Ministry for the Environment
Manatū Mō Te Taiao

Proposed National Environmental Standards for Electricity Transmission Activities

Evaluation under section 32 and section 44 of the Resource Management Act 1991

New Zealand Government

This report may be cited as:
Ministry for the Environment. 2009. *Proposed National Environmental Standards for Electricity Transmission Activities*. Wellington: Ministry for the Environment.

Published in December 2009 by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: 978-0-478-33198-1 (print)
978-0-478-33199-8 (electronic)

Publication number: ME 952

This document is available on the Ministry for the Environment's website:
www.mfe.govt.nz

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Executive Summary

The New Zealand national electricity grid is owned and managed by Transpower. The majority of the grid was constructed before the Resource Management Act 1991 (the RMA) came into force and therefore has rights under the RMA to continue as an existing use. However, these rights do not apply to upgrading transmission lines. Transpower obtains resource consents for upgrading and some maintenance activities, as required by rules in district and regional plans.

This creates a number of problems, including the costs of processing resource consents, delays and uncertainty caused by the lack of consistency in plan rules (consent requirements for transmission activities vary significantly between district plans), and often a lack of specific provisions for transmission activities.

The Ministry for the Environment is addressing these problems by providing greater central government leadership and direction. The National Policy Statement on Electricity Transmission (the NPS), which took effect in April 2008, addresses the variable recognition of the national benefits of electricity transmission in plans and council decision-making. To give effect to policies and objectives set out in the NPS, councils must notify and process a plan change or review by April 2012.

The National Environmental Standards for Transmission Activities (NES) would help councils to implement the NPS within specified timeframes by providing a set of nationally consistent rules. The rules would take immediate effect without going through the plan change process, and would reduce RMA costs associated with transmission activities. The rules would also significantly reduce Transpower's plan advocacy costs and the costs of RMA approvals. The net benefits over 10 years are estimated to be between $4.8 and $5.5 million (net present value), and the benefit−cost ratio at between 5.6 and 6.0.

The benefits of the NES derive from lower RMA costs associated with transmission activities. The reasons for the reduction in costs and the way the NES satisfies the selection criteria are set out below. The NES would:

- minimise the cost and timeframe for implementing the NPS by:
  - providing a set of rules, to take immediate effect without going through the plan change process, which would reduce council expenditure in formulating new transmission activities rules, assessing and hearing submissions on these rules and dealing with appeals
  - reducing Transpower's expenditure for making submissions on plan changes
- provide a nationally consistent framework of consent requirements for transmission activities
- provide for the effective operation, maintenance and upgrading of the network by making a range of transmission activities permitted
- take account of the operational requirements and technical constraints in determining the level of control on transmission activities
- manage the environmental effects of transmission by setting terms and conditions on permitted activities
- minimise RMA processing costs and delays
- be effective within the timeframes specified in the NPS

- provide an intangible benefit to the community from greater certainty about which activities are permitted and which require consent, although this is likely to be balanced by community costs (see below).

The costs identified for the NES occur within the first three years, as follows.

- Councils will incur implementation costs from the need to become familiar with the NES provisions, and through a small additional cost of notifying a plan change that includes the NES.
- Transpower will incur implementation costs from helping councils to understand transmission activities (this will be a small cost in addition to the cost of assisting councils as part of the NPS implementation).
- Government will incur costs from providing guidance on the NES and assisting councils with implementation.
- Councils and the community will incur intangible costs through finding out about the new requirements (first two to three years) and through loss of local control (ongoing).

Under the status quo, the community, councils and other agencies will incur costs, starting in 2008 and increasing through 2012, from becoming familiar with and implementing the NPS. The status quo is not simply a projection of historical costs: it is a projection of the new costs associated with the NPS.

The cost−benefit analysis also demonstrated that the financial output is sensitive to the percentage of councils wanting to incorporate the regulations into plans through a public consultation process, and to the level of Transpower's activity. Transpower has recently announced a $50 million upgrade programme to maintain and strengthen structures on the national grid.[1] The programme will bring forward required maintenance work that had been planned over the next 10 years. Therefore, benefits from providing national consistency and regulatory certainty by the transmission activities NES may be underestimated in the cost−benefit analysis.

[1] See: http://transpower.co.nz/n2404.html (16 February 2009)

1 Introduction

1.1 Background

A reliable, secure and affordable supply of energy – particularly electricity – underpins our economy and is important for people's well-being. The total amount of consumer energy used in New Zealand in 2006 was 499 PJ, which is a 1.5 per cent increase compared with 492 PJ in 2005. Electricity accounts for just over 27 per cent (136 PJ) of total energy use (Ministry of Economic Development, 2007).

Electricity is transported long distances from where it is generated to where it is used. The national grid traverses 72 local and 12 regional councils and is operated by Transpower New Zealand Ltd (Transpower), a state-owned enterprise. If New Zealand continues on its current path, electricity demand is projected to grow at around 1.3 per cent per annum (Ministry of Economic Development, 2007). Transpower's expenditure on transmission maintenance and upgrading activities is predicted to increase over the next 10 years (Transpower New Zealand Ltd, 2008).

In many situations there is no substitute for electricity. A resilient high-voltage electricity transmission network (the national grid) is critical for security of supply and supports the development of renewable electricity generation. However, having a resilient grid that is responsive to our increasing demand for electricity depends on adequate maintenance, upgrading the capacity of existing lines, and building new lines in areas where capacity has been reached.[2]

The projected growth in electricity demand gives Transpower strong incentives to increase the capacity of existing network. This, however, might prove difficult where plan rules for transmission activities vary between districts. Therefore, Transpower places strong emphasis on working with councils to ensure the operation, maintenance and minor upgrading of transmission lines is conducted in an effective and efficient way.

1.1.1 Providing for infrastructure under the Resource Management Act

The 2004 review of the Resource Management Act 1991 (the RMA) resulted in amendments that enhanced the Act's ability to provide national guidance through the use of existing RMA instruments such as national policy statements and national environmental standards. The review envisaged that more guidance would be provided on issues of national significance, in particular network infrastructure.

[2] The need for managing the national electricity grid is discussed in more detail in section 2.2 of this document.

Improving planning for infrastructure is a key area of focus for the Government. The RMA 2009 amendments will provide for greater central government direction to improve management of infrastructure. Electricity grid upgrades and new renewable generation infrastructure are part of the Government's programme of infrastructure investment for economic recovery. The Resource Management (Simplifying and Streamlining) Amendment Bill 2009 (the Bill) provides for a number of changes to the RMA that will have an impact on all NES. Specifically, the Bill proposes:

- removing the non-complying activity category of activities after a three-year transitional period
- simplifying the process for incorporating regulations into plans by allowing councils to refer to an NES and remove redundant plan provisions without going through the full public consultation process
- changes to the designation process.[3]

Proposed changes were not taken into account for this report because it is not yet clear what the final shape of the Bill will be.

1.1.2 Development of national guidance on electricity transmission

In January 2005 the Reference Group on Electricity Transmission was established to evaluate and advise on the merits and potential scope of national guidance on the management of electricity transmission under the RMA. The Reference Group was chaired by the Ministry of Economic Development and had representatives from relevant government departments, Business New Zealand, Local Government New Zealand, Transpower, Federated Farmers and the Electricity Commission.

In December 2005 the Reference Group produced for consultation a draft report that evaluated a range of options for national guidance. Twenty-nine submissions were received. The report of the Reference Group was finalised in April 2006 after considering the views of submitters (Reference Group on Electricity Transmission, 2006). The Reference Group's recommendations were considered by Cabinet in July 2006, and the Minister for the Environment was invited to develop national environmental standards and a national policy statement for electricity transmission.

The Ministry for the Environment developed three separate policy projects arising from the recommendations of the Reference Group.

- The first resulted in the production of the National Policy Statement on Electricity Transmission, which is discussed in section 2.3.2.
- The second focused on district and regional plans' provisions for, and management of, the effects of the operation, maintenance and upgrading of the electricity transmission network (referred to as "transmission activities").
- The third concentrated on how to protect the electricity transmission network from the activities of third parties that could damage the network or put it at risk. This work is ongoing, and a further review of the options is yet to be undertaken.

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[3] See http://www.legislation.govt.nz/bill/government/2009/0018-1/latest/whole.html#DLM1847901 (13 July 2009) for details.

1.1.3 The national environmental standards

The Ministry for the Environment released a discussion document for public consultation in October 2007 (Ministry for the Environment, 2007). The document contained proposals for NES that would:

- provide for the efficient use, maintenance and upgrading of the existing transmission network by specifying activities that do not have significant effects and can be undertaken without the need for resource consents, and that would specify resource consent categories for other activities
- protect electricity transmission lines from inappropriate third-party activities.

Public consultation on the proposed NES attracted 84 submissions from local and central government, industry, land owners, non-governmental organisations and individuals. A summary of submissions was published in May 2008 (Ministry for the Environment, 2008c).

The proposals for regulations for transmission activities have been revised to take account of general and detailed comments by submitters. Appendix 2 contains a more detailed discussion of the submissions received and how they have been taken into account. The proposals for regulations to protect transmission lines from inappropriate third-party activities (the risks NES) are currently being re-examined, for two reasons.

- The final NPS (finalised after the release of the discussion document on proposals for the NES) contains specific policies concerning third-party activities which were not in the proposed NPS. As a result, the transmission risks NES, as it stands, does not fit as well with the final NPS as it did with the earlier version.
- Submitters were concerned at the potential effects on adjacent land owners; in particular, the cost of obtaining resource consent for activities near transmission lines, and the potential reduction in land values due to a restriction in the activities that could be carried out. They felt that the potential costs to land owners, and to local authorities for implementing the proposed third-party risks NES, had been grossly underestimated and that only Transpower would benefit.

1.2 Purpose

This document presents an analysis of the proposed NES for Transmission Activities. The analysis is aimed at fulfilling the requirements of section 32 and section 44 of the RMA. Chapters 3 and 5 address section 32 requirements for considering alternatives and the efficiency and effectiveness analysis, respectively. The section 44 requirements for consultation, reporting and recommendations are covered throughout chapter 4 and in Appendix 2, which summarises the key issues raised by submitters on the proposed NES.

1.3 Scope

This document considers provisions in district and regional plans for the operation, maintenance and upgrading of the electricity transmission network (transmission activities). It does not cover the establishment of new transmission lines. Early investigations showed that there are adequate

provisions in plans for assessing the construction of new lines, either through the resource consent process or by Transpower issuing notices of requirement for designations. Also, it does not address major upgrades involving significant changes to infrastructure: it is envisaged that these upgrades would be considered in the same way as the construction of new lines. The key areas of concern identified in the early stages of policy development were the ability to undertake maintenance and upgrading of transmission lines without unnecessary resource management constraints.

As already noted, this document does not address risks to the national grid resulting from third-party activities, nor does it address risks the national grid might pose to third parties. The Ministry for the Environment consulted on the proposed transmission risks NES (Ministry for the Environment, 2007). As a result of general opposition to this part of the originally proposed regulations (Ministry for the Environment, 2008), the Ministry decided not to proceed with the proposed transmission risks NES at this stage.

1.4 RMA section 32 evaluation and report: methodology

Section 32 of the RMA requires the Minister for the Environment to evaluate the objectives and policies of any proposed NES and to prepare a report summarising the evaluation. The requirements contained within section 32 of the RMA are:

(3) An evaluation must examine:

(a) the extent to which each objective is the most appropriate way to achieve the purpose of this Act; and

(b) whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.

...

(4) For the purposes of this examination, an evaluation must take into account:

(a) the benefits and costs of policies, rules, or other methods; and

(b) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules or other methods.

There are two main aspects to the test of *appropriateness*:

- weighing up alternative objectives to determine which one will provide environmental outcomes that will best meet the purpose of the RMA
- being satisfied that the objective chosen can best be achieved through the RMA rather than through some other mechanism.

Getting a measure of *effectiveness* involves assessing how well a given mechanism or tool might work. The relative *efficiency* of different alternatives is more difficult to determine, and involves examining costs and benefits. A measure of efficiency is the extent to which the proposed method achieves the purpose of the Act compared to the magnitude of what is foregone as a result of using this method. Such an assessment involves calculating and comparing the net benefits against the net costs (environmental, social and economic). The

higher the benefits-to-cost ratio, the more efficient the option is (Ministry for the Environment, 2000).

A detailed cost−benefit analysis comparing the NES to continuing with the status quo (in terms of cost and time savings) was completed as background to this report and has been used to inform the wider analysis featured here.

1.5 RMA section 44 evaluation

Section 44 of the RMA details the power of the Minister for the Environment to make NES. Before the Minister recommends an NES to the Governor-General, he or she must notify the public and iwi authorities of the proposed subject matter of an NES and the reasons for considering that the NES aligns with the purpose of the RMA. The Minister for the Environment must also provide adequate time and opportunity for parties to comment on the subject matter, and publicly notify a report on submissions and recommendations.

The requirements of section 44 of the RMA are:

> The Minister must not recommend to the Governor-General the making of any national environmental standard unless the Minister has –
>
> (a) notified the public and iwi authorities of –
>
> (i) the proposed subject matter of the standard; and
>
> (ii) the Minister's reasons for considering that the standard is consistent with the purpose of the Act; and
>
> (b) established a process that –
>
> (i) the Minister considers gives the public and iwi authorities adequate time and opportunity to comment on the proposed subject matter of the standard; and
>
> (ii) requires a report and recommendation to be made to the Minister on those comments and the proposed subject matter of the standard; and
>
> (c) publicly notified that report and recommendation.

2 The Status Quo

2.1 State of transmission lines in New Zealand

The vast majority of existing transmission lines do not have designations or registered easements. Transpower is a requiring authority[4] under the RMA, and has the ability to arrange for designations.[5] This has not been done, however, because the costs of acquiring an interest in the land affected (through purchase, lease or easement) are likely to be substantial. As a result, the majority of transmission lines are not covered by designations in district plans. Instead, Transpower relies on a complex system of rights and approvals under the RMA to operate, maintain and upgrade the national grid.

2.2 Need for managing national electricity grid

2.2.1 National importance

New Zealand's current economic activity and future economic growth rely on a secure supply of energy, particularly electricity. The well-being of New Zealanders depends on a supply of affordable and sustainable energy to power their homes and businesses. Demand for electricity has been growing at 2 per cent per year, and is predicted to continue growing at 1.3 per cent per year in the future (Ministry of Economic Development, 2006). This is likely to place increasing pressure on the transmission network.

Investment to enhance the national grid infrastructure trebled in 2006 to over $300 million compared with an average expenditure of $100 million per annum over the last decade. Annual operating expenditure is forecast to continue to increase over the next decade (Transpower New Zealand Ltd, 2008). A proportionate level of increase in requirements for RMA approvals for maintenance and upgrading work can also be expected.

In February 2009 Transpower announced the decision to bring forward $50 million of maintenance work on the national grid. Planned work focuses on tower maintenance rather than initiating major new projects. The work is predominantly in rural New Zealand, and is nationwide (Transpower New Zealand Ltd, 2009).

For the foreseeable future new electricity generation is likely to be from medium- to large-scale generation, remote from where most of the electricity is used (the electricity demand centres). A robust grid to support renewable electricity supply is essential because the intermittent nature of renewable electricity resources puts more pressure on the grid.

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4 "Requiring authority" has the meaning set out in section 166 of the RMA.

5 Designations are further explained in section 3.2.4.

Security of electricity supply at affordable prices relies on having a resilient national grid, but grid constraints could result in planned and unplanned interruptions to supply, higher electricity prices in some areas, and renewable energy projects being unable to access the grid. Building and maintaining a robust national grid in a sustainable manner requires ongoing maintenance to prevent equipment failure disrupting supply, as well as upgrading the capacity of existing lines to cope with increased pressure on the grid. This in turn requires:

- appropriate controls on the environmental effects of electricity transmission
- a framework of consent requirements that enables the grid operator to operate without unnecessary constraints or delays.

Electricity transmission is a linear meshed network. A single transmission line (circuit) can traverse hundreds of kilometres and pass through several districts. Work done to maintain or upgrade a transmission line is only effective if it can be carried out on the whole length of the line. A partial upgrade is ineffective because the capacity or reliability of the whole line is limited by the section not maintained or upgraded, like the weakest link in a chain.

An example of how a lack of maintenance can disrupt supply involved most of southern and central Auckland – including the central business district – losing power for between one and eight hours on Monday 12 June 2006. The blackout was caused by the failure of two corroded shackles during high wind. At an estimated cost of $20,000 per kW hour of lost load, the total cost of the blackout (based on Transpower's records of lost load) was $70 million. Although the maintenance problem in this case was not the result of RMA constraints or delays, the example illustrates the potential economic cost of disruption to electricity supply through factors such as disruption to businesses, lost productivity and the cost of back-up generation.

2.2.2 Predicted level of transmission activities

As discussed above, electricity demand is predicted to grow on average by 1.3 per cent per year over the next 10 years. Additional network investments will therefore be required with or without the proposed NES. Investment in the maintenance and upgrade of the transmission network over the last decade has been low. Transpower's capital expenditure on transmission lines is predicted to increase over the next 10 years from around $100 million to just over $380 million per annum. Up to 2010 Transpower has committed to a significant number of projects involving incremental enhancements, such as the thermal upgrade of a number of existing transmission lines.

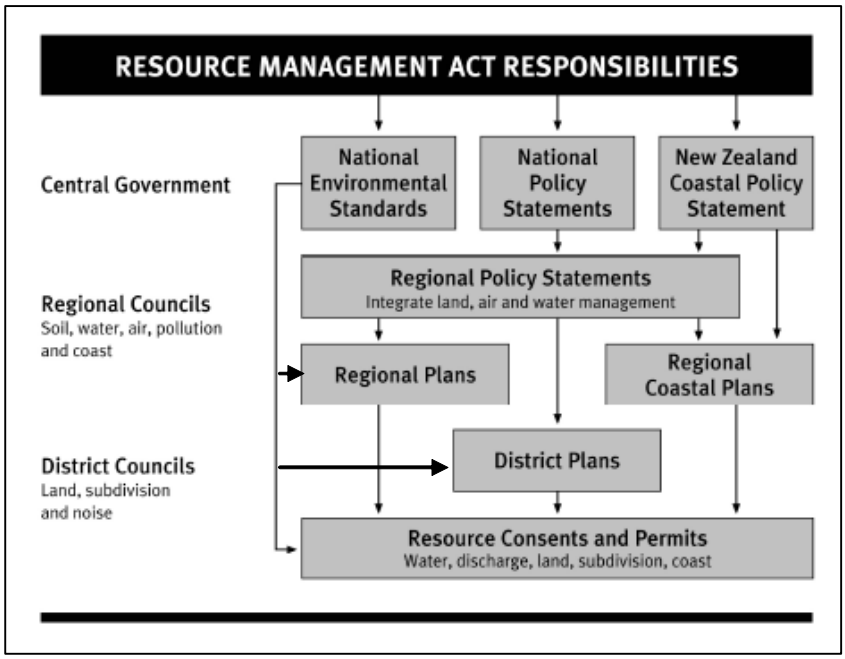
Transpower places strong emphasis on increasing the capacity of the existing network by uprating, duplexing and triplexing lines and adding additional circuits. For the purpose of this analysis it is assumed that the increase in expenditure on the maintenance and upgrading of existing transmission lines will follow this general trend in expenditure, and that the level of activity increases linearly over a 10-year period to three times current levels. Given that the benefits of the NES in terms of reduced RMA costs are proportional to the increase in activity, and that the discounting method values benefits in early years of the analysis more than benefits in later years, this is a conservative assumption.

2.3 Controls over transmission lines

2.3.1 Resource Management Act 1991

The RMA sets the regulatory framework for resource management in New Zealand and provides for a range of policy instruments. The hierarchy of policy statements and plans under the RMA is set out in Figure 2. National policy statements, including the New Zealand Coastal Policy Statement, set out objectives and policies for matters of national significance that are relevant to achieving the purposes of the RMA but do not contain detailed rules.

Figure 1:Planning instruments under the RMA



Source: NZIER, 2007

2.3.2 The National Policy Statement on Electricity Transmission

The National Policy Statement on Electricity Transmission (the NPS) took effect in April 2008. It recognises the national importance of the electricity transmission network and sets out a policy framework for managing the effects of the network under the RMA. The objectives and policies of the NPS must be given effect to in regional and district plans and in regional policy statements.

The objective of the NPS is to recognise the national significance of the electricity transmission network by facilitating the operation, maintenance and upgrade of the existing network and the establishment of new transmission resources to meet the needs of present and future generations while managing:

- the adverse environmental effects of the network
- the adverse effects of other activities on the network.

Policy 1 of the NPS requires that decision-makers recognise and provide for the national, regional and local benefits of sustainable, secure and efficient electricity transmission, and spells out the benefits. Specific policies relevant to electricity transmission activities are:

- **Policy 2**: in achieving the purpose of the RMA, decision-makers must recognise and provide for the effective operation, maintenance, upgrading and development of the electricity transmission network
- **Policy 3**: when considering measures to avoid, remedy or mitigate the adverse environmental effects of transmission activities, decision-makers must consider the constraints imposed on achieving those measures by the technical and operational requirements of the network
- **Policy 5**: when considering the environmental effects of transmission activities associated with transmission assets, decision-makers must enable the reasonable operational, maintenance and minor-upgrade requirements of established electricity transmission assets.

Other policies relate to substantial upgrades, new lines, protecting the transmission network from the activities of third parties, and long-term strategic planning for transmission assets.

- **Policy 4**: when considering the environmental effects of new transmission infrastructure or major upgrades of existing transmission infrastructure, decision-makers must have regard to the extent to which any adverse effects have been avoided, remedied or mitigated by the route, site and method selection.
- **Policy 6**: substantial upgrades of transmission infrastructure should be used as an opportunity to reduce existing adverse effects of transmission, including such effects on sensitive activities, where appropriate.
- **Policy 7**: planning and development of the transmission system should minimise adverse effects on urban amenity and avoid adverse effects on town centres, areas of high recreational value or amenity and existing sensitive activities.
- **Policy 8**: in rural environments, planning and development of the transmission system should seek to avoid adverse effects on outstanding natural landscapes, areas of high natural character and high recreational value and amenity, and existing sensitive activities.
- **Policy 9**: provisions dealing with electric and magnetic fields associated with the electricity transmission network must be based on the guidelines of the International Commission on Non-Ionizing Radiation Protection (1998) and recommendations from the World Health Organization monograph Environment Health Criteria (No. 238, June 2007) or its revisions, and any applicable New Zealand standards or national environmental standards.

With the NPS in place, by April 2012 each council will need to:

- assess plan rules relating to transmission activities
- determine whether the existing rules meet the requirements of the NPS
- revise the rules, making adequate opportunity for transmission activities without significant adverse effects to be undertaken as permitted activities, and taking account of the operational and technical requirements when formulating permitted activity terms and conditions, and resource consent requirements
- notify the plan change or variation
- consider and hear submissions from Transpower and the public
- respond to appeals on the council decision.

2.3.3 District and regional plans

Regional plans contain rules that relate to electricity transmission activities, including:

- land disturbance
- discharges to land, air and water
- activities in the beds of lakes and rivers and the coastal marine area.

District plans contain objectives, policies and rules that govern aspects of electricity transmission and aim at managing the environmental aspects of electricity transmission activities, such as:

- land use
- visual effects, landscape and activities in special areas
- signs
- subdivision.

2.3.4 Local authority controls over transmission activities

Transmission activities may be authorised by:

- existing-use rights
- permitted activity status in district plans
- resource consents
- designations.

Each of these is discussed below.

Existing-use rights

Section 10 of the RMA sets out "existing-use rights", which allow land to be used in a manner that contravenes a rule in a district plan or proposed district plan if it can be demonstrated that:

- the use was lawfully established before the rule became operative or the proposed plan was notified
- the effects of the use are the same or similar in character, intensity and scale to those that existed before the rule became operative or the proposed plan was notified.

Permitted activity status in district plans

Most plans specify that some minor activities associated with the maintenance and upgrading of transmission lines are permitted, subject to conditions. Some plans recognise the national significance of the transmission network by permitting a wide range of transmission activities, whereas other plans only provide for a limited range of activities or impose stringent conditions. Transpower often applies for "certificates of compliance" for activities permitted by plans in order to provide certainty about the status of the activity.

Resource consents

An activity that is not an existing use or a permitted activity requires resource consent or a designation (see below). A resource consent is an approval for an activity regulated under the RMA. Land-use consents and subdivision consents are granted by district councils. Coastal permits, water permits, discharge permits and land-use consents for activities specified in a regional plan are obtained from regional councils.

Activities may be assessed as:

- **permitted** − they do not require a resource consent provided the standards, terms or conditions specified are complied with
- **controlled** − a resource consent is required, but the consent authority must grant the consent unless it has insufficient information, and it can only impose conditions on the consent for matters over which control is reserved
- **restricted discretionary** − a resource consent is required, the consent authority may grant or decline the consent, and conditions can only be imposed for matters to which discretion is restricted
- **discretionary** − a resource consent is required, and the consent authority may decline the consent or grant it with or without conditions
- **non-complying** − a resource consent is required, the consent authority may decline the consent, or grant it with or without conditions, but the consent authority may only grant a consent if it is satisfied that the adverse effects will be minor (other than effects on persons who have given their written consent), and/or the activity will not be contrary to the objectives and policies of any relevant plan or proposed plan
- **prohibited:** no resource consent application may be made, and a resource consent must not be granted for the activity.

Designations

A designation in a district plan identifies an area of land for use for public works or projects, and it may have conditions attached to it. Only *requiring authorities* (network utility operators approved by the Minister for the Environment, local authorities and Ministers of the Crown) can arrange for a designation, in a similar way to applying for a resource consent. A designation gives the requiring authority rights to undertake specified land-use activities in the designation corridor without obtaining resource consents.

Land owners affected by a designation can apply to the Environment Court for an order obliging the requiring authority to purchase or lease the land. A designation also places restrictions on what anyone other than the requiring authority can do on the designated land without the requiring authority's permission. Designations apply to district plans only. Any works outside the scope of the designation may require land-use consent. Resource consents from regional councils may also be required, even for works authorised by the designation.

Section 3.2.4 of this report describes the designation process in more detail.

2.3.5 Electricity Act 1992

The Electricity Act 1992 sets out the regulatory framework for electricity. It provides for the regulation of the supply of electricity and the electricity industry. The Act's coverage includes the powers and duties of electricity operators and other owners of electricity works, electrical codes of practice, the registration and licensing of electrical workers, restrictions on electrical work, and governance of the electricity industry.

The Act also provides the mandate for the construction and operation of a national transmission network. Most of the network was constructed before 1988, and the Act maintains the right to occupy private land without the need for land owner agreements. This is provided for by deeming all pre-1988 lines to be lawfully installed and determining that the line owners should continue to have rights of access to existing works for maintenance.

There is limited interaction between RMA processes (planning documents, resource consents and so on) and activities under the direction of the Electricity Act 1992. The links between the two include:

- the nature of restrictions on Transpower and/or land owner activities via negotiated agreements will differ from restrictions imposed by district and regional plans, even though both may seek to control the same activity
- the Electricity Commission considers the cost of complying with the RMA as part of its grid investment test.

The Electricity (Hazards from Trees) Regulations 2003

The Electricity (Hazards from Trees) Regulations 2003 (the Trees Regulations) are mandatory requirements under the Electricity Act for managing trees adjacent to power lines. The Trees Regulations set out the distances from electrical conductors within which trees must not interfere, and specify who has responsibility for cutting or trimming interfering trees. Tree owners are responsible for any trees they own that are growing close to conductors. The line maintenance contractor is responsible for the service of any notices under the Trees Regulations, so that trees that threaten the safe operation of the transmission line can be removed or trimmed. Tree owners can opt out and get the line owner to manage the trees on their behalf. Resource consent may, however, still be required under the RMA for managing some trees.

2.4 Problem statement

2.4.1 Inconsistent rule framework

Local plans have a wide variety of approaches to managing electricity transmission. Information from a stocktake of district plans carried out in 2006 (Burtons, 2006) and a review of specific plan provisions by the Ministry for the Environment carried out in 2008 revealed three specific problems:

- a lack of consistency between plans
- difficulty determining consent requirements for activities carried out on a linear network traversing districts

- plan rules designed for a wide range of activities may be overly stringent for an activity with clearly defined effects (effects are location-specific; it is the range of structures that is uniform).

A summary of the Ministry for the Environment's plan review is provided in section 5.5 of this report.

Lack of consistency between plans

The upgrade of a line passing through several districts could require resource consents in some districts but not in others. For example, placing transmission lines underground is permitted in an estimated fifty-seven district plans, restricted discretionary in nine plans and full discretionary in one plan. Delays in obtaining approvals in one district (for example, if one district decides to notify the consent application) could cause project delays that affect the entire project − not just that portion of the work.

Difficult determination of resource consent requirements

District plans are designed for their primary users − the general public and businesses intending to carry out activities at specific locations within a district planning zone. For a network utility company with a linear network traversing all zones, the structure of zone-based plans makes it very difficult to determine consent requirements for transmission maintenance or an upgrade project. The Transpower-commissioned survey done by Burtons found that a third of plans are straightforward for utility companies to interpret because they have a stand-alone utilities chapter setting out clear rules for electricity transmission (Burtons, 2006). However, two-thirds do not have a stand-alone utilities chapter and require referring to rules interspersed throughout the plan to determine consent requirements.

The survey also found that only a quarter of district plans provide for transmission activities that do not have significant adverse effects to be permitted activities. Some plans appear to provide for "minor upgrade" as a permitted activity, but either define this very narrowly or impose a layer of zone-based rules which allow only basic maintenance to be permitted.

Half of district plans do not make provision for upgrading work on transmission lines that would meet the operational needs of the line owner. For example, many plans impose the same consent requirements (usually full discretionary) on upgrading existing lines (beyond minor upgrading) as for new lines, even though the effects of a new line are much more significant than the upgrading of an existing line. Plans, particularly district plans, deal with a very wide range of activities with wide-ranging effects, and frequently take a conservative approach to controlling the effects of these activities. If the plan could consider the precise nature of an activity and design rules specific to that activity it might be possible to impose a more targeted level of control.

The lack of consistency in district plan rules for high-voltage electricity transmission activities results in:

- variability in the way the adverse effects of transmission activities are managed
- unnecessary time spent by local authorities and Transpower assessing consent requirements for a project and obtaining RMA approvals
- delays in projects, which result in higher costs and an increased risk of grid outages

- costs to Transpower to make submissions on plans, and to appeal plan changes, in an effort to get consistent provisions for transmission into plans
- costs to local authorities for responding to submissions and appeals.

2.4.2 Implementing the NPS

The NPS on Electricity Transmission requires local authorities to notify plan changes to give effect to the NPS's policies and objectives. Local authorities will need to assess plan rules against the NPS and formulate a set of rules that give effect to the NPS.

Some councils may determine that their rules already fit the objective and policies of the NPS. However, as seen from the discussion of plan requirements above (section 2.4.1), most local authorities would need to assess the effects of transmission activities and determine the most appropriate level of control for these activities. Once the specific nature of the activity is taken into account, revised rules could be more lenient than existing generic rules, or could still vary between districts.

Plan changes required to give effect to the NPS will also result in implementation costs for local authorities (see section 5.7 of this report).

2.4.3 RMA processing: plan changes

The NPS requires that all councils give effect to its policies by 2012. To meet their obligations under the RMA, councils will need to publicly notify and process a plan change or review. To determine the extent and nature of those changes it will be necessary to review the plan and any applicable bylaws. The resulting plan change or review will then have to be notified and consulted on during the submission process. After a council notifies its decision on the plan change or review, submitters have the opportunity to appeal the decision to the Environment Court, which could cause further processing delays.

In the absence of an NES, councils will need to notify and process plan changes to give effect to the NPS. Although an NES does not need to be incorporated into a plan, many councils have indicated that they would prefer to incorporate the NES into their plans to avoid confusion. Even if a council does not incorporate the NES it will still be necessary to review the plan and any applicable bylaws to determine the changes required to avoid confusion (for example, to make it clear that provisions for signs that conflict with the NES do not apply to the transmission network).

Table 5 in section 5.5 of this report sets out the actions we expect councils to take *in the absence of an NES* to give effect to the NPS.

2.4.4 Summary of the key problems

In summary, the key problems associated with high-voltage electricity transmission activities are:

- inconsistency of the provisions in local plans that apply to electricity transmission operation, maintenance and upgrade
- the cost of implementing the NPS in plans (with the risk of new plan changes still being variable and nationally inconsistent)
- RMA processing delays and costs.

These problems apply mainly to existing transmission lines. For new transmission lines Transpower will seek designations in district plans (or, in some cases, resource consents).

3 Options

3.1 Policy objective

The objective is to support the implementation of the provisions of the NPS policies relating to transmission activities by:

- ensuring plan requirements are nationally consistent and achieve the intention of the NPS
- minimising the cost of implementing the NPS
- minimising RMA processing costs and delays.

3.1.1 Evaluation of the policy objective

> Section 32 of the RMA requires the Minister for the Environment to evaluate the objectives and policies of any proposed NES and to prepare a report summarising the evaluation. The requirements contained in section 32 of the RMA are as follows:
>
> (3) An evaluation must examine:
>
> (a) the extent to which each objective is the most appropriate way to achieve the purpose of this Act; ...

The purpose of the RMA is "to promote the sustainable management of natural and physical resources" (including structures). Sustainable management means managing the use, development and protection of natural and physical resources in a way, or at a rate, that enables people and communities to provide for their social, economic and cultural wellbeing, and for their health and safety, while:

- sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations
- safeguarding the life-supporting capacity of air, water, soil and ecosystems
- avoiding, remedying or mitigating any adverse effects of activities on the environment.

The overall objective of having nationally consistent rules on electricity transmission supports the implementation of the NPS, by which it contributes to achieving the purpose of the RMA.

A set of key criteria was developed to assess the effectiveness of several possible options in meeting the purpose of the RMA:

- minimises the cost of implementing the NPS
- provides a nationally consistent framework of consent requirements for transmission activities
- provides for the effective operation, maintenance and upgrading of the network (NPS policies 2 and 5)
- takes account of the operational requirements and technical constraints in determining the level of control on transmission activities (NPS policy 3)

- manages the environmental effects of transmission activities
- minimises RMA processing costs and delays
- is effective within the timeframes specified in the NPS (plan changes processed by April 2012).

3.2 Overview of alternative options

The Minister for the Environment has considered and evaluated a range of options for addressing the problems identified with the status quo. These are:

- non-statutory guidance
- New Zealand standards (developed by Standards New Zealand)
- Ministerial call-in and whole-of-government submission
- designations
- national environmental standards.

These options are discussed below.

3.2.1 Guidance on implementing the NPS

National guidance could be provided on good practice in making plan changes to give effect to the NPS. This could build on current Ministry for the Environment good practice guidance, and could include model plan rules to encourage councils to derive a consistent rule framework. This option might reduce initial costs to councils in preparing proposals for plan rules, but each council would still have to review its plan and propose specific amendments. Amendments could be extensive for plans that deal with transmission activities through a set of zone-based rules (with different requirements for different areas of a district).

The biggest problem with guidance alone is that it is unlikely to result in a set of nationally consistent rules in plans. By the time a set of model rules has been through the plan change consultation process, and the council (and possibly the Environment Court) has considered submissions and appeals, it is likely that the model rules will have been changed considerably.

Although guidance could be relatively effective in ensuring the plan changes notified give effect to the requirements of the NPS, there are no guarantees that this will be the case once the proposed rules have been through a public submission process. The extent to which the eventual rules balance enabling transmission activities with managing environmental effects will be variable, and influenced by the submissions received by each council. The extent to which the new rules minimise RMA processing costs will depend on the eventual requirements.

Guidance could, however, be available in time to be used by councils for plan changes.

3.2.2 Preparation of New Zealand Standards

Standards New Zealand could be invited to assemble a committee of experts and interest groups to prepare a New Zealand Standard (NZS) on model plan rules to give effect to the NPS. A NZS could set out suggested conditions for permitted activities, and consent categories for activities where the effects are more than minor. It could be referenced in plans, in the same way many district plans reference NZS on noise.

The effect of a voluntary NZS would be similar to the effect of guidance (discussed above). A NZS is no more likely to reduce costs to councils, or the number or complexity of submissions on plan changes, and would not ensure national consistency.

3.2.3 Ministerial call-in and whole-of-government submission

Ministerial call-in means that a private plan change or application under the RMA is "called in" and dealt with centrally by a board of inquiry. Call-in could not be used for plan changes initiated by a council because it only applies to private plan changes. Ministerial call-in can be a useful tool for significant upgrades and new lines, and it has been used for the major North Island Grid Upgrade project.

However, the transmission activities that are the subject of this policy investigation are not of a sufficiently large scale to warrant national call-in under the Act as it stands. Call-in of numerous smaller projects would be likely to increase processing costs, and the pressure on resources at a national level would be likely to generate delays. It may improve national consistency in the consideration of applications, but does not affect councils' rule framework so would have no effect on the other evaluation criteria.

Whole-of-government submissions could be made on plan changes to give effect to the NPS, which might serve to remind councils of the requirements of the NPS and address any deviations from the intention of the NPS. However, a whole-of-government submission is only one of many submissions to be considered by councils in making a decision on plan changes and cannot ensure national consistency. It might contribute marginally to ensuring the criteria relating to implementing the NPS are met, but would not affect the costs of implementing the NPS nor reduce RMA costs and delays.

Whole-of-government submissions could be prepared on consent applications for transmission activities in support of the objective and policies set out in the NPS. However, this would only affect how decisions are made on individual consents; it would not affect the rule framework in plans, which could require consents for very minor activities. Council decision-makers are already required to take account of the NPS in making decisions on resource consents and advising on designations. Council officer reports and council decisions since the NPS came into force appear to be taking the NPS into account effectively. Government submissions on specific applications would not affect the costs of implementing the NPS or improve the national consistency of plan rules. Unless subsequent decisions fail to take account of the NPS, a whole-of-government submission does not seem to be necessary.

Finally, this option does not override plan provisions, which would remain the framework for decision-making, and so the issue of inconsistencies between plans would not be resolved.

3.2.4 Designations

A designation is a planning technique used by Ministers of the Crown, local authorities and network utility operators approved as requiring authorities under section 167 of the RMA. It is a form of "spot zoning" over a site or a route in a district plan. This spot zoning authorises the requiring authority's work or project without the need for a land-use consent from the relevant district council. It is similar to a resource consent in that it enables a requiring authority to undertake work within the designated area, subject to any conditions applied to it. Any conditions become an integral part of a designation and cannot be severed from it.

A notice of requirement is the way a Minister of the Crown, local authority or requiring authority gives notice to a territorial authority for a designation. A notice of requirement for a new designation must go through public notification, recommendation and a decision-making process before it becomes a designation. A notice of requirement would therefore be issued by Transpower in a similar manner to the way an application for resource consent is notified. The public can make submissions and appeal to the Environment Court in a similar process to that used for resource consent applications. Land owners affected by a designation can apply to the Environment Court for an order obliging the requiring authority to purchase or lease the land.

Designations would provide Transpower with the greatest security of tenure over the transmission network and the right to undertake work on the network without requiring consents from the district council. (Consents would still be required from the regional council.) Designations are a useful tool for new lines and significant major upgrades involving replacing and extending infrastructure, such as the major North Island Grid Upgrade. However, projects of this nature are beyond the scope of the present exercise.

Designations would only be a viable alternative to plan changes or an NES if they were taken out over all the transmission lines in every district. In this instance, a council could argue that the need for rule changes had been overtaken by the inclusion of designations in the plan. This option could increase the cost compared with notifying plan changes, because designations are likely to attract at least as many submissions and appeals as changes to plan rules. There would also be considerable one-off costs to Transpower in preparing notices of requirement over the whole network compared with the cost of a submission to a plan change. Once designations were in place, there would be additional costs in purchasing or leasing an interest in the land covered by the designations. Cost estimates for Transpower acquiring an interest in this land range from around $100 million for rural easements to in excess of a billion dollars for purchasing properties outright.

In addition to the significant costs, designations would differ between districts depending on the outcome of the submission and appeal process. This would not address the lack of consistency that currently exists between regions. It is also unlikely that Transpower could secure designations over many transmission lines by 2012.

3.2.5 National environmental standard

The RMA enables the Minister for the Environment to prepare national environmental standards (NES). These have the force of regulation and are binding on local authorities. NES can prescribe methods or requirements, and can be either quantitative or qualitative. Section 43 of the RMA outlines the matters that can be covered by an NES.

NES are instruments that can apply nationally in circumstances where it is considered that national positive or negative environmental effects are not being fully addressed by local decision-makers. They can capture those wider benefits that might not be fully internalised in decision-making at a regional or local level. Such benefits include providing consistency of controls across the country, providing more certainty, and simplifying the process of policy formulation, monitoring and review.

NES can be more prescriptive than national policy statements and legislation, and this provides some key benefits over the other options. An NES would fulfil the policy objectives by providing certainty about the levels of permitted development provided for transmission activities in every local authority area in New Zealand. The NES's requirements would also remove any ambiguity over whether or not a particular transmission activity would require resource consent or not.

The NES would override the existing rules for electricity transmission activities in every district plan in New Zealand. A plan change is not required for the NES to become part of a district plan, although some local authorities may choose to undertake a plan change process specifically to incorporate the new rules into their plan. Alternatively, the new rules can be incorporated into a district plan as an administrative change by timing them with another unrelated plan change or as part of the forthcoming review of all district plans required by the RMA. The NES effectively reduces the stock of existing regulation by replacing the variability or absence of rules in 73 district plans with one set of nationally consistent provisions.

3.2.6 Comparison of alternatives: summary

Table 1: Assessment of options for managing the environmental effects of electricity transmission

Criteria	Options that failed to satisfy the selection criteria					Preferred option
	Status quo: NPS alone	Guidance	New Zealand Standards	Call-in and whole-of-government submission	Designations	NES
Minimises NPS implementation costs	✗	✗	✗	✗	~	✓
Achieves national consistency	✗	~	~	✗	~	✓
Provides for transmission activities	~	~	~	~	✓	✓
Takes account of operational requirements	~	~	~	~	✓	✓
Manages environmental effects	~	~	~	~	✓	✓
Minimises RMA processing costs	~	✗	✗	✗	✗	✓
Timeframe (available before 2012)	✓	✓	✓	✓	✗	✓

Key:

✓ Meets the criterion ✗ Does not meet the criterion ~ Partly meets the criterion

Table 2: Summary evaluation of alternatives for addressing the problems identified with the status quo

Alternative	Effect	Main strengths	Main weaknesses
Guidance	Would help councils to understand their obligations under the NPS and how to implement it.	Low cost. Available quickly.	No guarantee that plan rules would be nationally consistent, workable or meet the intention of the NPS. Will not contribute to minimising the NPS implementation costs. Councils will still need to write their own rules. Likely to attract a large number of submissions on plan changes.
New Zealand Standards	Would provide a rule template for councils to follow.	Could be referenced in plans rather than incorporated.	Likely to attract a large number of submissions on plan changes, although possibly more likely to achieve consistency between plans. Will not contribute to minimising costs of either NPS implementation or RMA processing.
Call-in and government submission	More consistent consideration of major projects, and consistent message to councils on plan changes.	Consistent statement of government view on plan changes and applications for resource consents.	Call-in can only apply to major projects. Government submission would be considered alongside other submissions, so no guarantee of national consistency. Will not contribute to minimising NPS implementation costs.
Designations for existing lines	Secure tenure of transmission lines and the right to undertake transmission activities.	Provide a long-term right to undertake transmission activities and to protect the lines from third-party activities.	Long and expensive process for Transpower and councils. Acquiring an interest in the land likely to be extremely expensive.
National environmental standards	Regulations prevail over plan rules for transmission activities.	Nationally consistent approach. Requirements for transmission contained in single document, making it easier to determine consent requirements. Avoid unnecessary council and Transpower costs by not requiring plan change, and by reducing the complexity of consent processing.	Does not fit easily with plans using zone-based rules for transmission activities.

4 Proposed National Environmental Standards for Electricity Transmission Activities

4.1 Introduction

What are national environmental standards?

National environmental standards are legally enforceable regulations made under sections 43 and 44 of the RMA. Standards can be numerical limits, narrative statements or methodologies that are in a legally enforceable form. These may include standards relating to the use and subdivision of land, the discharge of contaminants, or noise. Standards cannot contain guidance material, although an informative user's guide could be produced to assist users of the NES. A standard cannot indicate whether a resource consent should be notified, or who should be considered an affected party.

The NES for Transmission Activities would:

- apply to the operation, maintenance and upgrade of the electricity transmission network (transmission activities) but not to the construction of new lines
- specify that transmission activities that do not have significant adverse effects are permitted provided that specified terms and conditions to control environmental effects are complied with (listed by the type of activity associated with the particular effect)
- specify consent categories for activities that do not meet the permitted activity terms and conditions.

As shown in Table 2 (section 3.2.6), the NES satisfies the selection criteria. In particular it will:

- minimise the cost to councils of implementing the NPS by providing a set of rules that take immediate effect without going through the plan change process
- provide a nationally consistent framework of consent requirements for transmission activities
- provide for the effective operation, maintenance and upgrading of the network by making a range of transmission activities permitted
- take account of operational requirements and technical constraints in determining the level of control on transmission activities
- manage the environmental effects of transmission by setting terms and conditions on permitted activities
- minimise RMA processing costs and delays by setting out a detailed rule framework for transmission activities and reducing the complexity of consent processing
- be effective within the timeframes specified in the NPS.

4.1.1 Consultation

In October 2007 a discussion document setting out proposals for NES for electricity transmission was released for public comment. During the submission period four public workshops were held in Auckland, Hamilton, Christchurch and Wellington. In addition, the Ministry for the Environment's Talk Environment Roadshow travelled throughout New Zealand between 17 October and 2 November 2007. The Ministry visited 17 centres and facilitated 31 meetings with local government and the public. The meetings were attended by approximately 1500 people, to whom a fact sheet was made available, which included information about consultation on the proposed NES. The submission period closed on 30 November 2007.

Responses from submitters were used to refine the proposals for NES for Transmission Activities and will be used in preparing guidance on implementation of the standards. A summary of submissions was published in April 2008. Eighty-four submissions were received on the discussion document. The following figures (Figure 2 and Figure 3) contain a breakdown of submissions. There was a good rate of response from local government, particularly from regional councils. Eleven of the submissions were from submissions from urban land owners and developers.

Figure 2: Breakdown of submissions, by submitter type

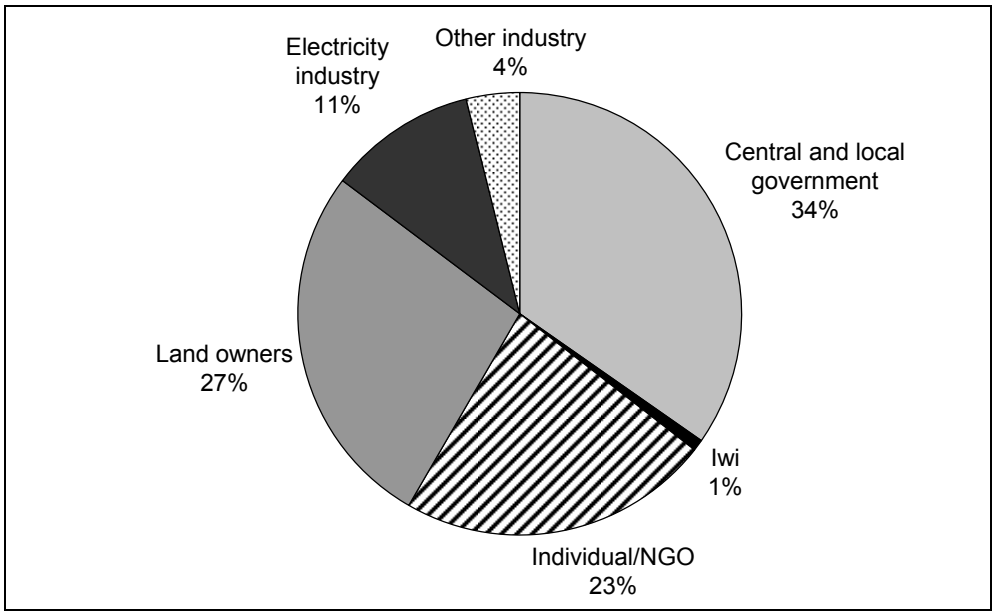
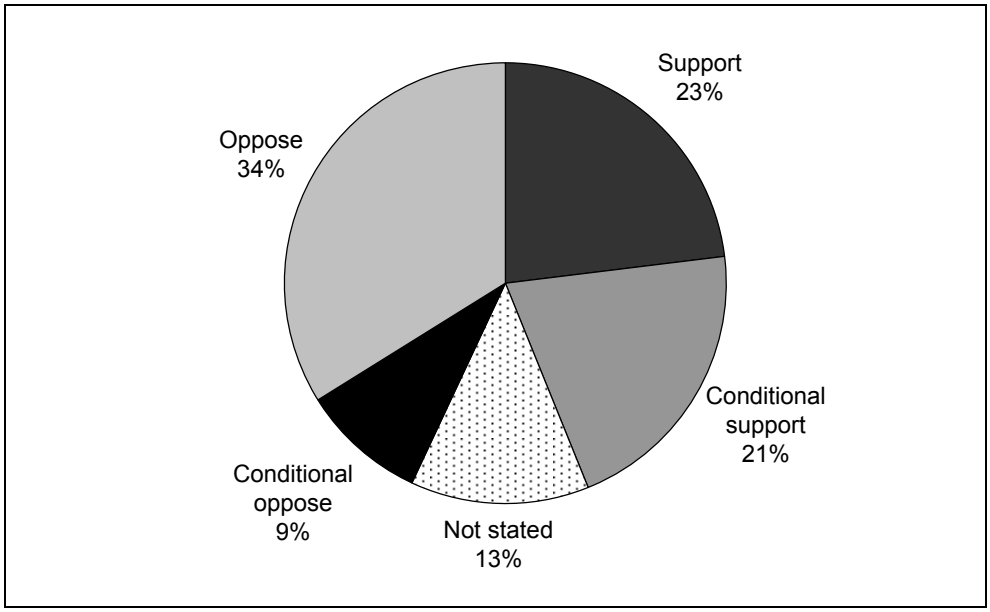


Figure 3: Breakdown of submissions, by position on the proposed transmission activities NES



The breakdown of submissions by position on the proposed transmission activities NES shows that 44 per cent of submitters supported the proposals, either as proposed or subject to specific changes being made. Thirty-five per cent of submitters opposed the NES, and a further 9 per cent opposed the NES but their objections would be met by making specific changes.

The comments related to modifying the standards rather than removing them, except for those from land owners who opposed the standards on the basis that the permitted activity standards would allow Transpower greater freedom of access to private land (which they will not). Ten submitters made very detailed comments on the 42 separate regulations proposed in the discussion document. These comments were taken into account in further drafting of the NES.

4.2 Proposed transmission activities NES

The proposed NES for Transmission Activities sets out a framework of resource consent requirements for transmission activities. The requirements range from permitted activities (subject to terms and conditions to control the effects) to full discretionary activities. The proposed NES would cover the operation, maintenance and upgrading of the existing national electricity transmission network, but would not apply to construction, maintenance or upgrading of new lines, or to substations.

4.2.1 Objective

The objective of the NES for Transmission Activities is to give effect to a number of policies in the NPS in the most efficient, consistent, effective and cost-effective manner. This section examines whether an NES is the most appropriate objective in terms of the purpose of the RMA.

The proposed NES for Transmission Activities is designed to give effect to the following aspects of the objective of the NPS:

- recognises the national significance of the electricity transmission network
- facilitates the operation, maintenance and upgrade of the existing transmission network
- meets the needs of present and future generations while managing the adverse environmental effects of the network.

The remaining parts of the NPS (not set out above) relate to establishing new transmission lines and managing the adverse effects of other activities on the network. These are beyond the scope of this NES.

4.2.2 Permitted activities

The proposed NES would specify that all transmission activities are permitted provided they meet terms and conditions to ensure there are no significant adverse effects. The types of activities to be permitted are:

- maintenance and upgrading of conductors (wires) up to duplex (two conductors of the same phase in a double configuration) and increasing the current or voltage − these activities will be subject to conditions on conductor size and will need to meet International Commission on Non-Ionising Radiation Protection guidelines on electric field strengths and magnetic flux density (the ICNIRP guidelines)
- maintenance and upgrading of support structures (towers and poles) and temporary line deviations subject to conditions limiting height increases (to 15 per cent as a one-off), relocation distance, and proximity to occupied buildings
- removal of transmission lines, subject to conditions on restoring the land
- cleaning and painting transmission support structures, subject to conditions on the materials used and prevention of air, land and water pollution
- signs and telecommunications antennae dishes on support structures, subject to conditions on size
- earthworks, and trimming and removal of vegetation that is not in sensitive areas, subject to conditions on erosion control, site restoration and disposal of debris
- construction noise, subject to compliance with standards for noise and vibration
- minor discharges and minor activities over water and the coastal marine area, subject to conditions on receiving water quality.

4.2.3 Controlled activities

Certain transmission activities are to be specified in the NES as “controlled” activities. The controlled activities are:

- maintenance and upgrading of transmission line supports, including cleaning and painting
- temporary line deviation and temporary structures
- vegetation trimming and removal, and earthworks (except on public conservation land)
- noise, vibration and discharges to water
- placing existing transmission lines underground.

4.2.4 Restricted discretionary activities

The following transmission activities are to be specified as "restricted discretionary" activities:

- adding conductors above duplex configuration, and adding new circuits and telecommunications facilities
- upgrading support structures (including height increase and relocation above the permitted or controlled limits), removal of lines and permanent deviation of lines, and changes to a heritage transmission tower
- cleaning support structures
- earthworks and vegetation removal in sensitive areas.

4.2.5 Discretionary activities

New access tracks requiring removal of vegetation in special areas, or any activity that fails the permitted activity terms and conditions and is not specifically listed under any of the other types of resource consents, would be discretionary.

4.2.6 Non-complying activities

Any transmission activity that breaches the international standard for electric and magnetic fields (EMF) will be non-complying. This means that the consent authority may only grant resource consent if it is satisfied that the adverse effects will be minor (other than effects on persons who have given their written consent), or the activity will not be contrary to the objectives and policies of any relevant plan or proposed plan.

Appendix 1 presents a table summarising proposed NES activities and their status.

4.3 Consultation process

4.3.1 Submissions received

Key issues raised by submitters on the specific proposals included:

- the presumption that transmission activities require resource consent unless specifically identified as permitted activities (which might result in those activities being classified as discretionary by default)
- whether councils have the ability to implement the regulations, due to the high level of detail and complexity of the proposed standards
- the proposed standards not taking enough account of the sensitivity of the environment the transmission activities will occur in
- lack of clear limits for electric and magnetic fields
- the potential for the proposed standards to prevail over future designations, which would cause problems for councils and Transpower, because resource consents may be required as well as designation, doubling the workload associated with an upgrade.

4.3.2 Response to submissions

The issues raised by submitters were complex and took time to resolve. To address the issues and make sure the regulations are workable, the proposed NES has been revised, in consultation with local authorities, to get the detail right and to ensure effective implementation of the NPS. As a part of the revision process the Ministry undertook an assessment of relevant regional and district plan provisions to ensure that, overall, no additional consent requirements are created.

The Ministry for the Environment's detailed response to key issues raised in submissions is summarised in Table A2 in Appendix 2.

5 Efficiency and Effectiveness of the Transmission Activities NES

5.1 Overview

Section 32 of the RMA requires the Minister for the Environment to evaluate the objectives and policies of any proposed NES, and to prepare a report summarising the evaluation. The requirements contained within section 32 of the RMA are:

(3) An evaluation must examine:

...

(b) whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.

...

(4) For the purposes of this examination, an evaluation must take into account:

(a) the benefits and costs of policies, rules, or other methods; and

...

Effectiveness considers whether the policy option will actually be effective in achieving its aims and objectives. In this case, the setting of NES provides firm regulation for achieving the stated aims and objectives. It is, therefore, the most direct and effective option.

Efficiency considers the benefits and costs of any policy interventions. If the benefits outweigh the costs over time then the policy is deemed to be "efficient". This, however, assumes that benefits and costs can be quantified in monetary terms. In this case there are a number of intangible considerations, outlined later, that cannot be assigned monetary values. These are identified and included in the broader consideration of the efficiency and effectiveness of this NES.

Within this framework the measure of efficiency will generally consider the NES package as a whole rather than breaking it down into its constituent parts.

5.2 Costs and benefits of adopting the NES

Cost−benefit analysis is a long-established technique intended to identify the economic efficiency of a proposed project or policy change (see section 5.4). Efficiency is broadly about maximising the outputs obtained from the available inputs. From an economic point of view there are different kinds of efficiency (NZIER, 2007):

- technical (productive) efficiency, which describes the most effective way of providing a given service (eg, reducing or eliminating unnecessary regulatory costs)
- allocative (matching) efficiency, which refers to the ease of moving resources to their most productive uses

- dynamic (innovation) efficiency, which refers to the optimisation of innovation and the rate of change to new activities over time.

If the NES can reduce the community-wide costs of sustainable management of the grid, it will improve the technical efficiency of how resources are used in the grid. To the extent that it reduces delays or restrictions in electricity network improvements it will also improve the allocative efficiency of resource use (which, in turn, will benefit the nationwide community of electricity users). Dynamic efficiency, in terms of more timely provision of upgraded electricity, is also improved over time.

The specific benefits of the NES arise from lower RMA costs associated with transmission activities. The reduction in costs is expected to result from:

- a reduction in expenditure by Transpower on plan advocacy (making submissions on plan changes), and a small reduction in expenditure for councils in assessing and hearing submissions
- a reduction in Transpower and council costs of assessing consent requirements for a project
- avoiding the need to obtain existing-use certificates, because the NES will encompass the activities for which Transpower previously relied on existing-use rights
- a reduction in costs for Transpower in obtaining resource consents (fewer consents will be required, at a lower cost per consent), and a corresponding reduction in council non-recoverable costs for consent processing
- an intangible benefit to the community from greater certainty about which activities are permitted and which require consent.

The costs identified for the NES will occur within the first three years.

- Councils will incur implementation costs from the need to become familiar with the NES provisions, along with a small additional cost for notifying a plan change that includes the NES (if necessary).
- Transpower will incur implementation costs from providing assistance to councils to understand transmission activities; this will be a small cost in addition to the cost of assisting councils as part of the NPS implementation.
- Government will incur costs from providing guidance on the NES and assisting councils with implementation.
- Councils and the community will incur intangible costs through loss of local control.

5.2.1 Assumptions

The cost−benefit analysis was based on a number of assumptions, as outlined in Table 3. The focus was on the proposed standards (consents, certificates of compliance and existing-use certificates), plan advocacy and the non-recoverable costs associated with these activities (NZIER, 2007).

Table 3: Assumptions for the cost−benefit analysis

Agency	Base cost	Assumptions
GENERAL		Transpower expenditure on transmission activities will treble over the next 10 years. All councils will need to notify and process plan changes by 2012 to give effect to the NPS.
BENEFITS		
Local authorities		
Cost savings dealing with submissions on plan changes	$5040 average per plan	70% of councils will annotate plans (a cost saving of 60 hours per plan) and 30% will notify plan changes (a cost saving of 20 hours per plan).
Reduction in non-recoverable costs of processing consents		There may be a reduction in the number of consents; the current assumption is no change in number.
Cost saving through not formulating new plan rules	$4200 per plan	40 hours will be saved per council, mainly from 2009 to 2011.
Plans easier to interpret	$105 per consent or certificate of compliance	1 hour of staff time, in later years.
Transpower		
Reduction in plan advocacy	$23,333 per plan	Mainly in years 2009 to 2011 (district and unitary authority plans only).
Lower consent application costs	$7500 per consent	13 consents (50%) will require a less complex process in 2009, increasing to 21 consents in 2018.
Fewer existing-use certificates needed	$15,000 per certificate	Would have needed 1 certificate in 2009, increasing to 11 in 2018; under the NES only 2 will be required over 10 years.
Plans easier to interpret	$840 per consent or certificate of consent	8 hours of staff time, in the short term, reducing to 4 hours in the longer term.
COSTS		
Local authorities		
Marginal cost of notifying plan changes or amending plans	$500 per plan for modification	70% of councils: 5 hours (on top of time spent reviewing plans for NPS).
	$2500 per plan for notification	30% of councils: about 10 hours, plus additional advertising costs.
Implementation of NES	$730 in year 1, per council	Attending workshops: 3 people for 2 hours per council, plus travel ($100).
	$6300 per council in year 1, $3150 in year 2, $1575 in year 3	60 hours each for half of councils in year 1; 30 hours each for half of councils in year 2; 15 hours each for all councils in year 3 (district and regional councils).
Transpower		
Assisting with implementation of NES	$1260 in year 1 $1200 per council in years 1 and 2; $600 in year 3	Attending implementation workshops: 3 people at 2 hours each at consultant charge-out rate; 8 hours per council in years 1 and 2, half this in year 3, at consultant rate.
Government	$100,000 in year 1 and $50,000 in years 2 and 3	0.6 staff members equivalent in year 1 plus production of guidance material, and about one-third full-time staff member in years 2 and 3.
Other agencies	$8820 in year 1	Attending implementation workshops: 3 people at 2 hours each at council charge-out rate for 14 workshops.

5.3 Overall impact of the NES

In the absence of an NES, the new rules for transmission activities in each plan would take account of the NPS but would also be subject to submissions on proposed rules. There would be no national consistency in rules, and no guarantee that the new rules would be any easier to follow than existing rules. For example, the rules may still be zone based. It is assumed that while the new rules would take better account of the operational requirements and the need to provide for transmission, they might still be different in different districts and regions, and so would not contribute to achieving national consistency throughout New Zealand.

Table 4 sets out the anticipated effects of the NES, compared to the effects of no NES being in place.

Table 4: Anticipated impacts of the NES versus no NES

Roles	Stakeholder	No NES	NES in place
Plan changes	Councils	All councils would need to review their plans, notify and process plan changes by 2012, and respond to appeals.	There would be: • reduced effort in formulating new rules for transmission activities • possibly fewer and less complex submissions • possibly fewer appeals on transmission activities rules.
	Transpower	Transpower would need to: • advocate for proposed plan changes • present evidence at hearings and the Environment Court.	Submissions on transmission activities rules based on the NES would be less complex.
	The public	The public would need to: • make submissions on proposed plan changes • present evidence at hearings and the Environment Court.	Submissions on transmission activities rules based on the NES would be less complex, and there may be fewer submissions and appeals.
Determining consent requirements	Councils	• Initially, councils would need to consider operative and proposed plan rules. The operative rules in some plans are difficult to follow. • Once new plan rules were operative, it should be easier to determine consent requirements.	The NES would prevail over operative and proposed plan rules. It would be simpler to determine consent status from single set of requirements targeted at transmission.
	Transpower	As above	As above
Input to consent process	The public	As above	• It would be clear what Transpower can do as permitted activity and what requires consent. • There may be fewer opportunities for input to projects that are permitted.
Monitoring transmission activities	Councils	As for consent requirements, a complex set of rules would make it difficult to monitor transmission activities.	More activities would be permitted, so councils might incur a cost in monitoring these, although it is likely councils would make arrangements with Transpower that minimise this cost.

5.4 The cost−benefit model

Cost−benefit analysis estimates the economic efficiency of a proposed policy. It compares the effects and outcomes of a proposed policy with what would have occurred under a counterfactual (without the proposed policy). The counterfactual can be described as a projection of the status quo arrangement into the future as supply and demand conditions change. If the policy proposal reduces costs to the community and economy as a whole, then it will improve economic efficiency.

Cost−benefit analysis takes into account the time value of costs and benefits, so that benefits achieved in the future are less certain and are given a lower value than benefits achieved now. The proposal has been assessed using a discount rate of 8 per cent (and 5 per cent for sensitivity analysis), in line with Treasury guidelines (Treasury, 2008). All costs and values are real resource costs, excluding all taxes, subsidies and other intra-community transfer payments.

The analysis has been undertaken over a 10-year timeframe. During the first five years of the analysis costs and benefits vary because of the plan changes required by the NPS. Once new operative plans are in place the situation will be relatively static for the 10-year life of the plan. Using a 10-year timeframe is a conservative assumption because the costs associated with the NES are incurred in the first three years, while the benefits increase during the 10-year period and would continue into the future, depending on the expected expenditure on transmission activities in the 10-year period.

This analysis of the costs and benefits of the proposed NES compares the situation without the NES (the counterfactual) with the situation with the NES and predicts the increase or decrease in costs or benefits in the foreseeable future. The information used to assess the changes in costs and benefits includes:

- an evaluation and economic appraisal of the proposed NES for electricity transmission prepared for the Ministry for the Environment by the NZIER in August 2007
- a review of district plan provisions for electricity transmission prepared for Transpower by Burtons (2006)
- a review of regional plans and selected district plans undertaken by the Ministry for the Environment
- information provided by Transpower and local authorities on the costs associated with RMA processes related to transmission activities.

Costs are assessed where they originally fall, not where they are finally borne. For example, additional costs for Transpower will either be passed on to consumers in service prices or taken out of Transpower's profitability, reducing returns to government that will in turn have an impact on taxpayers. Local authority costs that can be directly recovered from Transpower as consent application charges are assessed as costs to Transpower. Local authority costs that cannot be recovered (such as non-recoverable costs incurred in processing resource consents and the costs of implementing the NES) will ultimately be borne by ratepayers.

In this analysis, the key quantifiable benefits arise from a reduction in RMA costs to councils and Transpower. Quantifiable costs relate to expenditure by the government, councils and Transpower associated with implementation of the NES. Intangible costs and benefits may arise as a result of implementing the NES but it has not been possible to quantify these. Intangible costs and benefits are associated with potential environmental costs and benefits, and the loss of community involvement in proposals for transmission upgrades. The NZIER report contains further discussion on intangible costs and benefits (NZIER, 2007).

A fully quantified model (if possible) would compare the "with" and "without" NES situation over a period of years. This would mean developing scenarios for "with" and "without" NES situations over a foreseeable future and comparing the differences between them. This requires, for each scenario:

- a projection of likely investment in transmission in successive years over the analysis period, taking account of any changes in the rate of investment attributable to the costs or uncertainty around consents
- the proportion of that investment that is likely to be affected by the proposed NES
- the compliance cost of obtaining consent for activities that would be subject to the NES, arising from application and processing costs and any additional costs from meeting non-standard requirements
- an estimate of how additional costs without an NES translate into higher prices, and the likely price responsiveness of customers as a result.

The potential for loss of life resulting from disruption in electricity supply and the potential for lack of maintenance to disrupt supply have not been factored into the cost−benefit model. The model structure is based on the premise that the NES is likely to reduce the cost of compliance for the consents process for both Transpower and councils. The result is a measurable benefit of the NES, against which to compare the dis-benefit of losing local control and potential localised amenity effects.

5.5 Review of plans

A key driver of the changes in council and Transpower costs arising from the NES is an anticipated reduction in the number and complexity of resource consents relating to the operation, maintenance and minor upgrading of existing transmission lines. The Ministry for the Environment has reviewed regional plans and selected district plans to assess the magnitude of change in consent requirements. Based on a review of plan requirements undertaken by Burtons (2006), plans were divided into 13 groups based on whether the plan had a permissive, partly permissive or relatively restrictive approach to minor upgrading and to more than minor upgrading. One plan was selected from each group for review and a national estimate derived from this analysis. The results of the plan review were used to inform the development of the NES and the cost−benefit appraisal.

The review assumes that all plans in a group have similar terms and conditions for permitted activities and similar consent requirements. This was complicated by the fact that many plans, even if there is a utilities chapter, defer to zone rules, and the rules for activities in urban zones may be more restrictive than the rules for rural zones. In some plans it was not possible to determine the status of an activity listed in the NES.

Table 5: Actions in the absence of a transmission activities NES

Year	Expected activity	Applicable plan rules
2009	Councils review plans to assess changes required to give effect to the NPS. 19% of councils notify plan changes.	Current operative rules and any applicable proposed rules.
2010	69% of councils notify plan changes.	Current operative rules and proposed rules (or variations to existing proposed rules).
2011	10% of councils notify plan changes. Councils hear submissions on plan changes.	Current operative rules and proposed rules (or variations to existing proposed rules).
2012	The remaining 1% of councils notify plan changes. Councils hear submissions on plan changes. The Environment Court hear appeals on plan changes.	Current operative (or where the plan change process is complete, new operative) rules and proposed rules or variations.
2013	The remaining 1% of councils hear submissions on plan changes. The Environment Court hear appeals on plan changes.	Current operative (or where the plan change process is complete, new operative) rules and proposed rules or variations.
2014	The Environment Court may still be considering appeals on plan changes.	Current operative (or where the plan change process is complete, new operative rules) and proposed rules or variations.
2015 on	Assume all appeals resolved, and that on average there is 1 applicable plan change or variation per year.	Operative plan rules and, for 1 or 2 councils, new proposed rules.

Table 6: Anticipated plan changes with the NES in place

NES provision	Significant change
Addition or replacement of overhead circuits, conductors or earth wires, and cables in excess of number or size specified for permitted activities.	In 58 councils: change from discretionary to restricted discretionary.
Addition or replacement of overhead circuits, conductors or earth wires, and cables in excess of number or size specified for permitted activities.	In 58 councils: change from discretionary to restricted discretionary. In 1 council: change from permitted to restricted discretionary.
Adding circuits to other lines.	In 54 councils: change from discretionary to restricted discretionary. In 2 councils: change from controlled to restricted discretionary.
Increase voltage or current rating of a line and add conductors and circuits where ICNIRP guidelines for EMF are met.	In 9 councils: change from restricted discretionary to permitted.
Replacing, moving and upgrading of support structures and foundations (max. height increase 15%, maximum footprint increase 25%, pole not replaced with a tower).	In 6 councils: change from discretionary to permitted.
Replacing, moving and upgrading support structures and foundations, exceeding permitted thresholds but meeting controlled activity thresholds.	In 50 councils: change from discretionary to controlled. In 11 councils: change from restricted discretionary.
Replacement or alteration of a pole or tower that does not meet the thresholds as a permitted or controlled activity.	In 53 councils: change from discretionary to restricted discretionary.
Removal of transmission support structures, conductors and associated foundations (site clean-up and rehabilitation).	In 2 councils: change from discretionary to permitted.
Removal of transmission support structures, conductors and associated foundations failing permitted terms and conditions.	In 51 councils: change from discretionary to restricted discretionary.
Temporary structures and temporary line deviation.	In 2 councils: change from controlled to permitted.
Temporary structures exceeding time constraints.	In 44 councils: change from discretionary (and 1 restricted discretionary) to controlled.
Signs attached to transmission infrastructure (size, purpose).	In 2 councils: change from discretionary to permitted.

NES provision	Significant change
Signs above the size limit.	In 43 councils: change from discretionary to restricted discretionary.
Trimming or removal of generally protected trees and/.or vegetation (not individually scheduled trees).	In 5 councils: change from permitted to controlled. In 27 councils: change from discretionary to controlled, and in 3 from restricted discretionary to controlled.
Trimming or removal of individually protected trees for the purpose of reducing risk to transmission lines that do not comply with terms and conditions for permitted.	In 50 councils: change from discretionary to restricted discretionary. In 1 council: change from permitted, and 1 from controlled to restricted discretionary.
Earthworks that do not meet permitted activity conditions, but excluding earthworks in scheduled landscape or ecological or heritage areas of cultural significance.	In at least 22 councils: change from discretionary to controlled. At least 9 plans were unclear.
New access tracks to transmission lines not in scheduled landscape or ecological area, or area of cultural significance.	In 2 plans: change from discretionary to controlled (and 1 from restricted discretionary). In 47 plans this will change from permitted to controlled.
Earthworks associated with works or involving access to a line in a scheduled landscape or ecological or heritage areas of cultural significance.	In 27 plans: change from discretionary to restricted discretionary.
New access tracks resulting in loss or removal of trees or vegetation protected in a plan or land which is part of protected natural feature, archaeological site or site of significance to Māori.	In 13 plans: change from restricted discretionary to discretionary.
Noise that fails to meet permitted activity standards, terms and conditions.	In 7 plans: change from discretionary (and 1 from restricted discretionary) to controlled.
Installation of antenna dishes on transmission line support structures.	In 2 plans: change from discretionary to permitted.
Telecommunication facilities on existing transmission line support structures that do not meet terms and conditions for permitted activity.	In 41 plans: change from discretionary to restricted discretionary.
Transmission activities over surface water or over the CMA (no discharge to air or water, no activities at ground level).	In 3 regions: change from discretionary to permitted.
Minor discharges to water and the CMA.	In 7 regions: change from permitted to controlled. In 6 regions: from discretionary. In 1 region: from restricted discretionary to controlled.
Undergrounding of existing transmission lines, including termination towers, that meets the permitted activity standards for increasing the voltage and current rating.	In 57 plans: change from permitted to controlled. In 9 plans: from restricted discretionary, and 1 from discretionary to controlled.

Notes: EMF = electromagnetic fields ; CMA = coastal marine area.

5.6 Impact on consent requirements

The plan review undertaken by the Ministry revealed that the NES would remove consent requirements, as follows.

- Increasing the current and/or voltages (provided ICNIRP guidelines for EMF are met) was discretionary in nine plans, and would now be permitted. If ICNIRP guidelines are not met (although this is unlikely to occur), the activity was discretionary in 26 plans but would become non-complying.
- In six plans, upgrading of transmission support structures with associated height increase, or moving support structures, was a discretionary activity but would now be permitted.

5.6.1 District consents

The NES would result in a relaxation in consent requirements, as follows.

- For the addition of conductors, earth wires, etc in excess of permitted limits, and adding circuits, the activity would be restricted discretionary rather than discretionary in most plans.
- Plans are generally more restrictive than the NES for height increases. In around 50 plans, moving beyond distance thresholds, height increases beyond permitted thresholds and removing structures where permitted conditions are not met were discretionary but would become controlled or restricted discretionary.
- Temporary structures exceeding the permitted timeframes would change from restricted discretionary to controlled in 44 plans.
- In 27 councils, trimming of generally protected trees would change from discretionary to controlled, and in three from restricted discretionary. Trimming of individually protected trees would change from discretionary to restricted discretionary in 50 plans.
- Earthworks that do not meet permitted criteria would change from discretionary to controlled in 22 plans.
- Addition of telecommunications equipment above the size limits would change from discretionary to restricted discretionary in 44 plans.

The following NES provisions would generate additional consents.

- New access tracks not in areas of special landscape, ecological or cultural value would change from permitted to controlled in 47 plans.
- Placing transmission lines underground would change from permitted to controlled in 57 plans, in nine plans from restricted discretionary, and one from discretionary to controlled.
- Trimming and removal of generally protected trees would change from permitted to controlled in five plans.

5.6.2 Regional consents

Regional plans were analysed with regard to rules governing discharges to air, water and the coastal marine areas, works in beds of lakes and rivers, and works in the coastal marine areas. The assessment of regional plans showed that the activity status of:

- the application of surface coatings that does not meet permitted criteria would be relaxed in 11 regions (change from discretionary to controlled in 10 regions and from restricted discretionary to controlled in one region)
- non-abrasive blasting that does not meet permitted criteria would generate additional consents in 11 regions (change from permitted to controlled)
- non-abrasive blasting over coastal marine areas would change from permitted to restricted discretionary in nine regions, and from discretionary to restricted discretionary in two regions
- wet abrasive blasting that does not meet permitted criteria (but is not undertaken over water in coastal marine areas) and application of surface coatings would change from permitted to controlled in 11 regions and from discretionary to controlled in one region

- wet abrasive blasting in the coastal marine areas would change from permitted to restricted discretionary in nine regions, from discretionary to restricted discretionary in three regions and from controlled to restricted discretionary in one region
- dry abrasive blasting would be relaxed in nine regions (change from restricted discretionary to permitted in one region, from discretionary to permitted in five regions and from controlled to permitted in three regions)
- dry abrasive blasting that does not meet permitted criteria would change from permitted to controlled in four regions, from restricted discretionary to controlled in one region, and from discretionary to controlled in six regions)
- dry abrasive blasting in the coastal marine areas would change in 10 regions from discretionary to restricted discretionary and in one region from controlled to restricted discretionary
- transmission activities over surface water or over coastal marine areas (no discharge, no ground-level activities) would change in three regions from discretionary to permitted
- minor discharges to water and the coastal marine areas would change in seven regions from permitted to controlled, in six regions from discretionary to controlled and in one region from restricted discretionary to controlled.

The analysis showed that most of the activities permitted by the NES will not be affected. Most changes will be in categories that already require resource consents.

Overall, it has been assumed that the work for which additional consents will be required will be offset by work for which consent will no longer be required. The benefit of the NES is clarity of requirements and a reduction in the stringency of consent requirements for many activities beyond permitted thresholds: primarily restricted discretionary rather than discretionary.

Transpower report that they obtain a range of resource consents throughout the country in any year, ranging from minor activities to relatively major work.

5.7 Identification of costs and benefits

5.7.1 Local authorities

Benefits

Councils will need to notify plan changes to give effect to the NPS by 2012. In the absence of an NES, each council would need to formulate appropriate rules. The NES would result in a cost saving because councils would not need to formulate rules for transmission activities. A conservative estimate of the cost saving per council is $3150 per council (30 hours of officer time). It is likely that councils would receive fewer and less complex submissions on rules based on the NES, particularly from Transpower, and therefore spend less time assessing and hearing submissions and responding to appeals. This is estimated as an average of $4666 per council, calculated as:

- 10 per cent of Transpower's cost saving in advocacy on plan changes relating to transmission activity rules for half of district plans that incorporate the NES
- 30 per cent of Transpower's cost saving in advocacy on plan changes that incorporate the NES (because there will be no opportunity for submissions).

It is assumed there will be no change for regional councils because the majority of Transpower's plan advocacy has been related to district plans, and this is unlikely to change under the NPS.

Costs

Councils will need to review their plans to determine whether they meet the requirements of the NPS, and this will involve becoming familiar with the NES and setting up systems for implementing it. The analysis assumes that on average each council will utilise 25 hours of officer time each year for the first two years (a total of $352,800), and half this amount in the third year. These costs apply to both regional and district councils. Note that this cost is in addition to time spent on implementing the NPS or on plan reviews and changes.

There is no legal requirement to incorporate NES into plans because they are stand-alone regulations. Councils indicated in consultation that they would wish to avoid confusion between plans and the NES so may choose to annotate plans to indicate which rules no longer apply to electricity transmission and reference the NES rather than incorporating regulations into their plans. This could still generate additional costs associated with notifying plan changes.

It has been assumed that:

- regional councils and half of the district councils (with relatively lenient and self-contained rules) will simply annotate plans to indicate dormant rules (which have been replaced by the NES) as part of the process of implementing the NPS, at a cost of $500 per plan
- half of district councils will include the NES in their plan change notification, at a marginal cost of $3000 per plan.

5.7.2 Transpower

Benefits

Transpower estimates that the NES (in the absence of an NPS) would save approximately 70 per cent of advocacy costs related to plan changes proposing transmission activity rules. It is assumed that this would not change now that the NPS requires plan changes: Transpower would still need to monitor and make submissions on plan changes, but in a condensed timeframe rather than a few per year. With an NES, advocacy will be reduced because some councils will choose to simply annotate plans to note that the NES prevails over certain rules, and some will notify a plan change incorporating the NES. It is reasonable to assume that this combination will result in at least a 70 per cent saving in advocacy costs, equivalent to a $23,333 saving, on average, per district plan. The advocacy budget relates largely to monitoring district plans, and it is assumed that the cost saving will apply only to district plans.

It is still uncertain whether Transpower would need to obtain existing-use certificates in cases where the NES encapsulates activities that would have been previously considered an existing use. If such certificates are no longer required, it would save RMA costs of $15,000 per existing-use certificate: one certificate in the first year and increasing to 11 in year 10.

The review of plans shows that a reduction in the number of consents is likely to be small and offset by a small increase in the requirement for some consents. The key saving is due to the consents required being subject to a more appropriate level of scrutiny and being less likely to be publicly notified. The previous study estimated that average costs of obtaining a consent should reduce from $15,000 to $7500 due to less complex requirements and more consents being processed non-notified. The analysis assumes that in year one, seven consents are cheaper to obtain as an immediate result of the NES. This increases to 21 consents in year 10.

Transpower will also benefit from the NES being easier for a network utility operator to interpret than most plans. This is estimated at four hours of staff time for each consent or certificate of compliance that would be applied for (although it does not take account of time determining plan requirements for permitted activities).

Costs

Transpower has offered to provide assistance to councils in implementing the NES, principally providing information on transmission activities and how they are carried out. This is estimated to amount to half of the council implementation costs. Note that this is in addition to any costs associated with implementing the NPS.

5.7.3 Central government

We have estimated the Ministry for the Environment's costs conservatively at $100,000 for the first year and $50,000 per annum for the next two years for implementation of the NES. These costs are mainly related to explanatory documents for local councils, general information, and the cost of monitoring and supporting the adoption of the NES.

5.7.4 Community and the environment

There very few tangible costs or benefits for either the community or the environment. There are, however, a number of intangible benefits resulting from introduction of the NES, such as:

- lower costs for submissions on plan changes, but less opportunity to participate in the process
- environmental benefits from more consistent controls, and balancing facilitating transmission activities with protecting the environment
- national benefits from security of supply.

5.7.5 Summary of benefits and costs

The overall benefits and costs of adopting the NES for transmission activities are presented in Table 7.

Table 7: Summary of costs and benefits

Present value (PV) benefits	$5,837,541
Present value (PV) costs	$1,047,408
Net present value	$4,790,133
Benefit-to-cost ratio	5.57

A more detailed breakdown of benefits and costs is presented in Table 9 (in section 5.9).

5.8 Sensitivity analysis

Sensitivity analysis is an economic tool used to study how the variation in the output of a model can be apportioned, qualitatively or quantitatively, to different sources of variation in the input of a model. The sensitivity analysis for the proposed transmission activities NES was designed to observe the change in the net present value (NPV) and benefits-to-costs ratio resulting from altering two input variables: the percentage of councils incorporating the proposed NES into their plans (thus bearing the costs of a public consultation process) and the level of Transpower's activity (thus the number of projects requiring approval).

The analysis looked at four alternative scenarios. Every scenario was done for a 5 per cent discount rate and compared against the 8 per cent discount rate base case results. Table 8 briefly outlines each of the scenarios and the output obtained for both discount rates.

Table 8: Sensitivity analysis – scenarios and results

	Discount rate 8% (base case)		**Discount rate 5% (sensitivity)**	
	NPV [$]	**B:C ratio**	**NPV [$]**	**B:C ratio**
	4,790,133	5.6	5,527,018	6.0
Variables	**Change in NPV ($ value)**	**B:C ratio**	**Change in NPV ($ value)**	**B:C ratio**
Scenario 1: Increased costs for plan notification Increase in council costs, reduction in council and Transpower (TP) benefits	−9% (4,353,135)	5.0	−8.5% (5,058,085)	5.5
Scenario 2: Decreased costs for plan notification Decrease in council costs; increase in council and TP benefits	9% (5,227,130)	6.1	8.5% (5,995,951)	6.6
Scenario 3: Fewer projects requiring approval than predicted Decrease in benefits to TP; reduction in implementation costs to councils and TP	−14% (4,111,314)	5.2	−14.5% (4,724,864)	5.6
Scenario 4: More projects requiring approval than predicted Increase in benefits to TP; increase in implementation costs to councils and TP	14% (5,468,952)	5.9	14.5% (6,329,171)	6.4

Results

The analysis showed that if 20 per cent more councils decided to incorporate the NES into plans via a public consultation process than originally assumed in the cost−benefit analysis, then the NPV would decrease by 9 per cent. Equally, if 20 per cent fewer councils wanted to go through the public consultation process to incorporate the NES, the NPV would increase by 9 per cent.

The proposed regulations were also tested for efficiency with regard to the level of Transpower's activity (ie, the number of projects undertaken). This analysis revealed that a 20 per cent decrease (or increase) in the activity level assumed in the base case scenario resulted in a 14 per cent decrease (or increase) in the NPV. The same NPV change was obtained for a 20 per cent change in assumed benefits for the same level of activity.

The worst case scenario of 20 per cent more councils incorporating the NES into plans, 20 per cent decrease in assumed Transpower activity level and 20 per cent reduction in assumed benefits resulted in a 38 per cent reduction in NPV to approximately $2.7million.

The most beneficial scenario, with the highest NPV return, was obtained with an increased level of projects than initially predicted and 50 per cent fewer councils incorporating the NES through a public consultation process.

5.9 Summary

The evaluation of the costs and benefits was informed by two reviews of district and regional plan provisions for transmission activities and an earlier appraisal of the draft NES undertaken by the New Zealand Institute of Economic Research (NZIER). The results show that at an 8 per cent discount rate, the NPV of the proposals is $4.8 million, with a benefit-to-cost ratio of 5.6 to 1. When a lower discount rate (5 per cent) is used, the NPV of the project is $5.5 million and the benefit-to-cost ratio is 6 to 1.

The intangible costs associated with the proposed NES are likely to be small in relation to the tangible costs and benefits. It is likely that the costs associated with finding out about the proposed NES will be very small. This is because, under the status quo, most councils would notify new rules for transmission activities. The community would need to find out about the new rules, and this is likely to cost about the same as finding out about the proposed NES in general. The Ministry for the Environment can assist in reducing search costs by providing good guidance for the public on the proposed regulations.

Table 9 shows a summary of the results of an economic appraisal of the proposed NES for transmission activities.

Table 9: Summary of costs and benefits

Group/resource	Explanation	Quantified value (approximation)
Benefits		
Environment	Potentially a small benefit. Safeguards are in place that reduce the risk of significant adverse effects.	
Local authorities	Reduced costs in implementing the NPS because plan changes are not required and not recommended. Reduced costs in dealing with submissions if the NES is not incorporated into a plan but is left stand-alone.	Potential benefits of $0.7 million
Grid operator (Transpower)	Large benefits because of national consistency of requirements and the NES being easier to follow than plans, with less complex consent processing. Reduced requirement for advocacy on plan changes.	Potential benefits of $5.2 million
Government	Some benefits will accrue to the Crown through security of supply and as owner of Transpower and claimant on its profits.	
Consumers	Some benefits from increased security of supply.	
Others/generators	Some benefits from more timely connection and increased security of supply.	
Present value: benefits		**$5,837,541**
Costs		
Grid operator (Transpower)	Cost providing information and assistance to councils to implement the NPS and attending workshops.	Potential costs of $0.3 million
Local government	Costs of familiarisation with NES and implementation.	Potential costs of $0.6 million
Land owners	Land owners may see the permitted activities section of NES as infringing on their rights.	
Government	Minor costs associated with managing the transition process and providing guidance.	Potential costs of $0.17 million
Present value: costs		**$1,047,408**
Net benefit	**Potential net benefit of approximately $4.8 million**	

6 Summary

6.1 Efficiency and effectiveness

Efficiency is a measure of whether the benefits of an option outweigh the costs. It is considered that the NES will deliver substantial benefits, including reduced costs to industry, local government and, ultimately, the public. The net environmental and economic benefits are considered to exceed the net environmental and social costs of the NES.

Effectiveness is an assessment of how well a given option will work. The NES is considered to be an effective method for achieving the policy objective in general compared with all the other alternatives examined. The NES would be the most effective tool for giving effect to a number of NPS policies. In particular, the NES would provide clarity and consistency as to the requirements for operation, maintenance and minor upgrade of electricity transmission lines, minimise the costs of implementing the NPS, and minimise RMA processing costs and delays.

Overall, it is considered that the proposed national NES is the most appropriate, effective and efficient means of achieving the objective of supporting the implementation of NPS policies related to transmission activities in a cost-effective and timely manner.

6.2 RMA section 44 process

The original proposal for an NES addressing transmission activities was consulted on in 2007/2008. The issues raised by submitters were complex and took time to resolve. To take account of all the issues raised, the NES has been revised and further consulted on with local authorities and Transpower (for detailed responses to submissions, see Appendix 2). As a result of this process, the NES in its revised form creates no additional consent requirements overall and will ensure effective implementation of NPS policies relating to transmission activities.

Appendix 1: Summary of NES for Transmission Activities

Table A1: Summary of NES activities

Activity	P	C	RD	D	NC
All transmission activities that meet specified terms and conditions, set out below according to the type of activity they apply to.	●				
Addition or replacement of overhead conductors (up to duplex, up to 50 mm or existing diameter).	●				
Addition or replacement of overhead circuits, conductors or earth wires, and cables in excess of the number or size specified for permitted activities.			●		
Addition or replacement of overhead earth wires and aerial communications cables, including earth wires containing optic fibres (up to 3 wires or existing number, up to 25 mm or existing diameter).	●				
Addition or replacement of overhead circuits, conductors or earth wires, and cables in excess of the number or size specified for permitted activities.			●		
Adding circuits (where support structure was designed and built to carry an extra circuit).	●				
Adding circuits to other lines.			●		
Increasing the voltage or current rating of a line and adding conductors and circuits where ICNIRP guidelines for EMF are met.	●				
Activity resulting in generation of EMF (if it fails the terms and conditions for a permitted activity).					●
Replacing, moving and upgrading of support structures and foundations (max. height increase 15%, max. footprint increase 25%, pole not replaced with a tower, no relocation outside relocation envelopes).	●				
Replacing, moving and upgrading support structures and foundations, exceeding permitted thresholds but meeting controlled activity thresholds.		●			
Replacement or alteration of a pole or tower that does not meet the thresholds as a permitted or controlled activity.			●		
Removal of transmission support structures, conductors and associated foundations (site clean-up and rehabilitation).	●				
Removal of transmission support structures, conductors and associated foundations failing permitted terms and conditions.			●		
Application of surface coatings (no noxious discharge).	●				
Application of surface coatings failing the terms and conditions for a permitted activity.		●			
Wet, dry and non-abrasive blasting (not within 50 m of water body or public road or 100 m within occupied building; no chemicals; collect waste; no discharge).	●				
Wet, dry and non-abrasive blasting not complying with permitted but not undertaken over water in coastal marine area, not within 100 m of an occupied building or over a road and application of surface coatings not complying with permitted activity.		●			
Wet, dry and non-abrasive blasting over coastal marine area water and within 100 m of an occupied building.			●		
Temporary structures and temporary line deviation.	●				
Temporary structures exceeding time constraints.		●			
Signs attached to transmission infrastructure (size, purpose).	●				
Signs above the size limit.			●		

Activity	P	C	RD	D	NC
Trimming or removal of trees or vegetation for transmission line maintenance and ongoing operation (not protected individually or as a part of scheduled areas; not part of river and erosion control management schemes; not within DoC land).	●				
Trimming or removal of generally protected trees/vegetation (not individually scheduled trees).		●			
Trimming or removal of individually protected trees for the purpose of reducing risk to transmission lines which do not comply with the terms and conditions for a permitted activity.			●		
Earthworks, including tracking, associated with transmission activities (volume and area limit; no more than 50 m^3 per tower or pole or 100 m^3 per track in scheduled areas; soil erosion protection; remediation; no contribution to instability or erosion; prevent debris from entering water body or coastal marine area; no earthworks in coastal marine area or beds of lakes and rivers; no works in archaeological areas, wāhi tapu or other scheduled areas).	●				
Earthworks that do not meet permitted activity conditions, but excluding earthworks in scheduled landscape, or ecological or heritage areas of cultural significance.		●			
New access tracks to transmission lines not in scheduled landscape, or ecological area or areas of cultural significance.		●			
Earthworks associated with works or involving access to a line in scheduled landscape, or ecological or heritage areas of cultural significance.			●		
New access tracks resulting in loss or removal of trees or vegetation protected in a plan or land that is part of a protected natural feature, archaeological site or site of significance to Māori.				●	
Construction noise and vibration associated with transmission activities (including implosive jointing, noise complies with NZS 6803:1999, vibration complies with DIN 4150-3:1999).	●				
Noise that fails to meet permitted activity standards, terms and conditions.		●			
Installation of antenna dishes on transmission line support structures.	●				
Telecommunication facilities on existing transmission line support structures which do not meet the terms and conditions for permitted activity.			●		
Transmission activities over surface water or over the coastal marine area (no activities at ground level).	●				
Discharges of water and contaminants from transmission activities.	●				
Discharges to water and the coastal marine area that fail to meet permitted activity standards, terms and conditions.		●			
Undergrounding of existing transmission lines, including termination towers, that meet the permitted activity standards for increasing the voltage and current rating.		●			
Any transmission activity that does not meet the terms and conditions for permitted activity and is not listed as permitted, controlled, restricted discretionary or discretionary.					●

Note: EMF = electromagnetic fields; ICNIRP = International Commission on Non-Ionising Radiation Protection; DoC = Department of Conservation; NZS = New Zealand Standard; DIN = the German Institute for Standardization (Deutsches Institut für Normung e.V.)

P – permitted activity**, C –** controlled activity, **RD –** restricted discretionary activity,
D – discretionary activity, **C –** non-complying activity

Appendix 2: Key Issues Raised by Submitters on the Proposed Transmission Activities NES

Table A2: Summary of key issues raised by submitters on the proposal for the transmission activities NES

Issue	Response
The presumption that transmission activities require resource consent unless specifically identified as permitted activities means that anything left off the list will default to discretionary.	The proposed NES now states that all transmission activities are permitted provided they comply with specific terms and conditions. If an activity fails to comply with the terms and conditions, the NES states what the consent category will be. An analysis of the potential effects of transmission activities and the controls imposed to control these effects has been undertaken to ensure there are no significant adverse effects.
The proposals are extremely detailed and will override the provisions of district and regional plans. Councils are concerned about their ability to implement the standards.	The lack of specificity in plans is one of the issues being addressed. Plans that are expressed in general terms are subject to too much interpretation about what is permitted and what requires consent. The standards have been condensed and simplified to some extent, but it is inevitable that they will be more detailed than district plans. Guidance on how to use the standards will be provided to assist councils.
The proposals as written may generate more resource consents for transmission activities in some districts, which is not desirable for either councils or Transpower. Other councils noted that the standards would be more lenient than their plans.	A review of plans has been undertaken (see section 5.5) and this showed that more consents may be required for placing transmission lines underground and for new access tracks. Fewer consents would be required for dry abrasive blasting of tower foundations, increasing the current and voltage (provided ICNIRP guidelines are met), and (in a handful of plans) increasing the height of transmission support structures.
The standards do not take enough account of the sensitivity of the environment the transmission activities will occur in.	The standards distinguish between more sensitive environments and sensitive land uses. In a national standard it will not be possible to take account of the sensitivity of the local environment at the same level of detail as local plans do.
The standards do not contain limits for electric and magnetic fields.	The standard now includes a condition on electric and magnetic fields associated with increasing the current and voltage of transmission lines, and specifies how compliance with the ICNIRP guidelines will be demonstrated.
The standards will prevail over future designations, which could cause problems for councils and Transpower in the future (for example, resource consents may be required as well as designation, doubling the workload associated with an upgrade).	Legal input is still required.
No provision has been made for minor discharges, nor for minor activities in the beds of lakes and rivers or coastal activities.	Some allowance has been made for these activities, subject to stringent terms and conditions. Many regional councils provide for such minor activities, particularly those associated with existing structures, as permitted activities.
The consultation is insufficient: it should include a second round of consultation on the regulations.	Representatives from several local authorities and Local Government New Zealand were invited to participate in revising the proposed NES. Further local government input will be sought at the legal drafting stage. No formal consultation step is proposed, because this proposed NES mainly affects Transpower and local authorities.
A number of issues were raised about interpretation and implementation of the NES.	The Ministry will produce guidelines on implementing the NES, and proposes to hold workshops (in conjunction with the implementation phase of the NPS on electricity transmission).

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