Procedures for Assessing Hazard

- **Early dialogue is vital (BEFORE buying land or doing detailed design)**
  - **E.g. rural crossroads**
  - **Often problems can be avoided at nil or minimal cost at a very early stage**
  - **If problems can't be avoided, budgeting for them solves a lot of future stresses**
- **Before starting detailed design of new power network works or telecommunications network works, have it checked for Power Co-ordination hazard.**

NZ Telecommunications Network Operators

- **Chorus (Telecom)**
  - Copper multi-pair cable network, installed down virtually every road in NZ
- **TelstraClear**
  - Coax and copper multi-pair cable networks in urban Wellington, Hutt Valley, Kapiti Coast, Christchurch and Auckland

- **Vodafone**
- **Fibre Optic Network Operators**
- **KiwiRail**
  - Signalling & communication circuits down railway corridors

NZ HV Power Network Operators

- **Transpower**
- **Power Distribution Companies**
- **KiwiRail**
  - NIMT (25 kVac)
  - Wellington suburban area commuter lines (1500 Vdc)

What Happens Now

- **Chorus has by far the greatest exposure to Power Co-ordination hazards (> 20 times bigger). Consequently, it employs two people virtually full-time, Rod Goodspeed in Napier and Alan Marshall in Christchurch, to handle its Power Co-ordination hazard issues.**
- **Currently, all significant new Chorus works, and all new Transpower and Power Company HV works and alterations, are notified to Rod Goodspeed (Chorus), for checking for possible EPR or induced voltage hazard.**

- **Rod and Alan have access to up-to-date Chorus cable network plans, and have plans of all Power Company and Transpower HV networks.**
- **Simple analysis can quickly show if new works/alterations MIGHT cause hazard (most don't). Then more detailed analysis kicks in.**
- **Process of progressive de-simplification then occurs.**
- **Advantage – quick efficient early robust hazard assessment response for proposals.**

Chorus Separations Standard

- Chorus has an internal standard specifying conservative target minimum separations from HV power earthing systems.
- Different separations are specified for:
  - Each Power Company area
  - Different classes of HV earthing systems
  - Different types of Chorus network plant

- **If met, there should be no EPR hazard issue. If not, it may still be OK, but it needs more detailed analysis by Rod or Alan.**

Methods of Determining Impressed Voltages

1. **Simple calculations**
2. **Computer modelling**
3. **Current injection tests**

What should happen in the future?

- Both parties need to feel the process is fair, efficient and accurate, but not ‘gold-plated’.
- We both want any Power Co-ordination hazards to be identified, and where appropriate, mitigated.
- However mitigation decisions should not be ‘gold-plated’. Cost of mitigation must be in proportion to the risk.

- **Some have the misconception that Chorus wants ‘gold-plated’ mitigation.**
- **This is not in Chorus’ interests, and would cost it dearly in terms of mitigating new Chorus works (at 100% Chorus’ cost), and mitigating existing hazards (at 50% Chorus’ cost).**
- **We all work in a ‘Risk Engineering’ area, and need to be able to say we did everything REASONABLE to identify and address any Power Co-ordination hazards.**

Feedback is wanted on this issue.