

A landscape photograph featuring snow-capped mountains under a cloudy sky. In the foreground, several bright, glowing yellow lines curve across a grassy field, suggesting energy or power. The text 'Proposed Fault Ride Through Failure Management' is overlaid on the left side of the image.

Proposed Fault Ride Through Failure Management

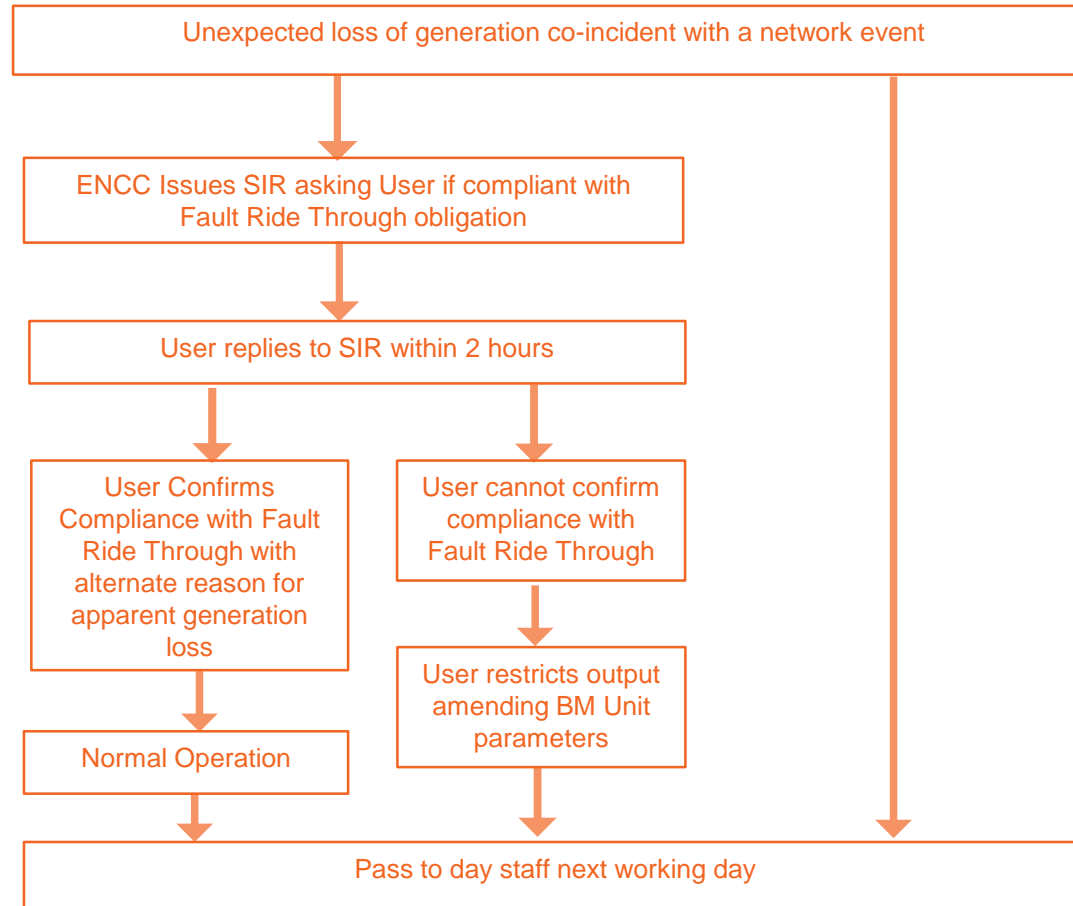
Fault Ride Through Management

- Recent system incidents resulting in fault ride through issues
 - Generation disconnecting
 - Network assets tripping
- Follow up conversations have revealed that current Grid Code arrangements fall short in giving ESO confidence in operational timescales
- Ofgem / BEIS concerns of Security of Supply in light of 9th August 2019 incident

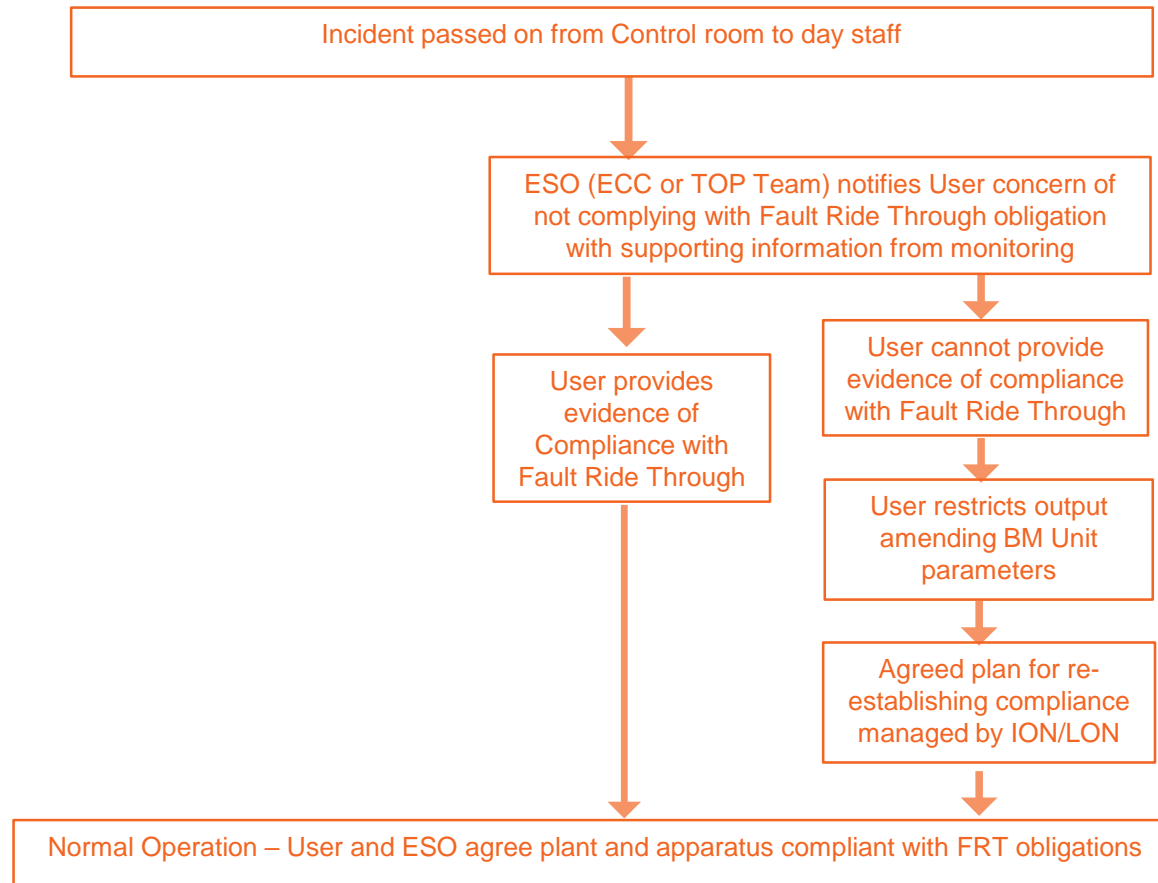
Fault Ride Through Management

- Engagement plan with Users
- Letter to all Users requesting confirmation of FRT compliance
- Interim Process for re-energisation
- Grid Code Modification to be developed

Proposed Process in Operational timescales



Post event actions (medium term)



Impact on Users

- User notified of a suspected Fault Ride Through (FRT) failure
- User should investigate to see if there are reasons it is not a FRT failure
- If FRT compliance cannot be confirmed User should immediately restrict output to zero.
- User should not resume normal operation until FRT capability re-established and Grid Code compliance is confirmed with ESO

Governance

- Grid Code OC7/OC10 allows Significant Events to be notified to Users and the User must respond within 2 hours
- Grid Code OC5.4 requires:
 - ESO to monitor plant for compliance with Grid Code
 - Users to provide explanations of non-compliance
 - Users to agree restrictions on operation to comply with Grid Code
 - Users to amend parameters in Balancing Mechanism to achieve restrictions

Lesson Learned

- Differential protection of transformer
- Users disable the FRT capability and keep generating.
- Complex interaction of power electronics are;
 - Less understood by the users, specially in sub cycle timescales.
 - better analysed by EMT simulations as opposed to RMS simulations.
 - Consideration should be given to using EMT simulations to demonstrate FRT capability.
- User's appears to lack SLA with OEM/supplier to respond/resolve FRT issues quickly post event.

