MINUTES OF A MEETING OF TRANSMISSION CODE TECHNICAL WORKING GROUP HELD ON TUESDAY, 22 FEBRUARY 2011 AT 1:30PM.

PRESENT: *Ray Brown (Meridian); James Collinson-Smith (Contact); Dick Whitelaw (NZ Steel); Tristan Maunsell (Todd Energy) – by phone; Grant Crawshay (MRP); Peter Calderwood (Trustpower); Michael Whaley (Powerco) – by phone; Tim Chatterton (Vector) – by phone; Rodger Griffiths (Westpower); John Clarke (TP); Graeme Ancell (TP); Andrew Renton (TP); Simon Todd (TP); Carmen Blackler (Blackyard Consulting)*

APOLOGIES: *Richard Pearce (Genesis); Kevin Small (TP); Siobhan Procter (TP); Bob Simpson (TP); Tas Scott (Orion)*

Introduction:

John Clarke welcomed everyone to the meeting, and acknowledged those who could not attend the meeting due to the Christchurch Earthquake (which occurred ~35 minutes prior to the meeting).

Discussion:

Fault levels.
The group discussed the proposed section in the Transmission Code of Practice Technical Commentary.

The broad comments included

- It seems clear when fault levels are impacted by a new generator connection, but what happens when fault levels creep up?
- In those situations, it is difficult to determine who the “causer” is.
- The solution should be looked at pragmatically
- Embedded generators may not be covered by a benchmark agreement requirements, but is expected to be covered by an embedded generator agreement with the lines company
- The group recommends that a pragmatic approach “clause” be added to the design principles for Fault Levels.
- What is Transpower’s obligation to “hold” fault levels to a defined level for a predetermined period of time (e.g. 5-10 years)?
- Will Transpower hold fault levels? If so, how will it manage it?
- What happens if the fault level changes and a lines company has recently invested in new equipment (e.g. cables) based on old forecast
- How will Transpower deal with temporary generation if it increases fault levels
- This chapter should include the how Transpower calculates fault levels as well as the forecast.
- Where and when would/will Transpower limit the fault levels to predetermined levels?
- The group recommends that a principle around “looking at all the options and then consider the rules and economics for each” should be included.
- The group noted that the principles should not necessarily include the rule obligations, but rather what Transpower will do with respect to Good Electricity Industry Practice

In the discussions the group were seeking assurance from Transpower that least cost options would be pursued where fault levels were at risk of being exceeded – i.e. Transpower would upgrade if it was a cheaper option than forcing the generator to manage the fault level increase it may have caused (which may be a higher cost).

Transpower noted that it does a fault level forecast as part of its APR as well as the 10 year forecast. Transpower proposed that it could include a case study in the Technical Commentary of the Fault levels chapter if that was useful

It was noted that historically the NZED/MED published a design maximum for fault levels and would manage to this level. It was acknowledged that it may have been slightly easier at that point in time as all the generation and transmission was managed by one company.

The group proposed that the fault levels chapter should include a principle which states "fault levels will not be allowed to rise above set levels for a predetermined period of time", and that the process supporting this should be to then look at options and costs to rectify or manage the situation, when the fault level limits are close to being reached.

Transpower noted that there may be two aspects to consider

- Fault levels "wont" go about a set level, and
- Future design requirements. For example, Transpower recommending to generators what fault level their new installation should be designed for, noting the 40 year life of the assets.

Transpower noted that if a generator does not design or procure equipment at the level recommended by Transpower, it would be the generators risk in terms of replacement cost in the future. That is, should this equipment need replacing in the future because the fault levels rise in accordance with what Transpower had advised, then the costs of replacing the affected equipment would sit with the generator

Transpower noted that the Transmission Code of Practice (TCOP) was about identifying what Transpower considered GEIP in relation to its design principles, and/or the processes it follows in establishing what is GEIP. It noted that while an economic assessment is always part of the process, the issue of "who pays" does not fit within the structure of the TCOP

The group acknowledged that the TCOP was not the place for the "who pays" discussion.

The group reviewed the table in the TCOP technical commentary and raised the question of when would Transpower "publish" a new table, and would it be for each region or on a "one size fits all" basis. The group noted it would be useful for Transpower to take leadership and produce tables by region and include them in the document.

The group also queried how Health & Safety issues would be factored into the economic assessment. The group also questioned Transpower as to what process they followed with respect to Fault Levels when procuring equipment. They also asked whether, with fault levels continuing to rise, is there a "hard limit" that the manufacturers specify.

Transpower noted that they tend to look at what the fault level expected is and then procure above that level, but the "break point" tended to be around 40kA because of cost (which at this level resulted in a step change in costs)

The group noted they would like to understand what options Transpower has in managing fault levels to predefined limits. Transpower said they would consider the following:-

- Can they uprate the equipment affected?
- Can they add equipment to the area affected?
- Can they split the grid to address the problem?
- What are the costs and consequences of these actions?

Transpower discussed the Regulatory requirements, specifically what the Electricity Industry Participation Code and the associated Benchmark Agreements have documented, including who is accountable in particular situations.

The group reiterated its preference for a pragmatic approach rather than a purely regulatory process. The group noted that "monitoring and dialogue" type approach would be a pragmatic approach that would be welcomed.

The group noted that should Transpower agree to manage to fixed limits for existing and older equipment, they would require a 12 month – 2 year timeframe to reinvest in new assets. It was considered that fault levels being set for a period of 10 years would provide certainty. Note, this was for the case where fault levels were rising over time, and not for when there is a step change due to the commissioning of a new generator.

Transpower noted that the fault level chapter of the TCOP may incorporate a two/three limbed approach

- Guidance for generators and Transpower staff as to design fault levels for new installations as GEIP
- How Transpower will notify that levels are going to exceed equipment limits within 10 or maybe 5 years
- The test that Transpower will apply and the mitigation options available

Transpower agreed to take all the comments into consideration in the final drafting of the fault level section.

<u>Grid Connection and Substation Configuration</u>

The group noted that the inclusion of standard configurations was useful. There was some confusion as to the purpose of each chapter, and the question raised as to why they are not one topic. It was suggested that this may need to be clearer in the commentary.

Other broad comments included

- Recommendation to include an "in-out" configuration, and a 4 terminal configuration
- The table is useful for identifying a "centre of mass" but what happens if there is "no centre of mass"
- Better clarification that the configurations are an "initial offering" and that if something does not align then it is a trigger to have a discussion between the parties concerned
- Why does configuration matter for through transmission?
- What additional risks is the customer adding which impacts configuration?
- The configurations need to be considered and broken down with respect to generation and load. Any differences for these two connecting parties need to be described as part of document
- What difference should it make with regards to who owns a spur line? Perhaps put a qualification on why this would matter or alternatively, make a design principle along the lines of "Breaker is required at connecting party's end unless….."
- What effect would a distribution company who can back up (feed) their connection have on the tables at the back of the technical commentary

Transpower noted all the comments and acknowledge it would take them into consideration in the final drafting of these sections. Transpower also asked that any additional comments on these sections be sent through (to Carmen Blackler) as soon as possible, to assist with the next phase of drafting.

Special Protection Schemes and Planned Outages

Transpower noted that it intended to update the special protection schemes chapter based on experience, and raised the question with the group as to how useful the risk assessment was. For the planned outages chapter, Transpower noted that it intended to modified the chapter to

- be more NZ based (rather than UK centric as per the Kema approach),
- to identify what outage windows are appropriate in the NZ context for different types of outages, and
- to add the requirement for outages into the planning process for new projects, thereby capturing the implementation issues related to the commissioning of assets

The group queried the particular examples used in the document provided. Transpower noted that some of the examples were chosen because they were "simple" examples of the decision criteria Transpower faced in the determining the economics associated with outage planning. Some of the examples were there to indicate that for outages to be flexible in timing throughout the year, they were reliant on the availability of generation.

The group suggested that as part of that consideration, it should be identified whether Transpower is considering the generation in terms of individual units, or by whole stations. It was proposed that this "decision" should be included as a design principle.

Action: **TWG** to forward any further comments on the new chapters, and proposed changes to existing chapters, through to Transpower (c/- Carmen Blackler) as soon as possible, preferably by close of business Monday 7 March 2011.

Next steps

Transpower identified that the next stage of the process was for Transpower to complete a final draft of the Transmission Code of Practice, and the associated Technical Commentary paper within the next 6 weeks. The draft would then be forwarded to the TWG for review, and potentially a meeting arranged for early April 2011.

The group agreed to meet face-to-face in 4-5 weeks.

Proposed meeting date tentatively proposed for a day within the week 4-8 April 2011

Meeting closed at 3:40pm.