

## Accelerated uptake of electric vehicles in corporate fleets

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### Executive summary

Government is considering the potential for an increased uptake of electric vehicles (EVs) as a contribution to reducing New Zealand's carbon emissions and showcasing brand New Zealand. This paper provides a Sustainable Business Council (SBC) perspective on the constraints that need to be overcome for increased business uptake of electric vehicles and what SBC can do to accelerate interest in this technology in the business sector.

SBC supports the use of technologies that lead to a reduction in emissions from road transport. Reducing emissions from road transport is a critical part of transitioning to a low carbon economy. Transport represents New Zealand's largest source of energy use and transport-related emissions have increased over 60% since 1990. With approximately 75% of electrical energy currently generated from renewable sources there are opportunities to utilise electricity as fuel. Technologies like electric vehicles are enablers to achieve this.

For businesses looking at emissions from transport, the priority is heavy vehicles as this represents the biggest opportunity for emissions reduction, cost reduction and added benefits like safety improvements for the industry and reduced insurance premiums. The use of heavy vehicle freight is projected to increase by 58% by 2042 across all sectors and represents a significant area of business operation growth for our members.

A number of our member companies are trialling plug-in hybrids or electric vehicles. These initiatives are largely driven by sustainability managers to demonstrate leadership. Companies are facing common barriers:

- Sourcing vehicles that are fit for purpose for business requirements and personal requirements of staff who have vehicles as part of their salary package.
- The limited range of electric vehicles offered in the New Zealand market (in comparison with many other developed countries) means currently businesses pay a price premium in leasing arrangements.
- Lack of awareness of electric vehicles by corporate fleet managers and staff who have vehicles as part of their salary package.
- Limited availability of charging points presenting business with capital investment costs that are difficult to justify the business case for.

Over the next year SBC will collaborate with Drive Electric, EECA, Mighty River Power, and member businesses to raise awareness and address perceptions of electric vehicles. We can also provide a collective business view on where charging points are most needed and broker arrangements so member businesses allow other SBC members to use their recharging facilities. We will also explore

the potential to amend the approach to vehicles as part of salary packages. At the moment this is based on a percentage of the capital cost of the vehicle and this disadvantages hybrids and electric vehicles. We will also build trials into some of our projects (for example, hybrid trucks in our freight programme, induction charging into the Auckland Airport green precinct work and explore members' interest in electric vehicles in a car pool scenario in Auckland).

It is also important for Government to provide signals on the importance of reducing New Zealand's vehicle emissions. Our members are interested in Government considering:

- Where New Zealand needs to focus for greatest impact. At the moment information on the proportion of the light passenger and light commercial fleets that are within corporate fleets, and the associated emissions, are not available. This makes it difficult to assess the size of the opportunity as compared to doing other things.
- The benefits of pricing incentives such as continuation of the existing exemption of electric vehicles from Road User Charges beyond 2020, structuring the cost of registering (and re-registering) vehicles so better performing vehicles pay less, incentivising hybrid/EV use in the salary/work package scenario by exploring removal of the application of Fringe Benefit Tax. Members have suggested that removal of the Fringe Benefit Tax or the offer of a 'tax holiday' for a fixed period of time, for hybrid and/or electric vehicles would contribute the business case.
- The potential to use more hybrids and electric vehicles in government fleets.
- The national benefit of raising minimum vehicle performance standards of vehicles entering and operating in New Zealand.

SBC can facilitate a meeting with key council members to discuss this paper further if that is useful.

## Purpose

Government is considering the potential for an increased uptake of electric vehicles (EVs) as a contribution to reducing New Zealand's carbon emissions and showcasing brand New Zealand.

This paper provides a business perspective on the constraints that need to be overcome for increased business uptake of plug-in hybrids and electric vehicles and what the Sustainable Business Council (SBC) can do to accelerate interest in this technology in the business sector. It also suggests some options for government to consider to increase incentives for uptake.

The Sustainable Business Council advocates a better way of doing business, one that helps create a sustainable future for New Zealand. SBC, a division of BusinessNZ, has 76 members including many of New Zealand's largest businesses across a wide range of industries.

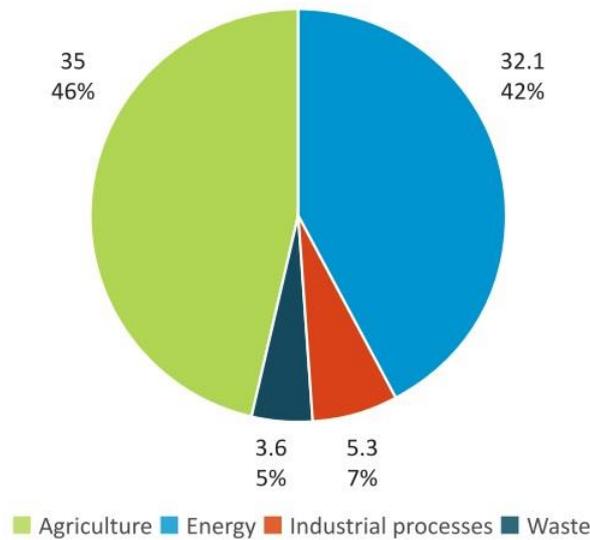
## Why focus on transport?

In New Zealand there are two main emissions sources – agriculture and energy<sup>1</sup>. Emissions from the energy sector account for 42% of total emissions. Transport represents New Zealand's largest source

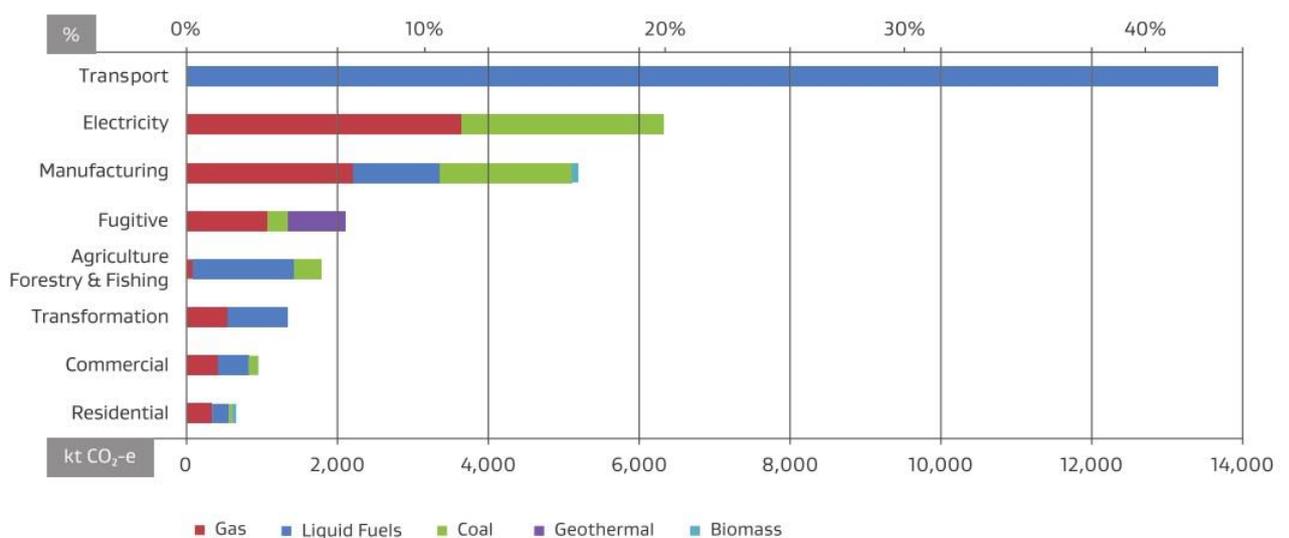
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<sup>1</sup> <http://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/ghg-inventory-2014-snapshot.pdf>

of energy use; 43% of the emissions within the energy sector<sup>2</sup> are from transport. Transport related emissions have increased 60% since 1990. This data is illustrated below in Figures 1 and 2.



**Figure 1:** New Zealand’s greenhouse gas emissions in 2012 (by sector, in million tonnes of CO<sub>2</sub> equivalent)<sup>3</sup>



**Figure 2:** Energy emissions by sector 2012 (kt CO<sub>2</sub>-e)<sup>4</sup>

The majority of vehicles in the New Zealand transport fleet fall within the light passenger fleet (81%). Light commercial vehicles are comprised of taxis, vans and utes. There are currently no definitive figures on the split between numbers of vehicles in corporate or private ownership in these categories (as shown in Figure 3).

<sup>2</sup> <http://www.med.govt.nz/sectors-industries/energy/energy-modelling/publications/energy-greenhouse-gas-emissions/energy-greenhouse-gas-emissions.pdf>

<sup>3</sup> <http://www.mfe.govt.nz/publications/climate-change/new-zealands-greenhouse-gas-inventory-1990%E2%80%932012-and-net-position>

<sup>4</sup> <http://www.med.govt.nz/sectors-industries/energy/energy-modelling/publications/energy-greenhouse-gas-emissions/energy-greenhouse-gas-emissions.pdf>

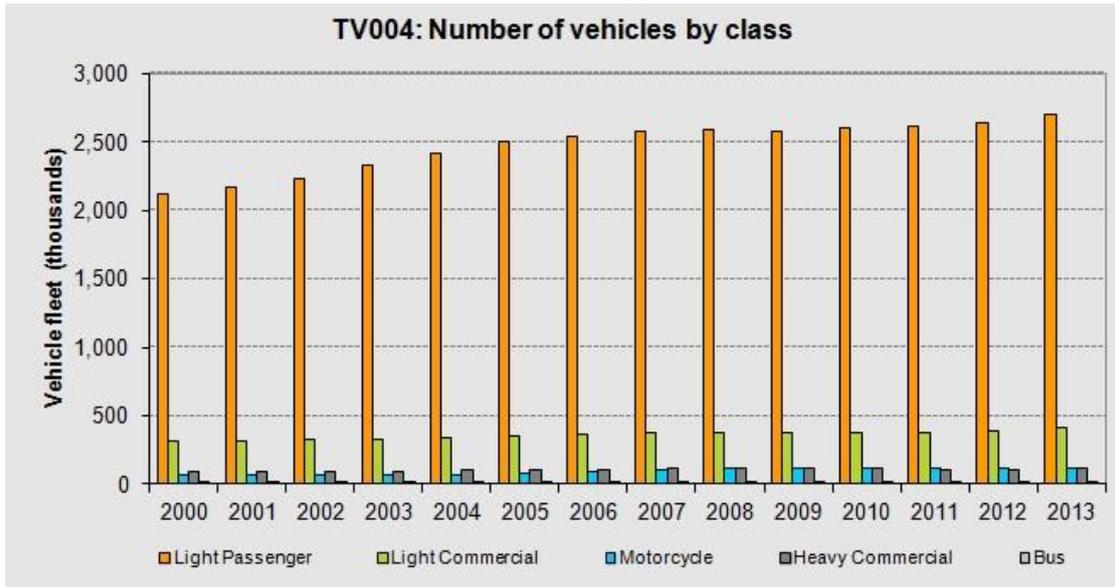


Figure 3: Figure 3: New Zealand vehicle fleet by class<sup>5</sup>

When businesses look at the emissions they produce from their transport operations, a significant contribution comes from heavy vehicles for the movement of goods. New Zealand Transport Agency's Vehicle Emissions Prediction model<sup>6</sup> (see Figure 4 below) shows that heavy vehicles accounted for 21.5% of CO<sub>2</sub> emissions in 2013.

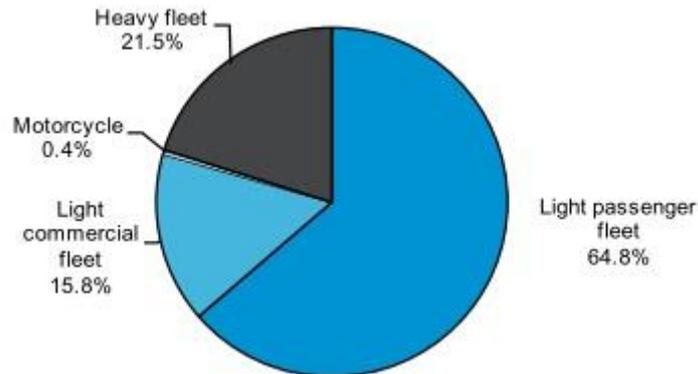


Figure 4: 2013 CO<sub>2</sub> emissions from vehicle fleet

<sup>5</sup> <http://www.transport.govt.nz/assets/TI-Images/TV004-series1-image1.PNG>

<sup>6</sup> <http://air.nzta.govt.nz/vehicle-emissions-prediction-model>

The vast majority of heavy vehicle fleet use is for business operations, and the use of heavy vehicle freight is projected to increase by 58% by 2042<sup>7</sup> across all sectors and represents a significant area of business operation growth for our members. SBC members have identified focusing on heavy vehicle use as an opportunity to collaborate on business solutions for emissions reduction. They were also attracted by the cost benefits and improved health and safety outcomes that are realised as a by-product of achieving freight efficiency outcomes.

## **SBC Freight Efficiency programme**

In May 2014 SBC members on the Freight Efficiency working group<sup>8</sup> were provided with a summary background paper discussing issues and opportunities for freight efficiency. They collaborated and identified three opportunity areas which have been developed into the Freight Efficiency programme. The scope of this includes:

### **Business solutions**

- Identifying and overcoming barriers to moving to lower emissions modes.
- Opportunities for better use of reverse logistics.
- Opportunities to maximise routes through collaboration.

### **Advocacy**

- Increased awareness of Government initiatives to improve freight efficiency.
- Opportunities to advocate and engage in dialogue, trials and decisions.
- Increased dialogue with freight operators to understand their operations and explore opportunities for mutual benefit.

### **Leadership and communications**

- Messages to customers to explore willingness to accept longer turnaround times in exchange for a better environmental outcome.
- Working with media to promote the collective efforts of business and freight operators for the benefit of NZ Inc.

This programme of work will run for at least two years. Desired outcomes include enabling member businesses to work together to collectively reduce freight emissions through better industry engagement and communication of their efforts to their customers. The diverse nature of the working group, which includes stakeholder representation from business customers, freight operators, logistics hubs and Government agencies, will be invaluable when exploring solutions under the focus areas identified. It is essential that we maximise use of existing assets first, and freight efficiency initiatives are a sound way to achieve this that business can affect immediately.

In addition, CEOs from some of our member businesses are participating in the Intelligent Transport System Leadership Forum. This has potential for innovative Government-led initiatives to boost the productivity of New Zealand freight movement at a national scale over the next 10 years, which is integral to achieving an increase in exports by 40% GDP by 2025.

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<sup>7</sup> <http://www.transport.govt.nz/assets/Uploads/Research/Documents/National-Freight-Demand-Study-Mar-2014.pdf>

<sup>8</sup> The Warehouse, Countdown, OI NZ, Auckland Airport, KiwiRail, DB Breweries, Ricoh, Dairy Transport Logistics (a subsidiary of Fonterra), NZ Post, Ports of Auckland, NZ Transport Agency, NZ Steel, Vodafone, Lion, La Nuova Apparelmaster, Sanford, EECA, Westpac, Toyota

## Electric vehicle (EV) uptake in the business fleet

With approximately 75% of electrical energy currently generated from renewable sources, and an aspirational target for this to be at 90% by 2025, there are opportunities to utilise electricity as fuel. Technologies like EVs are enablers to achieve this.

This section outlines:

- The continuum of technology available in New Zealand.
- What fleet managers look for when purchasing vehicles.
- Our members experience of trialling hybrids and EV's.
- A summary of the business perspective on constraints that need to be overcome to accelerate uptake in corporate fleets.

## Vehicle technology options

### Petrol and diesel models

The fuel efficiency of petrol and diesel vehicles is becoming more of a consideration in the design and manufacture of new vehicles so the overall standard of the fleet should be improving over time. Diesel fuel is commonly used in business fleets as it runs more robust vehicles required for off-road use and heavy vehicles for freight.

### Hybrids

Hybrid vehicles are powered by a regular internal combustion engine (which is fuelled by petrol or diesel), with batteries that are charged from re-capturing energy when braking. They offer 25-40% better efficiency than petrol/diesel vehicles. They are currently a viable option for businesses exploring lowering of emissions from fleets as they are readily available (Toyota Prius and Camry, Honda Civic Hybrid etc sell around 80-100 units per month). Their widespread adoption as taxis (60-80% of fleet) indicates the cost benefit for high mileage users.

### Plug-in hybrid electric vehicles (PHEVs)

Electric vehicles are partly or wholly powered by electric batteries. Plug-in hybrid electric vehicles (PHEVs) run on either batteries or an internal combustion engine, or both. They can travel on battery power using electricity alone for distances of around 30-80km. With 90% of trips at less than 120km in length<sup>9</sup> this allows the owner to drive on electric power and just rely on the petrol/diesel engine as a backup on longer journeys. The batteries in a PHEV can be charged from electricity incredibly cheaply in a residential scenario<sup>10</sup> - typical cost per unit is 26c/kWh meaning the vehicle can be 'filled' for less than \$2. This makes charging costs in a business scenario more attractive, as they can negotiate electricity supply contracts with much cheaper electricity unit charges. Mitsubishi Outlander, BMW i3, Audi etron and Holden Volt are examples of PHEV's currently available for sale and lease from some agencies.

### Battery electric vehicles (BEVs)

Battery electric vehicles (BEVs) are wholly powered by batteries charged from external electricity supplies. There is limited availability of these vehicles; to order a vehicle requires a 3-4 month lead time. They have a distance range of around 80-200km (depending on number of passengers, terrain, wind, etc) so charging infrastructure options need to be considered if the vehicle is required for extended use. They are ideally suited to overnight charging. These vehicles represent phenomenally

<sup>9</sup> <http://www.eeca.govt.nz/sites/all/files/deploying-electric-vehicles-feb-2012.pdf>

<sup>10</sup> <http://www.energywise.govt.nz/products-and-appliances/running-costs>

cheap operating costs – “charging an EV like the Mitsubishi iMEV or Nissan Leaf is equivalent to buying petrol at 25 cents per litre”<sup>11</sup>. The Nissan Leaf and Tesla S are examples of BEVs.

## Hydrogen fuel

Hydrogen fuel cell powered vehicles have recently been launched by Toyota and Honda in Japan and Hyundai in Korea<sup>12</sup>. Due to the quickly changing nature of vehicle technology, they are mentioned here. In a decade’s time there may be options for this renewable energy fuel in heavier vehicles like trucks and buses.

## What fleet managers look for when purchasing vehicles

The main factors fleet managers consider when making decisions on vehicle purchase are:

- Selecting vehicles that are fit for purpose.
- Total cost of ownership.

## Vehicle selection is fit for purpose

Fleet managers must provide a suite of vehicles to ensure the portfolio offers the performance requirements for all aspects of business operation. They must consider distances the vehicle must travel, what the vehicle will be used for, size and safety.

Businesses with larger fleets tend to use the salary package vehicle model where personal use of the vehicle is linked to an individual’s remuneration package, and therefore the individual’s awareness and perception of hybrid and electric vehicles is a critical factor for uptake. In this scenario, the vehicle being fit for purpose also applies to how the vehicle will be used privately/recreationally, as well as for business use.

As with any capital investment project, businesses will have to meet a series of criteria and make the case, which is harder to do if the project is innovative and there is perceived risk. What businesses will continue to do is trial new makes and models as they emerge and become fit for purpose.

## Total cost of ownership

This is a major consideration for fleet managers whose primary obligation is to demonstrate value for money to their business. A majority of fleet vehicles are purchased via a lease (3-5 years depending on the make/model of vehicle) which allows the fleet manager to limit risk management to the fixed monthly lease cost of the vehicle and the operational costs such as insurance, road user charges and fuel costs. The key determinants of the lease charge are the purchase price of the vehicle, the finance rate, the maintenance costs, and the value of the vehicle at the end of the lease period (residual value).

Seeking an alternative to a standard petrol/diesel specification will result in total cost of ownership considerations based on a number of factors. Hybrids and PHEV are available for lease but incur a higher fixed monthly lease cost. While the running costs of hybrids and PHEV will be lower, this is unlikely to offset the incremental lease cost unless the fleet is doing very high mileages. Taxi drivers are high mileage users that purchase their vehicles outright, so are not subject to total cost of ownership considerations.

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<sup>11</sup> <http://www.apec.org.nz/Why-EVs->

<sup>12</sup> <http://newsroom.toyota.co.jp/en/detail/4198334>

## Members' experiences

The main driver for businesses investigating lower-emissions fuels is emissions reduction. This means that their primary focus is on the heavy vehicles then fleet. Some businesses have been exploring and implementing lower emissions options for their fleets but to date this has been on a small scale.

SBC business members with large commercial fleets include Westpac, Downer, New Zealand Post, Fonterra and The Warehouse, La Nuova Apparelmaster and Auckland Airport. A strategic partner with a big fleet is Auckland Council. All have demonstrated business leadership over the last few years and the collective experiences of these members and some other businesses have been included here.

## Drivers for uptake

Major drivers for businesses to undertake fleet efficiency projects include:

- Demonstration of leadership.
- Raising awareness internally of the role of vehicle performance in supporting sustainability.
- Raising awareness externally of business sustainability commitment.
- Reduction of emissions, and operating costs (including road user charges and maintenance costs).
- Improved air quality due to use of a less polluting fuel source.

## Hybrids

Hybrid vehicles are the most common alternative currently utilised in businesses fleets as they represent a lower-risk option due to being fuelled in the traditional way. Petrol hybrids offer efficiency advantages over non-hybrid petrol vehicles in urban stop-start driving conditions, meaning reduced operating costs and associated emissions, offering businesses an easy way of reducing emissions relating to transport. Businesses have been able to adopt this technology as it's ready to go and the makes and models of vehicles available tick the 'fit for purpose' boxes. In some cases members have switched out the majority of vehicles to hybrids.

It is becoming more common for businesses to be able to access hybrid options through their usual leasing agencies. However, they are still at a price premium with comparatively more expensive monthly lease costs due to the lesser availability of these technologies. This may be offset with lower running costs in some cases. Hybrids offer some fuel efficiency advantages for long distance, but their optimal use is in urban stop-start driving conditions.

In a purchasing scenario, the purchase price is likely to be higher due to the advanced technology and the necessity for two engines. The Japanese Government subsidises environmental vehicles to a significant extent, and there is an expected inflow of Japanese used imports of subsidised hybrid cars exiting their fleet to New Zealand. The age of the battery of these vehicles will be nearing predicted expected life and this has a great impact on the residual value of the vehicle.

## PHEVs

Many of our members require vehicles that can travel longer distances – between cities and/or to remote areas. The introduction of the Mitsubishi Outlander PHEV to the market has generated a lot of interest. It is viewed as a fit for purpose vehicle that looks and handles much more similarly to a traditional vehicle when compared with original electric vehicles such as the Mitsubishi iMev. One

company is trialling the Outlander to build confidence that it can travel the distances promised with relation to fuel efficiency, due to the company’s previous experience of under-performing electric vehicles compared to the manufacturers’ claims.

There have been some successful trials of the Outlander that have resulted in a keenness for integration into the fleet, but various issues are being experienced. The ideal recharging scenario for a PHEV is to be plugged into a conventional household plug socket overnight. For a business where car parking facilities are quite separate from the office environment, investment is required in a charging station that usually costs in the region of \$3,000. Putting up the business case for this takes time and will not always be successful. One member has successfully made the case for uptake of this technology, but is unable to source the additional budget for capital outlay for the required charging points.

The Mitsubishi Outlander PHEV has a price premium over the equivalent non-PHEV, but may be cost effective in some uses, as well as providing branding value. There are other PHEVs in the market which may be suited to executive vehicles as they are premium brands such as Audi and BMW.

## EVs

Those members that have used or are using EVs are early adopters, and have experienced difficulty leasing through agencies due to no availability in New Zealand and needing to go through overseas branches of the leasing agency in order to bring the vehicles to this country. For those agencies that can source EVs, cost represents a large price premium for businesses due to lack of demand for electric vehicles. Some businesses found a more effective approach was to buy vehicles such as Nissan Leafs directly from the manufacturer at a discounted price. The branding opportunity from the manufacturer’s perspective was to promote availability and uptake, and the branding opportunity from the businesses perspective was to demonstrate leadership. This helped the businesses to offset the purchase cost, but the businesses took on the risk of uncertain resale costs, something that is beyond the scope of the usual business operating model. Lack of assurance around the residual value is something that can only be addressed over time as the market grows, and the operational life of the battery is experienced. This is not something the majority of New Zealand businesses would be willing to do yet. Reduced operational costs due to the use of cheap electricity over petrol and diesel can make annual costs comparable for high mileage users but only in a leasing scenario. The factors facing a business considering a lease vs ownership scenario for an EV are summarised in the following table.

	Lease scenario	Purchase scenario
Availability	Unable to access EV in New Zealand as usually not on company lease option list. Have to involve overseas branches	Can purchase EV direct from manufacturer (sometimes at a negotiated reduced market price due to co-branding opportunities)
Cost to business	Total cost of ownership calculated over 3.75 years	Overall cost case-specific as asset is owned by business
Maintenance cost	Incorporated as part of lease agreement	Likely to be the same if maintenance process set up under lease agreement is used
Fuel cost	Benefits from cheaper electricity gained over 3.75 year lease period used as part of total cost of ownership calculation	Can demonstrate increased benefit from cheaper electricity fuel cost over time frames longer than the 3.75 year standard. This, combined with a potentially reduced purchase price, could make a more compelling business case
Resale value	Risk is lease agents’	Risk to business

**Table 1:** Comparison of a lease vs purchase scenario for an electric vehicle

The Nissan Leaf is the most common 100% electric vehicle that could be requested from some leasing agencies. In order to mainstream EVs, there needs to be some sort of leasing scenario reflective of the current model. Even if there is business demand, a lack of national availability of EVs means they represent a price premium in a leasing scenario. Car manufacturers will provide volume to countries where there is a demand – such as China, USA, Japan and Germany (large, rich countries which support electrically fuelled vehicles with subsidies).

Used Nissan Leafs which are only 1-2 years old with very low km are also available directly from Japan at competitive prices. Purchase of the vehicle by the business direct from the manufacturer enables the business to compare the costs of outright ownership of the asset over a longer period of time, with the total cost of ownership through the leasing model. Using the direct purchase approach, which the business can usually negotiate at a cheaper capital cost than the standard market price, avoids the higher monthly price premiums from the lease agent. The business takes the outlay price and works this into a monthly 'repayment' figure over a time frame longer than the standard 3.75 year lease period. This cost benefit analysis also incorporates lower operational costs through cheap electricity and no road user charges over a longer period of time, meaning a better business case is leveraged.

Most EVs are charged overnight at private facilities and can operate for a full day on a single charge. Availability of charging points would add greater user value to the EVs for longer journeys or when the vehicle is not fully charged before use. But until more charging infrastructure is available, this is viewed by business as something that is difficult for them to influence/affect. SBC is aware that distribution companies, like Wellington Electric, are planning to install more charging stations.

## **Alternatives for the light commercial business fleet**

There are some diesel hybrid van trials underway by some of our members. For larger vehicles there are currently no alternative electric equivalents in New Zealand. Access to electric options for light commercial vehicles is being investigated by some of our larger members wishing to trial them, including Nissan's e-NV200 panel van. This vehicle started to be mass produced this year, and is in the very early stages of consideration for the businesses to trial, so this is still a reasonable way off. Businesses would like to do more, but the opportunity is very limited due to lack of access to pioneering technologies coming out of Europe.

## **Awareness and perception**

Members are reporting that individuals' perception of alternative vehicles is a barrier. Vehicle selection is emotive and has varied from an unwillingness to accept European vehicles on the fleet to engrained cultural views on the impact of vehicle association with the individual's image.

Businesses widely report that an individual's selection of a vehicle as part of their remuneration package is influenced by what an individual needs to use the vehicle for in their private life just as much as what is required for business use, and this affects interest in alternative vehicles. Even if the individual had a preference for selecting a hybrid or EV, the current approach to vehicles in salary packages means that individuals pay more for the use of a hybrid/EV while the business benefits from the reduced operational costs due to cheaper unit cost of fuel.

To date, fleet managers have not been proactive in sourcing hybrids PHEV's or EVs. For all businesses that have progressed transition of some parts of their fleet to alternative vehicles, the work was instigated by the Sustainability Manager. This is due to a lack of awareness of alternative vehicles amongst fleet managers, and time constraints. Some initial trials of vehicles such as the Mitsubishi

iMev underperformed, which has left fleet managers sceptical about the use of EVs in general as a credible option.

## Summary of constraints

The main constraints that need to be overcome if use of PHEV's and EV's are to be mainstreamed in business fleets are:

- Vehicle manufacturers are only just starting to offer a selection that suits fit for purpose business use (and options in the light and heavy commercial sector can only be sourced overseas).
- Most fleet managers aren't aware of alternative vehicles.
- There is limited availability of PHEV and EV vehicles from the car manufacturers to New Zealand as a whole. Car manufacturers will provide volume to countries where there is a demand – such as China, USA, Japan and Germany (large, rich countries which support electrically fuelled vehicles with subsidies and infrastructure).
- This means it is difficult for businesses to source EVs through their existing leasing arrangements. Lease companies have built into their pricing a very low residual price for EVs to absorb lease company risk as this price is not well established. Owning an EV outright and reselling can reduce these costs and change the business case (although the business now takes on the risk of uncertain residual value). Reduced operational costs due to the use of cheap electricity over petrol and diesel can make annual costs comparable for high mileage users.
- Individuals are not calling for EVs to be available through their salary package model due to individuals' perception and limited awareness when their personal and recreational use factors are considered. This is impacted by the split incentives of individuals paying more for the use of a hybrid/EV with the business benefitting from the reduced operational costs due to cheaper unit cost of fuel.
- Limited availability of public charging points presents business with capital investment costs for charging points, and restricts the use of vehicles on key inter-city routes or for driving for more than say 120km a day.

## The role of SBC

Businesses will strive to maintain fleet portfolios that ensure vehicles are fit for purpose and represent good economic performance including total cost of ownership.

The SBC thinks that accelerated uptake of hybrids and electric vehicles in corporate fleets have a part to play in reduced transport emissions for New Zealand, realising that there are some constraints to uptake that need to be overcome. SBC can contribute to supporting that through the following actions.

## Raising awareness and addressing perceptions

Drive Electric, formerly the Association for the Promotion of Electric vehicles (APEV), is a non-profit Incorporated Society of members including auto manufacturers, electric vehicle companies, energy companies, charging infrastructure providers, local governments, universities and corporates. Their role is to *“create financial, environmental, health and energy security benefits for all New Zealanders through facilitating innovation, education, demonstration and collaboration in the electric vehicle sector”*<sup>13</sup>. Drive Electric's proposed operating model includes the 'PlugIn' programme – which

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<sup>13</sup> <http://www.apev.org.nz/>

includes holding events to educate consumers about the benefits of electric vehicles, dispel myths, and encourage electric vehicle uptake via test drives and user experience events.

Drive Electric are working with auto manufacturers, EECA and Mighty River Power to develop a workshop in April 2015 to showcase PHEV and BEV technology currently being used in the business fleet. This workshop's main objective is to engage with fleet managers and decision makers in businesses to overcome barriers of awareness and perception by enabling first-hand experience of EV. There will be opportunities to test drive vehicles, hear from businesses overseas that have converted their fleets, and guidance on how to work on the business case. SBC will be involved with this event and promote it to our members.

SBC and Mighty River Power are also looking at running an event aimed at executive level business representatives to hear what engaged New Zealand businesses are doing to explore and implement EV opportunities, as well as test drive vehicles. It is important for businesses to hear directly from businesses first hand as this helps to address concerns around risk and perception. Sharing of other company's existing successful approach means other businesses will require less of their own time to research and trial a solution. This is essential if mainstreaming is desired.

SBC will also work with EECA on direct engagement with multiple leasing agents on behalf of a collective of member businesses.

Vehicle fuel economy labelling raises awareness and empowers consumers to choose more efficient vehicles by giving them indicative figures on the cost of petrol likely to be consumed by the vehicle over 12 months, at the point of sale. The role of Vehicle Fuel Economy Labels can be promoted through the SBC membership so they are applied to corporate fleets, displayed as part of leasing agent information as well as in car showrooms. This will help build up awareness and visibility of efficient vehicles in general, making people more open to considering EVs as an option.

## **Business model for leasing hybrids, PHEVs and EVs**

There is an opportunity for business to uptake hybrid vehicles more aggressively as the total cost of ownership business case becomes more favourable as the availability of vehicles increases and monthly lease prices decrease. For those businesses that have trialled one or two vehicles at a time, we will explore the reasons for wider uptake not progressing further. This will include identifying what is required to grow their confidence and build the business case for a fleet management programme to implement a long term transition to low emissions fleets utilising hybrids, PHEVs and progression through to EV.

SBC and EECA could also work with member businesses on the potential to amend the approach to vehicles as part of salary packages. At the moment this is based on a percentage of the capital cost of the vehicle and this disadvantages hybrids, PHEVs and EVs where capital costs are higher but running costs are lower. Exploring whether this contribution could be restructured as a percentage of a total cost of ownership would form part of the package of support for a business programme for long term transition of fleet.

## **Infrastructure**

EV uptake overseas shows 95% of recharging is done overnight at home or at work. Public recharging infrastructure is not necessary for EV adoption but increases the utility of electric vehicles and their visibility as an option to help educate about EVs. An area to explore is how businesses pay

for electricity for business use of an EV or PHEV when the employee recharges the vehicle at home as well as who owns any home charging infrastructure when business-use vehicles are charged in a home environment.

From a business perspective, dedicated charging stations in car parks may be required, which represents capital outlay. Businesses can also look at future-proofing any buildings they commission by ensuring that their parking areas are EV- and PHEV-ready. The perception of how infrastructure functions to support electric vehicles is crucial to promote uptake. This includes building publicly available charging parking spaces/car parks such as those at Sylvia Park, Mount Wellington and exploring use of priority lanes for electric vehicles, particularly at peak time. Clustered trials and examples of EV-supporting infrastructure will help to build up a national profile of access for EV charging that is visible and available in the short term. SBC can facilitate in a collective business view on the where charging points are most needed, and work with those responsible for promotion and allocation.

Businesses with recharging facilities could have reciprocal arrangements for recharging with other businesses with charging facilities when they visit at or near these businesses. SBC could facilitate an arrangement that member businesses allow other SBC members to use their recharging facilities.

## **Trials**

Trials are essential to address business uncertainty around how these vehicles perform and operate, and to demonstrate their potential to affect fleet emissions. SBC has scoped trialling lower emissions vehicles into the Freight Efficiency programme; currently this must focus on hybrid options for vans and trucks (such as the Nissan and Volvo ranges) as EV technology for heavy vehicles is not available. This will require sourcing vehicles from overseas. SBC's Freight Efficiency programme will include engagement with Freight Providers and will start early in February 2015.

Maximising on the use of EVs is most practicable in an urban environment where charging is available and cars are fit for purpose. There is appetite amongst members to explore EV in a car-pool scenario between businesses, with associated branding and promotion options. This can also include branding of public-shared charging infrastructure in prominent city locations.

An induction charging station is able to charge a battery powered electric vehicle wirelessly, using an electromagnetic field to transfer the energy. This would negate the need for a physical connection between the vehicle and the charging point – the vehicle just needs to be situated on top of the charging pad. Induction charging has obvious applications at transport hubs such as airports, taxi ranks and bus stations where they would get optimal use and can provide charging infrastructure to public and business users. It is important to trial induction charging in strategic locations so that design of new infrastructure or extension of existing transport hubs can have these features incorporated so they are future-proofed. SBC will advocate for this at both the supply side with vehicle fleet users (taxi companies and regional councils) and potential installers of the charging technology.

## **Role of government to encourage uptake**

Governments play a critical role in setting policies that encourage the use of more efficient transport methods and signal that it is a national priority. A portfolio of incentives to promote low emissions vehicles and facilitate uptake of electricity as a fuel needs to be considered.

## **Pricing incentives**

As it currently stands, a vehicle available for an employee to use privately, is subject to Fringe Benefit Tax. Members have suggested that removal of this tax, or the offer of a tax holiday for a fixed period of time, for hybrid and/or electric vehicles would contribute substantially to the business case for PHEVs or EVs. Analysis of the impact of the removal of FBT on how the business case stacks up as well as the economic impact at a national level would be welcomed.

Continuation of the existing exemption of electric vehicles from Road User Charges beyond 2020 would enable businesses to make the business case by clearly demonstrating an avoided cost if they were to purchase these vehicles outright and through the total cost of ownership model.

Structuring the cost of registering (and re-registering) vehicles so better-performing vehicles pay less (for example linking this to their Vehicle Fuel Economy Label rating) would contribute to incentivising the purchasing of higher efficiency vehicles (and earlier retirement of old vehicles).

Finally, an increase in the cost of petrol is likely to encourage businesses to consider ways to switch to utilising electricity as a vehicle fuel.

## **Government procurement**

Government can demonstrate that it is serious about electric vehicles by considering use of them in its own fleet.

## **Supporting infrastructure**

Small incentives to consumers will make consideration of hybrids and electric vehicles more appealing. This could include allowing hybrid and electric vehicles to use existing car-pool lanes dedicated to high occupancy vehicles, increasing the number of priority car parks (supported with free charging capability for EV), and taking a longer term view looking at supporting infrastructure along major routes to enable inter-city travel and enablers for heavy vehicles. Expertise leveraged through the Smart Grid Forum<sup>14</sup> could identify and work closely with regional councils to ensure a network of the necessary supporting infrastructure is built and maintained.

A medium-long term approach to maximise infrastructure assets and ensure resilience of roads on a national scale would ensure opportunities for efficient freight and fleets are maximised. This could include installing supporting charging infrastructure for electric or hydrogen fuelled vehicles at strategic points along SH1 or the golden triangle of Auckland-Tauranga-Hamilton. Future proofing high use-high emissions routes for electric or hydrogen fuelled trucks will mean infrastructure is in place at the projected timing that these vehicles start to arrive in the country.

## **Raise minimum vehicle performance standards**

The European Emissions Standards place a minimum requirement on the quality of vehicle exhaust emissions. These ratings are already used to spec vehicles by several of our member businesses. Increasing the minimum performance standards of vehicles entering and operating in New Zealand would result in improved safety, efficiency and air quality. SBC would be interested in officials quantifying these benefits on a national scale.

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<sup>14</sup> <http://www.mbie.govt.nz/pdf-library/what-we-do/business-growth-agenda/bga-reports/future-direction-2014.pdf>