

A COMMUNITY OF PRACTICE FOR MODELLING THE EFFECTS OF CLIMATE CHANGE MITIGATION IN NZ



An Executive Summary of Motu Working Paper 19-12

Niven Winchester, Dominic White and Catherine Leining

Motu Economic and Public Policy Research

niven.winchester@motu.org.nz, dominic.white@motu.org.nz, catherine.leining@motu.org.nz

SUMMARY HAIKU

In community,
modelling our future can
take us to new heights.

INTRODUCTION

The public and private sectors face important strategic decisions about low-emissions transitional pathways. Such decisions require sound evidence, with input from experts and stakeholders across the board.

Models can be used for evidence-based decision-making, but New Zealand has shortcomings in its capacity for climate policy analysis, particularly in comparison with other jurisdictions. These deficiencies pose a serious risk to New Zealand's future economic development.

Climate policy analysis requires assessing a wide range of factors. A multi-model approach supported by multiple providers improves consistency, coordination, and collaboration across members of the modelling community, users of modelling results, and funders of modelling.

This document summarises the compelling case for developing a New Zealand 'Climate Policy Modelling Initiative' (CPMI). This initiative would coordinate and enhance delivery of modelling across multiple providers. This work is informed by several workshops that brought together economic modellers from a range of organisations.

If supported by government leadership and commitment, the CPMI would have a transformational effect on New Zealand's capacity to plan for a successful low-emissions future.

OVERSEAS CASE STUDIES OF CLIMATE CHANGE MITIGATION MODELLING

New Zealand lags behind other leading jurisdictions in its capacity to model climate change mitigation policies. In the European Union, the United Kingdom, and California, climate policy decisions are informed by multiple models that focus on diverse aspects of the economy (e.g. energy, transport, agriculture, and land use) from a 'community of practice' (e.g. providers from government departments, universities, and consulting firms). These jurisdictions have devoted significant resources over several decades to developing models for climate policy analysis.

It is not possible for one organisation to operate all the models required for climate policy analysis, even in a jurisdiction as large as the European Union. Instead, a community of practice brings together models from different organisations – inside and outside of government – on an ongoing basis.

Noteworthy elements of successful climate change mitigation modelling communities abroad include:

- a common set of baseline projections that is used by all models;
- long-term government funding for climate change mitigation modelling;
- regular meetings for the community of practice;
- detailed model documentation and, where possible, open-source models; and
- scope for academic endeavours in the contracting of modelling analyses.

THE FUTURE NEEDS OF DECISION MAKERS

New Zealand needs an enduring approach that produces consistent outputs over time for decision-making on emissions-reduction targets, budgets, emissions trading scheme caps, and policies. New Zealand needs to strengthen its ability to model:

- low-emission innovations extending beyond historical norms;
- transitional pathways over time, not just equilibrium states;
- distributional impacts and co-benefits of policy options;
- integrated effects of policy options across economic, environmental, and social domains;
- realistic (irrational) behaviour by producers and consumers;
- complex interactions between sectors (especially the energy and land sectors), and between emission pricing and other mitigation policies; and
- the implications for New Zealand of changes to overseas markets and policies.

PERSPECTIVES ON CURRENT PRACTICES

New Zealand has a suite of models for climate policy analysis, but they have been used in a sporadic and ad hoc way to inform decision-making. The timelines typically allocated for model development and policy analysis tend to be unrealistically short, and it can be difficult to secure funding for systematic model development.

Resources are limited for primary research and data collection to address information deficiencies. Few processes or forums exist for encouraging formal or informal interactions between modellers, modelling users, and funders.

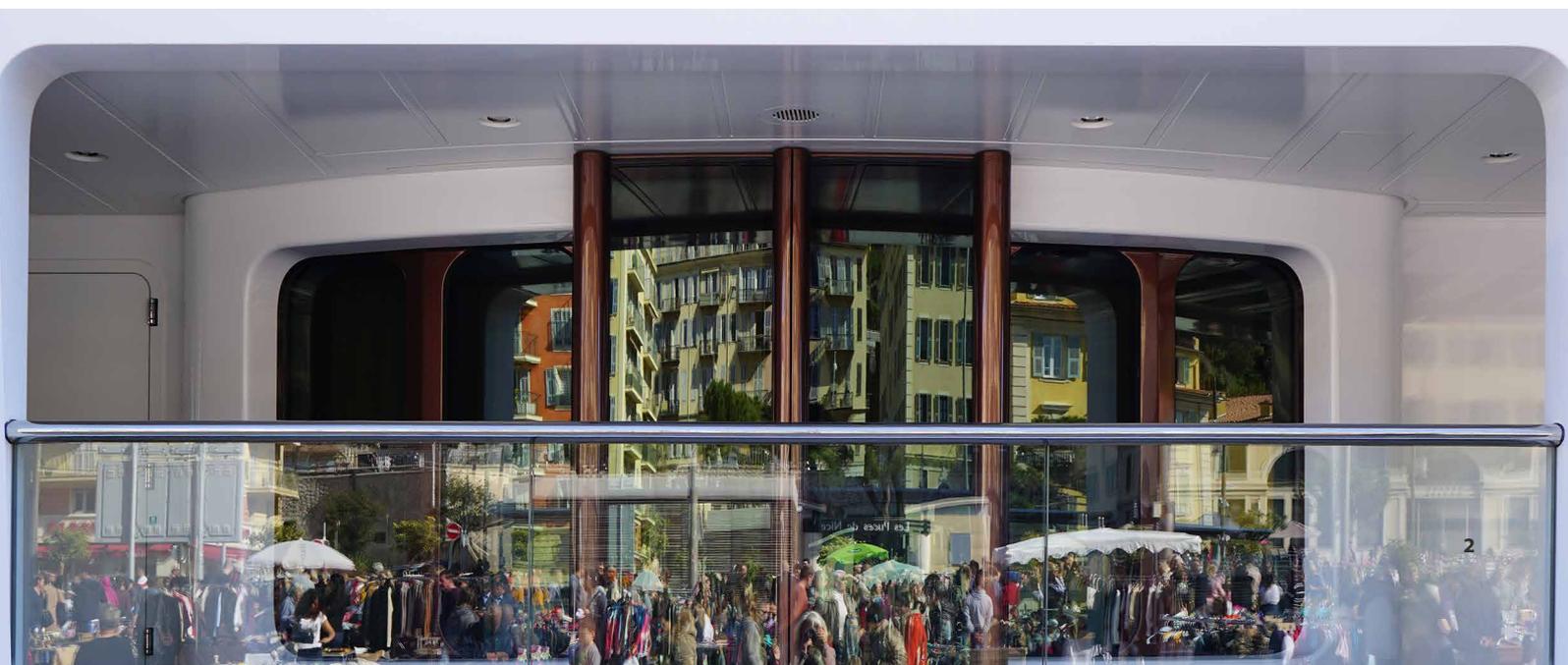
CENTRAL ELEMENTS AND IMPLEMENTATION OPTIONS FOR A COMMUNITY OF PRACTICE

A successful community of practice for climate policy analysis should:

- improve the quality, transparency, credibility, and comparability of modelling to inform decision-making;
- create institutions and networks to boost model development, coordination, collaboration, integration, and communication; and
- secure increased, predictable, and sustained funding for modelling activities.

To meet the government's strategic objectives for sound evidence-based decision-making, funding mechanisms for climate mitigation modelling in New Zealand need readjusting. Dedicated funding for climate policy modelling is needed before other elements of the CPMI can be implemented.

The Climate Change Response (Zero Carbon) Amendment Bill 2019 will establish an independent Climate Change Commission (CCC), to advise the government on setting emissions budgets, including realistic means of meeting those budgets. A key consideration will be the role of the CCC in administering, funding, or otherwise supporting this community of practice in relation to other stakeholders. Detailed modelling, governance, and funding elements are discussed in the working paper.





The paper also includes a detailed road map that looks at actions required to launch an effective community of practice, and activities to refine and maintain the initiative. Once implemented, the community of practice will operate as a hub and central repository, allowing ease of coordination for national and international collaboration. It will also communicate results to non-modellers and enable greater collaboration for all involved.

It will take time for governance and funding mechanisms to be established. The modelling community may want to take early action to establish the community of practice. This could perhaps be assisted by seed funding from the government.

CONCLUSIONS

Quantitative analyses of policies and regulations to meet New Zealand's emissions-reduction goals will require multiple models focusing on diverse aspects of the economy.

New Zealand currently lags behind other leading jurisdictions in its capacity to model climate change mitigation policies. This capacity gap poses a serious risk to New Zealand's future economic development and long-term emissions targets.

Many of the shortcomings of New Zealand's mitigation modelling capacity could be addressed by establishing a CPMI. Creating this initiative will require significant leadership from the government to establish the required funding and governance mechanisms.

The CCC is the logical organisation to facilitate and coordinate modelling efforts, while providing the interface between modelling results and policy insights. This relies on appropriate funding for the CCC.

A New Zealand CPMI will enhance the credibility and transparency of evidence-based decision-making, while assisting the transition to a low-emissions economy.

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