022 / Inspection - Site And Asset / 5609057 / SWEB Asset Types, Ancillaries, Steps, Fibre Glass / NO SERIAL NUMBER / DUNSLAND/STEPS 29/11/2022 / Inspection - Site And Asset / 5185596 / SWEB Asset Types, Operables, Circuit Breakers, GM, EHV, NX plus / CV 897445-000070/001 / 2L5 Showing 1 to 10 of 18 entries Previous 1 2 Next © 2022 Harmonic Analytics Ltd **operating** Source components with alias ALIAS-204968-C **Component ID** / **Component Name** C000320a8COMP / Stage 1 Op (RTU Comms Fail) No assets directly related to the issue **Events on substation: DUNSLAND CROSS 33kV WIND FARM** Show 10 entries Search: **Date** / **Event Type** / **Asset ID** / **Asset Type** / **Serial Number** / **Role Number** 29/11/2022 / Inspection - Site And Asset / 5185597 / SWEB Asset Types, Operables, Circuit Breakers, GM, EHV, NX plus / CV 897445-000060/001 / 1M0 29/11/2022 / Inspection - Site And Asset / 5185600 / SWEB Asset Types, Windings, Voltage Transformer, Switch mtd, EHV, 4MU16XD / 16/31047227 / 1L5 VT1 L1 29/11/2022 / Inspection - Site And Asset / 5185602 / SWEB Asset Types, Windings, Voltage Transformer, Switch mtd, EHV, 4MU16XD / 16/31047228 / 1L5 VT1 L2 29/11/2022 / Inspection - Site And Asset / 5185604 / SWEB Asset Types, Windings, Voltage Transformer, Switch mtd, EHV, 4MU16XD / 16/31047229 / 1L5 VT1 L3 29/11/2022 / Inspection - Site And Asset / 5185606 / SWEB Asset Types, Windings, Voltage Transformer, Switch mtd, EHV, 4MU16XD / 16/31047230 / 2L5 VT2 L1 29/11/2022 / Inspection - Site And Asset / 5185607 / SWEB Asset Types, Windings, Voltage Transformer, Switch mtd, EHV, 4MU16XD / 16/31047231 / 2L5 VT2 L2 29/11/2022 / Inspection - Site And Asset / 5185610 / SWEB Asset Types, Windings, Voltage Transformer, Switch mtd, EHV, 4MU16XD / 16/31047232 / 2L5 VT2 L3 29/11/2022 / Inspection - Site And Asset / 5526568 / SWEB Asset Types, Ancillaries, Environment, Building, Building / / ENVB3 Showing 11 to 18 of 18 entries Previous 1 2 Next © 2022 Harmonic Analytics Ltd
12/12/22	CROWN events	

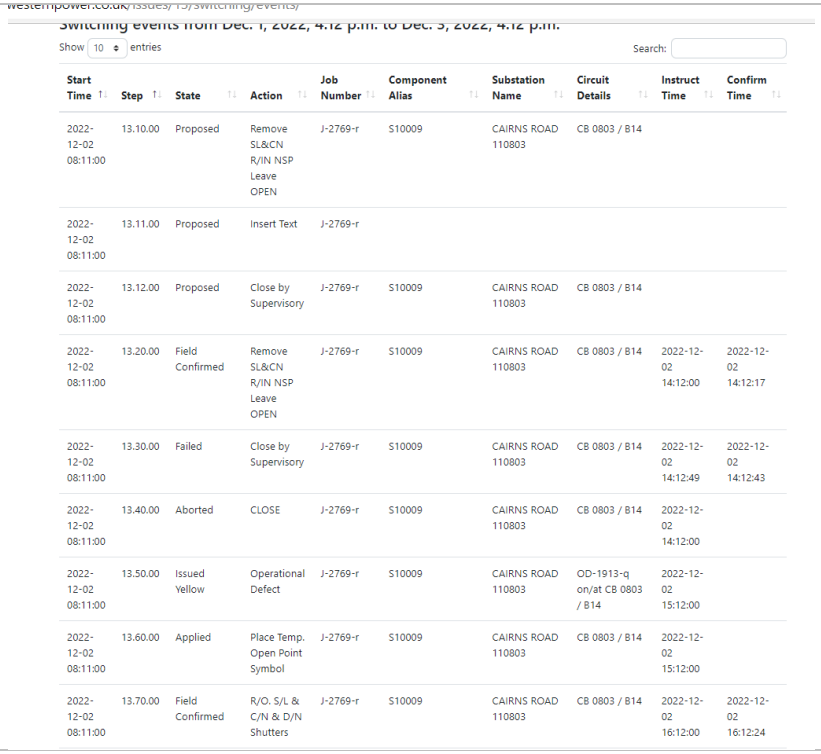
Date	Component	Observation	
			Looking up CROWN assets in CROWN is supported by the data provided. Asset ID is not a searchable field and even though Serial Number has been provided, this can't be searched for on its own. The search requires a Responsible Organisation Unit which is not possible to infer from the available data.
12/12/22	Switching Items		For an event starting on December 2nd switching items are provided from 2022-12-01 17:22:00 up to 2022-12-02 14:00:00 15 pages of switching events are provided for the selected incident however the for the event (TRERULE 33kV SOLAR PARK Modbus communication has stopped operating for more than 12.0 hours) 56 pages of switching events are returned. Instruct and confirm times appear to be affected by a data error as they always occur at 12 minutes past the hour, however the data for start time does not appear to have the same issue.

Date	Component	Observation
		

Switching events from Dec. 1, 2022, 4:12 p.m. to Dec. 3, 2022, 4:12 p.m.

Show 10 entries Search:

Start Time	Step	State	Action	Job Number	Component Alias	Substation Name	Circuit Details	Instruct Time	Confirm Time
2022-12-01 17:22:00	1.00.00	Confirmed	Switching Schedule	J-4386-s	ALIAS-105032-s	OKEHAMPTON SEMH SCHOOL 357634	LV Isolation		
2022-12-01 17:22:00	1.10.00	Instructed	Insert Text	J-4386-s				2022-12-01 17:12:00	
2022-12-01 17:22:00	2.00.00	Instructed	Insert Text	J-4386-s		SOLIDAL CONNECTION OKEHAMPTON SEMH SCHOOL 35/7634		2022-12-01 17:12:00	
2022-12-01 17:22:00	3.00.00	Instructed	Isolate LV Tx Fuses, Apply CN	J-4386-s	ALIAS-105032-s	OKEHAMPTON SEMH SCHOOL 357634	LV Isolation	2022-12-01 17:12:00	
2022-12-01 17:22:00	4.00.00	Instructed	OPEN. Apply S/L&C/N	J-4386-s	ALIAS-105037-s	OKEHAMPTON SEMH SCHOOL 357634	CB 4597	2022-12-01 17:12:00	
2022-12-01 17:22:00	5.00.00	Approved	Limitation Of Access	J-4386-s	357634	OKEHAMPTON SEMH SCHOOL 357634	LOA-452-s		
2022-12-01 17:22:00	6.00.00	Approved	Canc. LOA Precomm check comp	J-4386-s	357634	OKEHAMPTON SEMH SCHOOL 357634	LOA-452-s		
2022-12-01 17:22:00	7.00.00	Approved	Remove S/L&C/N. CLOSE	J-4386-s	ALIAS-105037-s	OKEHAMPTON SEMH SCHOOL	CB 4597		

Date	Component	Observation
12/12/22	Switching Items	

westernpower.co.uk/issues/15/switching/events/

Switching events from Dec. 1, 2022, 4:12 p.m. to Dec. 3, 2022, 4:12 p.m.

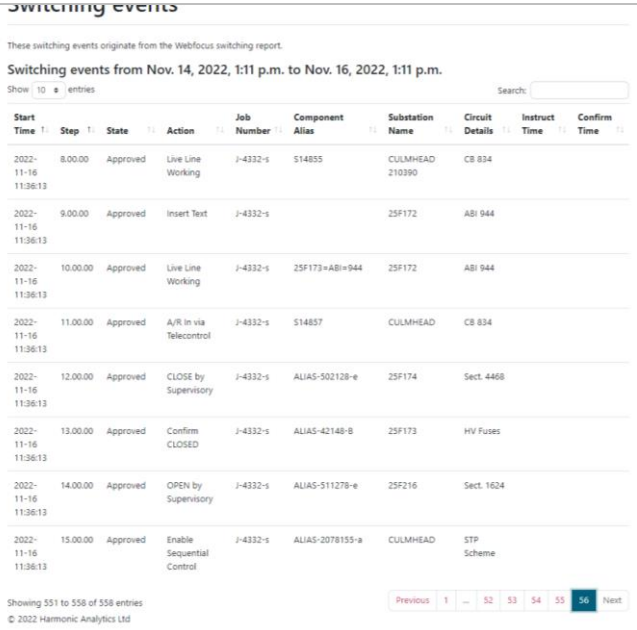
Show 10 entries Search:

Start Time	Step	State	Action	Job Number	Component Alias	Substation Name	Circuit Details	Instruct Time	Confirm Time
2022-12-02 08:11:00	13.10.00	Proposed	Remove SL&CN R/IN NSP Leave OPEN	J-2769-r	S10009	CAIRNS ROAD 110803	CB 0803 / B14		
2022-12-02 08:11:00	13.11.00	Proposed	Insert Text	J-2769-r					
2022-12-02 08:11:00	13.12.00	Proposed	Close by Supervisory	J-2769-r	S10009	CAIRNS ROAD 110803	CB 0803 / B14		
2022-12-02 08:11:00	13.20.00	Field Confirmed	Remove SL&CN R/IN NSP Leave OPEN	J-2769-r	S10009	CAIRNS ROAD 110803	CB 0803 / B14	2022-12-02 14:12:00	2022-12-02 14:12:17
2022-12-02 08:11:00	13.30.00	Failed	Close by Supervisory	J-2769-r	S10009	CAIRNS ROAD 110803	CB 0803 / B14	2022-12-02 14:12:49	2022-12-02 14:12:43
2022-12-02 08:11:00	13.40.00	Aborted	CLOSE	J-2769-r	S10009	CAIRNS ROAD 110803	CB 0803 / B14	2022-12-02 14:12:00	
2022-12-02 08:11:00	13.50.00	Issued Yellow	Operational Defect	J-2769-r	S10009	CAIRNS ROAD 110803	OD-1913-q on/at CB 0803 / B14	2022-12-02 15:12:00	
2022-12-02 08:11:00	13.60.00	Applied	Place Temp. Open Point Symbol	J-2769-r	S10009	CAIRNS ROAD 110803	CB 0803 / B14	2022-12-02 15:12:00	
2022-12-02 08:11:00	13.70.00	Field Confirmed	R/O. S/L & C/N & D/N Shutters	J-2769-r	S10009	CAIRNS ROAD 110803	CB 0803 / B14	2022-12-02 16:12:00	2022-12-02 16:12:24

Step number is normally a whole number but as can be seen in this instance the second set of numbers beyond the first decimal point is used. No examples were seen of numbers beyond the second decimal point being used.

The inclusion of the substation name enables the local schematic to be seen to help determine if the switching item is likley to be relvant to the issue.

The Start Time can be the same for a large number of instructions at a time but this appears to reflect a batch of instructions being issues under delegated control authority.

Date	Component	Observation	
12/12/22	Switching Items		Instruct and Confirm times are not always present for switching instructions. (check this is true for the switching items raw data and not due to NEAT processing)

Switching events

These switching events originate from the Webfocus switching report.

Switching events from Nov. 14, 2022, 1:11 p.m. to Nov. 16, 2022, 1:11 p.m.

Show 10 entries Search:

Start Time	Step	State	Action	Job Number	Component Alias	Substation Name	Circuit Details	Instruct Time	Confirm Time
2022-11-16 11:36:13	8.00.00	Approved	Live Line Working	J-4332-s	S14855	CULMHEAD 210390	CB 834		
2022-11-16 11:36:13	9.00.00	Approved	Insert Text	J-4332-s		25F172	ABI 944		
2022-11-16 11:36:13	10.00.00	Approved	Live Line Working	J-4332-s	25F173=ABI=944	25F172	ABI 944		
2022-11-16 11:36:13	11.00.00	Approved	A/R In via Telecontrol	J-4332-s	S14857	CULMHEAD	CB 834		
2022-11-16 11:36:13	12.00.00	Approved	CLOSE by Supervisory	J-4332-s	ALIAS-502128-e	25F174	Sect. 4468		
2022-11-16 11:36:13	13.00.00	Approved	Confirm CLOSED	J-4332-s	ALIAS-42148-B	25F173	HV Fuses		
2022-11-16 11:36:13	14.00.00	Approved	OPEN by Supervisory	J-4332-s	ALIAS-511278-e	25F216	Sect. 1624		
2022-11-16 11:36:13	15.00.00	Approved	Enable Sequential Control	J-4332-s	ALIAS-2078155-a	CULMHEAD	STP Scheme		

Showing 551 to 558 of 558 entries Previous 1 ... 52 53 54 55 56 Next

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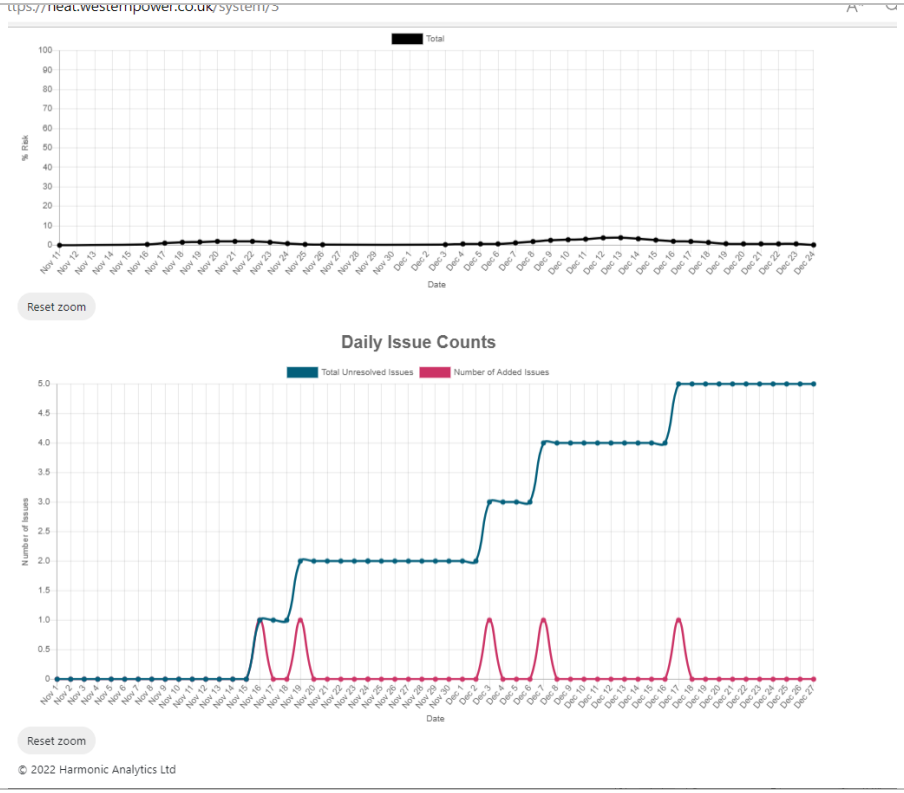
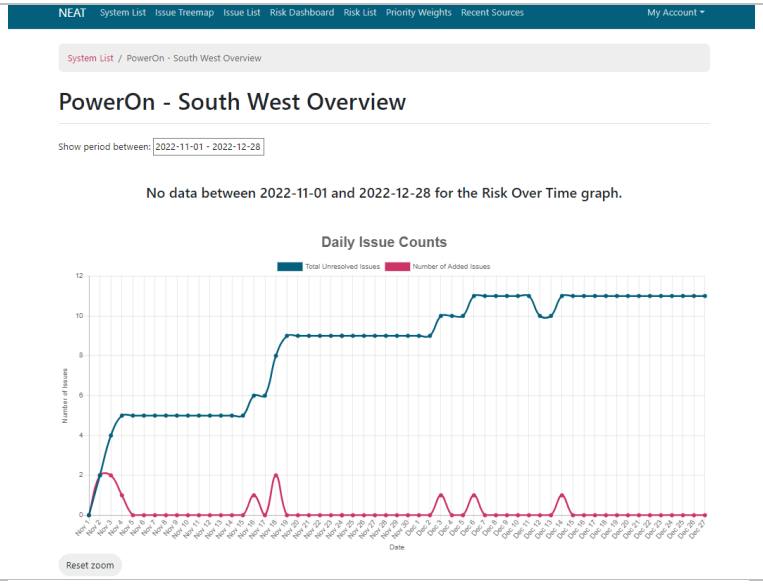
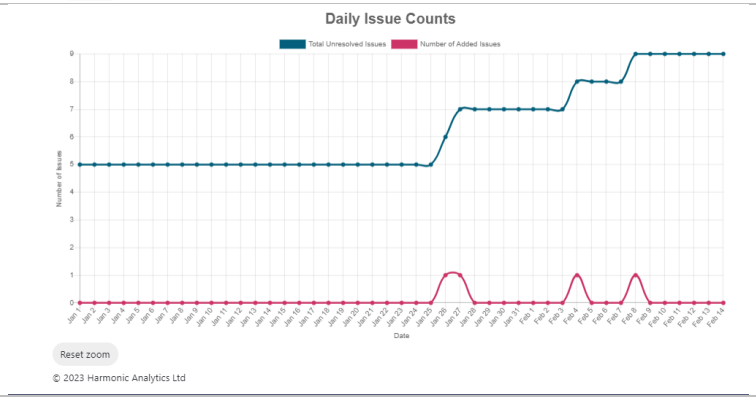
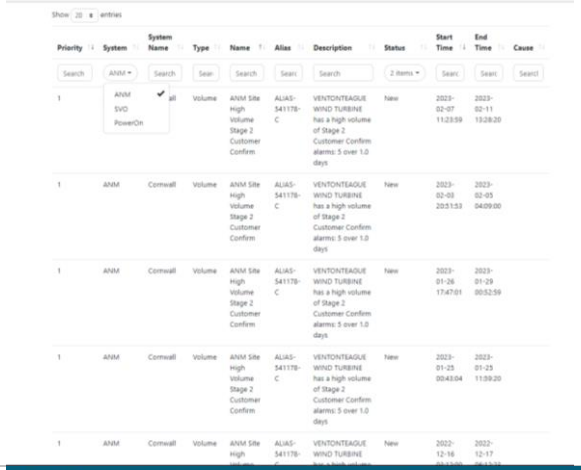
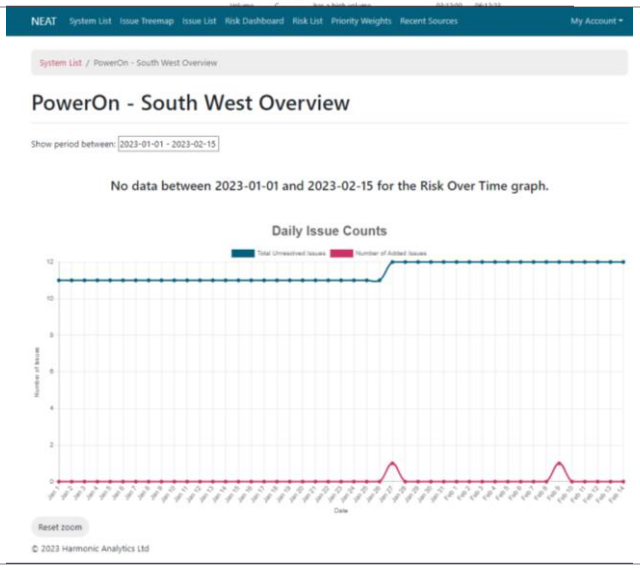
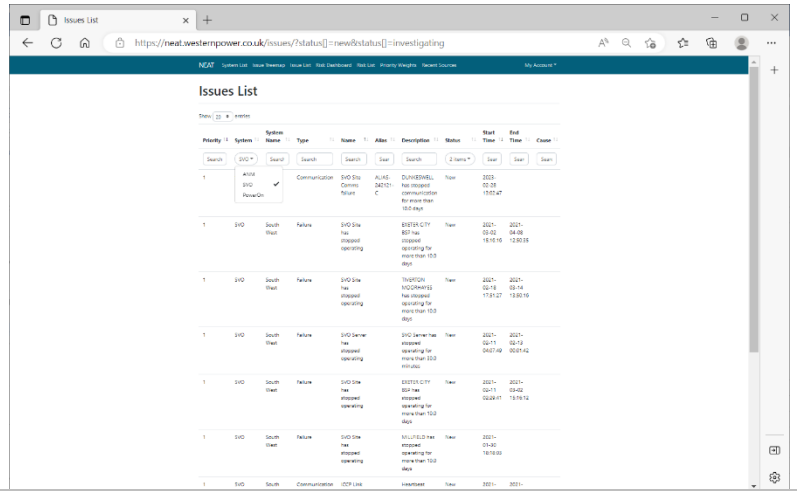
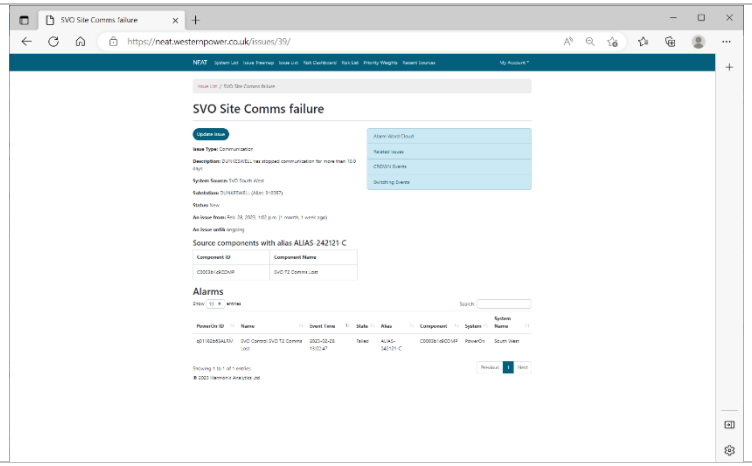
Date	Component	Observation	
28/12/22	ANM events		It appears that the new ICCP link has not gone live as more new issues would have been expected relating ot the commissioning.

Date	Component	Observation	
28/12/22	PowerOn events		Similarly there have not been any new events which would allow for checking the minutes past the hour issue had been fixed
15/02/23	ANM Overview		Returning to the system after a break, it was observed that there had been some additional events in late January and Early February. It was originally suspected that these would relate to the commissioning of the Cornwall ANM system generators but this was delayed and so was not responsible for the events.

Date	Component	Observation	
15/02/23	ANM Events		On investigation the events were futher occurences of the issue seen previously at Ventonteague Wind Turbine with a high volume of stage 2 alarms.
15/02/23	PowerOn Overview		PowerOn was also seen to have very few events at the start of the year. These were also repeat items for events that had been seen previously and related to Monkerton Energy Centre having a high volume of Stage 2 Customer Confirm alarms.

3.2 SVO data replay

Date	Component	Observation	
11/04/2023	Overview		The SVO events can be seen in the replayed data from the end of February. Additional events were witnessed as expected in March.
11/04/2023	Issues List		The historic SVO data was seen to populate the issues list correctly.

Date	Component	Observation	
11/04/2023	Issue Detail		The historic SVO data was seen to populate the issues detail correctly. However there was no related CROWN or switching schedule due to the inability to retrospectively retrieve this data.

4 System User Reviews

4.1 User 1 – Felix Peterken

User Name: Felix Peterken

User Role: Innovation Engineer

Date of review: 05/01/2023

No.	Question	Answer
1.	Context to User Review What did the user do to test the system? How long was spent on the review? Did it span several days? Etc. What degree of system familiarity was gained before testing?	I navigated through all the pages and graphs on the system. This was completed in a single session. I was given a background in this project and what the system would be used for
2.	Did you find the system easy to navigate?	The system was easy to Navigate. It has a simple and familiar appearance which means I was able to move between pages easily.
3.	How useful did you find the selected visualisations - tree map, word cloud etc.?	**System list > Risk over time:** Is it possible to put a bit of an explainer on what the percentage risk correlates to? E.g. 50% risk means there is a 50% chance of X happening. **System list > Daily issue counts:** Clear what this one is communicating. I'm a bit worried if in an abnormal event whether the total unresolved issues would become a lot larger than the number of added issues, meaning the added issues becomes very small at the bottom. This depends on how long you might expect issues to go unresolved for. **Issue Treemap:** Date range is a bit confusing in this one, seem to have a date range of the start and a date range of the end? Would expect one date range field or two single day fields Personal preference would be to change "System name" to "location" as that is what it appears to be showing. "System name" would get confusing with "System" for me. **Issue list:** More fields could do with the drop down menu that the "System" and "Status" fields have, if you are expecting a certain number of entries. "System Name" and "Type" could also be filtered in this way looking at the test data. Not immediately clear that you can select the row to bring up more info – could have a button there? When going onto switching events or the word cloud it would be nice to have a back button to go back to the alarm page. **Risk Dashboard:** I feel like4.5. the user would want the option to refresh the prediction. Currently showing last prediction 11 days ago, but I'm not sure if that would be different on the live system. **Risk List:** Similar to risk over time graph, not entirely sure what this is quantifying. **Latest Priority Weights**: No comments here. Might need more data to see how this bit runs **Recent Sources:** Any links to error logs from this page? Could be useful for the shift manager or equivalent.
6.	Are there any visualisations that you think would have been useful additions / substitutions?	Can't think of any sorry!

No.	Question	Answer
7.	Did you discover any bugs? If so what were they?	On Recent sources status page, when putting a date range in the date rang [sic] box, the user can press apply on that page but it doesn't update the list. List only updates after pressing "view". Not a big thing, but could be annoying for a user.
8.	Do you think the system provides the functions required to support DSO systems such as ANM and SVO?	Yes, I think this provides a clear overview allows a more holistic view of flexibility-related alarms. I'm not sure who exactly would view this, but I would imagine it would be the shift manager (who already has that overview, looks at weather forecasts, etc.) and could flag issues which need escalating.
9.	What additional features would you like to see?	If it would be possible to link from the issues list page to the Power On diagram, this could be useful. I know this has been done before with a macro excel sheet.
10.	Any Other comments	No additional comments.

4.2 User 2 – Laurence Hunter

User Name: Laurence Hunter

User Role: Innovation Engineer

Date of review: 05/01/2023

No.	Question	Answer
1.	Context to User Review What did the user do to test the system? How long was spent on the review? Did it span several days? Etc. What degree of system familiarity was gained before testing?	• I reviewed the system several times over a 3 week period. • In total I spent 1-2 hours on the system • The review was little and often, rather than a detailed interrogation • Before testing, I was shown how to use the system and what kinds of features were available.
2.	Did you find the system easy to navigate?	• Overall the system seemed relatively easy to use, but links between Issue tree maps and issue lists would be a useful addition.
3.	How useful did you find the selected visualisations - tree map, word cloud etc.?	• Tree map was useful in selecting several filters for identifying specific issue characteristics. • Not entirely sure how useful Wordclouds are for doing specific tasks. • The map on the risk dashboard didn't have the ANM zone for cornwall highlighted on the map, the only way to see it was to select it on its own, which causes the rest of the map to disappear.
4.	Are there any visualisations that you think would have been useful additions / substitutions?	• Risk over time graph – zoom available to select date range but not to improve clarity on % Risk level. • On graphs where data is interpolated between days, the fit overshoots after the inflection point.
5.	Did you discover any bugs? If so what were they?	• Not necessarily a bug, but when hovering over the % Risk on the homepage, the user is given a very large number of significant figures on the risk level. Can probably be reduced to 3 sf
6.	Do you think the system provides the functions required to support DSO systems such as ANM and SVO?	• This could be beyond the scope of what NEAT is trying to achieve, but adding a live dashboard with parameters such as: Total Installed Generation under ANM, Live Total Generation, Live Total % Curtailment, headroom available at the riskiest sites (or sites closest to ANM limits), etc to give a wider picture of ANM and SVO.
7.	What additional features would you like to see?	• Hover over boxes explaining what each term means on issue list. What defines a category 1 priority? What is meant by the issue's alias? • When moving further into an issue, (for instance clicking on an issue, then on CROWN events related to the issue), there is no easy
8.	Any Other comments	

4.3 User 3 – Jenny Woodruff

User Name: Jenny Woodruff

User Role: Innovation Engineer

Date of review: 24/11/2022 onward

No.	Question	Answer
1.	Context to User Review What did the user do to test the system? How long was spent on the review? Did it span several days? Etc. What degree of system familiarity was gained before testing?	Reviewed the system over several weeks as the main participant in the NEAT trial. Familiarity through being the project manager though was still unclear on a number of issues e.g. Can the user set limits for high volume alarms (currently a high volume is determined from system history)? How are switching events linked to individual events – these are clearly different for each event as the number of pages is different.
2.	Did you find the system easy to navigate?	Yes, I used the treeview a little before ending up just going to the events lists. Search function on the switching log was helpful to narrow down items of the right type or at the right location.
3.	How useful did you find the selected visualisations - tree map, word cloud etc.?	The most useful visualisations were the overview showing the daily event counts. Given the low volume of events I would then typically go straight to the lists rather than using the tree map, but I can see the tree map being more useful at higher volumes of events. Word cloud seemed to be limited for the events that I investigated to just the same words as the event name rather than reflecting a mix of alarms and events. Not a problem though and it would be good to see if other events had more complex clouds over time.
4.	Are there any visualisations that you think would have been useful additions / substitutions?	It was difficult to put the CROWN events and Switching log in context without a network diagram. Certainly the ability to visualise the section of network affected by an incident and to see the switching operations would be useful but would be better provided via existing PowerOn facilities.
5.	Did you discover any bugs? If so what were they?	As reported, the timings of events being so frequently either 11 or 12 minutes past the hour.

No.	Question	Answer
6.	Do you think the system provides the functions required to support DSO systems such as ANM and SVO?	This is difficult to say conclusively given the low volume of events seen in the trial period.
7.	What additional features would you like to see?	Link to PowerOn switching function, link to a network model whether that is a visualisation of the Integrated Network Model or Electric Office or other. Filtering on all the headings of the switching log items as well as ordering. Possibly integrated export facilities though I was able to copy and paste to Excel for further analysis myself. Perhaps include an even higher number of switching items per page than 100 to help with export if a specific export function is not possible.
8.	Any Other comments	Joe Davey may be interested. Network Strategy. It was very hard to interpret the switching items to see whether they were relevant but an experienced user may be able to use additional filtering and the PowerOn replay functions to pull together a picture of what was going on.

4.4 User 4 – Will Topping

User Name: Will Topping

User Role: ANM expert

Date of review: 19/12/2022

No.	Question	Answer
1.	Context to User Review What did the user do to test the system? How long was spent on the review? Did it span several days? Etc. What degree of system familiarity was gained before testing?	User taken through screens of the trial system and provided with login details afterwards for further investigation. Will has had input to the project previously so understands the project aims and background.
2.	Did you find the system easy to navigate?	Mostly, the inclusion of further filters as well as sorting options for the larger tables such as switching items would be helpful.
3.	How useful did you find the selected visualisations - tree map, word cloud etc.?	Tree map looks good, word cloud was not helpful for the examples given as they selected events of the same type that were frequently occurring so the word cloud just reflected the words in the event title.
4.	Are there any visualisations that you think would have been useful additions / substitutions?	The replay of switching events was discussed. This is a PowerOn function and is very difficult to achieve, so this should not be an add on to Neat but rather it should be possible to open the PowerOn tool and use NEAT data to get to the right bit of network at the right time.
5.	Did you discover any bugs? If so what were they?	None found during the demo
6.	Do you think the system provides the functions required to support DSO systems such as ANM and SVO?	It looks promising for ANM, but the system was seen before the next set of data is available via the upgraded ICCP link – it may become even more helpful then.
7.	What additional features would you like to see?	Additional filtering,
8.	Any Other comments	Suggestion to involve Joe Davey Will's comments – make it clearer that the substation number is that not an Alias Can CCP (Customer Constraint Panel) items be included as well?

4.5 User 5 – Andrew Harris

User Name: Andrew Harris

User Role: PowerOn expert

Date of review: 19/12/2022

No.	Question	Answer
1.	Context to User Review What did the user do to test the system? How long was spent on the review? Did it span several days? Etc. What degree of system familiarity was gained before testing?	Presented the system by Jenny Woodruff, taken through the screens over an hour. Some system familiarity prior to the run-through having provided datasets and input previously.
2.	Did you find the system easy to navigate?	Yes, it seemed quite intuitive
3.	How useful did you find the selected visualisations - tree map, word cloud etc.?	
4.	Are there any visualisations that you think would have been useful additions / substitutions?	
5.	Did you discover any bugs? If so what were they?	Andrew was able to look into the underlying data extracts that were being provided to the system from Webfocus and find out that the issue with the 11 or 12 minutes past the hour reflected confusion in the extract codes for minutes and months. This was then corrected.
6.	Do you think the system provides the functions required to support DSO systems such as ANM and SVO?	
7.	What additional features would you like to see?	It was very hard to interpret the switching items to see whether they were relevant but an experienced user may be able to use additional filtering and the PowerOn replay functions to pull together a picture of what was going on.
8.	Any Other comments	

4.6 User 6 – Simon Shirley

User Name: Simon Shirley

User Role: NMC Telecoms Team Manager

Date of review: 07/03/2023

No.	Question	Answer
1.	Context to User Review What did the user do to test the system? How long was spent on the review? Did it span several days? Etc. What degree of system familiarity was gained before testing?	Association of comms incidents with ANM scheme issues. Monitored events to see if we could correlate with comms issues. 4 x 15 minutes About 10 days Overview skype meeting
2.	Did you find the system easy to navigate?	Not too bad, hard to say with the small amount of data.
3.	How useful did you find the selected visualisations - tree map, word cloud etc.?	The tree map function was useful. The list view button could be better highlighted.
4.	Are there any visualisations that you think would have been useful additions / substitutions?	None
5.	Did you discover any bugs? If so what were they?	None
6.	Do you think the system provides the functions required to support DSO systems such as ANM and SVO?	Yes seems to cover everything
7.	What additional features would you like to see?	When it covers the whole region that amount of data collected will be a lot more, so therefore I wouldn't want to think about expanding until then.
8.	Any Other comments	

5 Trial Observations

5.1 Events Summary

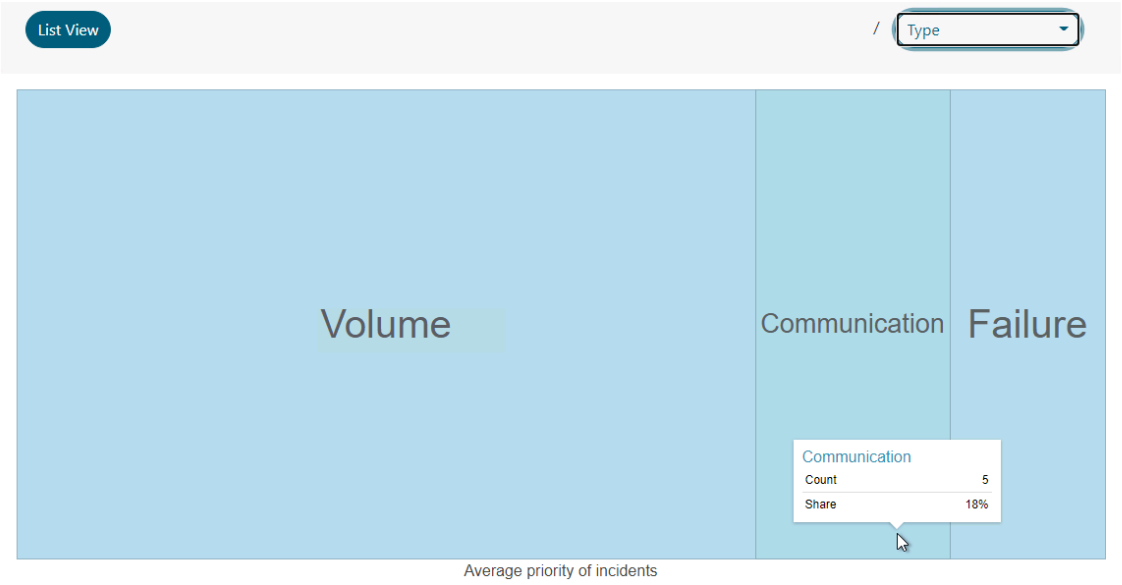
There were 37 issues created by NEAT from deployment to the end of the trial.

The split of issues was as follows;

System	Issues
PowerOn	16
ANM	12
SVO replay	9

Table 1 – Split of issues between systems

The split of event types was 19 from Volume, 12 from Failure, and 6 from Communication. These splits are represented in the treemap screenshot below from just before the end of the trial.



The list of issues identified during the trial are given in Appendix 3.

It can be seen in Figure 1 that some locations are responsible for a high number of repeated events. The top three sites are responsible for around 74% of the events that are linked to sites. This suggests that targeted remedial action could be very effective at reducing the number of events experienced.

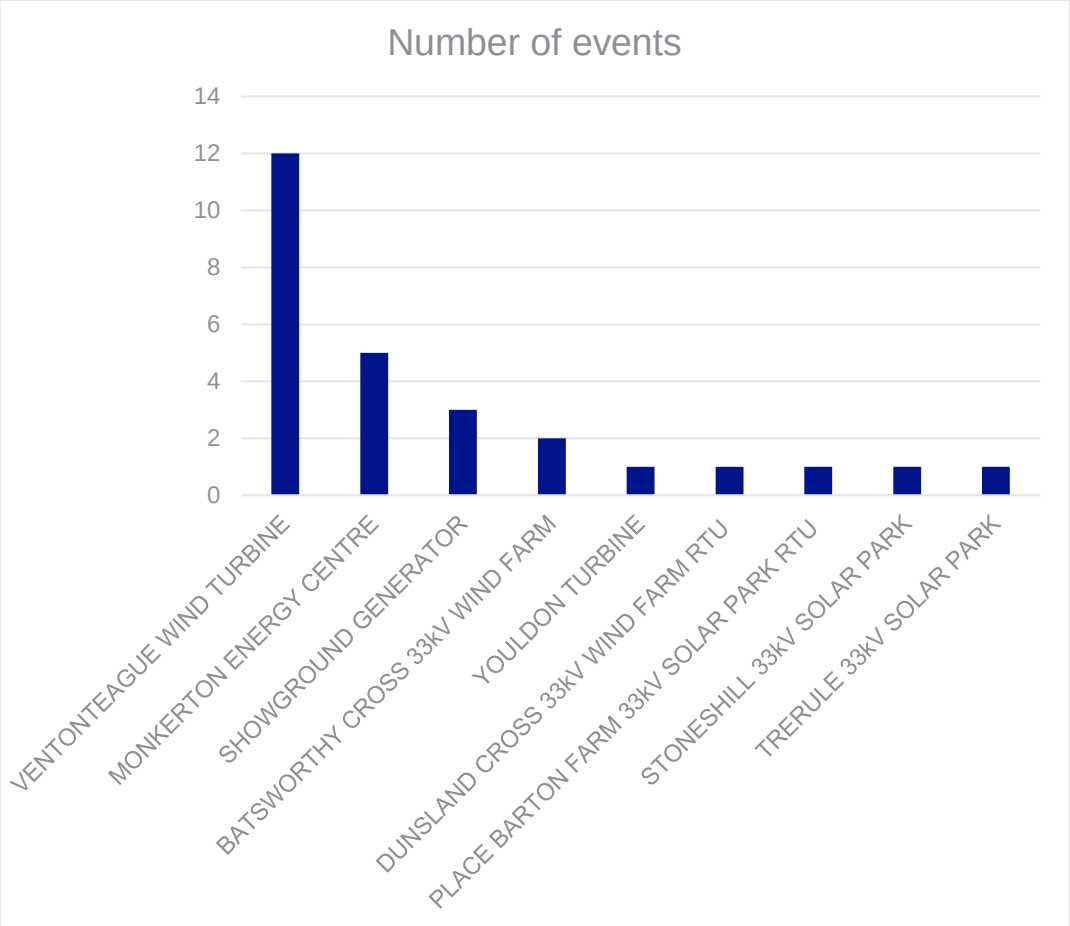
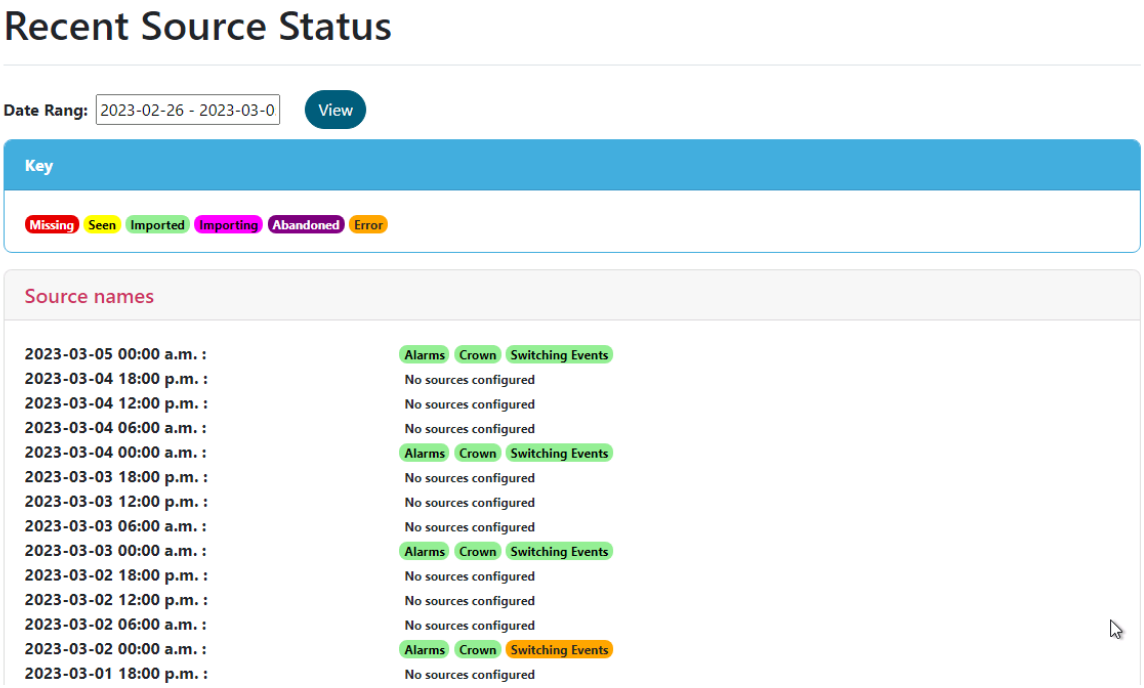


Figure 1. Number of events per site

5.2 System Reliability

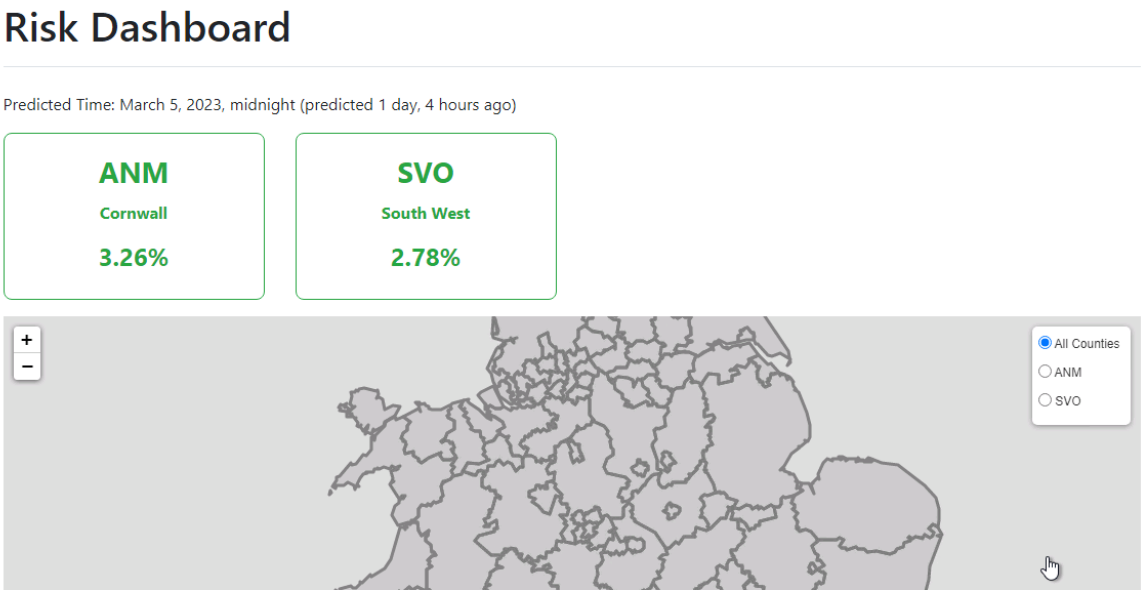
The system was available for the whole trial period with no outages. The systems that produce files consumed by NEAT did create all the expected files and they were available to NEAT. The major files were always imported without issue, but the switching events files had some occasional issues.

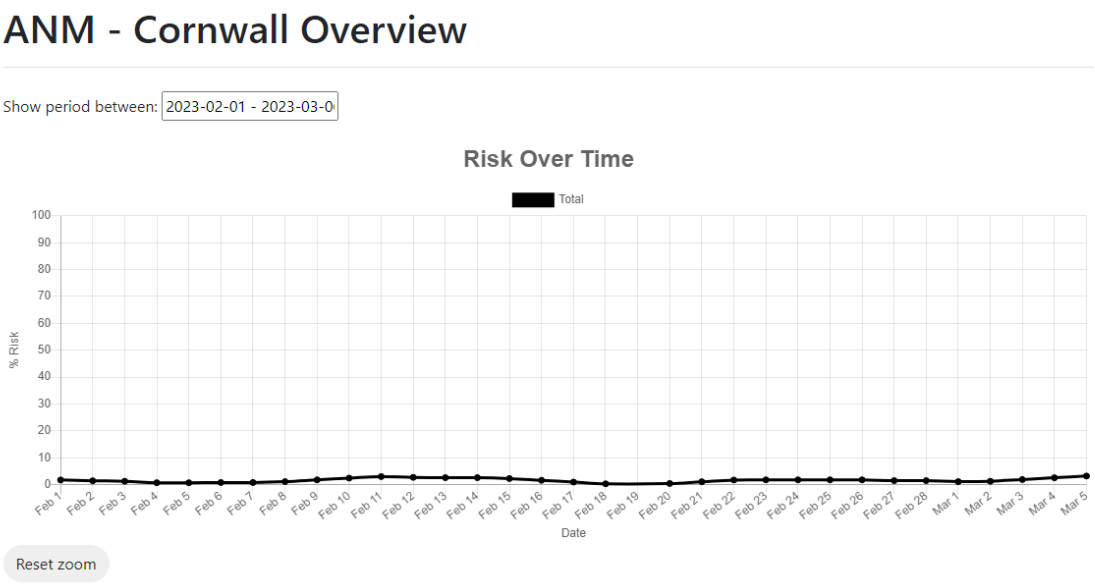
An example of the recent sources list is below. The original timing for some of the data was every six hours but these intermediate time slots were not use during the trial.



5.3 Risk Prediction

The low number of events limits the ability to determine if the Risk Predictions had a correlation with subsequent events. This would be something to evaluate over a longer timeframe. The risks were not zero, and a screenshot of the risk dashboard and the risk prediction changes over time for ANM are below.





5.4 User Reviews

Six users used the tool using the trial and provided feedback in their user reviews. Most users found the tool easy to use and navigate. There were a few small usability issues and clarifications required found by the users, especially around date range pickers.

6 Conclusions & Recommendations

- The NEAT trial successfully demonstrated the system's ability to process data and detect events in real time.
- The replay of the SVO data showed that the system would have been able to detect the SVO related event were the system still operating.
- High levels of system reliability were seen though occasional issues were observed with the input data that mostly related to the Switching Events.
- The users generally liked the look and feel of the interface. From the suggestions for improvement, the top priority items would be improving the date range pickers.
- There was consensus that it was not the role of the NEAT tool to duplicate the PowerOn functionality for replaying system events and that to recreate such functionality would likely be prohibitively complex and expensive.
- The Cornwall ANM system was not available during the trial, but given the low ongoing cost of keeping the system going it may make sense for the system to be left running for a number of weeks to see if the additional data from the ICCP link provides better insights into the causes of events on the ANM system.
- From the user reviews, the greatest opportunity for use within the business was to support Telecomms. Based on the review by Simon Shirley there would be benefit in a small scale additional trial focussing on another licence area that tends to have more telecoms issues than the South West before committing to full BaU roll out.

7 Glossary

Abbreviation	Term
ANM	Active Network Management
BaU	Business as Usual
CROWN	NGED's asset register and maintenance scheduling system.
DSO	Distribution System Operator
Harmonic	NEAT developers working with PSC.
ICCP	Inter-Control Centre Communications Protocol
INM	Integrated Network Model
NGED	National Grid Electricity Distribution
NEAT	Network Event and Alarm Transparency
PowerOn, PoF	GE PowerOn Fusion
PSC	Power Systems Consultants – lead contractor for NEAT development
RTU	Remote Terminal Unit
SGS	Smarter Grid Solutions – and ANM system developer
SVO	System Voltage Optimisation
TSDS	Time Series Data Store
ZIV	An ANM system developer

Appendix 1 Summary of Functional Requirements and Related Dashboard Pages

Requirement	Data Required	Can requirement be achieved?	Note/ Risk
FR-101	The solution must detect critical alarms in DSO support systems and report these to the user	M	- Issue Treemap Page (look at Alarm Priority) - Issue List Page
FR-102	System errors with DSO support systems must be recorded	M	- System List Page - Issue Treemap Page - Issue List Page
FR-103	When presenting a system issue, information about the likely root cause(s) should also be shown	S	- Issue List Page (Issue Details subpage)
FR-104	The solution must associate an issue with its source in the network model	M	- Issue List Page (Issue Details subpage)
FR-201	The solution should report on issues related to the addition of new components in the network.	M	- Issue Treemap Page - Issue List Page (Issue Details subpage)
FR-202	The solution should report on issues related to the change of aliases	S	- Issue Treemap Page - Issue List Page
FR-203	The solution should report on issues related to communication issues	S	- Issue Treemap Page - Issue List Page
FR-204	The solution should report on issues relating to switching in the network	S	- Issue Treemap Page - Issue List Page
FR-205	The solution should report on issues relating to measurements that are inconsistent or outside expected ranges	S	- Issue Treemap Page - Issue List Page
FR-206	The solution should act to resolve issues relating to measurements by estimating appropriate values	W	

Requirement	Data Required	Can requirement be achieved?	Note/ Risk
FR-301	The solution should report on alarms that could be related to the same issue.	S	- Issue List Page (Issue Details subpage)
FR-302	The solution should group together similar alarms to be resolved together.	M	- Issue List Page (Issue Details subpage)
FR-303	The solution should follow the logic a power systems engineer would take to troubleshoot a problem	S	
FR-304	The solution will detail the steps required by someone on a site-specific basis	W	
FR-401	Users must be able to enter cause information associated with an issue	M	- Issue List Page (Issue Details subpage can update the issue)
FR-402	Users must be able to enter resolution information associated with an issue	M	- Issue List Page (Issue Details subpage can update the issue)
FR-501	The solution should calculate a likelihood of a system issue for each system	C	- Risk List Page
FR-502	The solution should provide what components or data are driving the most risk for a system	S	- Issue Treemap Page - Risk List Page
FR-503	The solution can alert users if a significant risk to the operation of a DSO support system is detected	C	- Risk dashboard Page
FR-504	The solution should alert engineers to potential future issues	S	- Risk List Page
FR-601	The solution should calculate the availability of each system	S	- System Overview Page (System Overview subpage)

Requirement	Data Required	Can requirement be achieved?	Note/ Risk
FR-602	The solution should calculate the impact of curtailment due to system problems	S	
FR-603	The solution should provide a report showing a comparison of forecasted/estimated constraints and actual customer constraints.	S	
FR-701	The solution should provide monthly reports showing a summary of DSO support system alarms categorised by the type of alarms.	S	- System List Page

Appendix 2 Summary of Use Case and the Related Dashboard Page

Name	Description	Dashboard Page
0.16.1 - SVO* failure caused by incorrect INM data	A data issue has caused the SVO to default to a fail-safe position to reduce the high voltage across the network. NEAT alerts the Control Systems Support Engineer about the problem and the source of the problem for the Control Engineer.	- Issue Treemap Page (Looking at Issue) - Issue List Page
0.16.2 - Changes to component aliases affect ANM	NEAT detects new component aliases were added into PowerOn and alerts the Control Systems Support Engineer that the lookup tables for ANM need to be updated.	- Issue Treemap Page (Looking at Issue) - Issue List Page
0.16.3 - ANM generation & grouping devices	The ANM has been generating a higher than usual number of alarms in the last few hours on similar devices. NEAT groups these alarms together and indicates that these devices could have been recently changed.	- Issue List Page
0.16.4 - Predicting future SVO* issues from INM changes	NEAT alerts the Control Systems Support Engineer by email, saying that a recent configuration change to the network is likely going to cause SVO to fail in the future unless the SVO model is updated, highlighting the areas that likely need updating.	- Risk List Page
0.16.5 - RTU outage	A RTU has failed and after 5 minutes has generated an alarm. The controller notices it is an 11kV secondary device and does not need to be responded to immediately. NEAT alerts a Control Systems Support Engineer because ANM uses data from the RTU, and the engineer ensures that the RTU outage is resolved in a timely manner.	- Issue List page
0.16.6 - Analogue device value causes SVO* failure	An analogue device is reading values too high (or too low) since the scaling factor is configured incorrectly (e.g., the wrong CT or VT ratio has been given). This causes the SVO to fail state estimation. NEAT detects and reports the particular device that is causing SVO to fail.	- Issue Treemap Page - Issue List Page
0.16.7 - Dashboard of metrics	The Control Systems Support Manager receives a query about how much curtailed renewal generation is due to system problems. The manager opens the NEAT dashboard and looks at the availability of the SVO system	- System List Page

Name	Description	Dashboard Page
	and the many ANM systems for the last few months and reports back that the systems have been available more than 90% of the time and it has been improving recently.	
0.16.8 - Justification for corrective action	The Control Systems Support Manager reviews the historic performance of the ANM and SVO systems and examines the breakdown of known root causes for previous incidents. Metrics for the frequency of different causes and their impact on the availability of systems and associated impact in terms of excess curtailment etc. provide support for decisions on whether to implement changes.	- Issue List Page (Looking at Issue Type, Status or Time to Restore)

Note: * SVO system might be decommissioned and the use case with SVO is to be used as examples for NEAT tool

Appendix 3 Issue List

Priority	System	System Name	Type	Name	Alias	Description	Status	Start Time	End Time	Cause
1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-03-01 16:23:06		
1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-02-26 17:15:27	2023-02-28 10:04:50	
1	PowerOn	South West	Volume	Site High Volume Stage 2 Customer Confirm	ALIAS-437962-C	MONKERTON ENERGY CENTRE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-02-21 10:25:05	2023-02-22 09:54:27	
1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-02-19 06:15:28	2023-02-22 02:13:41	

1	PowerOn	South West	Volume	Site High Volume Stage 2 Customer Confirm	ALIAS-437962-C	MONKERTON ENERGY CENTRE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-02-16 00:10:55	2023-02-19 14:59:17
1	PowerOn	South West	Volume	Site High Volume Stage 2 Customer Confirm	ALIAS-437962-C	MONKERTON ENERGY CENTRE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-02-08 11:36:41	2023-02-11 11:55:35
1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-02-07 11:23:59	2023-02-11 13:28:20
1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-02-03 20:51:53	2023-02-05 04:09:00
1	PowerOn	South West	Volume	Site High Volume Stage 2 Customer Confirm	ALIAS-437962-C	MONKERTON ENERGY CENTRE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-01-26 23:52:40	2023-02-07 14:29:44
1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-01-26 17:47:01	2023-01-29 00:52:59

1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2023-01-25 00:43:04	2023-01-25 11:59:20
1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2022-12-16 03:12:00	2022-12-17 06:12:23
1	PowerOn	South West	Communication	Modbus Communication has stopped operating	ALIAS-109828-C	YOULDON TURBINE Modbus communication has stopped operating for more than 12.0 hours	New	2022-12-13 14:12:19	2022-12-13 14:12:19
1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2022-12-06 03:12:31	2022-12-12 03:12:50
1	PowerOn	South West	Communication	RTU Communication has stopped operating	ALIAS-204968-C	DUNSLAND CROSS 33kV WIND FARM RTU communication has stopped operating for more than 12.0 hours	New	2022-12-05 12:12:48	2022-12-05 12:12:48
1	PowerOn	South West	Volume	Site High Volume Stage 2 Customer Confirm	ALIAS-437962-C	MONKERTON ENERGY CENTRE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2022-12-02 16:12:42	2022-12-05 12:12:47

1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2022-12-02 11:12:49	2022-12-03 13:12:36
1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2022-11-18 18:11:27	2022-11-19 11:11:18
1	PowerOn	South West	Volume	High Volume of Export Capacity Exceeded	ALIAS-515303-C	SHOWGROUND GENERATOR has a high volume of Export Capacity Exceeded alarms: 6 over 30.0 days	New	2022-11-17 13:11:34	2023-01-17 10:38:58
1	PowerOn	South West	Volume	Site High Volume Stage 2 Customer Confirm	ALIAS-515308-C	SHOWGROUND GENERATOR has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2022-11-17 10:11:39	
1	PowerOn	South West	Failure	Generator has stopped constraining	ALIAS-515304-C	SHOWGROUND GENERATOR generator has stopped constraining after 1.0 hours	New	2022-11-17 10:11:20	2022-11-17 11:11:44
1	PowerOn	South West	Communication	Modbus Communication has stopped operating	ALIAS-89807-C	TRERULE 33kV SOLAR PARK Modbus communication has stopped operating for more than 12.0 hours	New	2022-11-15 13:11:45	2022-11-15 13:11:45
1	ANM	Cornwall	Volume	ANM Site High Volume Stage 2 Customer Confirm	ALIAS-541178-C	VENTONTEAGUE WIND TURBINE has a high volume of Stage 2 Customer Confirm alarms: 5 over 1.0 days	New	2022-11-15 07:11:57	2022-11-17 16:11:56

1	PowerOn	South West	Failure	Generator has stopped constraining	ALIAS-208981-C	STONESHILL 33kV SOLAR PARK generator has stopped constraining after 1.0 hours	Investigating	2022-11-03 10:11:50	2022-11-03 13:11:08	Cause text updated
1	PowerOn	South West	Communication	RTU Communication has stopped operating	ALIAS-195738-C	OLD STONE FARM 33kV SOLAR PARK RTU communication has stopped operating for more than 12.0 hours	Resolved	2022-11-02 19:11:26	2022-11-02 19:11:26	Test response WT 09/02/2023
1	PowerOn	South West	Communication	RTU Communication has stopped operating	ALIAS-205918-C	PLACE BARTON FARM 33kV SOLAR PARK RTU communication has stopped operating for more than 12.0 hours	New	2022-11-02 19:11:25	2022-11-02 19:11:25	
1	PowerOn	South West	Failure	Generator has stopped constraining	ALIAS-79536-C	BATSWORTHY CROSS 33kV WIND FARM generator has stopped constraining after 1.0 hours	Investigating	2022-11-01 14:11:55	2022-11-01 14:11:55	
1	PowerOn	South West	Failure	Generator has stopped constraining	ALIAS-79536-C	BATSWORTHY CROSS 33kV WIND FARM generator has stopped constraining after 1.0 hours	Resolved	2022-11-01 11:11:47	2022-11-01 14:11:42	Test data only - Generator stopped constraining correclty - no issue.
1	SVO	South West	Failure	SVO Site has stopped operating		EXETER CITY BSP has stopped operating for more than 10.0 days	New	2021-03-02 15:16:16	2021-04-08 12:50:35	

1	SVO	South West	Failure	SVO Site has stopped operating	TIVERTON MOORHAYES has stopped operating for more than 10.0 days	New	2021-02-18 17:51:27	2021-03-14 13:50:16
1	SVO	South West	Failure	SVO Server has stopped operating	SVO Server has stopped operating for more than 30.0 minutes	New	2021-02-11 04:07:49	2021-02-13 00:01:42
1	SVO	South West	Failure	SVO Site has stopped operating	EXETER CITY BSP has stopped operating for more than 10.0 days	New	2021-02-11 02:29:41	2021-03-02 15:16:12
1	SVO	South West	Failure	SVO Site has stopped operating	MILLFIELD has stopped operating for more than 10.0 days	New	2021-01-30 18:18:03	
1	SVO	South West	Communication	ICCP Link Connection	Heartbeat connection with the ICCP link failed	New	2021-01-14 04:50:42	2021-01-16 01:21:56
1	SVO	South West	Failure	SVO Site has stopped operating	PAIGNTON BSP has stopped operating for more than 10.0 days	New	2020-12-14 14:48:32	
1	SVO	South West	Failure	SVO Server has stopped operating	SVO Server has stopped operating for more than 30.0 minutes	New	2020-12-12 01:02:53	2020-12-12 02:06:08
1	SVO	South West	Failure	SVO Server has stopped operating	SVO Server has stopped operating for more than 30.0 minutes	New	2020-12-10 04:39:18	2020-12-12 00:01:36

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