



Outlook for alternative fuels and drive trains for road transport in Australia

A market perspective

AIE National Conference
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Not just another presentation on a 'predicted future outlook'

- three elements of this presentation

1. Challenge the conventional thinking applied in the preparation of market outlook assessments
2. Critically examine past approaches to the development of alternative fuels and alternative drivetrain markets.
3. Provide an example of a market-based approach for markets requiring technology substitution.

The national case for action

A community perspective on the imperative for change

Energy security

Australia's oil self-sufficiency was 54% in 2007

Forecast demand and decreasing supply suggest Australia's oil self-sufficiency will be below 20% by 2030

The decline in self-sufficiency is expected to increase the net trade deficit five-fold by 2030

In creased fuel prices are likely to have a knock-on effect in terms of reduced national competitiveness and rising prices for goods and services

increased national risk →

Greenhouse

Road transport accounts for 12.5% of national emissions

GHG emissions from road freight have grown by 40% since Kyoto

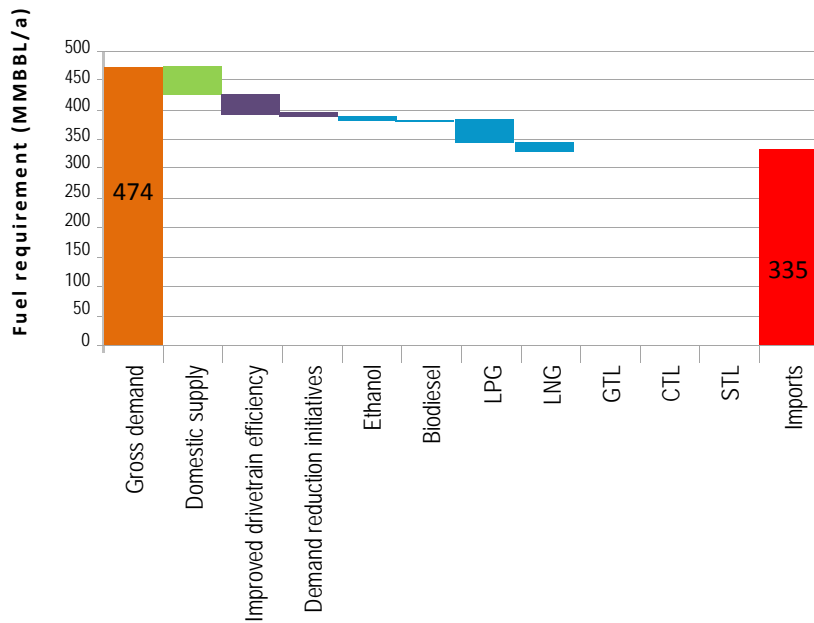
Commercial vehicles account for 20% of the fleet, but 40% of emissions

GHG emissions from commercial vehicles are forecast to grow three times faster than emissions from passenger vehicles to 2020

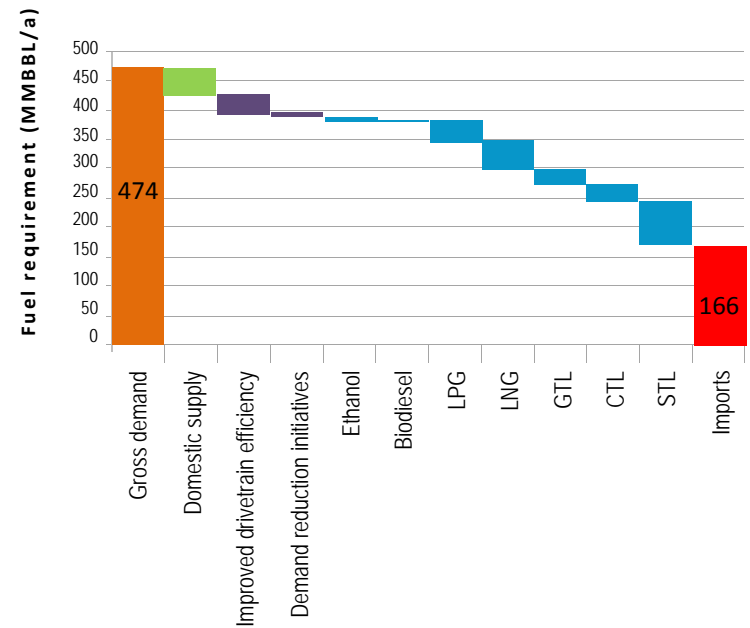
We have the technology to improve transport energy security

- affordable, reliable and adequate for national need

Business as usual scenario for Australian transport fuels to 2030



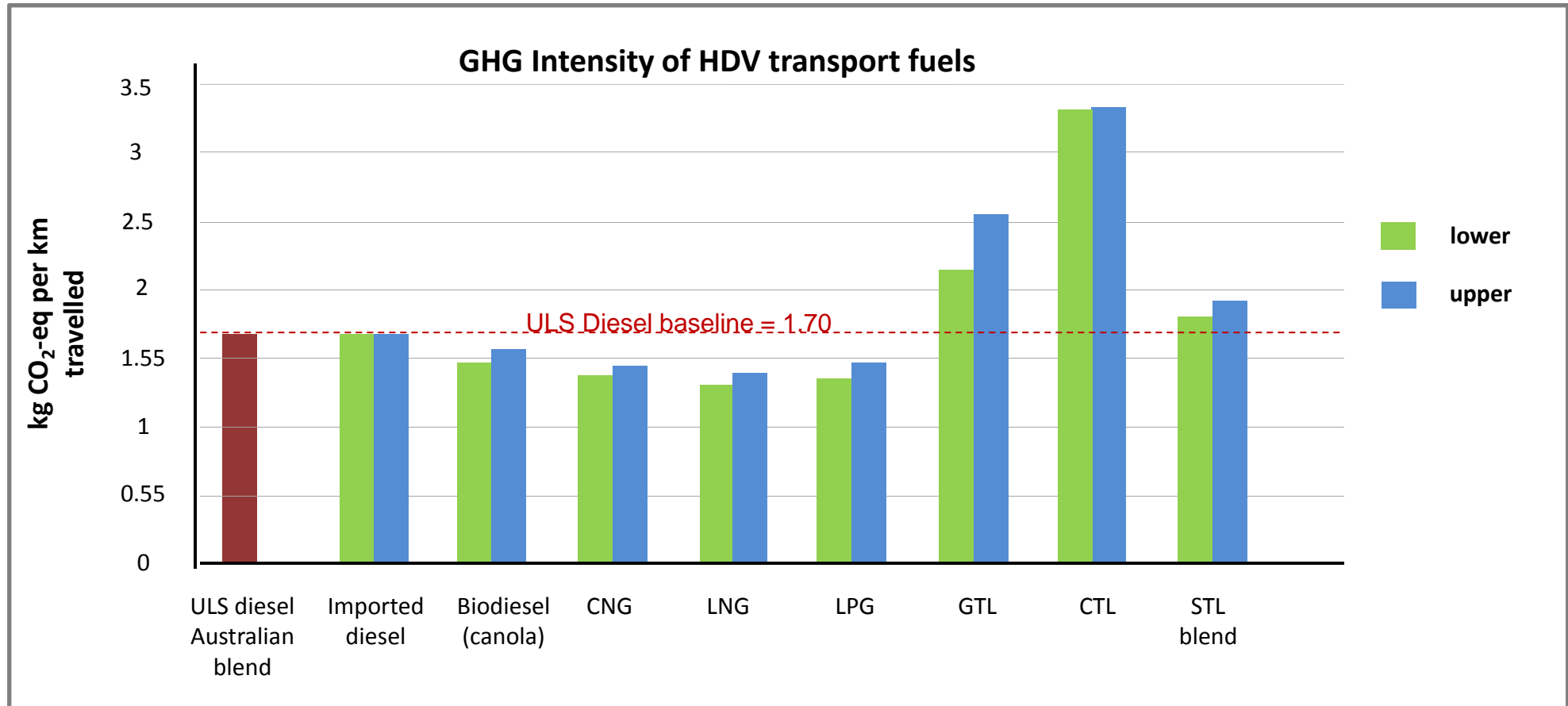
Reduced fuel deficit with alternative transport fuels to 2030



ACIL Tasman et al. 2009, 'Australia's future transport fuel supply options – Economic implications of alternative regional supply and demand scenarios'

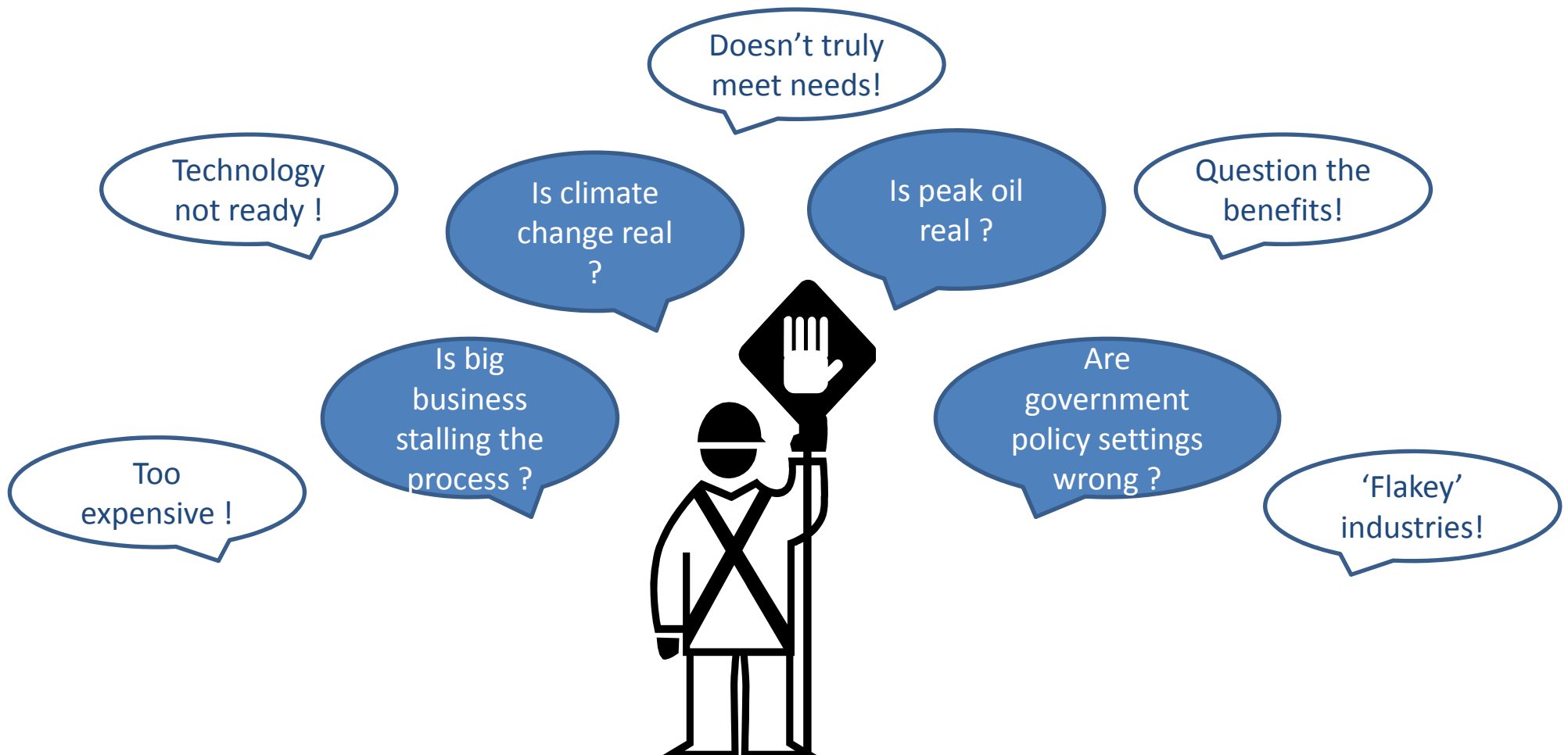
We have the technology to reduce GHG emissions from road transport

- against a background of continued failure to reduce net GHG emissions

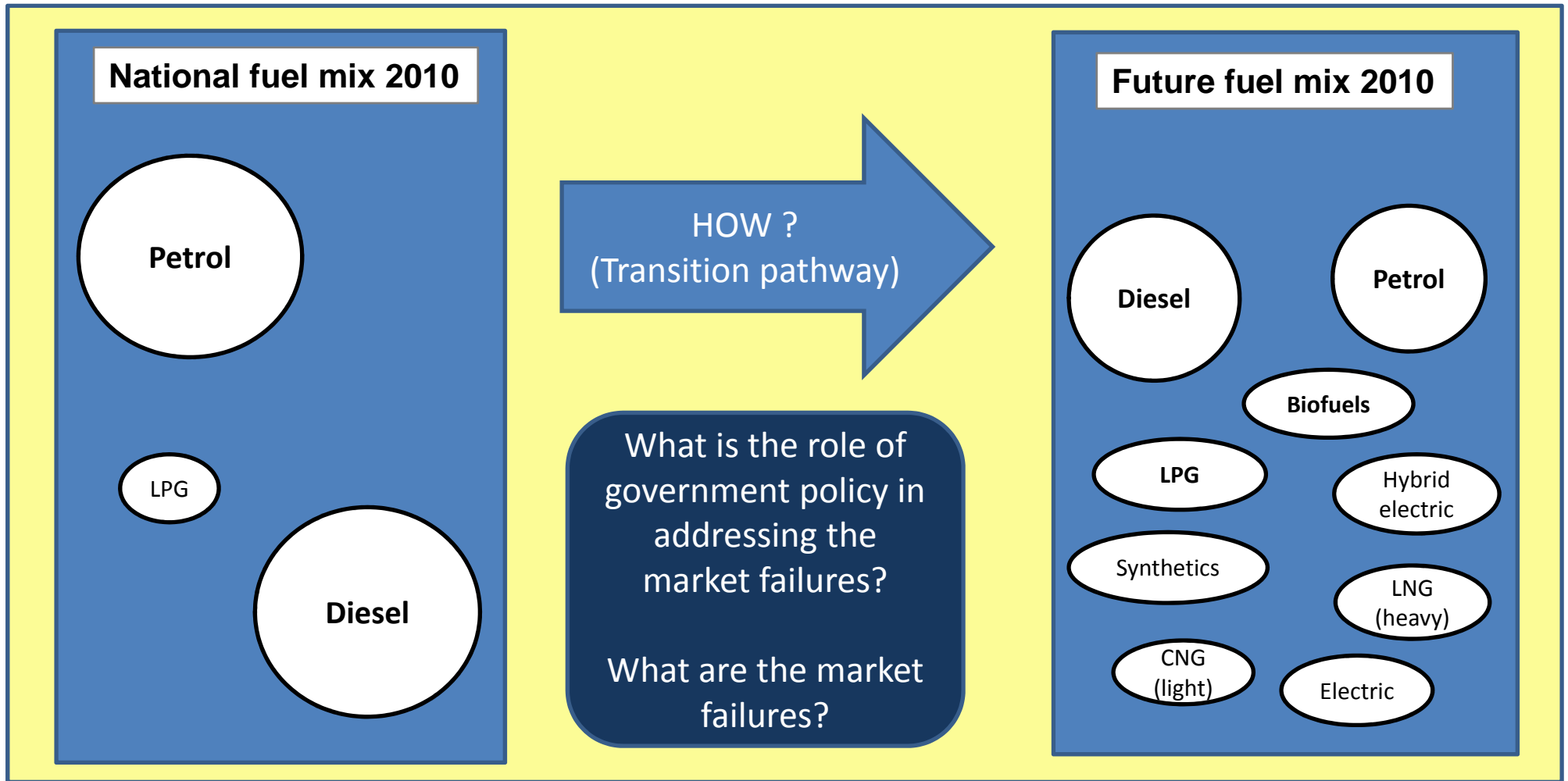


Rare 2009

So if we have the answers, why is nothing really happening?



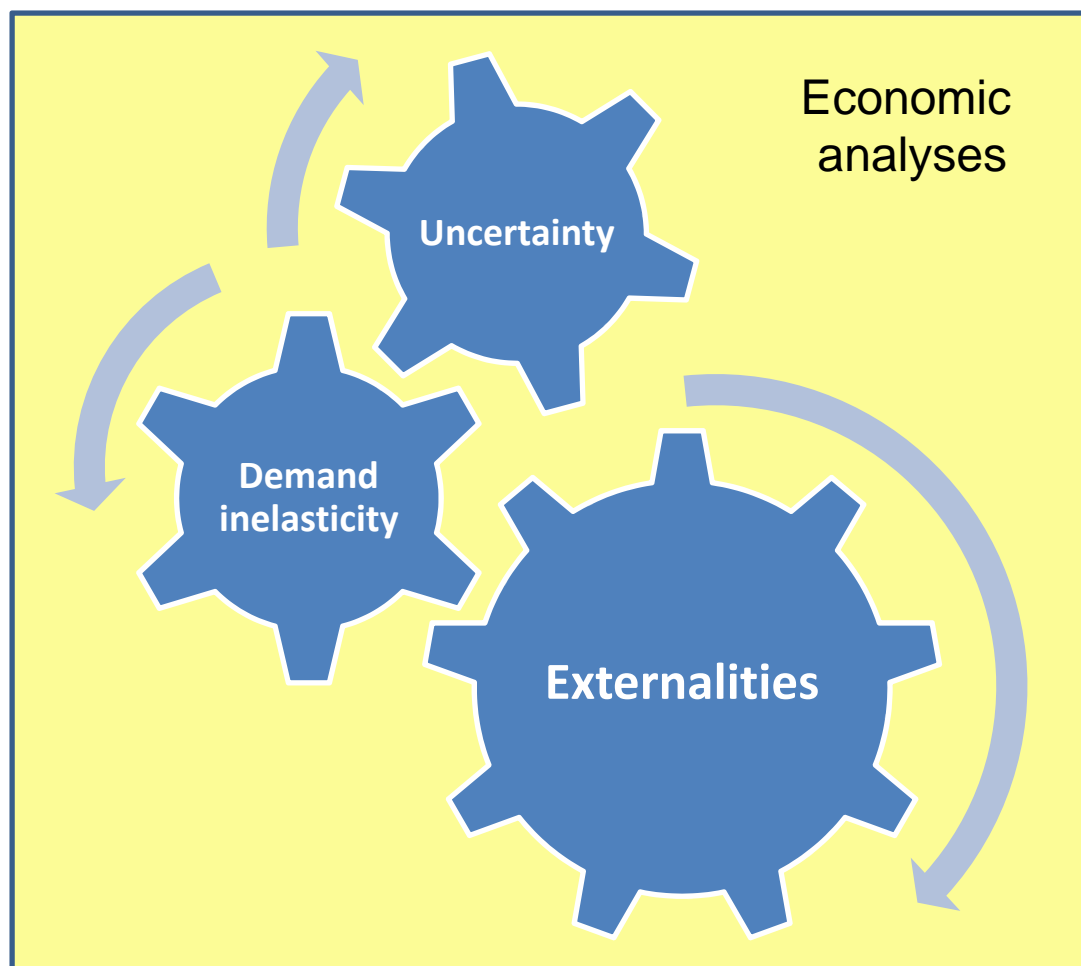
We appear to have consensus that the future will involve a portfolio of fuels but have not yet worked out how we will get from 'here to there'



Two approaches for managing the transition to a more sustainable fuel mix

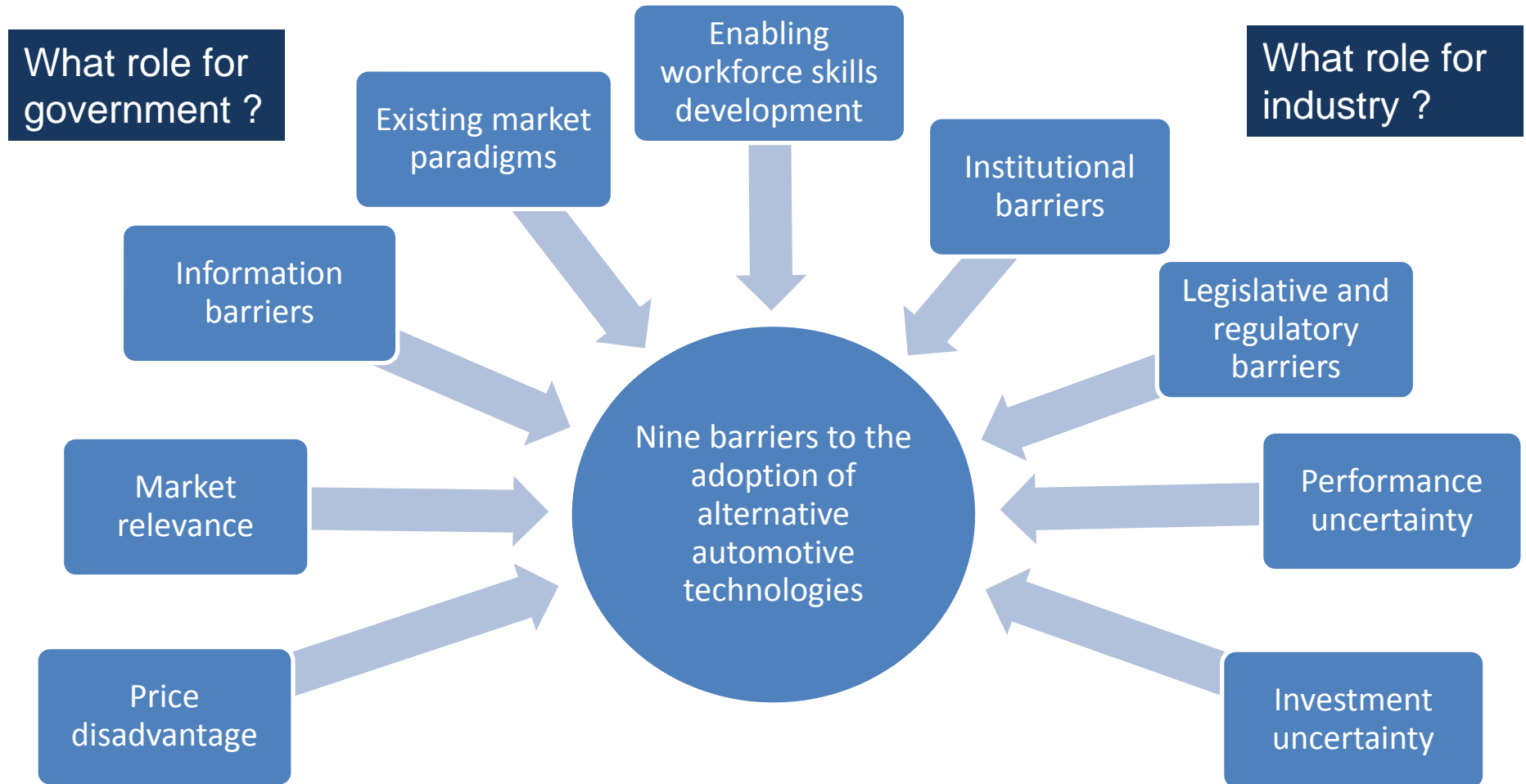
- **Option A:** Increase the cost of incumbent 'dirty' fuels/technologies (via taxes) and decrease the cost of cleaner fuels/technologies (via subsidies)
- **Option B:** Develop a strategy that maximises the national benefits and provides a means for getting there.

Strategies focussing on redress of the 'price disadvantage' are almost always founded on a highly contestable proposition.

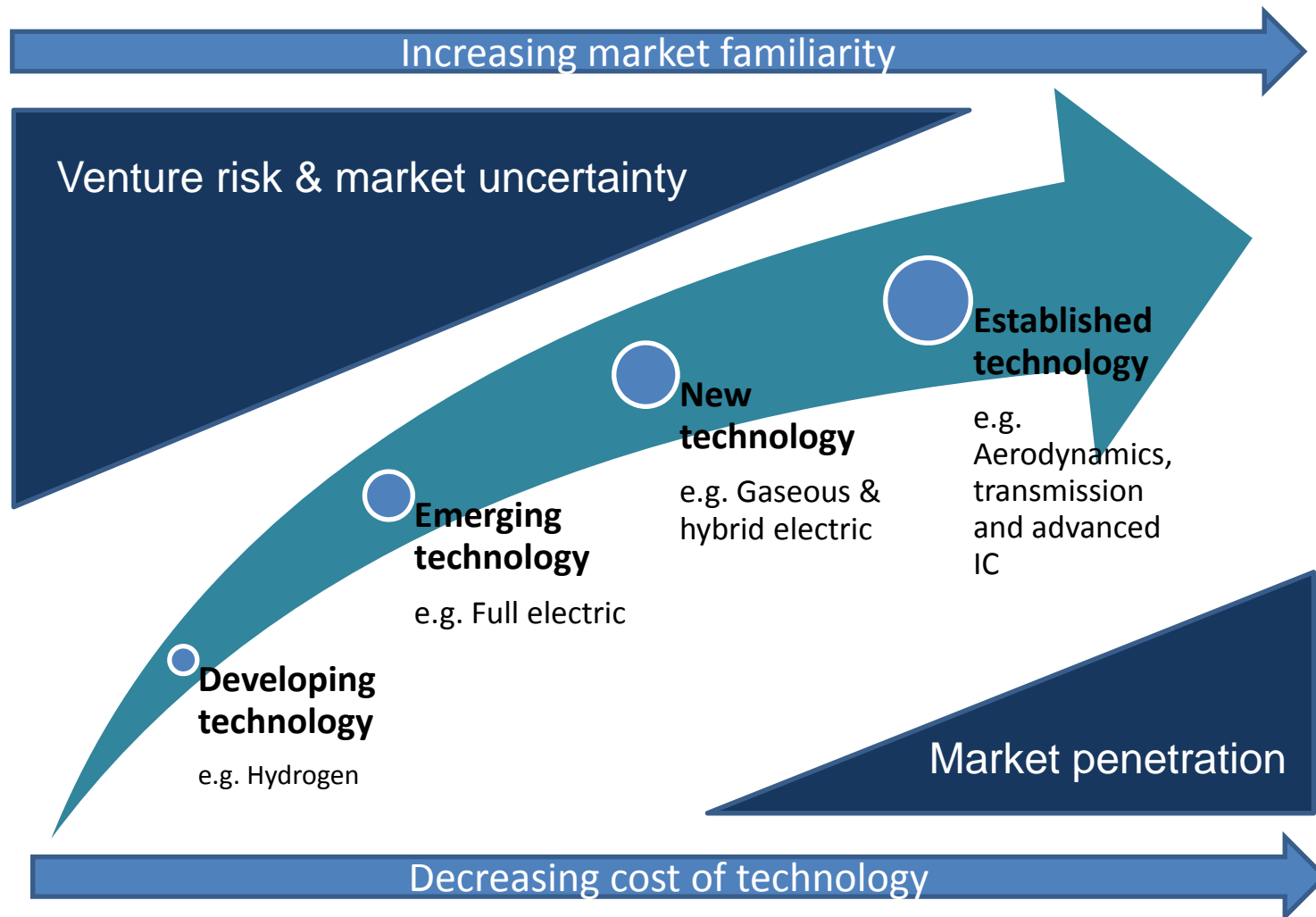


Nature and sensitivity of the coarse assumptions that are typically applied in these analyses severely reduces the utility of these analyses for policy making and/or strategy development

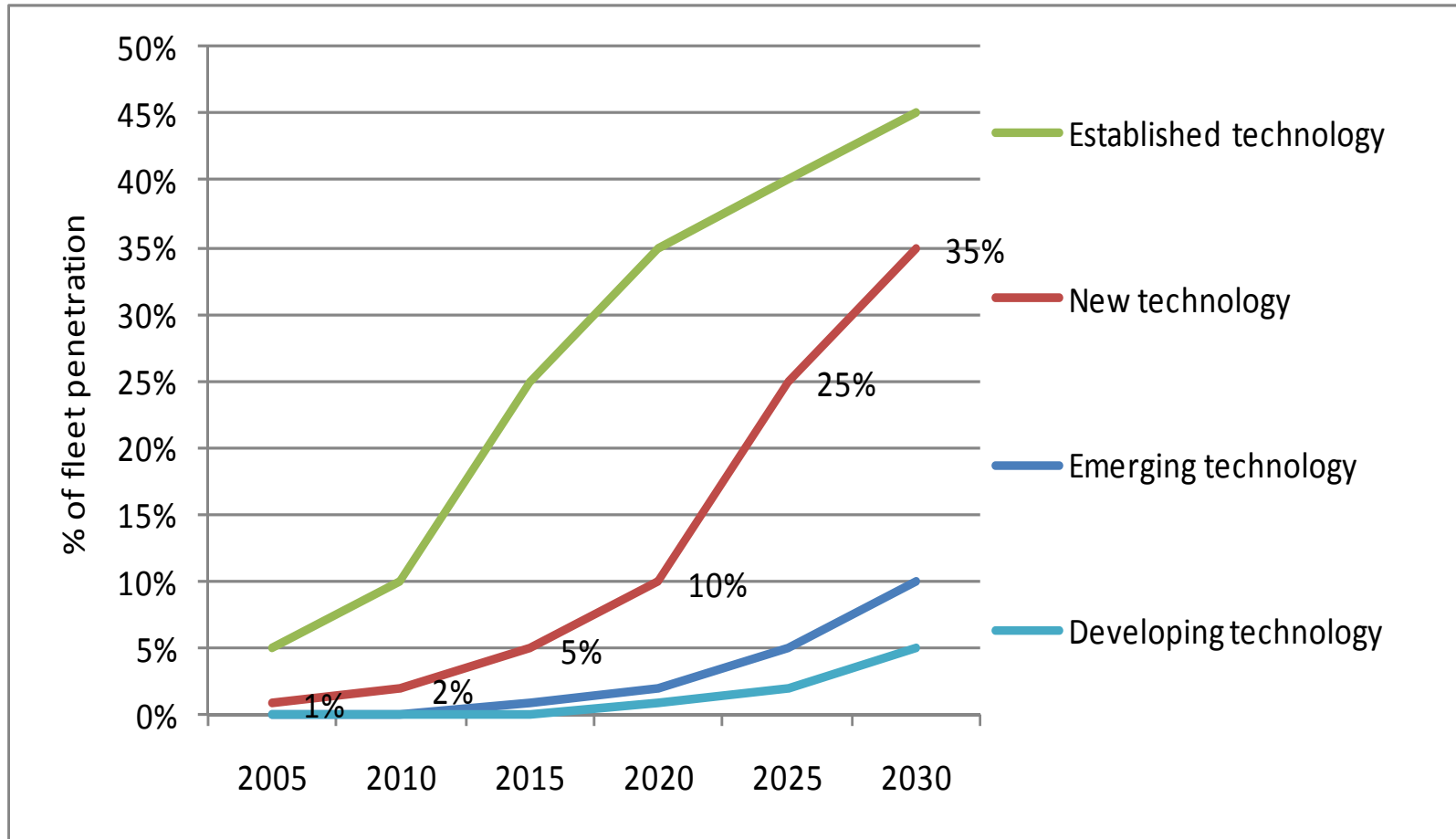
Price disadvantage is just one of nine barriers that need to be negotiated for the commercialisation of a new vehicle/fuel technology.



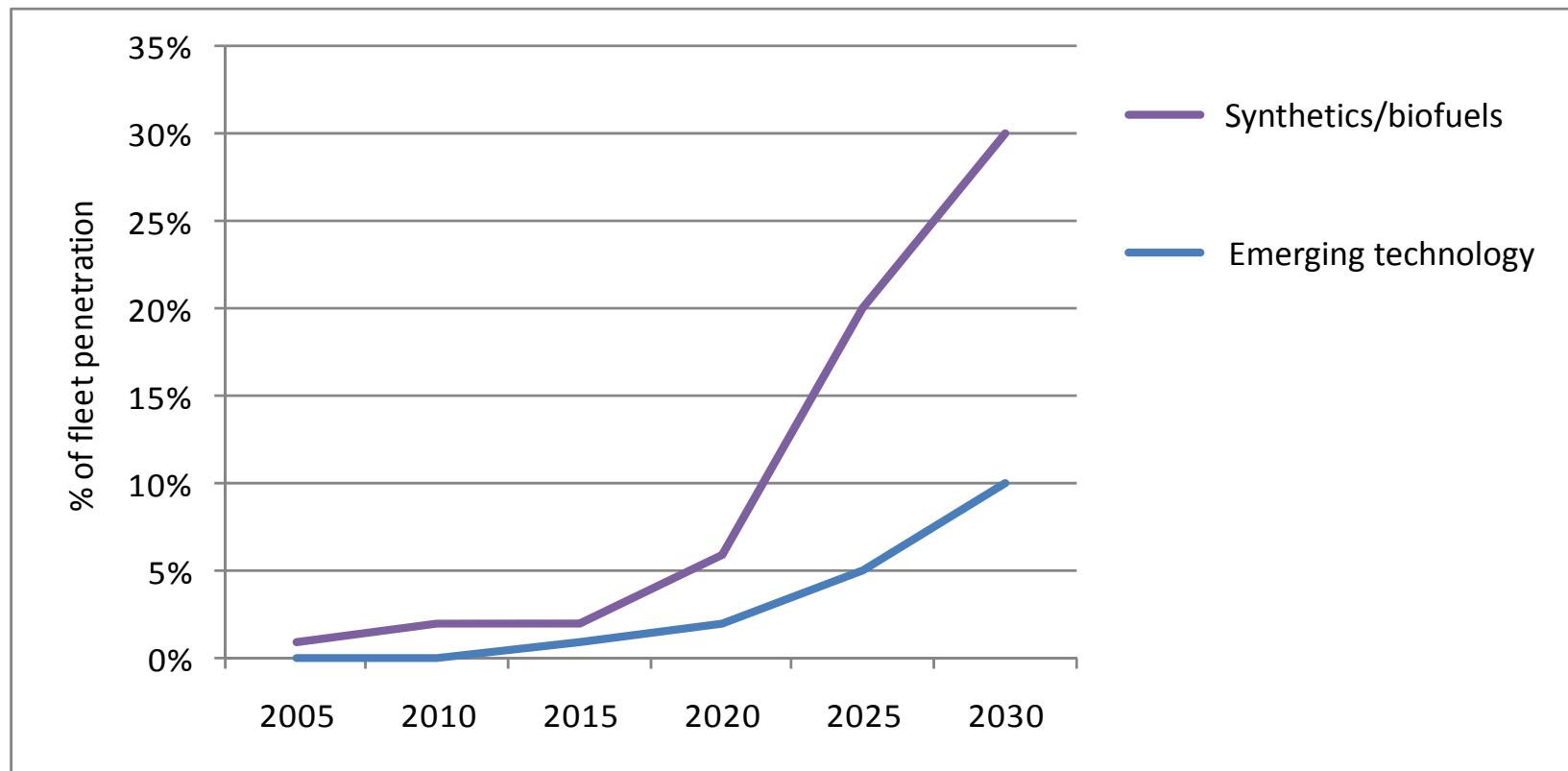
Journey from 'concept' to 'market scale' involves four distinct stages of technology commercialisation.



Current stage of commercialisation of individual technologies will define likely future market adoption trajectory in a 'replacement market'

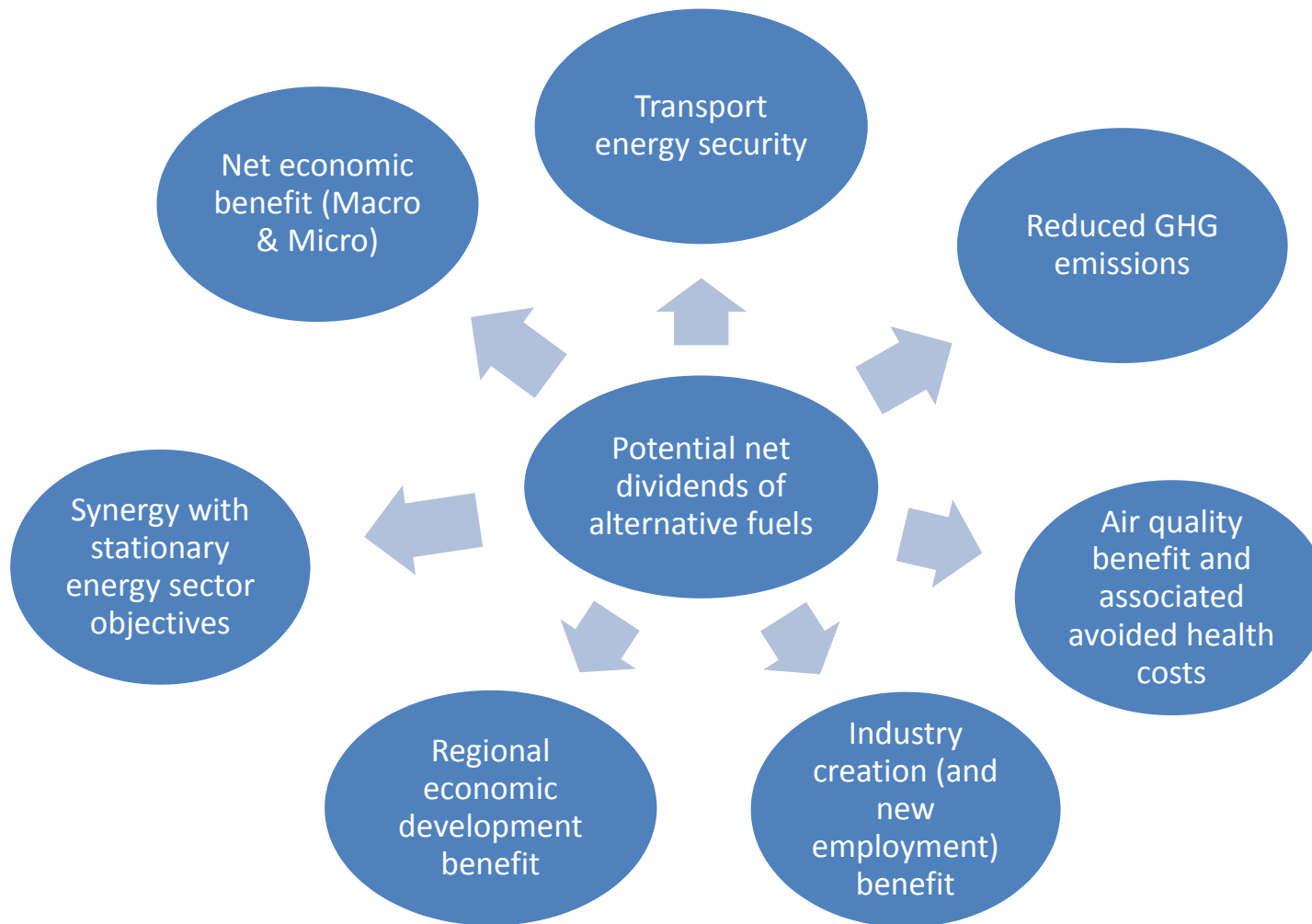


Potential fuel replacement will also be a factor of synergy with the legacy vehicle fleet.



What constitutes good public policy ?

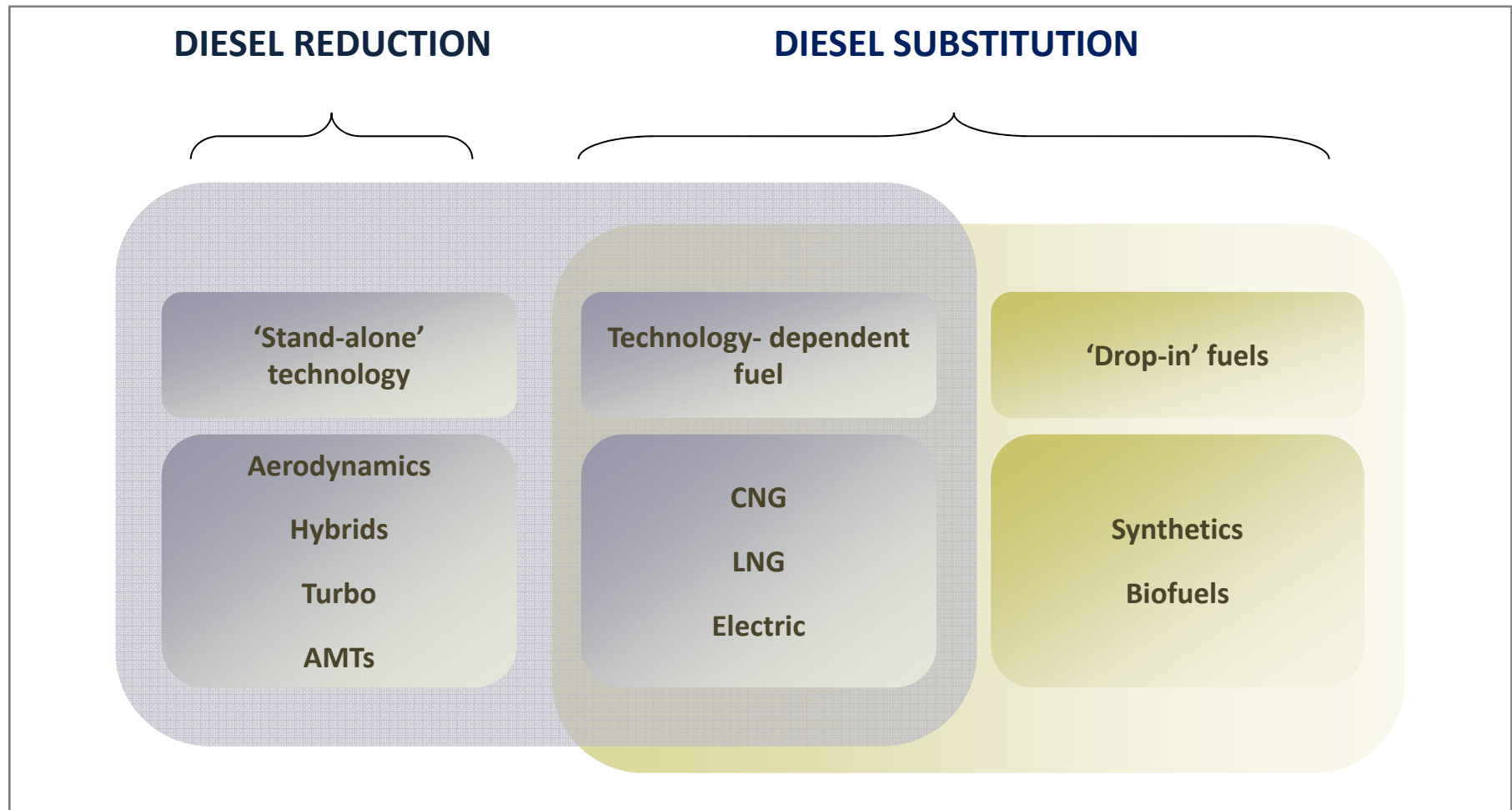
- address commercialisation challenges to maximise the community dividends?



A worked example of a market assessment

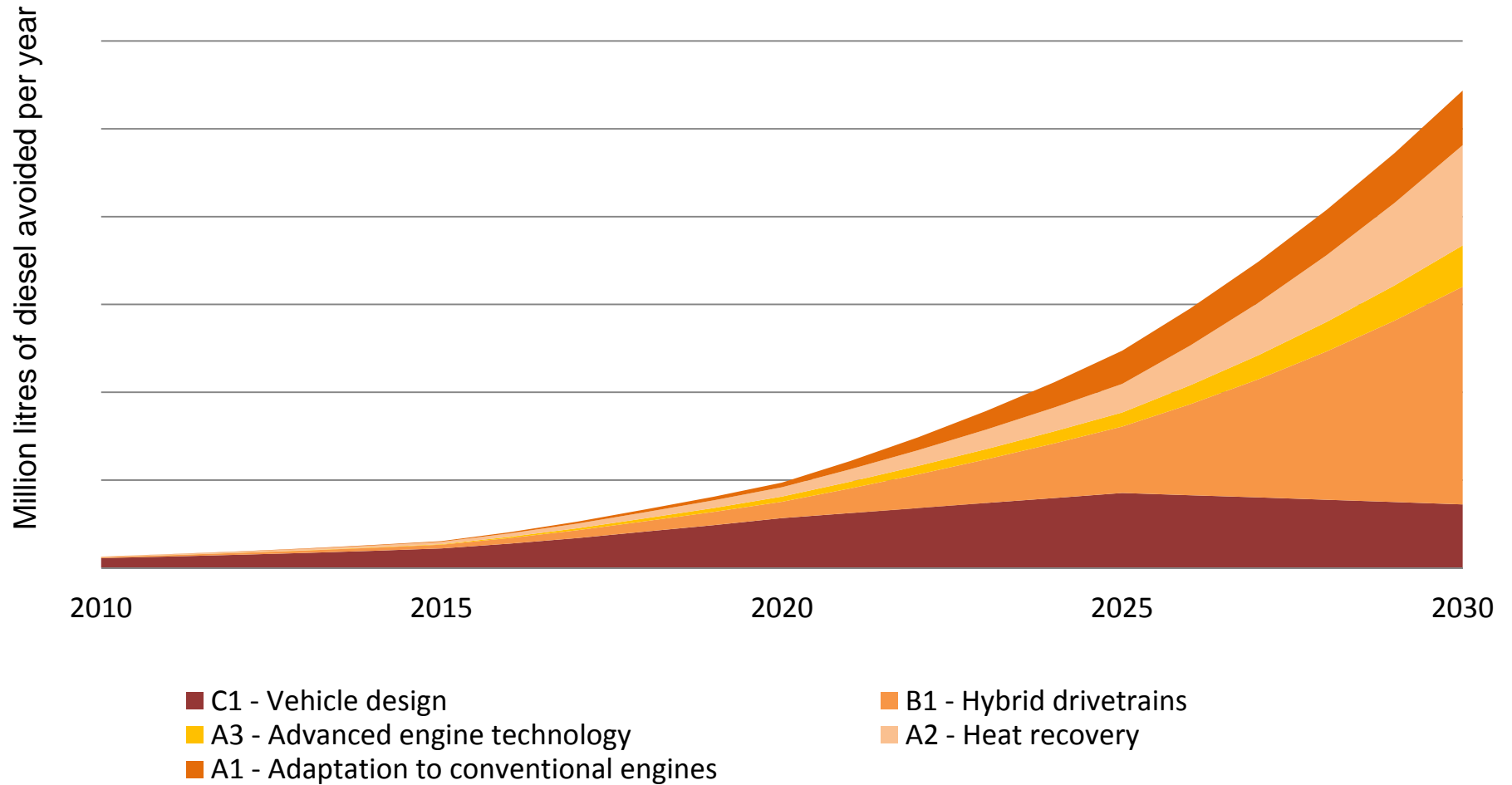
- Analysis of diesel fuel avoidance for commercial vehicle fleet to 2030
- Developed around deep knowledge of current market position of current and emerging technologies over 20 year horizon.

The potential diesel fuel avoidance of alternative fuels and drivetrains will be influenced by three market mechanisms



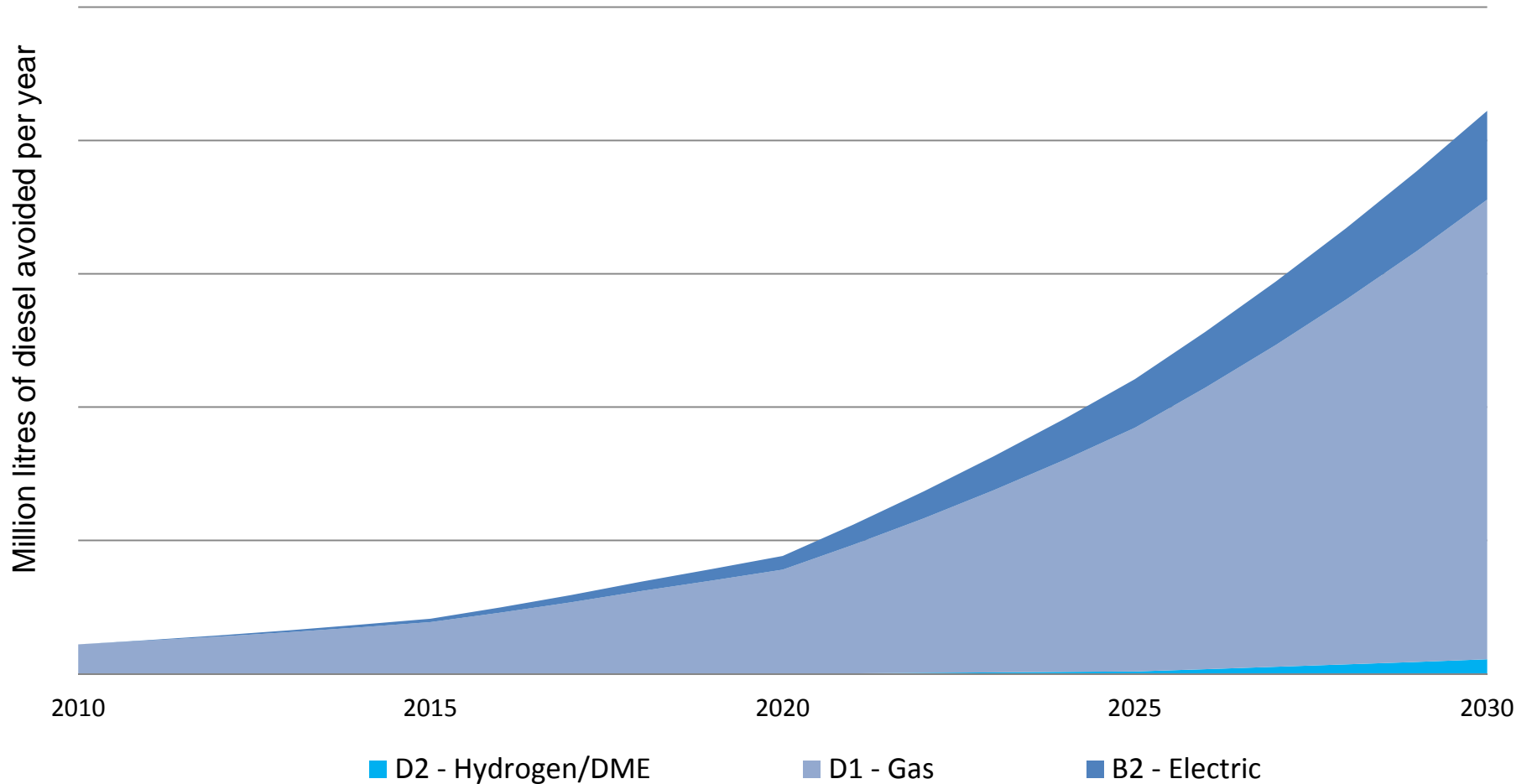
Element 1:

Estimated avoidance owing to diesel reduction



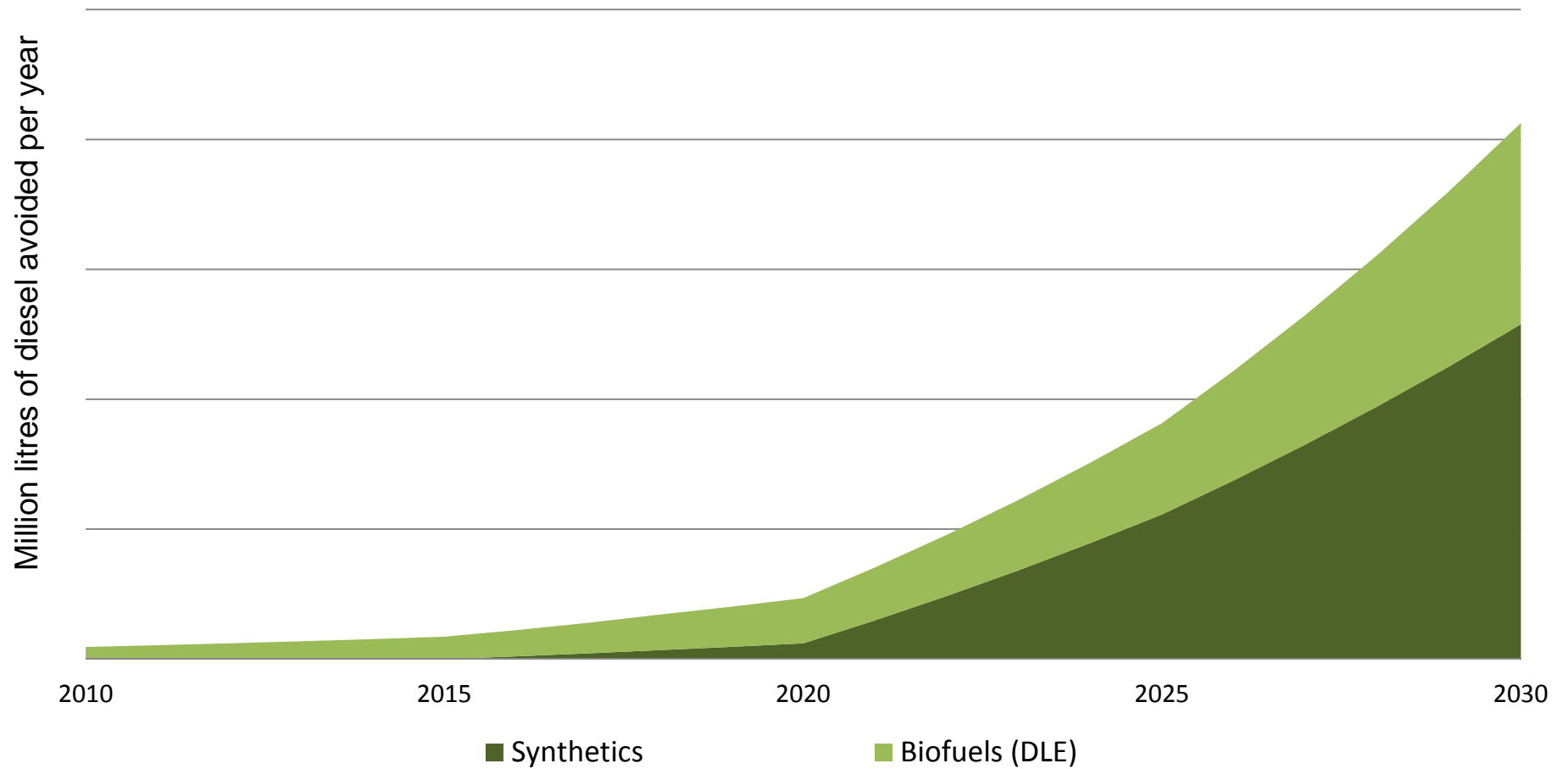
Element 2:

Estimated avoidance due to diesel substitution (new technology vehicles)

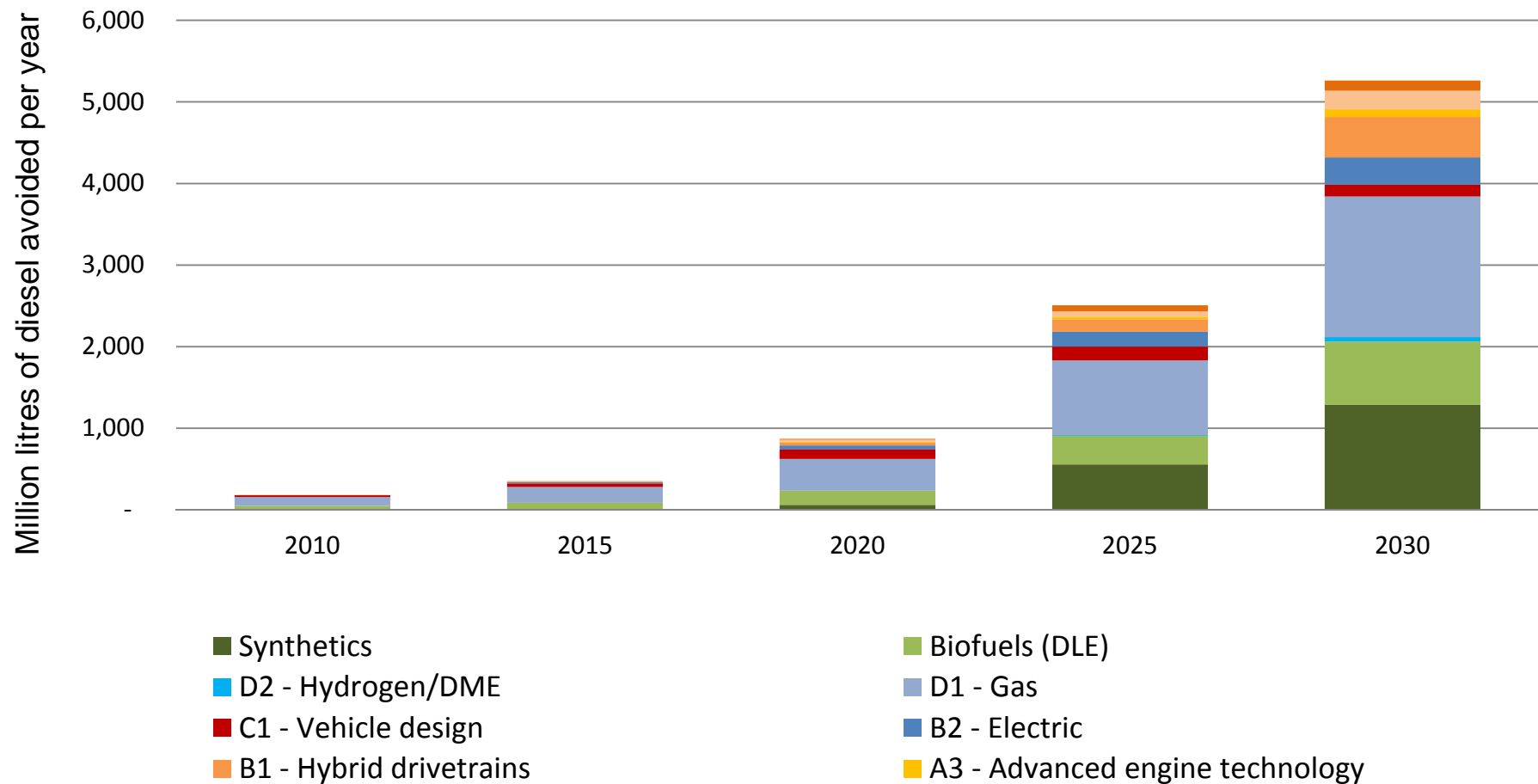


Element 3:

Estimated avoidance due to diesel substitution (existing fleet)



Aggregation of the three elements provides a pointer to the potential diesel fuel avoidance for the Australian commercial vehicle fleet to 2030 and beyond



Concluding remarks

The market outlook for alternative fuels and vehicle technologies is bleak

- unless we get serious about market commercialisation of emerging and available technologies

- Energy security and GHG concerns provide a motivation for action, but do not provide a mechanism for commercialisation.
- It is time to temper the advice of economists with a basic appreciation of long held road transport truisms
 - Price inelasticity of transport demand (both passenger & freight)
 - Constraints imposed by the legacy fleet
- Alternative fuels policy should focus on the realisation of all of the potential community dividends of migrating to a new national transport fuel mix – not just energy security & GHG.
- Market adoption in the face of the power of incumbent fuels will require government working in partnership with industry to address all of the barriers to the commercialisation of alternative fuels and vehicle technologies:
 - The Victorian EV partnership
 - Biofuels mandates
 - Technology demonstration projects
 - Research and development assistance
 - Commercialisation assistance



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