

**Northern Alliance for
Greenhouse Action Submission:**

**Prime Minister’s Task Group on
Energy Efficiency – Issues Paper**

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**NORTHERN
ALLIANCE FOR
GREENHOUSE
ACTION**

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MEMBER ORGANISATIONS

BANYULE CITY COUNCIL, DAREBIN CITY COUNCIL, HUME CITY COUNCIL, MANNINGHAM CITY COUNCIL, CITY OF MELBOURNE,
MORELAND CITY COUNCIL, MORELAND ENERGY FOUNDATION LIMITED, NILLUMBIK SHIRE COUNCIL, CITY OF WHITTLESEA, CITY OF YARRA

Introduction

The Northern Alliance for Greenhouse Action (NAGA) welcomes the release of the Prime Minister's Task Group on Energy Efficiency – Issues Paper, and the opportunity to provide a submission. Energy efficiency constitutes Australia's greatest opportunity to immediately reduce greenhouse gas pollution while saving money and improving national productivity, and therefore, NAGA applauds the objective of a step change to increase energy efficiency action, as identified by the Task Group in the Issues Paper.

About Northern Alliance for Greenhouse Action

The **Northern Alliance for Greenhouse Action** (NAGA), which began operating in 2002, is an alliance of Moreland Energy Foundation and the nine councils spanning the northern region of Melbourne from the CBD to the rural/urban fringe¹. The Alliance shares information, coordinates and implements community based emission reduction activities, undertakes research into reducing carbon emissions across the NAGA region, and cooperates on the research and development of innovative emissions reduction projects for NAGA members' own emissions sources. NAGA also establishes partnerships and linkages with state and federal government agencies and departments, local government and industry associations, research institutions, and community groups, to facilitate climate change action in the northern metropolitan region.

NAGA's Regional Plan: Towards Zero Net Emissions for the NAGA Region

Following 12 months of research and consultation, NAGA has developed the regional plan '*Towards Zero Net Emissions for the NAGA Region*' (TZNE)². The regional plan responds to the urgent need to reduce greenhouse emissions by providing for the first time in Australia, a comprehensive and evidence-based regional direction for carbon mitigation to 2020. The Plan highlights the key actions which would stem the growth of greenhouse emissions and make major inroads towards the transition to a low carbon region.

TZNE represents a regional approach to greenhouse gas reduction. It demonstrates what can be achieved to move towards zero net emissions by 2020 through leadership, advocacy and driving innovation. To achieve further cuts to the region's greenhouse gas emissions, and to achieve substantial and meaningful climate change action, there will need to be alignment and concerted effort in regards to policies and actions by the Federal and State Governments, individual Local Governments' mitigation strategies and the contribution of businesses and individuals.

Energy efficiency is a key element of the plan, and implementation of the range of identified energy efficiency actions in the industrial, commercial and residential sectors will achieve a substantial proportion of the overall emission reductions identified in the plan.

The TZNE plan has been endorsed by the NAGA alliance and separately by all NAGA members; this represents a major commitment by local government in the northern metropolitan region of Melbourne to step change in implementation of energy efficiency, and climate change mitigation actions.

National policy support for energy efficiency

NAGA supports the establishment of the Prime Minister's Task Group on Energy Efficiency, and the appointment of the Minister for Energy Efficiency, as demonstration of the government's commitment to a step change in the level of implementation of energy efficiency.

It should be recognised that the *National Framework for Energy Efficiency* (NFEE) has already undertaken detailed and thorough research and analysis in this area, the results of which are still highly relevant. NAGA urges the federal government to focus on immediate action, including implementation of the opportunities and priorities identified by NFEE, rather than undertaking further research and analysis.

NAGA notes with disappointment and frustration the decision to delay or cancel the establishment of an Australian emissions trading scheme. NAGA has supported the establishment of the CPRS as one element of an effective response to the urgent challenges of climate change; an emissions trading scheme is a key element in supporting a broad mitigation program that incorporates a wide range of actions to promote energy efficiency and uptake of renewable and low carbon energy production.

The establishment of a price on carbon to drive emission reduction actions is essential and urgent, to support broad-scale adoption of energy efficiency and renewable generation, in our collective efforts to address greenhouse gas emissions and climate change.

¹ NAGA's members are the Cities of Banyule, Darebin, Hume, Manningham, Melbourne, Moreland, Whittlesea and Yarra, the Shire of Nillumbik and Moreland Energy Foundation.

² Northern Alliance for Greenhouse Action, 2009, *Towards Zero Net Emissions for the NAGA Region* www.naga.org.au

Goals of energy efficiency

- Contribute to the transition to a low carbon economy by reducing energy use and energy demand, and reducing the extent of additional electricity generation, transmission network augmentation that would otherwise be required.
- Contribute to reduced energy costs, and prepare our economies for a carbon-constrained future.
- Economic competitiveness: efficiency of resource use, and unlocking the value through innovation and best practice management.
- Complementary to other climate change policy areas including a price on carbon, and increased renewable energy generation.

Current limitations on implementation of energy efficiency

Energy efficiency has not had a high profile amongst community, businesses and politicians in terms of effective climate change mitigation action, and it has been difficult to garner interest from leaders, and the media. The barriers to implementation of energy efficiency have been well documented by many; these include information asymmetries, split incentives, access to capital for upfront costs (and the challenge of demonstrating long-term financial value even taking into account payback periods, in the face of short-term upfront costs), technology risks, regulatory barriers, energy pricing and behavioural barriers. These are discussed in more detail below, and proposed responses and opportunities covered in the following pages.

There are substantial information gaps on implementation of energy efficiency: most businesses and people consider they are doing well, but the absence of benchmarks and other information makes assessment of this difficult.

Apart from legislated or regulatory schemes, such as the Australian Government's Energy Efficiency Opportunities program (EEO) and the Victorian Government's Environment and Resource Efficiency Plans (EREP), the area has been characterised by small scale, local, intermittent projects with mixed results. Most projects have relied on 'self help' with a confusing array of information resources, online tools and programs, limited data and results.

Energy tariff structures and the competitive market model supports large-scale energy users, with minimal incentives for the largest number of users in households and small-medium enterprises (SMEs) to be rewarded for more efficient use of energy. Current energy pricing models, whereby high energy users pay proportionally less, do not provide incentives for energy efficiency. Energy pricing based on a model whereby high consumers pay relatively more (as is the case with water pricing) would more effectively support and provide a financial driver for implementation of energy efficiency; with high use, there would also be increased levels of responsibility to contribute to increased sustainability.

Programs promoting resource use efficiency in the water sector provide an excellent case study that could be translated to energy use efficiency: the provision of a holistic approach incorporating sustained information campaigns, targeted marketing, incentives, industry engagement based on actual water consumption for large water users across various sectors including SMEs, improved billing and benchmarking data and pricing changes which support lower consumption are all key ingredients to effect change in awareness and behaviour.

The provision of baseline information and benchmarks for communities is necessary: communities committed to change need the support of good information on energy consumption, however the current regulatory environment doesn't allow for this.

Public lighting case study

Local government has been working to improve the energy efficiency of public lighting for several years. For most local councils, public lighting is the single largest source of their greenhouse gas emissions. Most lighting on minor roads, for which local government is responsible, is currently supplied by 80W mercury vapour lamps. A number of significantly more energy efficient lighting options now exist (including T5 linear fluorescents and compact fluorescents), and these have now been approved for streetlighting applications. However most local councils are still waiting to see the lights changed. Current barriers relate to cost for bulk changeover, and level of contribution from other stakeholders – distribution businesses, state and federal governments. The process has been frustratingly slow, due at least in part to the lack of financial and regulatory drivers for distribution businesses to embrace energy efficiency actions; the barriers are largely administrative and regulatory, not technical.

Priorities for expanded implementation of energy efficiency programs and schemes

Energy efficiency schemes should:

- provide a comprehensive approach; schemes which address only the 'low hanging fruit' (easily implemented, short payback period) fail to engage the full potential benefits of a comprehensive approach
- include both financing and supply components; disaggregated programs have limited impact for take up, except for early adopters
- maximise local ownership and delivery to support green local jobs,
- utilise opportunities for local scale delivery, including bulk buy schemes; NAGA's members have delivered a number of such programs that have proved more effective than some of the larger less targeted schemes (such as VEET and the insulation rebate), by undertaking selection and quality control of installations, best value and project management.
- develop longer implementation timeframes to avoid the short-term, stop and start programs that have already tarnished public confidence in these energy efficiency programs

Energy efficiency in energy markets

NAGA's *Towards Zero Net Emissions for the NAGA Region* plan (TZNE) reviewed the options and impediments to expansion of renewable energy in the urban context, and identified the institutional barriers to installation of low emission and renewable technologies as an area of substantial importance, requiring action at both state and federal government levels.

The TZNE plan draws on the research undertaken for the Garnaut review³, which examined market failures in the national electricity market (NEM) which influence the ability of low emission and renewable energy technologies to enter the market, and specifically the failure of the market to account for the marginal benefits associated with these sources of energy generation. This is related to the NEM's historical development and that it is only recently that knowledge around the marginal benefits in terms of emission reductions has been appreciated. It is noted however that ***to resolve these issues is considered to require minor changes to rules and regulations*** (our emphasis).

NAGA has identified a number of the failures and policy options (technology, externalities, monopoly networks and regulatory failures) listed in the *NEM Market Failures report* as pertinent to this inquiry; these are summarised in **Table 1** (following page).

Key opportunities to support energy efficiency in energy generation and energy markets include:

- Create incentives in the National Electricity Market (NEM) to foster energy efficiency and distributed energy
- Strengthen institutional support for the 'smart grid'
- Develop incentives that include a levy on the electricity industry to support energy efficiency and the transfer to more efficient generation. Of special interest is the basis on which cost-effective savings are derived from avoided new generation.

³ McLennan Magasanik Associates (2008) *Final Report to Garnaut Climate Change Review: NEM Market Failures and Governance – Barriers for New Technologies* Accessed on 21 November 2008 from <http://www.garnautreview.org.au/index.htm>

Table 1: NEM Market Failures, and policy options

Market failure	Effect of market failure	Policy option to correct for market failure
Neutrality of technology <i>Renewable technology and embedded generation can compete with more established fossil fuel fired generation technology in accessing the market without assistance.</i>	Inconsistent technical requirements Ancillary service Control equipment	Review of rules
Externalities <i>Externalities refer to the costs and benefits that are not factored into consumption and production decisions.</i>	Benefits of embedded generation not fully recognized Network benefits Loss reduction	Recognize externalities of embedded and distributed generation
Monopoly networks <i>When only one or a small number of providers exist and as a result control the network.</i>	High cost standby arrangements Non transparent network planning arrangements Asymmetric information	Independent network planning body to produce annual statements that provide transparent value propositions for network augmentation including non-network solutions
Regulatory failures Inappropriate incentives Transmission Use of System arrangements Demand side participation	Network solutions preferred over potentially more efficient non-network solutions including embedded distributed generation and demand side alternatives.	Independent network planning body to produce annual statements that provide transparent value propositions for network solutions.
Free rider Those that delay the development of their investment in the hope of taking advantage at least partially, of network extensions.	Suboptimal network investments Access difficulties for embedded generation	Nodal pricing Feed-in-tariffs, including expansion of the existing tariff for photovoltaic for the residential sector, to other low emission and renewable technologies, and for commercial and industrial sectors. Financial transmission rights
Loss of economies of scale in network The initial developer has no incentive to fund installation of network capacity greater than its needs.	Investment in suboptimal network capacity	Funding during initial period

Energy use efficiency: sector approaches, opportunities and priorities

NAGA’s *Towards Zero Net Emissions for the NAGA region* plan (TZNE) outlines strategies and actions that have been developed following an examination of international best practice case studies of local and regional mitigation actions.

The NAGA region represents a cross-section of metropolitan Melbourne, and therefore provides an excellent snapshot of actions and opportunities for implementation in major cities and urban areas. Key TZNE actions in major sectors are summarised in Table 2, as well as highlighting some of the broader priorities and opportunities for promoting energy efficiency implementation in these sectors.

Table 2 TZNE Sectoral approaches to energy efficiency

Sector	TZNE actions	other priorities and opportunities
Industrial (manufacturing and mining)	<p>Industrial Efficiency (688 kt Co₂-e emission reduction associated with its implementation)</p> <ul style="list-style-type: none"> • The key mechanism identified is development of an Energy Services Company (ESCO) model suitable for a range of industries in the region. Arrangements would involve NAGA, NAGA member councils, industry facility owners, state government departments and agencies, finance industry and energy services companies, and would include bulk purchase programs for appliances and materials, as well as other stages of efficiency programs such as auditing and installation • Key barriers identified were information asymmetry • Key roles to initiate and manage such projects would be required at local or regional levels to enable recruitment, build capability and aggregation 	<ul style="list-style-type: none"> • Accelerate Minimum Energy Performance Standards (MEPS)
Industrial (manufacturing and mining) <i>continued</i>	<p>Industrial Ecology (42kt CO₂-e)</p> <ul style="list-style-type: none"> • The NAGA region is well placed to exploit several components of an industrial ecology program including clustering of similar companies (eg. food processing, resource exchange, non-conventional energy generation opportunities). • A key mechanism is the development of industrial councils to build networks to facilitate exchange • This long term approach has the advantage of offering a systemic and more profound solution to resource efficiency but requires facilitation and research to identify prospects to overcome the market and economic barriers identified. <p>Central Services Hub (1,142 kt CO₂-e) for electricity, waste and water services provision for key industrial areas</p>	
Energy	<p>Promotion of low emission and renewable technologies, within commercial, residential and industrial built form and as stand-alone generators (1,579.5 kt Co₂-e)</p> <ul style="list-style-type: none"> • NAGA's roles in promoting these technologies include information provision on resource potential, government mechanisms and supporting potential bulk purchase programs • Preparation of planning guidance for embedded generation is also required to assist local government, embedded technology proponents and the community. 	<ul style="list-style-type: none"> • Apply a cost on energy efficiency, such as that equivalent to investing in new generation to provide economic incentive • Energy market infrastructure planning, facilitation of renewable generation and cogeneration, active problem solving
Government	<p>TZNE identifies the critical requirement for all levels of government to provide leadership on climate change mitigation. In implementing TZNE, there are roles for Federal and State government, in particular, in decisions that influence the carbon intensity of the Victorian energy supply and the ease to which embedded generation can be established; the extent, density and energy efficiency of urban development, decisions in relation to the transport network and the extent of investment in public transport that primarily occur at a Federal or State level.</p>	<ul style="list-style-type: none"> • Local Government as lead/partner for local programs to provide credibility, quality and support local industry development (where applicable)

Sector	TZNE actions	other priorities and opportunities
Residential	<p>Residential Efficiency (468 kt CO₂-e)</p> <ul style="list-style-type: none"> • specific program for low income households linked to Federal Government energy efficiency program • Homeowner program linked to Federal Government energy efficiency program with contracted local delivery operated through councils • Specific program for efficiency upgrades for rental properties through real estate agents and landlords • bulk purchase programs as outlined in industrial efficiency actions <p>Planning – Future Built Form (849 kt CO₂-e)</p> <ul style="list-style-type: none"> • Covering new and urban infill developments; requires state support for planning guidance and regulation 	<ul style="list-style-type: none"> • Accelerate MEPS • Adopt policy recommendations from the <i>Towards climate safe homes</i> research report⁴ including: <ul style="list-style-type: none"> ○ adopt a goal of ‘climate safe’ new homes (energy and water efficiency) by 2020, ○ create a cross-sector taskforce to develop pathways and define standards, ○ commit to a mass retrofit package and policies aimed at upgrading the energy and water efficiency of existing housing
Commercial	<p>Office buildings (383 kt CO₂-e)</p> <ul style="list-style-type: none"> • City of Melbourne commercial strategy of retrofits, regulation • Extension to health, education and community facilities as a model for extension <p>Commercial Efficiency (678 kt CO₂-e)</p> <ul style="list-style-type: none"> • Promotion of existing voluntary programs were considered to yield only a low 3.1 kt CO₂-e • bulk purchase programs as outlined in industrial efficiency actions <p>Cogeneration and trigeneration across Education, Health, Large Wholesale and Retail were identified to yield 94.9 kt CO₂-e, provided the barriers to implementation, financing and regulation could be overcome (see previous section: energy efficiency in energy markets).</p>	<ul style="list-style-type: none"> • Regulatory mandatory disclosure is influencing the commercial market and should be extended • Commercial retrofit model underway in City of Melbourne could be a model for metro-wide Melbourne, and all Australian capital cities • Accelerate MEPS

⁴ Environment Victoria, Alternative Technology Association, Australian Conservation Foundation, Friends of the Earth Australia and Moreland Energy Foundation, 2009, *Towards climate safe homes: The case for zero emissions and water saving homes and neighbourhoods* www.environmentvictoria.org.au

Embedding behavioural change through developing a culture around energy efficiency improvements:

- benchmarking data available on energy bills,
- address lack of access to energy consumption data by amending the Electricity Act
- work with local government and community-based organisations to build databases for urban areas, that provide a tool to identify levels of activity and buildings stock (for example City of Melbourne's CLUE (Census of Land Use and Employment)⁵).
- expanding MEPS programs, including the continuing removal of poorest performing appliances: to effectively drive innovation as well as removing poorly performing appliances, a shifting baseline system, similar to that implemented in Japan, where the most energy efficient appliance sets the *minimum* standard that must be achieved after a set period of time⁶, should be implemented.
- utilising the growing body of research into people's sustainability behaviours and motivations (for example RMIT's Centre for Design Carbon Neutral Communities⁷), including focusing on the social scale not individual scale in developing behavioural norms and motivating behaviour changes.

Capability: skills, knowledge and governance

- There is a massive interest at the local economic development level for grabbing the opportunities for promoting green jobs and green employment
- There is a growing concern about availability of sufficient trained people to undertake scaled up bulk implementation (eg public lighting changeover)
- There is an urgent need for training and regulation, including defining and setting standards and accreditation for skills and implementation.

Case study: EcoSmart Electricians

In 2006, NAGA developed the *Energy Smart Electricians project*, with funding from the Australian Government's Australian Greenhouse Office, to increase awareness of, and provide information to electricians within the NAGA region to expand their expertise in the application of emerging technologies and government regulation for energy efficiency. The project was developed in response to NAGA's experience through implementation of a range of projects targeting residential and business sectors, that a high proportion of the energy services sector had a low level of knowledge and practise in relation to energy efficiency products and measures.

The implementation of the case study highlighted the following critical issues for implementation of energy efficiency by the energy services sectors, including:

- strong demand amongst electricians for information, including technical information on equipment and appliances available, and their energy efficiency performance. This is an ongoing need as further equipment is developed.
- the need for recognition/accreditation of those electricians with skills and expertise in the energy efficiency area.
- the frustration with the lack of market demand for energy efficient equipment, in the face of the cheapness of inefficient products, and the demand for short 'payback periods' to justify increased up-front expenses.

As part of the delivery of the pilot program, key stakeholder relationships were developed with federal, state and local government, industry associations, product manufacturers and wholesalers, training providers and service providers. Following the pilot, the National Electrical and Communications Association has now established the EcoSmart Electricians program of national training and accreditation for electricians⁸.

⁵ City of Melbourne, Census of Land Use and Employment
<http://www.melbourne.vic.gov.au/AboutMelbourne/Statistics/CLUE/Pages/CLUE.aspx>

⁶ Nakagami, B. and Litt, B., 1997, *Appliance standards in Japan*, **Energy and Buildings** 26: 69-79.

⁷ RMIT's Centre for Design – Carbon Neutral Communities project <http://www.rmit.edu.au/cfd/cnc>

⁸ EcoSmart Electricians <http://www.ecosmartelectricians.com.au/>

CONCLUSION: Key actions for energy efficiency

NAGA supports the energy efficiency key action areas identified by the Energy Efficiency Roundtable in its communiqué of 15 April 2010⁹. These key actions are:

- Set mandatory national energy efficiency goals for 2020 and beyond with clear annual targets
- Create incentives in the National Electricity Market (NEM) to foster energy efficiency and distributed energy
- Strengthen institutional support for the 'smart grid'
- Build energy efficiency trade skills and workforce capabilities through national training programs
- Create strong incentives and regulatory drivers for energy efficiency in industry, commercial buildings and households
- Mandate stringent vehicle fuel consumption standards and recognise the contribution from recycling and materials resource efficiency
- Require best-practice energy efficiency in government operations

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The views represented in this submission do not necessarily represent the views of all NAGA members individually.

⁹ Energy Efficiency Roundtable Communiqué, Thursday 15 April 2010
<http://www.tec.org.au/ge-latest-news/866-energy-efficiency-roundtable-communique>