

SEC
Smart Energy Code

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SEC Modification Proposal Form

Mod Title

Alert Storm Protection

Submission Date

27th September 2018

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Gemserv

1. What issue are you looking to address?

This SEC Modification is proposed to enable the implementation of a traffic management solution to protect the DCC system and Service Users against alert storms originating from a single device.

While devices will all have gone through a test assurance process it is unlikely that all possible combinations and scenarios will have been covered. There therefore remains a risk that a device may enter a state whereby it repeatedly and rapidly generates the same device alert.

2. Why does this issue need to be addressed? *(i.e. Why is doing nothing not an option?)*

The DCC system requires a mechanism to manage alert storms, during periods of excessive load. Without any such mechanism there is an increasing risk as installed and commissioned device volumes approach scale, that the DCC system could become overloaded by a flood of device alerts and this could affect the stability and performance of the overall DSP system.

While the DCC will work with BEIS and Industry to manage device behaviours, changes to device behaviours are not within DCC's immediate control, therefore DCC must take direct action to protect DCC systems to be able to ensure availability of the service for all service users.

The DSP system already includes a detection solution for northbound alerts from a single device. This follows a pattern where alerts are counted over a configured time period (for example 30 minutes). If the total number in that rolling time period exceeds a configured threshold (defined by amber and red levels) then an event is recorded in the security log and an incident is created. These parameters are set by DCC and the same thresholds apply to every device; they are not Service User specific or device specific.

However, this solution does not stop the alerts from being forwarded to the relevant Service Users and therefore does not provide any protection against overload.

3. What is your Proposed Solution?

This alert storm proposal aims to extend the existing northbound alert detection service by supressing alert volumes above a defined threshold. The capability to count northbound alerts and to take specific actions already exists within the solution, it is proposed to extend the capabilities of this service as follows:

Additional configuration parameters will be provided for:

- [A] Threshold level – total number of alerts per device within a configured time window (t1)
- [B] Threshold level – total number of a specific alert within a configured time window (t2)
- [C] Parameter - One in N alerts

When the overall count of alerts from an individual device exceeds the configured threshold within the time window then an incident is created for that device.

When an incident is identified for a given device a further set of counters will then capture the number of alerts for that device on a per alert code basis.

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If any individual alert code count for a device then exceeds the configured red threshold [B] value then that alert code will be marked as overloaded for the device.

If an alert code is marked as overloaded for a device then only one in every N such alerts will be processed (where N is a configurable number [C]). All other alerts with that alert code from the device will be discarded.

Once the rate of alerts for the device falls below the red threshold level then the specific alert code counting will stop and any overloaded alert codes will be cleared. Alert processing will return to normal.

The number of alerts that are discarded at the SMWAN Gateway boundary will continue to be included in the overall alert count.

The red and amber thresholds for counting of alerts and specific alert codes will be configurable parameters for both volume and time.

The following initial configuration parameters will be used but note that these may change based on testing results.

Parameter	Value
Rolling Window	30 minutes
Amber Threshold	30 alerts
Red Threshold	50 alerts
Individual Alert Rolling Window	5 minutes
Individual Alert Threshold	10 alerts
1 in N forward rule	10

The solution will be integrated with the DSP's operational monitoring facilities. Events created for alert code specific thresholds being breached or cleared will be tracked and reported in the DSP operational monitoring tools.

Events or alarms created by the DSP operational monitoring tools will be available for distribution to the DCC.

4. What SEC objectives does this Modification better facilitate?

We consider that this Modification better facilitates the following applicable SEC objective (Section C1.1):

(a) the first General SEC Objective is to facilitate the efficient provision, installation, and operation, as well as interoperability, of Smart Metering Systems at Energy Consumers' premises within Great Britain;

(e) the fifth General SEC Objective is to facilitate such innovation in the design and operation of Energy Networks (as defined in the DCC Licence) as will best contribute to the delivery of a secure and sustainable Supply of Energy;

This solution will help protect the smart metering service by providing more certainty, more transparency, and a better overall quality of experience for service users during periods of high alert volumes.

5. What is the requested Path type?	Path [1 / 2 / 3 / 4]

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[Please provide rationale as to why you are requesting one of the following Paths: • Path 2: Authority Determined • Path 3: Self Governance • *(Harry, I defer)*

6. Are you requesting that the Modification Proposal be treated as Urgent?	No
Does not meet criteria	
7. What is your desired implementation date?	
To be discussed by working group. As soon as possible within releases	

8. Which SEC Parties are expected to be impacted? (Please mark with an X)

Large Supplier Parties	X	Small Supplier Parties	X
Electricity Network Parties	X	Gas Network Parties	X
Other SEC Parties	X		

Supplier parties will need to consider how the DSP processing one in every N alert will impact their systems and processes, once a device alert threshold has been breached.
9. Which parts of the SEC will be impacted?
Appendix E (DCC User Interface Services Schedule)

10. Will there be an impact on Central Systems? (Please mark with an X)

DCC Systems	X	Party interfacing systems	

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Smart Metering Systems		Communication Hubs	
Other systems			

DCC systems will need to be able to deliver the solution.

11. Will there be any testing required?

Testing will be required to ensure that there are no unintended consequences from introducing this solution.

12. Will this Modification impact other Energy Codes?	No

No other Energy Codes are expected to be impacted.

13. Will this Modification impact Greenhouse Gas Emissions?	No

Greenhouse Gas Emissions will not be impacted.

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