



Towards an Electrical Transformation of the New Zealand Light Vehicle Fleet

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Overview

- Why electric vehicles?
- Wider government objectives
- Energy Strategy electric vehicle targets
- Scope of the draft work programme being developed

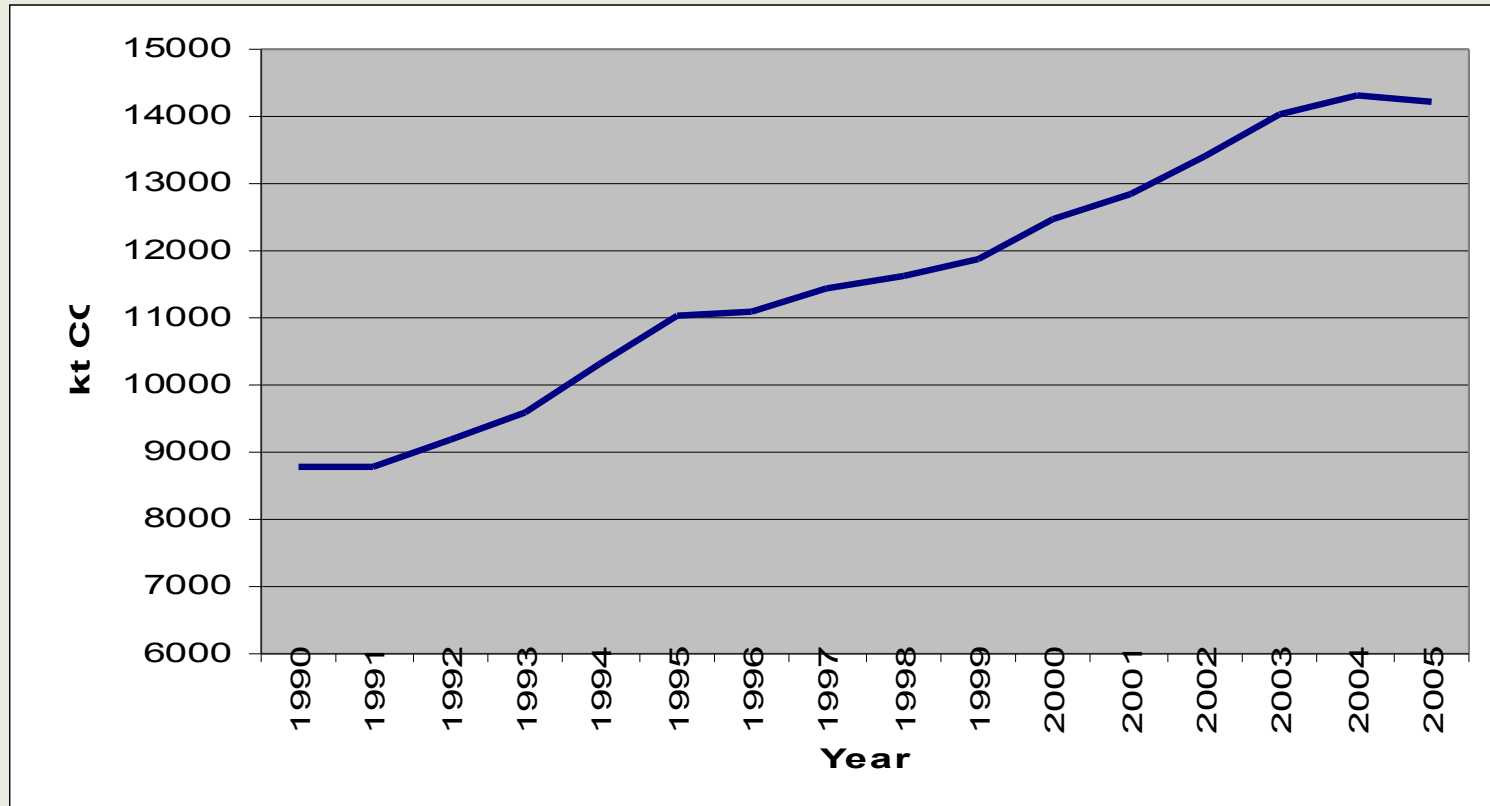
Why encourage electric vehicles?

- Reduced CO₂ as emissions produced are derived from electricity generated
- Uniquely suited for New Zealand's comparatively high level of renewable electricity generation
- Reduced harmful emissions (air quality) as zero emissions produced by the vehicle
- Improved energy security

New Zealand Energy Strategy Target #1:

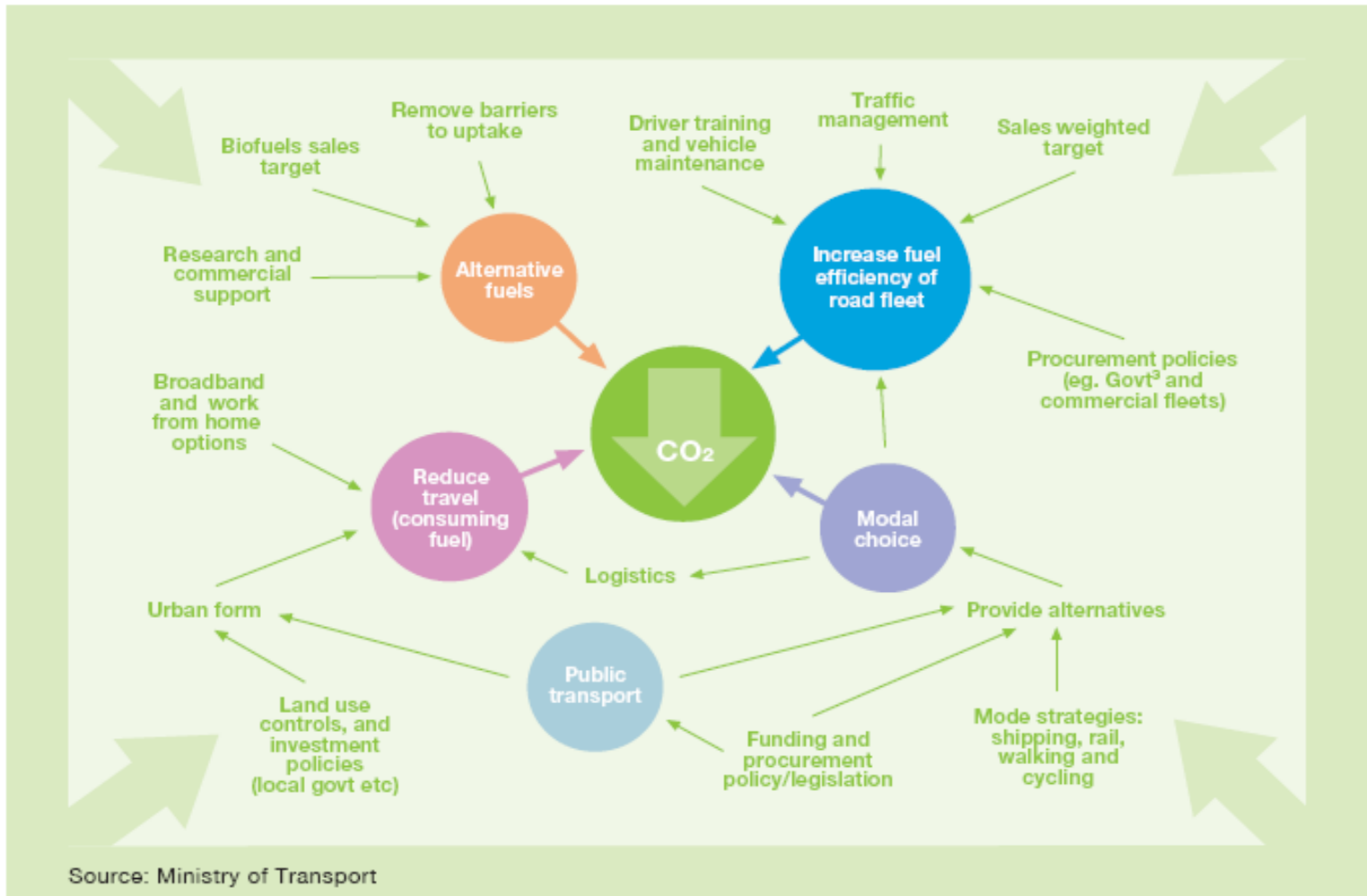
- **The government has made an in-principle decision to introduce a target of halving domestic transport emissions per capita by 2040 relative to 2007 emissions**

Domestic Transport Sector Emissions 1990 - 2005



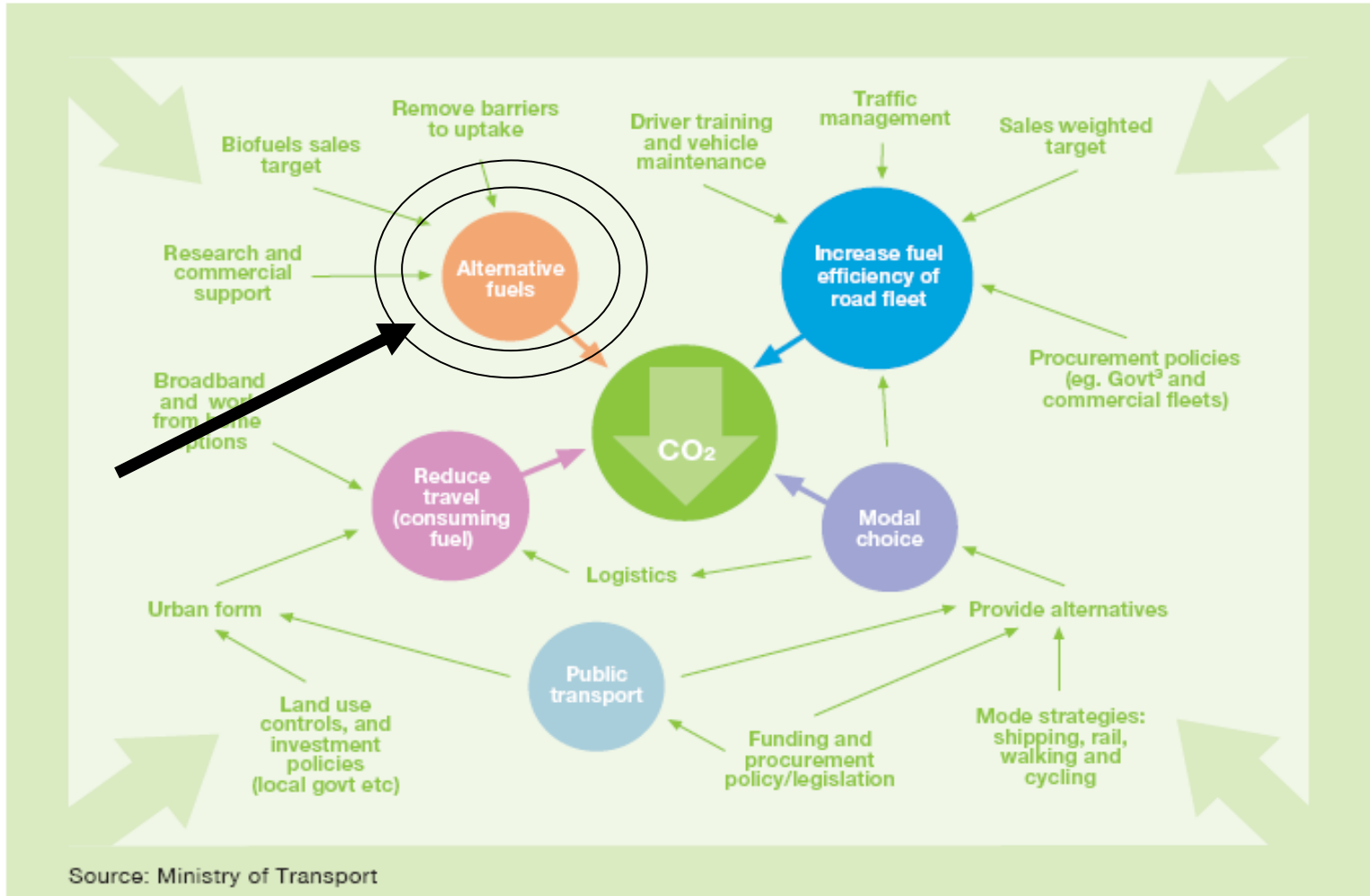
Achieving this will involve policy development across several fronts

Figure 7.3: Measures to reduce land transport greenhouse gas emissions



Electric vehicle targets fit within this as a measure of increasing alternative fuels

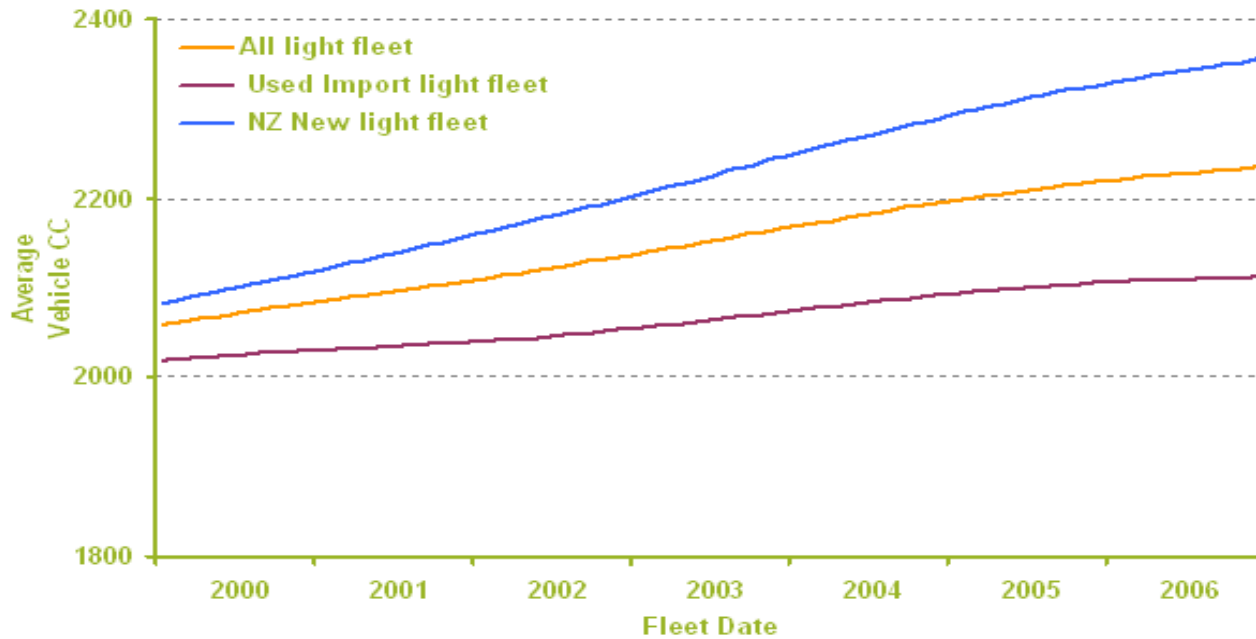
Figure 7.3: Measures to reduce land transport greenhouse gas emissions



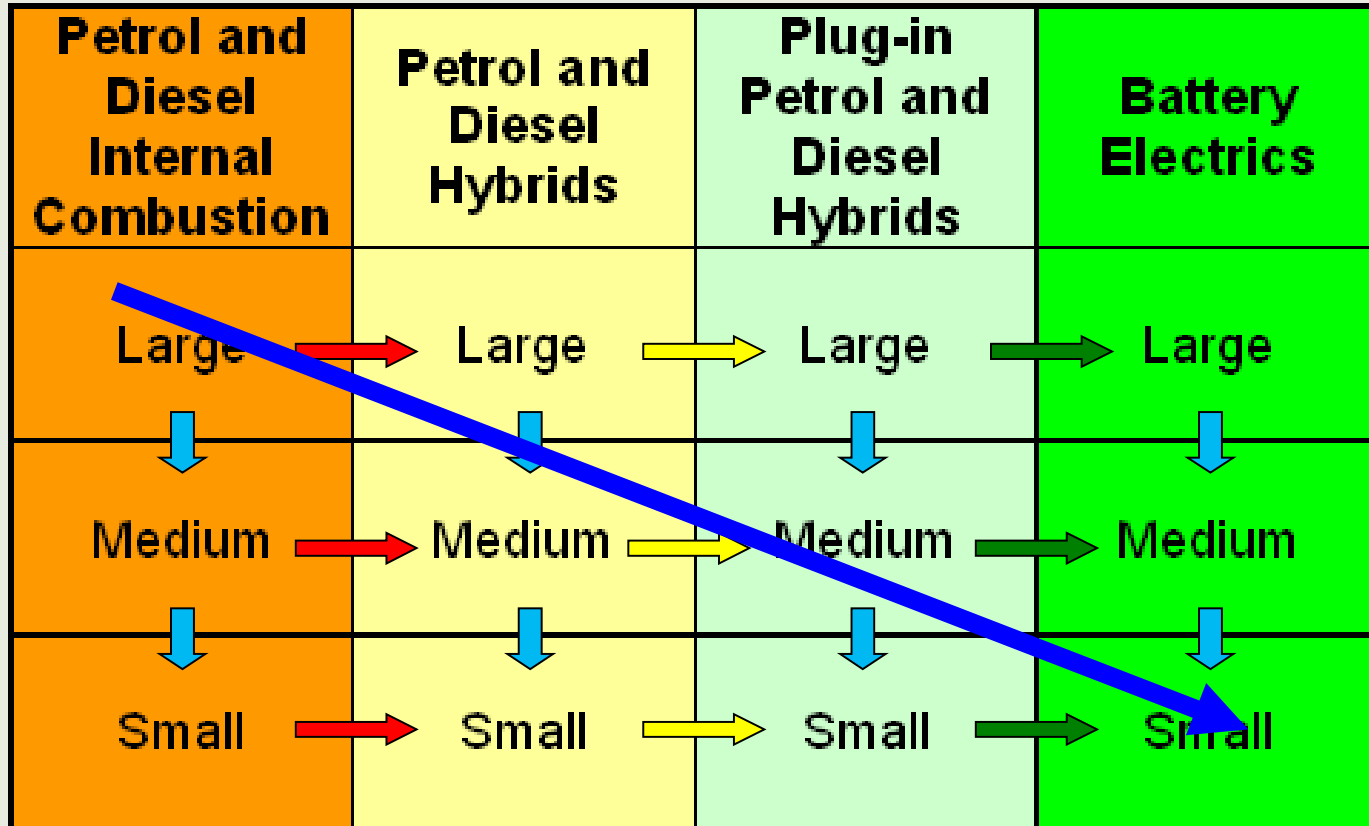
Engine sizes are getting bigger...

Current Trend for Engine Size

Figure 4.1 : Light Fleet average engine capacity



Smaller vehicles, more electricity!



New Zealand Energy Strategy Target #2:

- **Government will work towards positioning New Zealand to be a world leader in the deployment of new vehicle technologies, including plug-in hybrids and electric vehicles**
- Low Carbon scenario: fleet 60% electric by 2040

So how will we achieve this?

- Achieving this target will not be easy and will involve planning and coordination
- New Zealand and Energy Conservation Strategy target: In line with the NZES, **implement a programme to position New Zealand to be a leader in the deployment of plug-in hybrid electric and electric vehicles**
- Accordingly, the elements of a draft work programme have been identified. Far from conclusive, comments and additions welcome

Key assumptions

- Safety is a critical element of our land transport infrastructure
- Hybrids mark an important transitional step
- Primary focus on the light passenger fleet although public transport and freight also within scope
- Advances in battery technology will continue pushing electric vehicles into mass production
- Electric vehicles can be managed to charge off-peak with relatively little additional generation required over existing capacity
- New Zealand's high proportion of renewable electricity production will be maintained/continue to rise

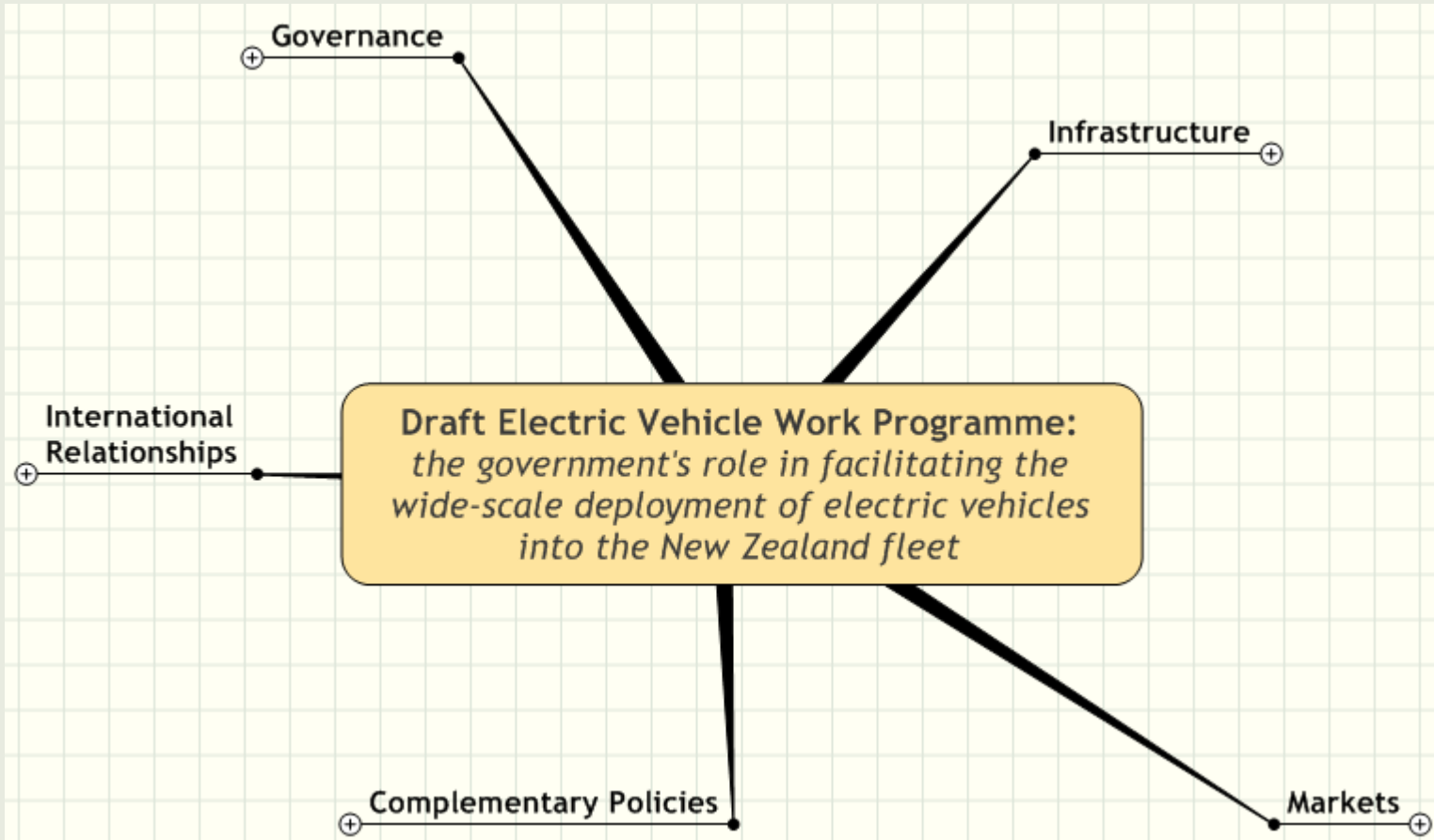
Risks

- Increased vulnerability of road users
- Technological stagnation and difficulty securing vehicles
- Stranded investments
- Increased peak electricity demand
- Large associated costs (vehicles, infrastructure, training etc)

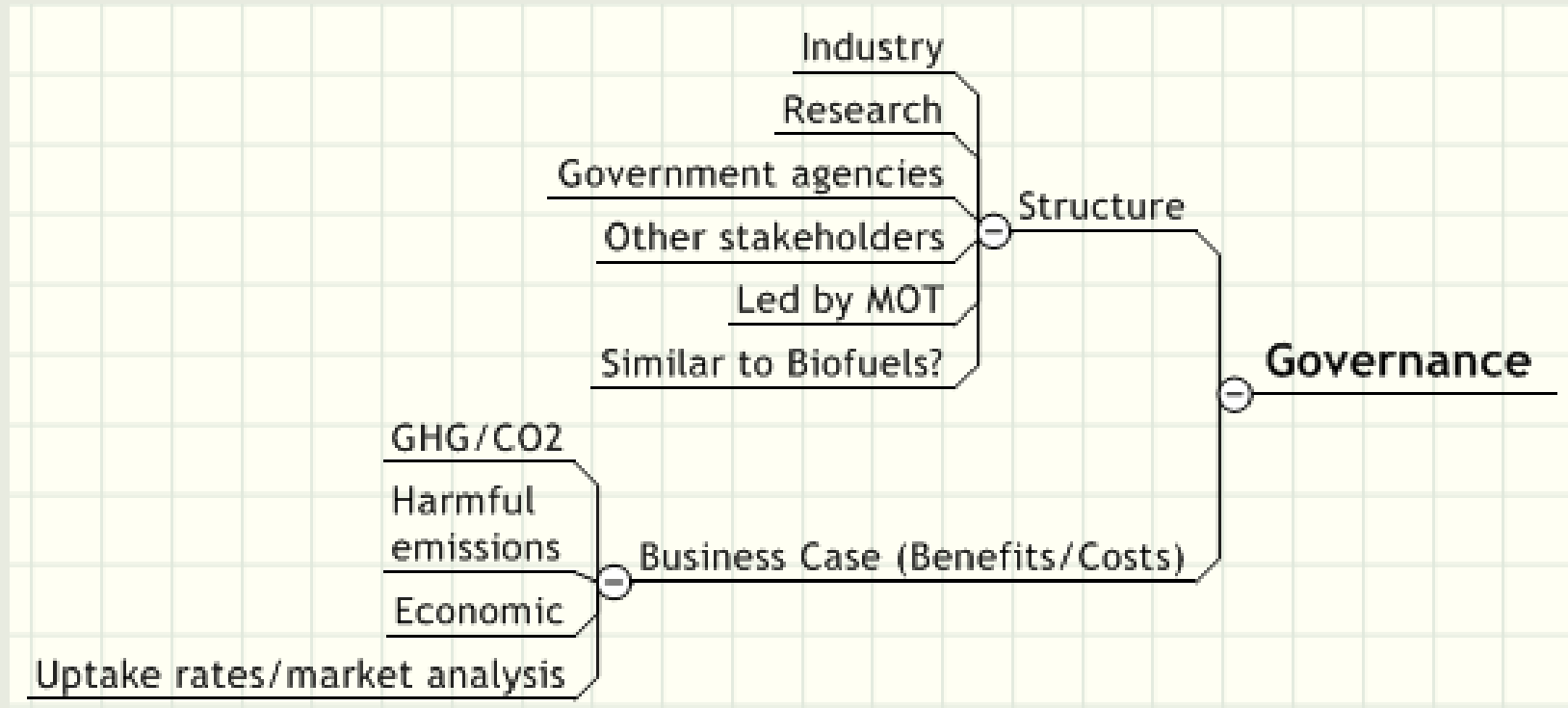
Government's role in facilitating the widespread deployment of electric vehicles into New Zealand

- Obligation to provide enabling framework to allow the creation of an electric vehicle market
- Additional incentive measures may be required downstream to assist uptake
- Taking a strong role in policy leadership and governance

The 5 elements of the draft work programme

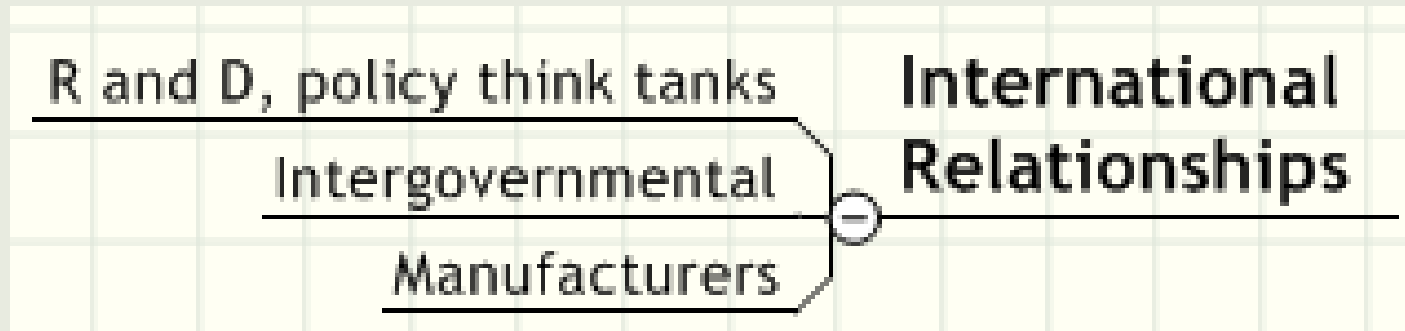


Governance

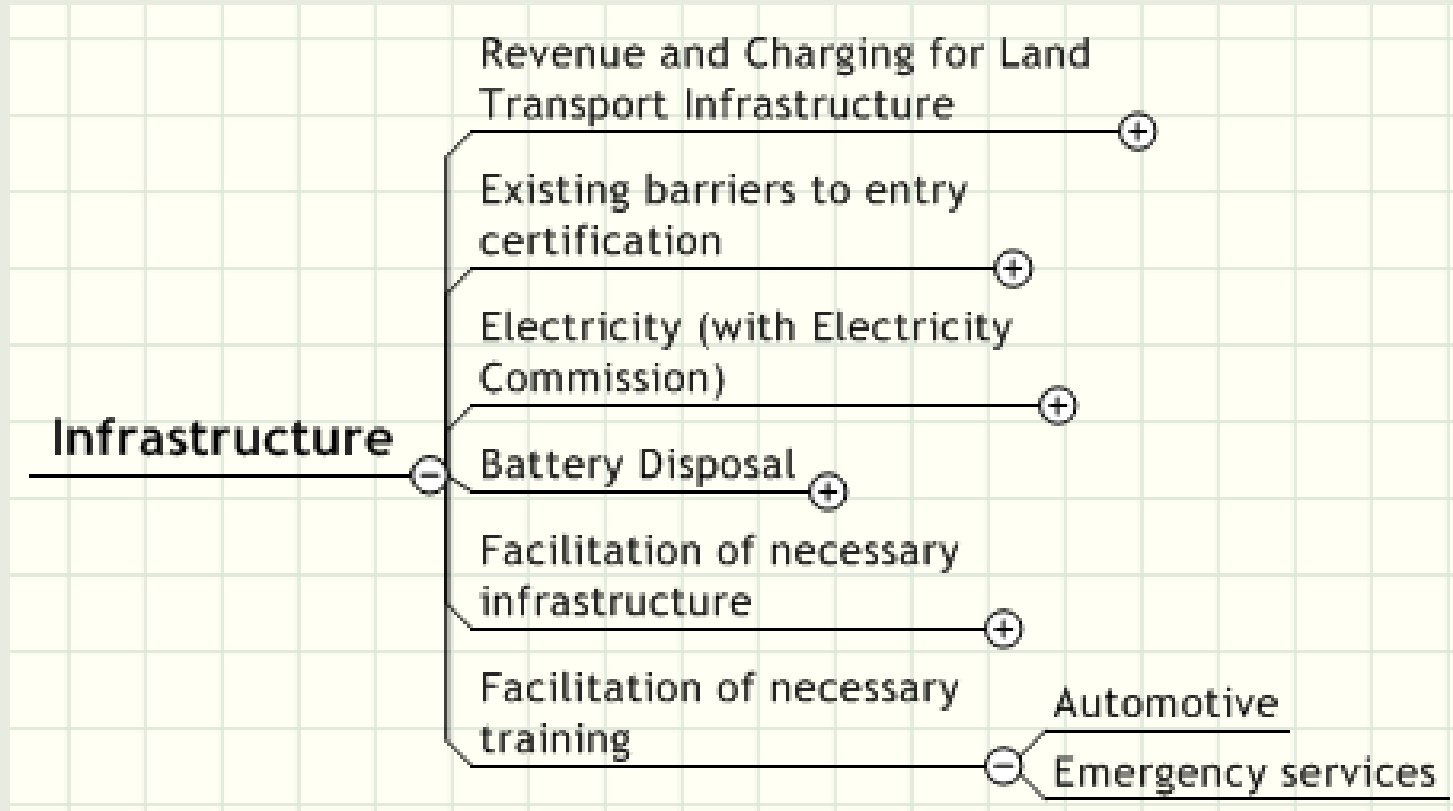


Building international relationships

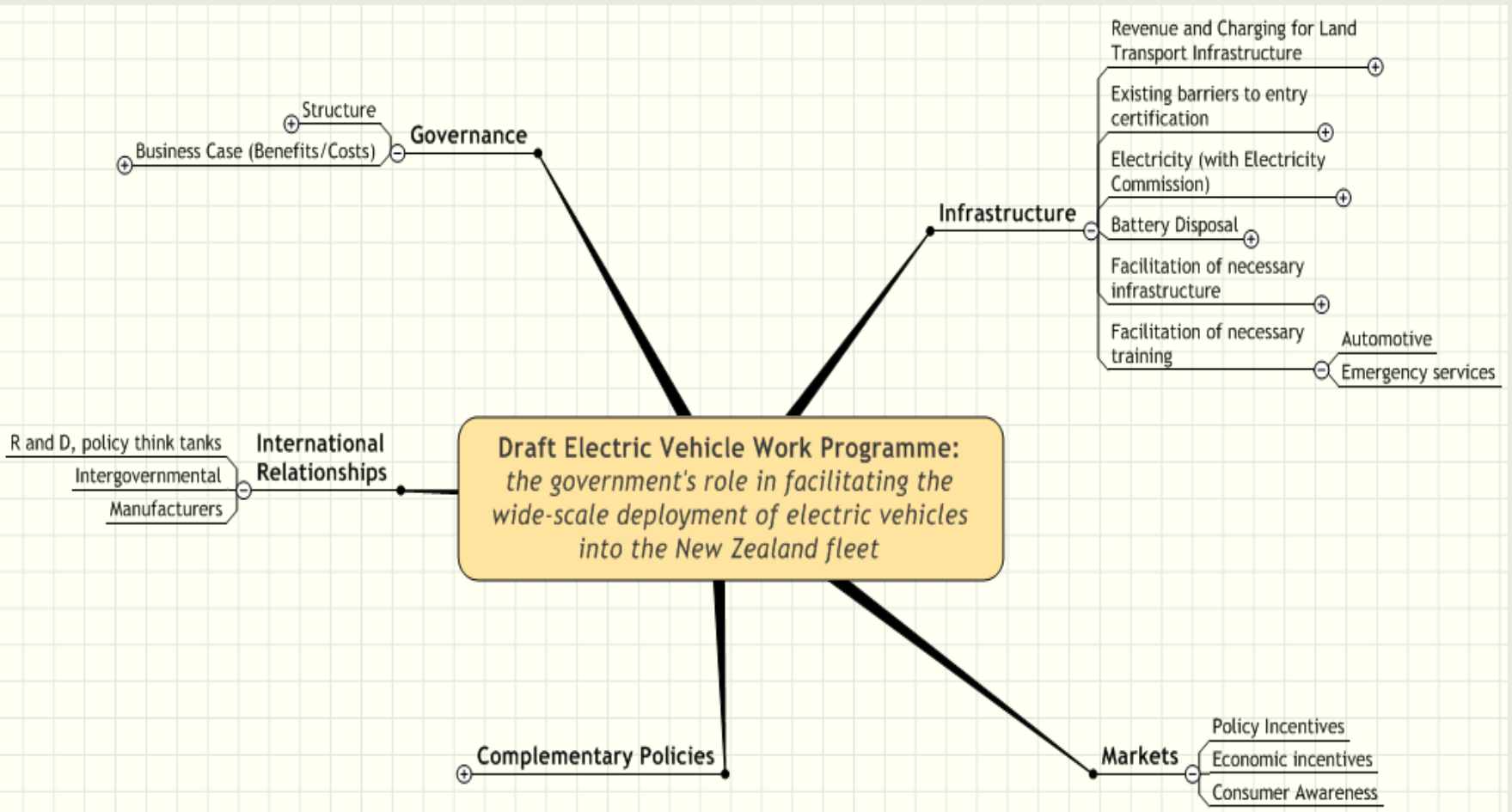
- No domestic manufacturing, need to secure vehicles
- Should be pursued along 3 distinct branches
- Test beds?



Infrastructure (removing barriers)



Markets, complementary policies and the bigger picture



Conclusion

- Lots of work to do
- Potentially unwieldy, needs clear governance structure to coordinate and balance competing interests
- Welcome stakeholder engagement
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