

1. What would assist faster achievement of the targets

This is a summary of the recommendations from the sector organisations.

Recommended measures which will speed up the uptake of low carbon solutions and thus the reduction of GHG emissions and increases in economic value include:

1.1 Renewable energy and energy efficiency generally

1. *Government signals to local government and industry through leadership that it wants to encourage domestic mitigation so as to avoid the need for purchase of international units and emissions from export industries.*

The New Zealand Government can provide strategic leadership through the funding of low carbon solutions for delivery of its own services. In many cases these are sound commercial options and can form case studies for wider industry to follow.

Consideration of greenhouse gas emissions reduction should be a requirement of all capital investment decisions.

2. *Recognition that energy is not just electricity*

Often publications and policies refer to renewable energy but then only discuss electricity. This is a major failing of current Government energy policies where when referring to energy the details are only of electricity and there is rarely any reference to heat or transport energy.

3. *Actioning and monitoring progress of NZES and NZEECS*

While the Government has published the NZES and NZEECS there has been little notice taken of them when developing energy, climate change and economic growth policies. There has been no monitoring or public information on progress. The renewable energy and energy efficiency sector would like to see government take notice of them.

4. *Recognising the wider benefits of energy policies and programmes*

The biggest barrier to the uptake of low carbon solutions is probably the way Government looks at renewable energy and energy efficiency sectors as only a form of energy supply. The drivers for many low carbon energy solutions are economic growth, employment and environmental outcomes rather than energy. Many low carbon solutions are not evaluated appropriately as they are considered only as energy solutions. Energy is the means to the end not the end point itself.

The Business Growth Agenda may have some encouraging words but fails to include any substance for increasing the use of renewable energy and energy efficiency as a tool for business growth.

5. *Government agency KPI*

In the 1990's contracts for employment of public service senior staff were required to have a KPI requirement, stating what they were doing to improve energy efficiency. This was a great driver from the top down and the same could be done for reducing carbon.

6. *Establish a domestic mitigation task group*

Establish an expert group to work with key industries to ensure they are accounting for the carbon in their value chain and focussing on identifying the key opportunities to reduce their emissions.

7. *Develop a strong relationship between Government, and the sectors able to provide domestic mitigation.*

In the renewable energy and energy efficiency sectors around 50% of the sector activities relate to public goods. The sector organisations struggle financially and are not able to carry the public good component. Addressing the public good component could involve:

- a. Regular meetings between industry associations, ministers and officials with an emphasis on business growth opportunities through climate change initiatives.
- b. Active consultation on key policies impacting on the sector.
- c. Formal Government-funded partnerships in relation to the public good component to:
 - i. assist joint identification of the public good objectives
 - ii. assist with delivery.
 - iii. assist with the monitoring of progress and understanding the industry.
 - iv. identify and reduce market barriers.

8. *Where appropriate use government owned facilities as role models to other emitters*

If Government is to show that it is serious about meeting the Paris climate change targets then being a role model is the best place to start. When central and local government agencies are making capital investment decisions and a pro-climate change solution is not chosen they should be required to demonstrate why it was not the best solution.

Government procurement agencies being required to consider lifetime benefits and government policies – not just lowest cost. RE are high capital and low operating costs so lifetime analysis is essential. This may require a fundamental change at Treasury-level.

Government project analysis should use the higher carbon price assumptions to reflect government leadership with regard to the ETS.

9. *Improved Government procurement policies*

Central Government introduces policies to change Government procurement policies so that renewable energy and efficient energy use options must be considered when making investment decisions and all additional benefits are included in a full life cycle analysis of options. In addition, the Government's project appraisal model uses a higher CO2 cost than the private sector experiences through the ETS. This approach/modeling is justifiable as it will demonstrate that the Government is taking clear long term decisions that reflect the likely real price of carbon over the life of the heat plant (i.e. 30 years plus).

Local councils would be required to introduce similar central Government procurement policies for local government procurement and apply the same modelling approach.

10. *Requiring government owned facilities such as schools and hospitals to consider greenhouse gas emission reductions and lifecycle costs alongside the financial cost when evaluating capital investment decisions.*

Currently purchase of central and local government capital works tends to be budget driven and ignore consideration of wider Government policies. This often results in the choice of low capital cost solutions and little consideration of climate change and on-going operating costs. This is accentuated in the health and education sectors where the

capital works may be funded by one entity while the subsequent operating costs are funded by another entity.

Updating Government procurement procedures so that they take all government policies into account for capital purchases would ensure that decisions would always be in the national interest.

11. Availability of suspensory or low interest loans for capital expenditure on renewable energy projects.

Many renewable energy projects can be potentially financially attractive but access to capital is a major barrier. Having provision for suspensory loans which are paid back out of operating profits once the project is operational can assist potential projects get underway.

Suspensory loans from central government, or restructured rates schemes at city council level could assist uptake of this low emission technology. There may be a role for a Clean Energy Fund similar to that in Australia to make money available to private sector projects to compliment the Crown loans available through EECA for renewable investment projects.

12. Establishment of a green fund similar to Crown loans

Crown loans are available through EECA for renewable energy and energy efficiency investment projects. An entity similar to the NZ Super Fund or ACC should be established to make similar loans available to private sector projects.

The Australian's have such an entity in the Clean Energy Finance Corporation (CEFC) whose role is to overcome market impediments and help accelerate Australia towards the transformation to a low carbon economy, minimise its ultimate cost and create positive adjustment for the economy, including through new forms of clean technology business, new jobs, development of new or expansion of existing businesses and development of new technological know-how

The CEFC places priority on its investments generating economic, social and environmental benefits, including building capacity and capability within the renewable and low carbon energy sector, demonstrating applications and financing for new technologies, development of new or existing businesses and development of new technologies and know-how.

CEFC investments to date - even at this initial phase - are demonstrating the potential to expand Australia's manufacturing capability and create new industry and employment opportunities across the country, particularly in regional areas.

The CEFC's portfolio of contracted investments is expected to earn an average return of approximately 6.1 percent (as reported in their 2014-15 Annual Report). Their participation in the market provides liquidity to ensure efficient pricing. Their lower cost of funds, flexible structuring and capacity to match the term of the financing to the life of the assets has allowed them to de-risk transactions so that private financiers become involved.

The New Zealand Super Fund could be a suitable entity to fund such on-shore investments to the benefit of NZ as a whole.

13. *Government specifically designate the avoidance of offshore purchase of international units and the reduction of GHG emissions in domestic industries as being entitled to similar support as that given to export and high growth industries.*

This would be supported by:

- a. Explicitly providing support to businesses engaged in GHG reduction activities with a designated lead support agency (perhaps EECA);
- b. Explicitly including reductions in the purchase of international units and reduction in GHG emissions in export industries as supported activities within all business support activities and encourage local government to do likewise;
- c. Extending the services provided by NZTE with appropriate adjustment to these businesses;
- d. Similarly providing for these activities to be included in the criteria for the regional business partnership programme, Callaghan Innovation and the Export Credit Office (again with appropriate adjustment);

14. *Expansion of the National Policy Statement for Renewable Electricity Generation*

The National Policy Statement for Renewable Electricity Generation 2011 is consistently referred to as covering renewable energy when it actually only covers electricity. It would be of some assistance to the renewable energy sector if this policy was broadened to include all renewable energy projects and not just those of electricity.

15. *Accelerated depreciation for renewable energy and energy efficiency capital expenditure*

The access to capital for renewable energy projects is a major barrier affecting uptake. Renewable energy facilities tend to be high capital, low operating costs investments and facilities generally have a 20-30 year economic life so there needs to be assistance to business to reinvest. An accelerated depreciation regime for renewable energy projects would be near fiscally neutral (except for timing) and provide significant assistance to many projects

Internationally accelerated depreciation is a common tool for encouraging pollution control.

Depreciation loading of 20% for qualifying items was available in New Zealand until May 2010. It was introduced as an incentive to encourage New Zealand businesses to invest in new capital equipment.

16. *Government does an annual cost-benefit of forward offshore purchase of GHG obligations vs acquiring domestic mitigation through a capital fund which funds the public good component of transitioning low carbon transport fuels.*

Work should be undertaken on the relative cost of supporting domestic mitigation compared to spending the same money on purchasing international units which would do nothing for the NZ economy.

17. *An alternative to the purchase of international units should be that emitters can invest a similar level of expenditure, as they would otherwise spend on purchasing international units, on domestic mitigation and be credited with that investment.*

It appears as if the Paris climate change targets will only be reached if there is purchase of international emission reduction units. Such expenditure would provide no value to the New Zealand economy. If the same amount of money was spent on assisting domestic mitigation projects then there would be economic, employment and social benefits over many years.

18. *Maori Economic Development.*

With increasing numbers of Iwi entering the post-settlement era, as well as existing large landholdings and the active pursuit of development opportunities, Maori economic development is expected to play a significant role in New Zealand 's economic future. As well as general knowledge sharing, there will be specific areas of help that may benefit these groups.

19. Developing and maintaining capability

New Zealand is a world centre of excellence in renewable energy and energy efficiency but attention must be given to nurturing it so that we can build our low carbon future. We also have the opportunity to export this capability and thus get additional value from climate change through our expertise and capabilities.

A weakness with our current export of capabilities is the lack of financial backing and recognition. New Zealand companies must compete with others who are generally supported by their own investment banks. Establishment of an investment bank to directly invest in international low emission geothermal projects, using our national expertise, in projects which by themselves should be profitable would also ensure that money was linked to real emissions reductions rather than spurious international emissions credit purchases. Currently our consultants are involved with many projects globally that would go a long way to offsetting our national emissions if benefits could be captured.

Each sector should work with Government to develop its own capabilities and expertise for both increased domestic mitigation projects , and export of our capabilities.

20. Facilitating national conferences

National conferences are premier events for networking and information dissemination and would assist get information, knowledge and skills to the mitigation market..

21. Information dissemination – overcoming a market failure

Very often a market failure exists in that adequate information on renewable energy options is not available to decision makers. Industry associations have very limited funding so are restricted in their ability to share information outside their core membership. Support for raised public awareness through websites, newsletters, case studies, best practice guides, seminars, training courses, renewable industry presentations to user groups (e.g. to a building services conference or a school principal's conference) would mean that industry wasn't just "preaching to the converted".

22. Registries of competence

Use industry associations to develop competency listings.

23. Support for technical submissions on policy

Industry associations collate wide bodies of thought. Government is engaged in development of policy but industry association budgets restrict their ability to submit in full on policy initiatives e.g. new health and safety policy and regulations. Associations could give guidance on future research directions.

24. Facilitating international connections

Expertise and knowledge can be enhanced through international connections, either by bringing NZ leaders to international events or by bringing international expertise to New Zealand.

25. Continuation of subsidies

Current government schemes including feasibility study support, and grants to encourage underutilised technologies should be continued.

1.2 Transport

1. *Vehicle fuel efficiency standards*

Fuel efficiency standards that encourage the use of low emission vehicles should be established.

2. *Encouragement of the utilisation of biogas as a vehicle fuel*

Currently 67% of biogas produced is used to produce low voltage electricity. Biogas can be used as a vehicle fuel and in Christchurch for many years this was done on council vehicles. The Go Bus fleet in Hamilton uses natural gas as a fuel and they could easily use biogas if it were available from the local waste water treatment plant. This could occur if the parties worked together with buses being parked at night at the waste water treatment plant for refueling.

Food processors who could process their organic waste into biogas could use the gas as a fuel for their plant vehicles or for the production of processing heat.

Use of biogas as a vehicle fuel is a significant opportunity for reducing GHG emissions compared to the generation of electricity which has minimal effect.

3. *Change in biodiesel blend limit*

Expanding the blend limitation for biodiesel from 5% to 7% would provide more flexibility for biofuel retailers and allow an increase in the quantities of biodiesel able to be sold in the motor vehicle retail market.

4. *Motor vehicle owner education*

The education of motor vehicle owners by an independent party as to the safety for their vehicles from the use of biofuels would assist an increase in the amount of biofuels used. If vehicle owners understand that biofuels can be safely used in their vehicles there will be no necessity to have separation of biofuel sales at the pump. This would reduce the infrastructure required and eliminate unnecessary costs.

5. *Government provides transport targets to encourage production of transport biofuels*

Targets need to be established for each energy sector as each has different opportunities and barriers.

6. *Government encourages additional domestic added value processing of wood with the consequence that greater volumes of high quality wood fibre are available for biomaterial and biofuel production.*

The speed of uptake of advanced biofuels production from lignocellulosic feedstocks is going to depend on the availability of wood fibre. In the coming decades this may be constrained by demand from a number of sources. A consequence of a healthy forestry sector with significant domestic processing is that greater amounts of high quality fibre will come available.

7. *Reducing sulphur limits in marine fuel*

The International Maritime Organization has introduced new regulations to reduce the maximum sulphur emissions limit for all vessels traveling in Emission Control Areas (ECAs) by 2015. Global refining, bunkering and commercial shipping industries will be affected, and any vessels traveling through ECAs will be forced to shift to low sulphur fuels such as Marine Gas Oil, or alternatively stimulate exhaust gas scrubbing. Compliance can also be by way of a number of emission abatement methods including

compliant low sulphur marine fuels such as biofuel. Application of such a standard to New Zealand would be good for New Zealand.

8. Government R&D funding increases

For fuel security reasons alone R&D should continue on:

- Advanced liquid biofuels research having regard for the likely areas of application in NZ that will be economic over the next decade (e.g. targeting biofuels for industrial, marine and aviation applications, for strategic reserves and for their lower health related emissions)
- High value bio-products where biofuels are a co-product

9. Regulations on fine particulate emissions

The health related costs of the fine particulates emitted during the combustion of diesel fuel are currently an uncosted externality. This policy is health-driven, as the fine particulates in diesel emissions have been classified as carcinogenic by the World Health Organisation to the same extent as cigarette smoke and asbestos. New Zealand has neither emissions standards that take into consideration fine particulates nor any public health policy initiatives relating to exposure to the fine particulates from diesel combustion. By actively monitoring and seeking reductions in the volume of harmful particulates from fuel combustion in the atmosphere, especially in urban environments, both public bodies and fleet operators will be encouraged to seek clean alternatives for their heavy vehicles.

10. Low carbon heavy vehicle Development

Commercial low carbon heavy vehicles are designed or modified for specific industry sectors. To cut emissions across industries, solutions must be provided and proven for each market segment. A policy to provide funding assistance to organisations providing, proving and promoting such solutions is required to accelerate the transition of the commercial heavy fleet to battery electric.

11. Bulk purchase of low carbon heavy vehicles

Larger orders of heavy electric vehicles create economies of scale and accelerate the development of expertise and infrastructure around such vehicles while also lowering the perceived risk. A policy providing appropriate financial support to organisations that consolidate existing and forecast orders into one supply commitment would encourage this.

12. Electric Vehicle Depreciation

As no market currently exists for second hand battery electric commercial vehicles, the risk associated with the resale value of the vehicle needs to be adequately mitigated. One means of achieving this is the provision of more aggressive depreciation rates than is currently used for internal combustion vehicles.

Higher depreciation rates mean the second-hand sell price of heavy electric vehicles may be lower, which in turn stimulates the second-hand market for such vehicles.

13. National Emissions Accounting

Introducing a policy of emissions accounting for public and private bodies creates the ability to set goals and restrictions at finer levels than just the national accounting can achieve. This provides a measure for councils, corporates, industry sectors and geographical regions to quantify emissions reductions progress and performance and hold such groups accountable.

14. Alternative Use of Rail Network

Rail represents an important opportunity to provide existing road transport operators with additional options for long haul, heavy freight where factors such as battery weight and range remain problematic. Rail in New Zealand has four characteristics that make it a part of the transportation mix of existing road transport operators.

- a. The long haul rail network is not suffering congestion problems
- b. Rail has significantly lower rolling resistance, significantly increasing electric vehicle range
- c. The North Island main trunk line is already electrified and is able to be used to recharge batteries
- d. Rail accommodates much greater weights which is able to be used for larger payloads and battery packs.

Opening up the rail network to multi-modal use by existing road transport operators reduces the amount of very heavy loads required to be transported long distances by road.

15. Encouragement of vehicle electrification

Vehicle electrification provides a means by which electricity generation using renewable energy sources can be encouraged and directly substitute for fossil fuels. This expanded market can then allow faster progress towards renewable electricity targets. There are consequently a wide range of initiatives required to stimulate this uptake and proper management.

16. Bold settings in current electric vehicle tax review

Tax policies coming under review (announced May 2016) are calibrated such that they are likely to double the target (256,000 EVs by 2021), e.g. by positive discrimination of electric vehicles regarding depreciation, FBT, potentially GST.

17. Strong financial measures on vehicle emissions

Introduce progressively a long term policy that broadly removes the financial attraction to petrol/diesel vehicles. Likely a fee at point of purchase - or per annum - or both, tied directly to emissions rating of a vehicle. This encourages fuel economy on any fossil fuel vehicles bought, too. Long term this price point would need to rise such that driving fossil fuel vehicles is cost prohibitive (to counteract the slow 20 year lifetime of NZ vehicles) and accelerate the switch to a zero emission light transport fleet. Short term income from vehicle emissions can operate as “feebate”, used to lower EV purchase prices.

1.3 Heat

1. Recognition of heat

Increased recognition of heat as part of the energy market. Heat is often not recognised as having significance relative to electricity.

2. Collection of statistics on direct heat use

Currently no or little data is collected on biomass and geothermal use for heating. There is need for a mechanism to ensure that data on the use of biomass, organic waste and geothermal energy is collected on a consistent basis, as there is for electricity and petroleum fuels, so that the actual growth in the sector can be measured. Databases of the location and capacity of some heat plant are held but have a lot of errors because they are not maintained. However while there is some data on heat plant capacity and location there is no data collected on the use of geothermal, biomass and waste for

specific heating applications and so any statistics on the switching from fossil fuels to renewable energy is simply informed guesswork.

Similarly for the collection of data on biogas use.

Currently the lack of data on the growth in the direct heat sector makes it difficult to show potential investors that they would be joining a growing sector and that renewable energy is a main-stream energy source, and the level of waste that is already being converted into valuable energy.

Current MBIE data is incorrect in a number of areas of direct use. Data on direct heat use is the only energy use that are not systematically collected by MBIE. Such data will also be required to quantify carbon mitigation.

3. *Encouraging utilisation of municipal solid and liquid waste as a feedstock for the production of energy.*

NZ is very good at producing municipal and industrial waste but then put it into landfill where it contributes to greenhouse gas emissions or is, at best, inefficiently converted into energy via biogas.

With many territorial councils now separating waste at source it is a simple step to ensure that all organic matter is then collected and used beneficially. Using the organic waste as a feedstock for the production of liquid or gaseous biofuel is commonly done in many countries and this proven technology can be applied in New Zealand.

Municipal waste water treatment plants can very efficiently convert organic waste into electricity for on-site use thus reducing the plant operating costs.

4. *Encouragement of more domestic added value processing of wood*

Encouragement of the processing of forest wood within New Zealand can produce a large number of economic growth, employment and new business benefits. More domestic added value processing of wood produces more wood fuel as a co-product, and because this is the best quality fuel, heat plant owners will see it as a low risk fuel source.

5. *Government provides targets to encourage local government to reduce methane emissions from landfill and waste water treatment plant.*

Methane is 23 times more significant as a GHG than CO₂ so a policy for local government to reduce methane emissions would be a significant GHG reduction tool.

Having targets would necessitate Government requiring local government to report methane emissions from solid and liquid waste facilities.

6. *Encouragement of waste water facility owners to process liquid trade wastes and municipal organic solid waste.*

Economies of scale for waste water treatment can be achieved by communities sharing or co-locating facilities. Liquid trade waste can be more efficiently processed and give economies of scale when accepted at municipal waste water treatment facilities. The gate fees for processing trade waste provides a good income stream which offsets facility operating costs.

7. *Support Appropriate Training Opportunities in New Zealand.*

With a stronger emphasis on low carbon opportunities there will be a need to review and upgrade trade and other skill training. Training and currency of information is critical in an expanding industry with ongoing development. We want to encourage people to consider low carbon technology careers whether through trades or university

studies. There may be opportunity to develop toolkits for training engineers, architects, drillers and builders for low carbon applications that can be used to support our export capabilities.

8. *Energy Dating Service.*

Some business, landowners and potential developers don't have the connections or expertise to realise low carbon aspirations. A service to connect these expert parties with industry and business interests seeking energy solutions can help to unlock this potential. This is done on an as requested basis currently, but funding would enable a more pro-active and involved approach.

9. *Showcase and Share Lessons Learned.*

Success breeds success. Actively show-casing existing success stories in low carbon energy use increases awareness and stimulates further development. In addition, by sharing lessons learned, future projects have greater chance of success.

10. *Specific Information on the Economics of Projects.*

There is a great need for micro- and macro-economic cost data to be collected to summarise the benefits of adopting new geothermal technologies. This can assist decision making. These calculations can be complex so access to tools and assistance to calculate pay back periods for geothermal energy could encourage uptake.

11. *Best Practice Resource Utilisation.*

Accessing and using renewable natural resources requires expertise. Ensuring that all users are operating to industry and regulatory standards will protect the resource, the user and the reputation of the sector. In many situations the sector is in an infancy mode and care needs to be taken that growth is not jeopardised by the lack of best practice performance. The sector can assist this through the development of best practice guides and accreditation of practitioners as being competent to do the work.

12. *Support for growth*

Continuation with capital support schemes as part of regional development programmes similar to Southland's Wood Energy Programme.

13. *Strengthened forestry strategy*

Assist the forestry and wood products sector realise efficiency gains, therefore value. Government encourages additional domestic added value processing of wood with the consequence that greater volumes of high quality wood fuel become available.

14. *Air quality*

Our national air quality policies should focus on setting appropriate heater combustion standards and education of wood heating users. Incomplete combustion arising from use of wet wood fuel is far more significant than the use of old but still efficient wood burners.

In many communities wood burning has been actively suppressed, and it will take active measures to return it to its former role in New Zealand's energy portfolio. Home wood burning will be an essential part of the systems that enable New Zealand to meet any reasonable carbon reduction target.

Lets focus on policies based on good science and education on home heating rather than easy-to-adopt policies that are not in the national interest nor individual interest of home owners.

15. *Control the smoke, don't ban the wood burner.*

Change the national environmental standard on air quality to focus on cumulative exposure to PM2.5, instead of sporadic exposure to PM10 which is much less correlated to mortality from air pollution.

Adopt a test method for flue gas emissions that reliably characterises the quantity and toxicity of the particles and gases emitted. Or better, simply adopt the more stringent of today's European air quality standards, all of which are far less restrictive than New Zealand's.

Withdraw the bans (which some regions have) on wood burners more than 15 years old whether or not they meet emissions and efficiency standards.

Allow pilot trials of appropriate numbers of wood burners in both homes and larger-scale facilities to give real data on emissions and not artificial laboratory test results.

Measure air quality in a range of sites, not just (for example) two sites over the entire Christchurch airshed.

16. *Require availability of time-of-use power tariffs that encourage fuel switching from electricity to wood at times when it could assist reduction of coal- and gas-fired generation.*

Critical peak pricing – notifies consumers when the typically 100 hours per year of true electricity system stress are likely, and appropriately rewards their response in sharply cutting their demand.

Price-responsive demand – targets normal high-price periods with a tariff which reflects actual supply costs.

The case for such tariffs needs to be supported by modeling of the effect on peak electricity demands, and therefore on greenhouse gas emissions, of significant increases in wood burning,

17. *Fund development, commercialisation and research on residential wood burning.*

Assist commercialisation of advanced gasifier burners which ensure smoke is gasified and the clean gases burnt before reaching any heat exchanger – these are widely used in Europe.

Research and development on fuel preparation, including pellets, from various feedstocks for wood heating.

Research on wood combustion which could reduce or eliminate formation of NO₂ and other toxic gases and enable improved automation.

Social research on barriers to domestic wood burning

Trials of multiple-use firewood forestry with amenity values for near-urban area planting, including restoring native trees and fauna.

18. *Encourage the widespread uptake of wood pellet and chip for commercial and industrial heating applications by:*

Overhauling the resource consent requirements to make the installation and operation of wood energy plant simple and bureaucracy free.

Remove the annual “compliance” fees on commercial and industrial plant.

19. *Adopt standards and procedures for wood burning and wood burning equipment which are in harmony with “best practice” countries, i.e. most of Europe. By so doing we:*

Enable our people to purchase from the massive range of European plant and equipment from the small domestic to the large commercial.

Remove a major “non-trade barrier” to the widespread use of wood burning and related equipment (by recognising equipment that has been tested elsewhere as being accepted in NZ)

By putting our own manufacturer’s on the same footing as Europe enabling them to compete more easily in the European market, driving jobs in NZ.

20. *Moratorium on new industrial coal boilers*
21. *Development of “Best Practice Guides” for Industrial Boiler Efficiency*
22. *Development of Geoheat Strategy and associated monitoring and implementation structure*

1.4 Electricity

1. *Mandatory carbon emission plans*

Mandatory carbon mitigation and management plan for all organisations with stationary carbon emissions exceeding 2,000 T per annum (~1,000 NZ industrial businesses)

Mandatory reporting of energy consumption and carbon emissions in Annual Reports

2. *Mandatory industrial boiler efficiency targets*
3. *Development of Energy and Sustainability Engineer as a discrete study stream at New Zealand Universities*
4. *Active stimulation of the ammonia industrial heat pump market*
5. *Major expansion of support of EECA, specifically the business programmes*
6. *Clarity and certainty in distribution line charge recovery:*

Changes are expected in the way distribution companies will charge for network connection and line charge recovery. The current uncertainty in what is likely to apply going forward is preventing new and existing service providers from offering new and innovative products. A rigorous and sustainable line charge regime will provide the certainty needed to both new entrants and existing players alike, who are waiting in the wings to offer solar/storage products into the market today.

7. *Support for industry training initiatives:*

Solar and battery storage introduce new competencies required for installers and inspectors. The solar and storage industry has the capacity to provide training and ongoing professional development. Support for industry led training needs to be put in place, allowing the industry to keep practitioners up to date with safety issues as well as the rapidly changing technology landscape.

8. *Continue harmonisation of standards and more urgency in the adoption of standards:*

The promulgation of joint AS/NZS standards will allow New Zealand to benefit from significant savings in regulatory oversight by sharing the costs of establishing safe, industry best practice deployment of solar and storage technologies. Once established, these standards need more certainty of when they will apply. The current practices in this area are sluggish and creates uncertainty and confusion for both installers and electrical safety inspectors alike.

9. *Promotion and awareness campaigns targeted at NZ Board Members highlighting the strategic “low-carbon” opportunity and global positioning potential*
10. *NABERSNZ rating mandatory on all space leased or sold by 2020*

Make 4 star compulsory for all new central and local government accommodation and require existing space to be brought up to this standard by 2030. Signal that a NABERSNZ rating will be required on all space leased or sold by 2020

11. *Enable funding of commercial plant upgrades to be registered on the title and collected through rates. Central government to provide security for the funds*
12. *Accelerated depreciation on all energy efficiency upgrades certified by accredited auditors Rather than straight line depreciation at 12.5% allow the spend to be written off over 3 years after implementation and commissioning*
13. *Develop standard documentation for Energy Performance Contracts.*
14. *Develop a template energy efficiency green addendum for leases with a process for landlords and tenants to commit to working together to reduce energy use. A requisite for any funding*
15. *KPI for CEOs: Based on contribution made to increasing energy productivity and reducing carbon intensity / GHG*
16. *Enable grants for upgrades of commercial plant, boilers, chillers and controls on basis savings are determined by accredited auditors, measured and building owner commits to EECA commissioning and review*
17. *Upgrade the building code on insulation, shading and air tightness*
18. *Make it mandatory for building owners to share energy information monthly and use of BMS systems with tenants. A requisite for any funding*
19. *Continue to fund industry based training for practitioners*
20. *Introduce an effective price on carbon.*

When initially introduced the ETS was expected to increase the retail price of electricity through higher thermal generation costs. The low cost of carbon credits has meant there has been no discernible impact on either wholesale or retail electricity prices. What is needed is an effective mechanism for pricing carbon emissions.

21. *Enhance policy settings for renewable generation.*

The 2011 National Policy Statement for Renewable Energy Generation (NPSREG) recognises the national significance of renewable electricity generation and sets a target of 90% of electricity generated should be derived from renewable energy sources by 2025. The NPSREG is currently under review and in order to meet climate targets change by way of domestic mitigation the target should be increased.

22. *Ensure the consistent use of the National Standard for wind farm noise limits.*

In 2010 a new standard NZS 6808 was developed to recommend limits on noise from windfarms. The standard reflects international best practice and is adhered to by all NZWEA members. There is however no requirement for local authorities to adhere to the Standard when making consenting decisions under the RMA. Incorporating NZ6808 into the RMA would provide greater consistency in wind farm consent decisions and provide certainty to applicants, thereby reducing consent timeframes and costs.

23. *Level peg with fossil fuel support*

Offer the renewables sector a similar level of subsidies and tax benefits that are provided to the fossil fuel industry.