3 June 2011

The Chairman
Tasmanian Electricity Industry Expert Panel
GPO Box
Hobart TAS 7001

Dear Sir,

Supplementary Submission to Tasmanian Electricity Industry Expert Panel

Attached is a supplementary submission to the TESI Expert Panel in which I add some background to the claims made in my submission in April 2011.

In brief, my submission claims are based on my experience as a consultant to the Electricity Ombudsman of Tasmania, and on discussions with colleagues in the Electricity Industry based in other states. This supplementary submission provides evidence supporting my claim that Aurora's current operational boundary with Transend is not efficient, and delivers poor service to customers.

In a number of cases that I have been asked to examine by the Electricity Ombudsman in the past 9 years, complaints have been focussed on the slow restoration of supply by Aurora's Network division.
My investigations found that a substantial cause in the delay in each of the cases examined was the slow response from Transend operators in providing fault data that would have enabled Aurora to identify the fault locality. In all mainland states, this data is immediately available to the Distribution operator.

Fault data provides the operator with an indication of the locality of the fault, helping field crews target the likely area. Knowing the locality of the fault enables early reconfiguration of healthy sections of inter-connected feeders to restore supply quickly to some customers – as demonstrated in some slides in my presentation. This technique is used increasingly by distribution network operators in other jurisdictions, and is compatible with tomorrow's "Smart Network" technology.

In recent years there have been a string of penalties imposed on Aurora by the Office of the Tasmanian Electricity Regulator(OTTER) for poorly performing distribution feeders. My belief is that the dysfunctional operational boundary between Transend and Aurora contributes considerably to the poor performance. See my presentation slides for Live-line working, Vegetation management, and Fault recovery for illustrations of the involvement of Transend's transmission operators in normal distribution operational work. Attachment XX illustrates the fault recovery process that is followed when fault data is not available to Aurora, and the fault recovery process followed when fault data is available immediately.

Over the past 9 years I have regularly talked with colleagues employed by Distribution Network owners in Queensland, New South Wales, Victoria and South Australia. I have on occasion talked with colleagues in Western Australia and Northern Territory.

Each colleague emphasises the importance of the Distribution operator having control of the distribution circuit breakers and access to the fault data recorded in the associated relays. All acknowledge that development of "smarter networks" would not be possible without Distribution operator control of the feeder circuit breakers and voltage controls, and access to the data held in the associated relays.
In recent weeks I have spoken with Mr Gary Towns, Manager Asset Network Strategy, SP Ausnet, Melbourne. His view is that there have been significant synergies in bringing transmission and distribution network support staff together. Also, that it is essential for distribution operators to control

and operate all distribution network circuit breakers in order to streamline operations and minimise the number and duration of customer interruptions.
I have also spoken with Mr Neil Watt, Manager Network Strategy, for Citipower/Powercor, Victoria. His views are similar to Mr Towns's views for distribution operational efficiency. Where Powercor has distribution subtransmission feeders located inside a transmission substation, Powercor has a joint accreditation scheme with the transmission operator that enables Powercor's operators to access their circuit breakers, and he is surprised that the Tasmanian electricity businesses have not reached a similar arrangement. Powercor's Board has just approved a program titled "Networks of the Future" that will extend coverage of their Supervisory Control & Data Acquisition (SCADA) system so that operators will have remote control of every feeder. This will be a foundation for future "Smart Network" developments.

Every-day work practices in Distribution networks.

Modern work practices in distribution networks include a large proportion of high voltage live line work and transfer of loads between HV feeders without supply interruption. Each task requires temporary safety measures that include adjustments to control and protection relays associated with the HV feeder circuit breaker. In mainland authorities, all these tasks are performed by the one operational team – distribution- and should be in Tasmania to optimise operational efficiency in both Transend and Aurora.

An analogy

Control of the current Tasmanian distribution network can likened to a scenario of the telephone networks of Tasmania and Victoria, automated on each side of Bass Strait, but with a manual telephone operator between the two states. When customers complain, each state automates its own area a little more, but the manual link between the two networks remains. Each says that they are working to improve the situation and cooperating with the other entity, but the fundamental road-block to better service remains!!

REMOVE THE ELECTRICITY ROAD-BLOCK IN TASMANIA.

The solution is to move the business boundary to give Tasmanian customers better service.
EITHER by:

- Moving the ownership of the distribution feeder circuit breakers and voltage controls to Aurora.

OR by

- Merging the transmission and distribution networks, and realigning distribution operator responsibilities.

Yours faithfully

David Asten
MIEAust, MIES(ANZ) Chartered Professional Engineer.

Appendices

Appendix A illustrates the safety steps required for live-line construction, maintenance or vegetation tasks.
Appendix B illustrates the supply restoration process that distribution operators follow without fault data.
Appendix C illustrates the process when fault data ***is*** available to the distribution operator.

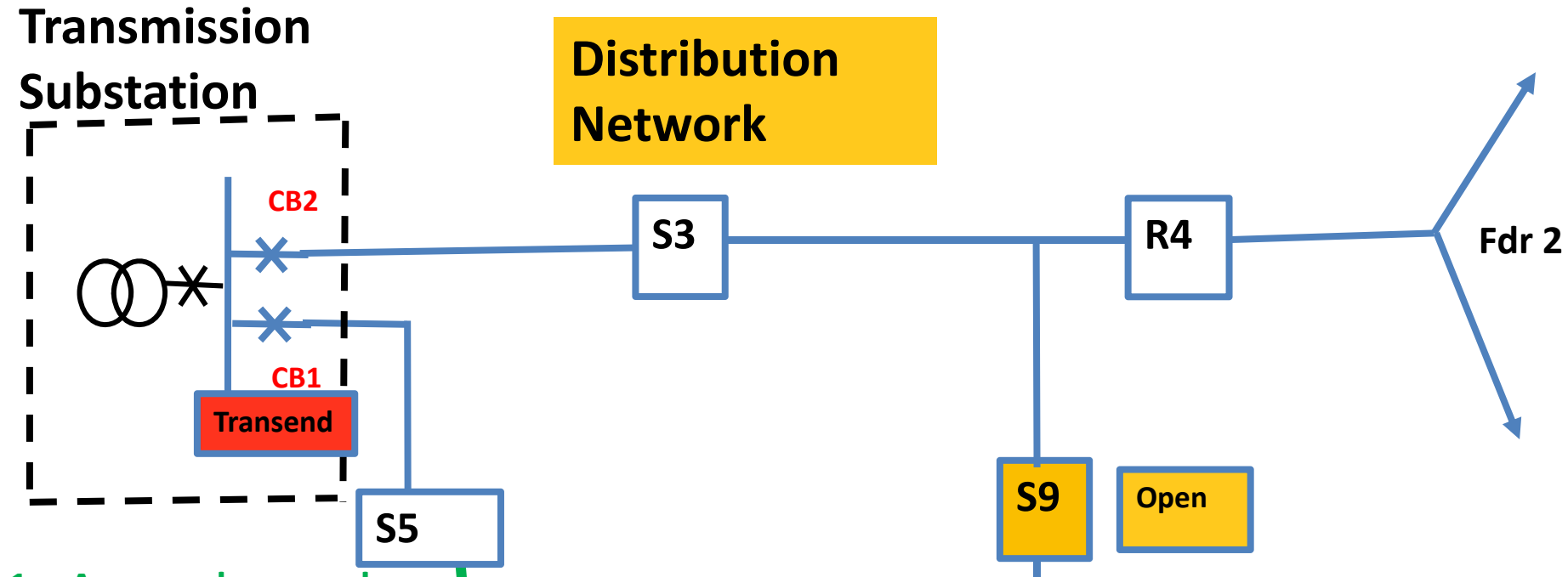
Live line working – safety precautions

Preparation requires access to Feeder Circuit Breaker:

1. Switch off “auto-reclose”
2. Adjust protection settings
3. Issue work permits.
4. **Perform work.**
5. Cancel work permits
6. Restore protection settings
7. Switch on “auto-reclose”

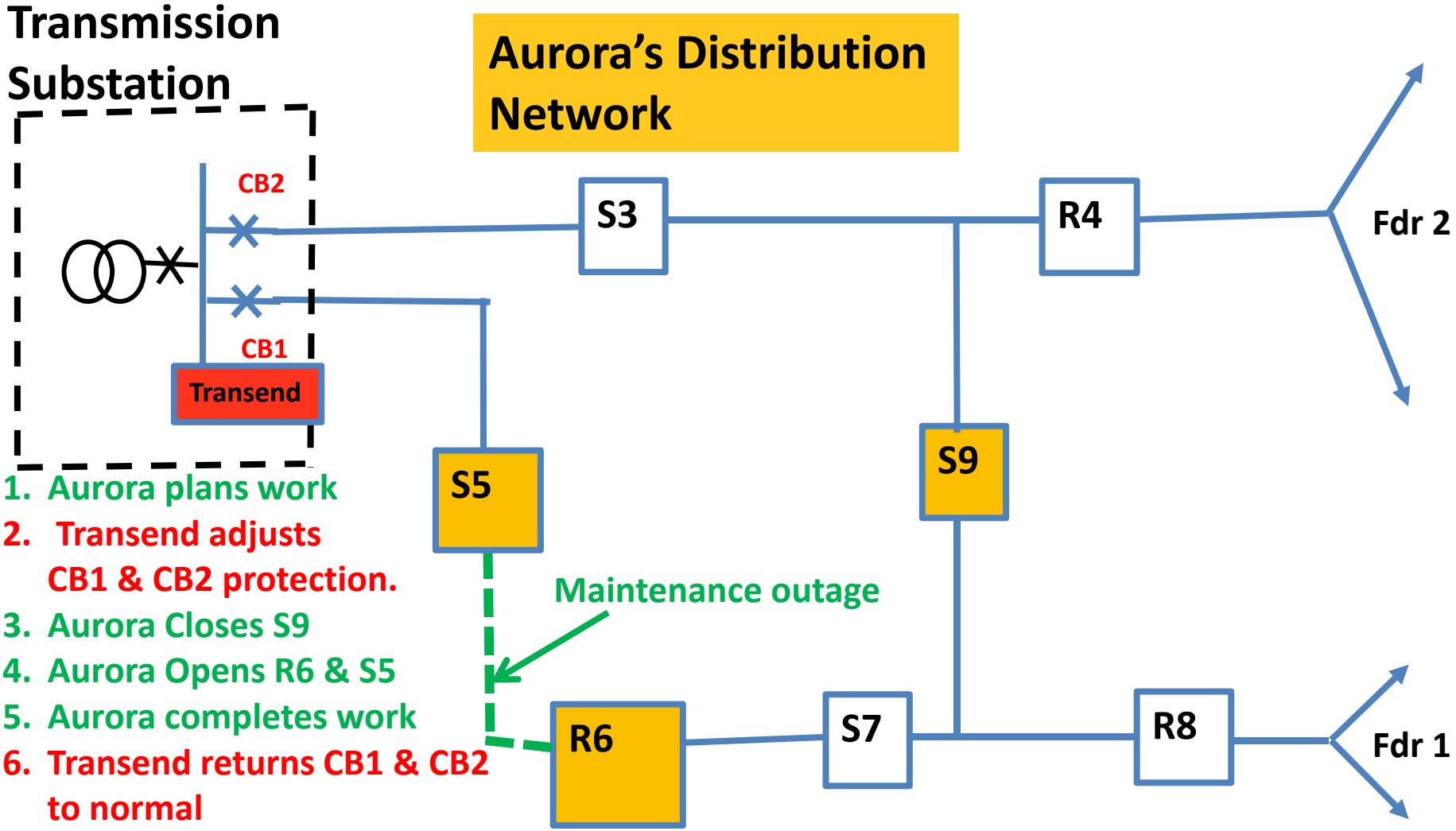
For efficiency, all operational steps should be performed by the distribution team.

Distribution network – Live-line safety

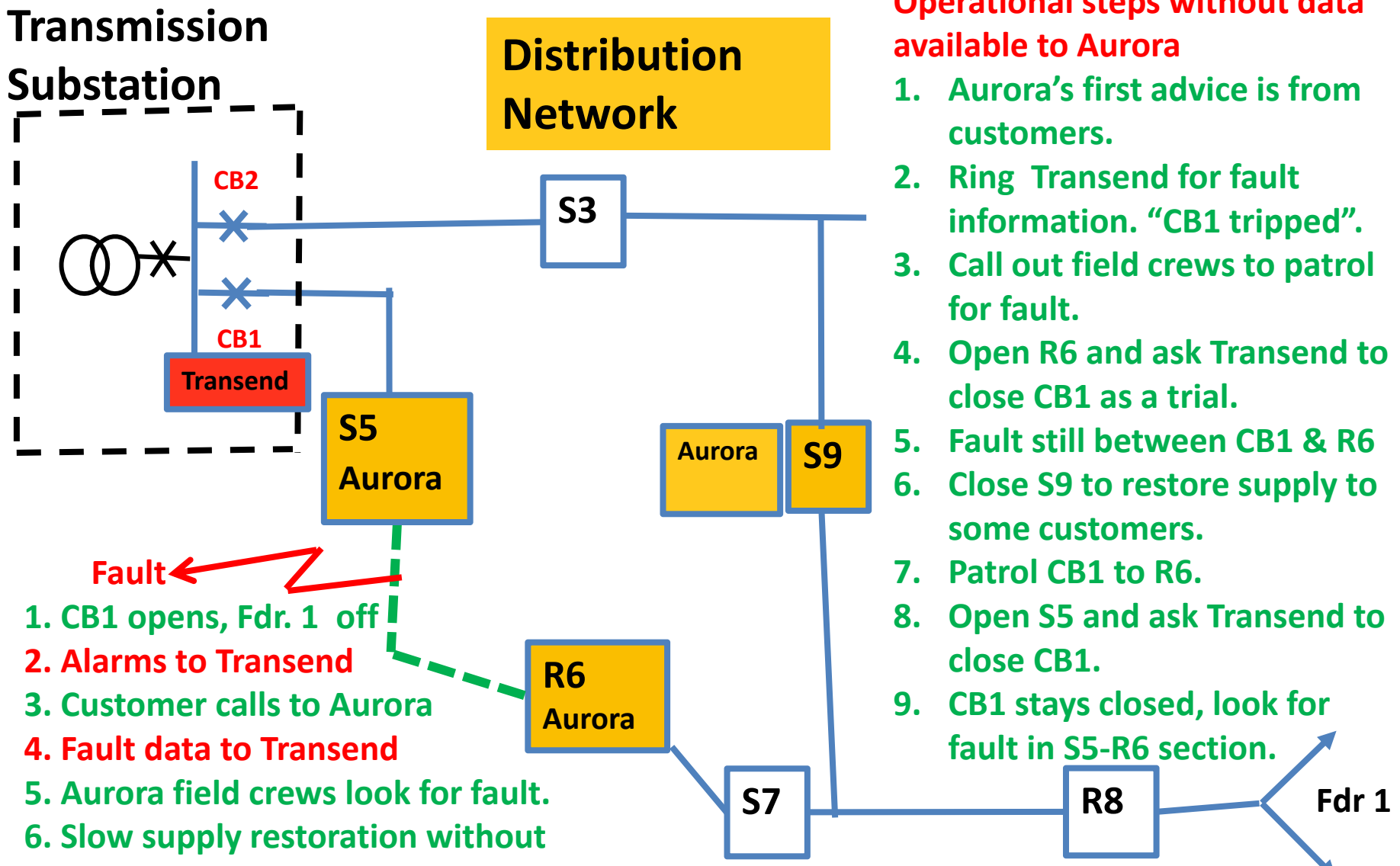


1. Aurora plans work
2. Transend adjusts CB1 protection
3. Aurora completes work.
4. Transend returns CB1 protection to normal.
5. Aurora is responsible for delays and costs.

Distribution network – transferred load



Distribution network – fault recovery (1)

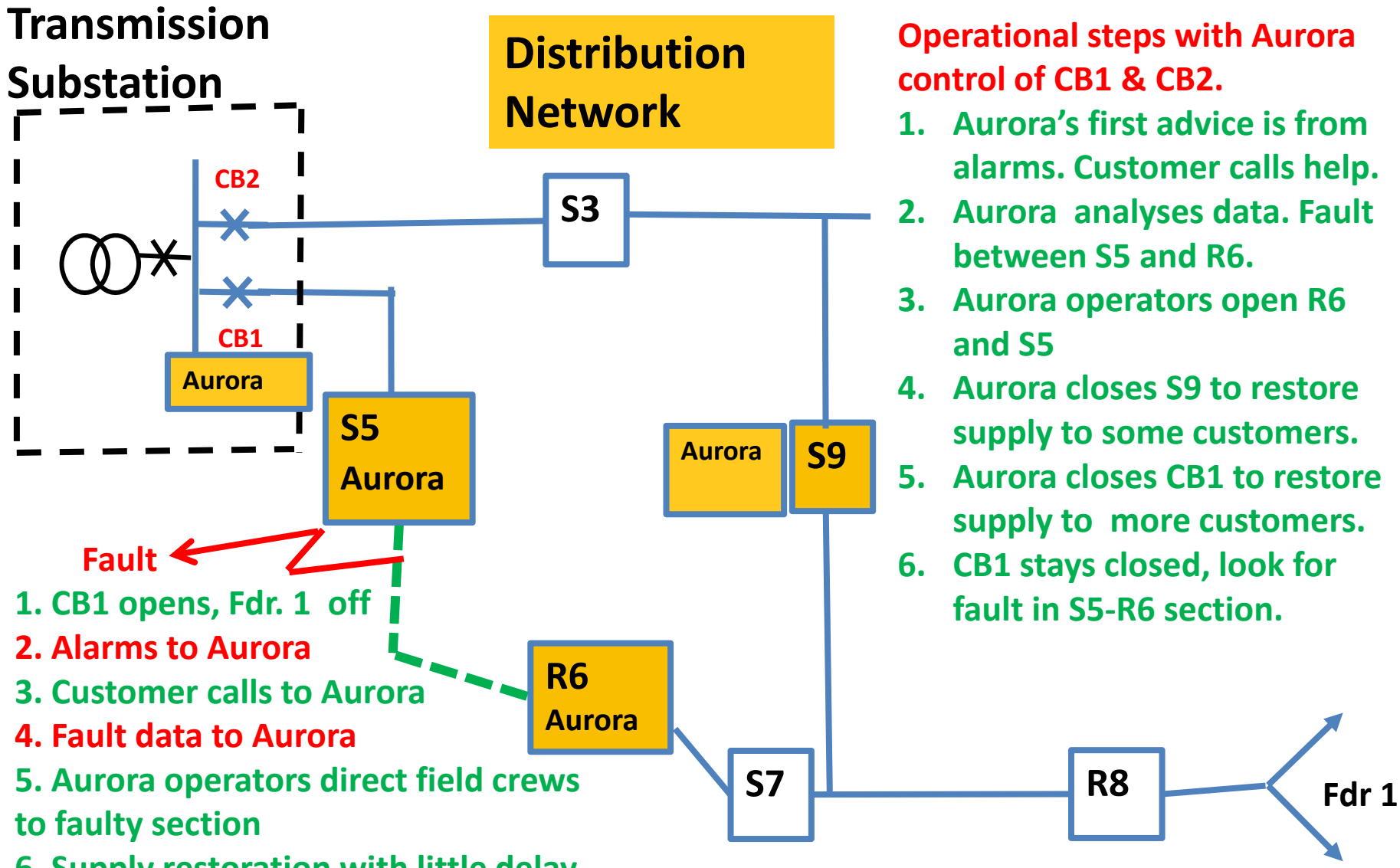


1. CB1 opens, Fdr. 1 off
2. Alarms to Transend
3. Customer calls to Aurora
4. Fault data to Transend
5. Aurora field crews look for fault.
6. Slow supply restoration without data

Operational steps without data available to Aurora

1. Aurora's first advice is from customers.
2. Ring Transend for fault information. "CB1 tripped".
3. Call out field crews to patrol for fault.
4. Open R6 and ask Transend to close CB1 as a trial.
5. Fault still between CB1 & R6
6. Close S9 to restore supply to some customers.
7. Patrol CB1 to R6.
8. Open S5 and ask Transend to close CB1.
9. CB1 stays closed, look for fault in S5-R6 section.

Distribution network – fault recovery (2)



Operational steps with Aurora control of CB1 & CB2.

1. Aurora's first advice is from alarms. Customer calls help.
2. Aurora analyses data. Fault between S5 and R6.
3. Aurora operators open R6 and S5
4. Aurora closes S9 to restore supply to some customers.
5. Aurora closes CB1 to restore supply to more customers.
6. CB1 stays closed, look for fault in S5-R6 section.