

**COST APPORTIONING
PRINCIPLES FOR THE
MITIGATION OF
HAZARDS AND/OR
INTERFERENCE
BETWEEN POWER AND
TELECOMMUNICATION
NETWORKS**

NZCCPTS

Issue 1

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The New Zealand Committee for the Co-ordination of Power and Telecommunication Systems Inc. (NZCCPTS)

The New Zealand Committee for the Co-ordination of Power and Telecommunication Systems was established in 1985 following the increasing need to implement efficient cost-effective measures for the limitation of hazard and interference to power and Telecommunications Systems and Personnel.

Such measures not only require the determination of optimum engineering solutions consistent with minimum national cost, but also necessitate clear guide-lines covering the equitable allocation of responsibilities during all work phases from planning through to in-service operation.

The objective of the New Zealand Committee for the Co-ordination of power and Telecommunication Systems is to meet these needs and, by means of publications and seminars, promote a greater awareness and understanding of the action that must be taken to ensure that Power and Telecommunication Systems coexist satisfactorily.

Membership of the Committee and its Working parties currently comprises representatives for each of the following organizations:

- ◆ Transpower New Zealand Ltd.
- ◆ Telecom New Zealand Ltd.
- ◆ Electricity Engineers' Association of New Zealand Inc.
- ◆ KiwiRail (NZ Railways Corporation)
- ◆ Energy Safety Service, Ministry of Economic Development

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Foreword

There have been situations in the past where the issue of who should pay for the costs of remedying the situation has delayed installation of the required mitigation for an EPR hazard, induction hazard or interference to a telecommunication network.

The purpose of this guide is to add efficiency to the process of remedying the situation by providing an equitable basis for determining the apportionment of the costs of mitigating EPR and induction hazards and/or interference to the operation of telecommunication networks.

As this is the first time a document of this nature has been published in NZ, feedback on applying any aspect of this guide, whether it relates to difficulties or benefits in its use, would be appreciated at any time. Please send any comments to:

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It is anticipated that this document will be reviewed in about 2 years time. However if any substantive issues are raised before then from the application of this guide, the guide can be reviewed at that stage.

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1.0 Introduction

This publication sets out principles for determining an appropriate apportionment of costs between power network and telecommunication network operators, when cases of EPR or induction hazard, or interference, to telecommunication networks require investigation and remedial action and incur expenditure by either or both parties.

The cost apportionment principles are based on the expectation that both parties involved are prepared to co-operate willingly to investigate and reach a common understanding on the nature, cause, and appropriate remedial action for each case.

Account is taken of historic or pre-existing conditions, and prudent industry installation practice and installation standards.

The principles set out are aimed at achieving resolution of issues by agreement, thereby avoiding costly litigation for both parties.

For the purposes of this guide, control and signalling circuits used for Power or Railway networks should be treated the same as circuits owned by a Telecommunication Network Operator.

At some future date this document may be referred to by the Electricity Regulations as an acceptable means of compliance. However for the present, it is intended that this document be used as the basis of individual agreements between Power and Telecommunication Network Operators.

1.1 Agreement that a Problem Requires Mitigation

Before the cost apportioning principles in this guide can be applied, the power network operator and telecommunication network operator (or control and signalling systems operator) must agree that the problem requires mitigation.

For cases involving EPR and induction hazard, limits are legislated in the Electricity Regulations (ER 58 in the Electricity Regulations: 1997).

There are currently no legislated limits for noise interference induced or impressed onto a telecommunication network by a power network. However there are a number of applicable international standards on acceptable limits for noise effects, and noise resistibility of telecommunication equipment. These would normally form the basis of an agreement that a noise interference problem requires mitigation. Where no international standard is applicable, the parties must mutually agree whether the problem requires mitigation.

2.0 Background

NZCCPTS has already published several documents dealing with aspects of interaction between power network and telecommunication network operators, to provide guidance on minimizing EPR and induction hazard to telecommunications equipment and users, and interference to the operation of telecommunication networks.

The NZCCPTS publications already issued include Application Guides for

- Earth Potential Rise
- Cable Sheath Bonding
- Single Wire Earth Return HV Power Lines
- Neutral Earthing Resistors/Reactors
- Noise Interference

Other documents may also be relevant.

As a result of experience with a variety of cases, the need for guidance on apportioning costs between involved parties when conflict arises, has become apparent. The issues on which costs may be determined vary from case to case, and features of both the power and telecommunication networks may have contributed to the nature and extent of the problem requiring remedial action by either or both parties.

This document has been prepared to assist power network operators and telecommunication network operators reach an amicable agreement on the apportionment of costs in each particular case.

3.0 Principles for Cost Apportionment

The following Sections 3.1 to 3.5 outline cost apportionment principles for implementing and maintaining measures for the mitigation of hazards and interference between power and telecommunication networks. Section 3.6 covers the relevance of this guide to damage situations.

3.1 General

3.1.1 Where there are several options for remedial action, the minimum overall cost option, calculated over a 10 year life in net present value terms, shall be the basis for cost apportionment, regardless of which party ends up doing the work. The total costs of the work done by all parties under this option should be determined, any betterment subtracted, and the cost apportionment agreement applied to the remaining total cost. This approach ensures that the party that does the remedial action is independent of who pays for it.

3.1.2 If any party wants a more expensive option implemented, they pay the difference between the costs of this option and the minimum cost option, as well as their share of the minimum cost option.

- 3.1.3 Either party's costs for work shall be commercially and technically fair and reasonable.
- 3.1.4 In the following sections, failure to install networks in accordance with prudent industry practices at the time of installation, or change of use of the networks, shall only be relevant in determining the cost apportionment basis if they significantly contribute to the problem being addressed.
- 3.1.5 For the purposes of stating these cost apportionment principles, "works" includes both electricity supply networks and telecommunication networks.

3.2 Costs of Investigations

- 3.2.1 All parties shall co-operate in investigating problems, and identifying possible solutions.
- 3.2.2 Each party shall bear its own costs of investigating and examining alternative solutions for existing works up to the time that a decision to proceed with implementing the solution is made, except that where these costs fall very disproportionately, a more equitable arrangement may be negotiated between the parties.
- 3.2.3 Where the situation relates to new works, or changes to an existing works, the party installing/changing the works shall, if requested, bear both parties reasonable costs of investigating and examining alternative solutions up to the time that a decision to proceed with implementing a solution is made. At an early stage in these investigations, both parties should agree on the appropriate types of investigations, and the general level of investigation costs, that are considered reasonable for the particular works in question.

3.3 New Works

- 3.3.1 New Works can be
- an entirely new installation, or
 - additions or extensions to an existing installation, where this results in a significant increase (or decrease) in EPR or induction hazard to telecommunication networks, or interference to the operation of telecommunication networks.
- 3.3.2 New works shall be designed and installed in accordance with current prudent industry practices.
- 3.3.3 If a new telecommunications installation or network extension introduces hazards or unacceptable interference to itself from an electricity supply

network, or if a new electricity supply installation or network extension introduces hazards or unacceptable interference to a telecommunications network, the party installing the new works (second party) shall meet the full cost of implementing the minimum cost solution to the problem, provided that the first party's network was installed in accordance with prudent industry practices at the time of installation, and the use of that network has not changed from its original use.

- 3.3.4 Parties shall advise one another at the planning stage for any major works and alterations. All such upgrades and alterations shall be treated as new works.
- 3.3.5 Where no existing hazard exists, but if as the result of proposed new works by both the Telecommunication Network Operator and the Power Network Operator, a new hazard will be created, the cost of remedying the problem shall be shared 50/50. [A typical example of this is when both Telecom and the Power Company are extending their networks down the same road to supply a new house.]

3.4 Existing Works

- 3.4.1 Where one party believes a problem exists, it may initiate an investigation to identify whether there is in fact a problem, the magnitude of the problem, and possible solutions to the problem (all other parties concerned shall co-operate as necessary with the investigation). An investigation procedure for cases of noise interference is included in the NZCCPTS 'Guide for Investigating and Mitigating Power System - Telecommunication System Noise Interference' - Section 6.
- 3.4.2 Costs of the solution shall be apportioned as follows:
 - (a) Where a problem arises due to a change by one party of the use of its network, and the other party's network and plant were installed in accordance with prudent industry practices at the time of installation, the party which has changed the use of its network shall meet in full the minimum cost of any remedial work necessary.
 - (b) When a hazard is discovered that has been in existence for over 5 years at the time the hazard is first notified to the other party, and both parties networks and plant were installed in accordance with prudent industry practices at the time of installation, and the use of those networks has not changed over the previous 5 years, the cost of remedying the hazard shall be shared 50/50.
 - (c) Where the networks or plant of one or both parties were not installed in accordance with prudent industry practices at the time of

installation, or an existing hazard less than 5 years old is discovered, the parties shall negotiate the apportionment of costs on a case-by-case basis.

3.5 Combination of New Works and Existing Works

Where a proposed new works worsens an existing hazard situation, a proportionate application of the new works and existing works cost apportioning policies should be applied. The respective proportions of the hazard due to the new works and the existing works that is considered appropriate, should be negotiated on a case-by-case basis. [Usually this situation occurs when the existing hazard is unknown prior to the new works being checked for hazard.]

3.6 Damage

The costs of damage are not covered by this guide, as they often involve insurance claims and legal issues to assign guilt. However if remedial action is required to prevent a re-occurrence of the problem, the cost of this remedial work is covered by this guide.

4.0 Dispute Resolution

Where agreement on cost apportionment cannot be reached, the following dispute resolution procedures shall apply.

4.1 Amicable resolution

All questions of dispute between parties arising from this agreement shall be negotiated in good faith.

4.2 Mediation

However if any question or dispute is not resolved, either party may at any time invoke a mediation process as follows:

- (a) Either party may by written notice to the other party, require that the dispute between them be referred to mediation.
- (b) The mediation notice shall not derogate from the obligation of the parties to seek resolution by consultation or negotiation.
- (c) The parties will endeavor in good faith to agree upon and appoint a person as mediator to consult with the parties and assist them to reach agreement as soon as practical.
- (d) The mediator shall have no powers of decision on any matters other than time tabling and procedural matters and all costs incurred in

respect of the mediation shall be equally shared between the parties.

- (e) Should the parties not be able to agree on the appointment of a mediator, the matter shall be referred to the General Manager, Ministry of Consumer Affairs, who shall appoint a mediator.
- (f) If mediation fails, an adjudicator shall be selected who is mutually acceptable to both parties. Where mutual acceptance cannot be obtained, the General Manager, Ministry of Consumer Affairs shall appoint an adjudicator, whose decision shall be binding on both parties.