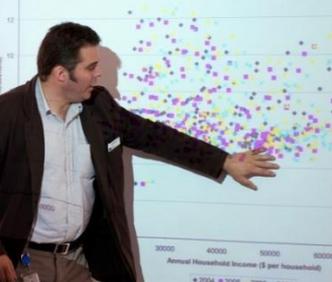




NAGA

NORTHERN  
ALLIANCE FOR  
GREENHOUSE  
ACTION



# Local Energy Consumption Data: Access and Application

Final report: 30 June 2011

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NAGA appreciates the contributions made by NAGA members and allies who have advanced the case for local data; and the Department of Sustainability and Environment for their continued advice and support; and distribution businesses, in particular Jemena Electricity Network, for their role in supporting this project.

## Summary

**“Consistent, accurate, useful and relevant energy consumption data at the local level is essential to plan and measure progress in the transition to a low carbon economy.”**

The ability to monitor energy end-use is key to measuring progress on community emissions reduction targets. This applies at the state, regional and local levels. The ability to use local consumption data to communicate with communities, to inform policy and planning, and to track progress is of paramount importance. This requires reliable and regular energy consumption data.

The City of Yarra partnered with Northern Alliance for Greenhouse Action (NAGA) to undertake the *Local Energy Consumption Data: Access and Application* project. Since 2008, NAGA has been working closely with energy distributors, and the Department of Sustainability and Environment to access and share energy consumption data. At present, electricity and gas consumption is measured at the meter by distribution businesses. In Victoria, distributors are regulated private monopolies that move electricity from transmission networks to residential and business customers. Consumption data is held by these companies and there are no mandates for local data to be made available for public benefit. This data forms a key part of understanding trends and impacts in Australians’ use of electricity and gas. The *Local Energy Consumption Data* project sought to formalise access to data, enable the application of local data for local purposes, and identify and overcome the institutional barriers which have made data access a longstanding and seemingly intractable problem.

The *Local Energy Consumption Data* project was supported with a \$50,000 grant from the Victorian Local Sustainability Accord (the Accord), enabling employment of a Project Manager and development of the Municipal Energy Consumption Tool. NAGA members and partners co-contributed \$38,000 (in kind) in personnel and resources.

All of Victoria’s distributors (5 electricity and 3 gas) operate within the NAGA region and so NAGA is well-placed to pilot protocols that could potentially be rolled out statewide.

### Access

Annual data has been supplied on an informal basis by all electricity and gas distributors in the NAGA region since 2008/09. This data has been made available to NAGA members<sup>1</sup>.

NAGA has been working with the Department of Sustainability and Environment to develop formalised data sharing agreements with electricity distributors. There is no legislative or regulatory requirement for distributors to provide local level data. In 2008 and 2009, NAGA relied on its established working relationships with and the goodwill of distributors to supply their data. This project aimed to achieve greater certainty in data access by formalising these informal arrangements. To date, NAGA has signed a Data Sharing Agreement with Jemena Electricity Networks, and has commenced discussions with other electricity distributors.

### Applying the data

NAGA has outlined the value case for both the public sector and the distribution businesses for the establishment of accessible data with analytic capacity. NAGA has also developed a number of case studies to illustrate the application of local energy consumption data to a number of communications and policy tasks.

A *Municipal Energy Consumption Tool* has been developed to build a municipal energy-use profile. It provides a profile of energy use by suburb for households and business across a municipality. Year-to-year comparisons can show changing patterns of energy use for households and on a per capita basis. Business and industry energy use and trends over time and place can also be viewed with the tool.

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<sup>1</sup> NAGA’s member organisations:

Banyule City Council, Darebin City Council, Hume City Council, Manningham City Council, City of Melbourne, Moreland City Council, Moreland Energy Foundation, Nillumbik Shire Council, City of Whittlesea, City of Yarra.

## Advancing data access and applications

Formalised provision of local energy data and a central data repository, with analytic capacity to turn raw data into information, are required in the near term to ensure better understanding and tracking of local and regional variations in energy consumption. This is a vital tool in our transition to a low carbon, climate-changed future.

Data will support the larger systemic changes required of the national energy policy framework. Such changes need to enable the incorporation of energy efficiency and greenhouse gas emission reduction into and across the National Electricity and Gas Markets. Amendments to the current market framework and rules would enable the development of sustainable energy infrastructure and systems, which ultimately can improve policy and programs at all levels of government, in the interests of energy users and local communities.

# 1. Introduction

## *Aims and objectives*

The Northern Alliance for Greenhouse Action (NAGA) and its member organisations have identified the need for local energy consumption data and have been working on this issue since 2006. In 2008, NAGA developed a regional plan to reduce greenhouse emissions, *Towards Zero Net Emissions* (TZNE). The plan sought to quantify regional emissions (baseline data), and identify opportunities for reductions through energy efficiency, renewable generation and offsetting.

In parallel to the TZNE plan, NAGA commenced working with distributors to access community energy usage data. In Victoria, distributors are regulated private monopolies that move electricity from transmission networks to residential and business customers, and hold the consumption data measured at the meter. In order to identify baseline local emissions data for tracking their community greenhouse reduction targets and for TZNE, councils have had to rely on complex modelling to allocate state-level data to local and regional scales. Despite a clearly identified need for accurate and reliable community emissions data, finding the right policy and regulatory pathway had proved elusive. NAGA sought to explore and address this need, by working with others to find and advocate for a solution. This work established the initial contact with distribution businesses and a partnership with Department of Sustainability and Environment (DSE). These relationships continued through to 2010 when the *Local Energy Consumption Data* project was established with funding from the Victorian Local Sustainability Accord (the Accord).

Through the *Local Energy Consumption Data* project, NAGA sought to advance voluntary data-sharing arrangements and management of community energy consumption data for its members. This project sought to increase NAGA's, and its members' capacities to plan, monitor and communicate progress towards emissions reduction targets and strategies, by having consistent and accurate energy consumption data for tracking progress.

The *Local Energy Consumption Data* project set the following objectives:

1. Obtain local energy consumption data on a consistent and regular basis for electricity and gas across the NAGA region by working with distribution businesses and the Department of Sustainability and Environment to establish data sharing agreements.
2. Once accessed, improve datasets or increase value as a planning and measurement tool by state and local governments across geographies and sectors.
3. Demonstrate the application of local energy consumption data by and for local government. Case studies will be developed of NAGA members' application of datasets to local planning and communications, for wide dissemination to Victorian councils.
4. Facilitate the establishment of a data repository and access arrangements for local government, Greenhouse Alliances and agencies working in the public interest. This will be done by developing a model electronic data management tool.
5. Facilitate the application of supply infrastructure and demand data from distribution networks to urban redevelopment projects.
6. Investigate possible legislative and regulatory changes needed to enable the development of sustainable energy infrastructure and systems.

This report details project outcomes, progress on meeting the objectives outlined above and recommends further actions which would progress access and applications of local energy consumption data.

## **Project partners**

Project Working Group members: Heidi Hamm, Darebin City Council; Faye Adams, Manningham City Council; Matt Willcox, City of Melbourne; Michael Oke, City of Yarra (Lead Council); Judy Bush and Rose Read, Northern Alliance for Greenhouse Action; Julian Smith and Louise Cramsie, Department of Sustainability and Environment; Alex Fearnside, Yarra Energy Foundation (joined the Working Group during the project). The Working Group met on 8 occasions over the course of the project to inform the strategic directions, development of resources and project reports.

Department of Sustainability and Environment (DSE): DSE has been accessing and analysing local energy consumption data, and has published residential energy consumption for each of Victoria's local government areas in 2010 on an experimental basis. Both DSE and NAGA shared many objectives in accessing and applying local data, and through the course of this project each has benefited from the other's knowledge and expertise. Each partner recognised the other could complement and expand the project's outcomes, as well as extending their own capabilities. DSE provided technical and policy advice and supported the high level workshop held to build the value case and explore channels for advancing the project objectives. Several groups across DSE contributed to the project including VLSAC, Statewide Services, and Environment and Climate Change Policy.

Victorian electricity and gas distributors: representatives of the 5 electricity and 3 gas distributors were involved in supplying data and answering queries. Jemena also facilitated the provision of data from United Energy and Multinet. Meetings were held with Jemena, CitiPower and SPAusNet to advance data sharing agreements. Several meetings were held with Jemena to explore the range of data and knowledge sharing of mutual interest, led by Benjy Lee, Manager Energy and Carbon Policy.

Participants of the high level workshop: spanned state and local government, local government peak bodies, researchers, consumer and environmental NGOs, and climate change think tanks. The participants contributed to the value case and identified pathways to improve and formalise data access. Some participants have become strong advocates for local data access.

## 2. Project methodology and activities

The Local Energy Consumption Data project sought to work at three levels:

1. *With members of NAGA.* The key actions were identifying needs and potential applications of data; seeking feedback on the data obtained, in particular its veracity; and providing data to NAGA members. Moreland Energy Foundation (MEFL) tested the Moreland data and then developed the *Municipal Energy Consumption Tool* (an analysis and reporting tool) for application across other NAGA municipalities. Regular updates were provided to NAGA's Steering Committee and Executive.
2. *With energy distributors.* Victoria has 5 electricity and 3 gas distribution businesses. They are responsible for the collection and use of energy consumption data for both billing and network planning. All of the Victorian distributors operate in the NAGA region, requiring NAGA to adopt a holistic approach to accessing data. The key actions were to engage distributors, outline the needs of local government and NAGA, and identify the value for distributors arising from their engagement with NAGA and DSE. Initially, electricity distributors were approached by letter to their Chief Executive Officers, and where possible, NAGA teamed with its members that were already pursuing distributed energy planning (particularly MEFL, Darebin City Council and the City of Melbourne), to build awareness of local interests in energy supply and demand. In many instances establishing the appropriate contact officer at the distribution businesses took some time. Face to face meetings were critical in outlining to distributors NAGA's objectives, the data sought and in building an understanding of the industry perspectives, and the priorities and capacities of each distributor. Not all contacts in the electricity industry have been stable, requiring persistent follow up, new introductions and reinforcing the importance of formalised agreements. Fewer difficulties have been experienced with the gas data.
3. *With allies across government (state and local), local government peak bodies, researchers and non-government organisations.* Building on NAGA's existing relationships with a range of parties on this subject, NAGA sought input and feedback on papers, attended relevant forums to outline the project and to seek strategic directions from experts.

An invitation-only workshop, organised by NAGA with assistance from DSE, brought together many of these allies. The workshop, held on Wednesday 9 February 2011, was facilitated by Now For Future. Its aim was to confirm the value case for obtaining energy consumption data for both public sector and distribution businesses, and to explore measures to achieve progress on developing formalised approaches to obtaining, analysing and managing energy consumption data. Many from both local and state government have worked on the issue over the past 10 years; the workshop was aimed at building support and renewing a broad-based commitment for further efforts to resolve the issue.

Key outcomes are highlighted below.

- The value for **governments, non-government organisations** and the **community** of obtaining data to inform policy and programs and to track progress was confirmed. The value case needs to reinforce energy and cost savings potential as well as emissions mitigation.
- The value case for **distributors** to provide data was explored: key areas identified included demonstrating corporate social responsibility (or reducing corporate reputation risk), and the potential for developing new and diversified business opportunities associated with modernisation of the electricity system (i.e. smart grid, distributed generation, information technology, etc). Neither of these was considered to constitute powerful drivers at present.
- A multi-pronged approach to create a winning case for a formalised approach to accessing the data and holding it in a state or national data collection and repository includes:
  - i. further refining the 'value case' to clearly articulate the benefits;
  - ii. engaging state and federal ministers;
  - iii. leveraging NAGA's success with Jemena to establish agreements with other distributors;
  - iv. building dialogue with distributors, local government and others around the changing face of energy supply, addressing business opportunities and risks;
  - v. coalition building with NGOs, and government;
  - vi. linking with other environment and energy policy processes and consultations to advocate the case at state and federal level;
  - vii. further development of a proposal for a central data repository function, location, and the associated resource implications.

The workshop supported NAGA's leadership approach and achievements to date, and reiterated the importance of maintaining a focus in this area. NAGA will continue to implement the workshop recommendations.

## 3. Key findings

The project findings outlined below represent outcomes and lessons related to each of the project objectives.

### 3.1 Local energy consumption data access and data sharing agreements

*Objective 1. Obtain local energy consumption data on a consistent and regular basis for electricity and gas across the NAGA region by working with distribution businesses and the Department of Sustainability and Environment to establish data sharing agreements.*

#### Provision of data sets

Data sets have been provided for 2 consecutive years to NAGA by distributors at no cost. This is the result of ongoing contact with the distributors, to whom the purpose and potential of the data applications has been outlined. Aggregated data, drawn from the company data bases, are provided annually, once final figures have been verified.

The data sets that have been made available to NAGA are listed in table Table 1:

Energy Type	Distribution Business
Electricity	CitiPower 2007-09; Jemena 2004-06 (AGL residential),2007-09; SPAusNet 2003-09 , United Energy 2008-09
Gas	Multinet 2008- 09; SPAusNet 2007-09; Envestra 2002-09

**Table 1 Energy consumption data supplied to NAGA**

NAGA has sought to achieve provision of a standard data set (frequency; and tariff and sector type). This is vital to enable cross-network comparisons.

#### Data sharing agreements

The project elected to establish voluntary data sharing agreements with the electricity distributors in the first instance. NAGA took this path as the regulatory route is increasingly a national matter.

A data sharing agreement was signed with Jemena Electricity Networks in January 2011. The formalised voluntary agreement is for 2 year duration and is based on a template provided to NAGA by DSE, amended to address NAGA's requirements for aggregated data. The Agreement was finalised after a series of discussions with Jemena in which the benefits of *sharing* information between local government and the business could prove mutually beneficial. In the changing energy market environment, distributors are becoming increasingly aware, and responsive to, the changing nature of electricity supply and demand, particularly with the emergence of smart technologies, increased focus on infrastructure costs and pressures to reduce and flatten demand, as well as new and emerging commercial opportunities in energy efficiency.

CitiPower/Powercor and SP AusNet have now been approached to establish data sharing agreements with NAGA using the Jemena model agreement. United Energy will be approached following the finalisation of its organisational restructure. Completing one signed agreement has made it more likely, though not guaranteed, that agreements with other distribution businesses can be established.

Provision of data and data sharing agreements do not figure highly in distributors' priorities. As regulated monopolies, distributors' business models are based on the supply of electricity to growing numbers of customers. These objectives are being increasingly challenged as a result of the climate change imperative, and due to rising costs from growth in infrastructure and consumption. This makes it an opportune time to pursue NAGA's objective of obtaining formalised agreements. Formalised voluntary agreements reflect NAGA's preference to partner with distributors, by sharing information in the transition to more efficient and cleaner energy, rather than adopting a purely 'bottom-line' regulatory approach. Consistent follow-through from NAGA has been a key to the achievement of data and progressing data sharing agreements.

Progress has been slow, however distributors now appear much more willing to consider data sharing agreements at the local or regional level than in 2008. Distributors are more amenable to recognising local government as a customer and potential partner. As regulated private enterprises, they are wary of formally engaging with state government departments, though it is hoped that with time and experience, this will prove less of an obstacle.

### **Building relationships with distribution businesses**

As part of background research for the project, NAGA collated information on the geographic coverage of distributors within the NAGA region (by municipality, postcode and distributor) to act as a reference for council officers, NAGA and distributors. A sample for Darebin City Council is provided in Table 2.

<b>City of Darebin</b>				
Postcode	Suburb	Shared Municipality	Electricity Distributors	Gas Distributors
3070	Croxton		Citipower, Jemena	Envestra
3070	Northcote		Citipower, Jemena	Envestra
3070	Westgarth		Citipower	Envestra
3071	Thornbury		Citipower	Envestra
3072	Preston		Jemena	Envestra
3072	South Preston		Jemena	Envestra
3072	Regent (shared with Preston)		Jemena	Envestra
3073	Regent (shared with Reservoir)		Jemena	Envestra
3073	Reservoir		Jemena	Envestra
3078	Alphington	City of Yarra	Citipower, Jemena	Envestra
3078	Fairfield	City of Yarra	Citipower, Jemena	Envestra
3083	Kingsbury		Jemena	Envestra
3083	Bundoora	City of Banyule City of Whittlesea	Jemena, SP AusNet	Envestra
3085	Macleod	City of Banyule	Jemena, SP AusNet	Envestra

**Table 2 Darebin City Council postcodes and distributors**

This research identified that all five electricity distributors operate in the NAGA region. This requires NAGA to work across all Victorian distribution businesses.

Distribution supply network boundaries, municipal boundaries and postcode boundaries do not match. Most NAGA councils have at least 2 electricity and 2 gas distributors operating within their boundaries, making this possibly the most complex region to match consumption with boundaries. Postcodes form the basis of distributors' measurement of consumption, for billing purposes. However postcodes are a non-standard and changeable structure, and in some cases might cross municipal boundaries (in comparison with Australian Statistical Geography Standards used by Australian Bureau of Statistics). For example, postcode 3083 includes the suburb of Bundoora which spans 3 municipalities and 2 electricity distributor networks. NAGA has been fortunate to access the methodology used by DSE to assign aggregated consumption by postcode to municipal boundaries.

The relationships developed with distributors have also enabled the acquisition of solar photovoltaic metering information and data on solar installations for the NAGA region. This information has contributed to other NAGA planning and program activities including for example, the *Delivering Clean Energy Solutions* (solar bulk buy) project, enabling accurate information and costs of metering information to be communicated to residents interested in installing solar panels. Data on the number and location of existing solar customers provides a baseline measure for the *Delivering Clean Energy Solutions* project, assists council awareness and reporting on uptake of renewables, and informs communications.

***“This partnership is a demonstration of how we’re listening to our customers and thinking about ways to address their energy consumption needs and concerns. By working closely with NAGA, we can better understand the impact our planned projects will have on consumption. We can then develop strategies that more effectively respond to changing consumption habits for the benefit of our customers and our network.”***

***Richard Twisk, General Manager, Electricity Networks, Jemena***

### 3.2 Improved datasets and increased value of data

*Objective 2. Once accessed, improve datasets or increased value as a planning and measurement tool by state and local governments across geographies and sectors.*

A key output from the project has been the development of a *Municipal Energy Consumption Tool*. The tool was developed for NAGA by Moreland Energy Foundation (MEFL). This tool transforms postcode-level source data into consumption profiles across the municipality. It provides a profile of energy use by postcode for households and business across the municipality. Year to year comparisons can show changing patterns of energy use for households and on a per capita and per household basis. Business and industry energy use and trends over time and place can also be viewed through the tool.

The complete tool can be accessed via the NAGA website on <http://www.naga.org.au/resources.html>. Sample pages of the tool are represented in Figure 1 and Figure 2.

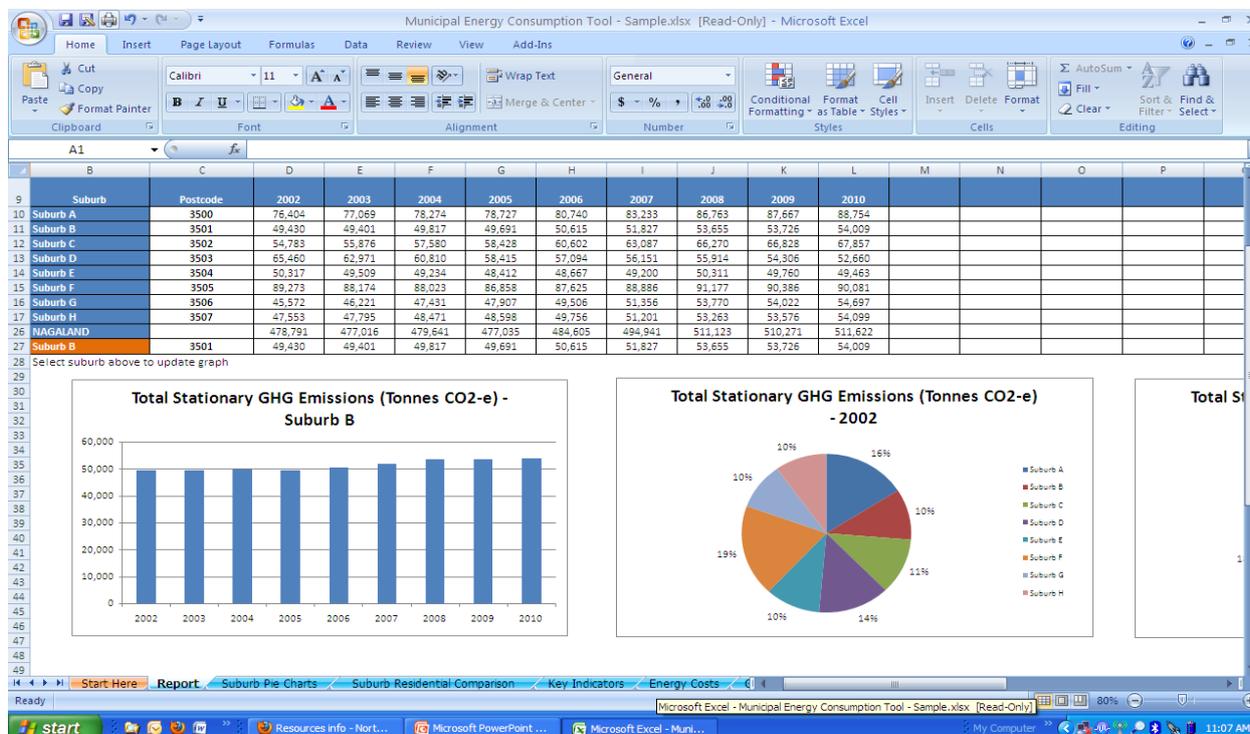
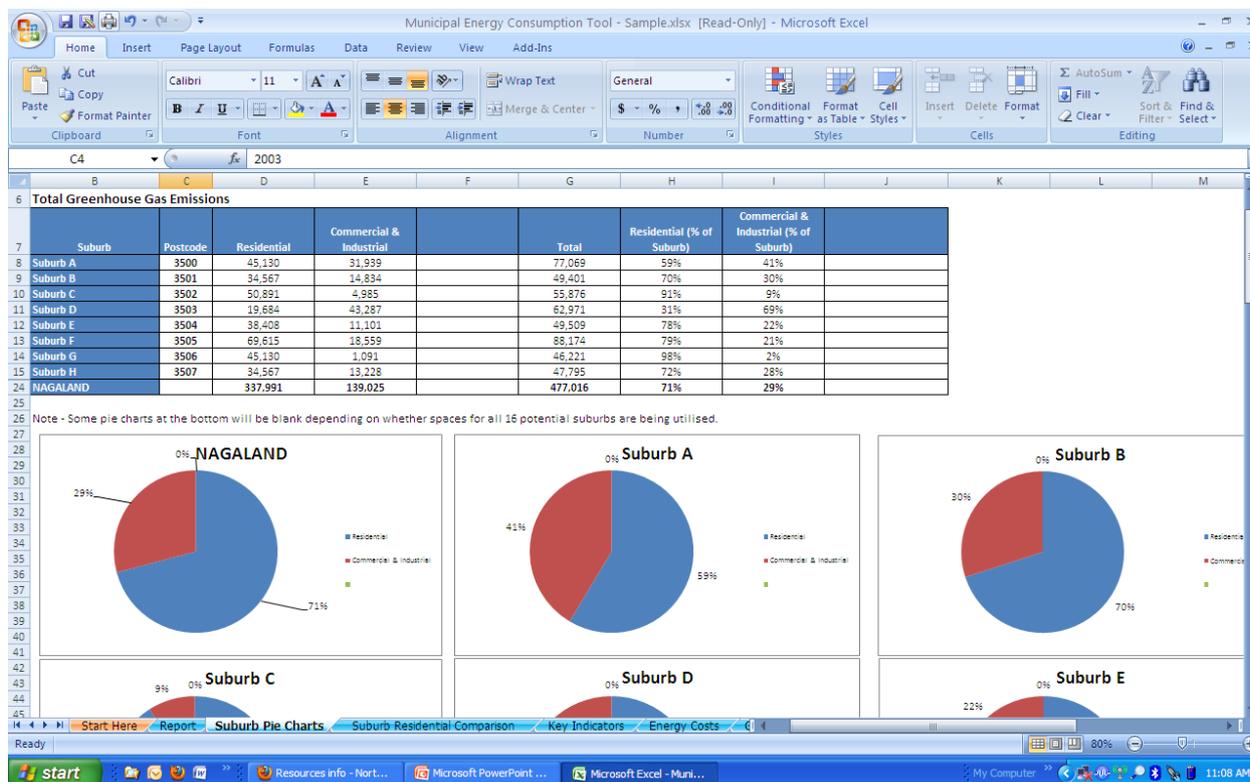


Figure 1 Sample report of GHG Emissions by suburb by year



**Figure 2 Sample suburb profiles of residential, commercial and industrial energy end use**

The consumption profiles, using data provided by the Victorian energy distributors to DSE and transformed using this tool will become available later in 2011 to all councils (this element has been funded separately through a contract between DSE and MEFL). This will create, for the first time, a profile of local energy consumption and greenhouse emissions in stationary energy at the local level based on actual consumption recorded. The tool can be applied to data for any municipality or region.

NAGA has worked in conjunction with its members, in particular MEFL, the Cities of Darebin and Yarra, to trial and apply aggregated data to create informative municipal energy consumption profiles. These NAGA members have assisted in testing and verifying the data and its value to councils.

The trial applications using the current tool have identified some data discrepancies across time and place. Inconsistencies within data sets supplied, and an inability to compare data between distributors from year to year, due to different methodologies from diverse databases, make the task of accessing more refined data a key priority. Distributors are not always able to respond to queries concerning data reliability when methodologies are not transparent. Data checking and verification will require further development in future and reaffirms both the need for data analysis expertise at both ends, and for stronger commitments for consistent and reliable data than has been the case to date.

The *Municipal Energy Consumption Tool* has the potential to be extended to include both more detailed layers, and correlations with other information sources, such as socio-economic and property data. It also has the capacity to incorporate transport and waste emissions, hence providing a more comprehensive municipal carbon profile. MEFL has commenced mapping Moreland’s energy profile, creating a municipal energy map and combining energy and transport emissions into a powerful visual format (Figure 3).

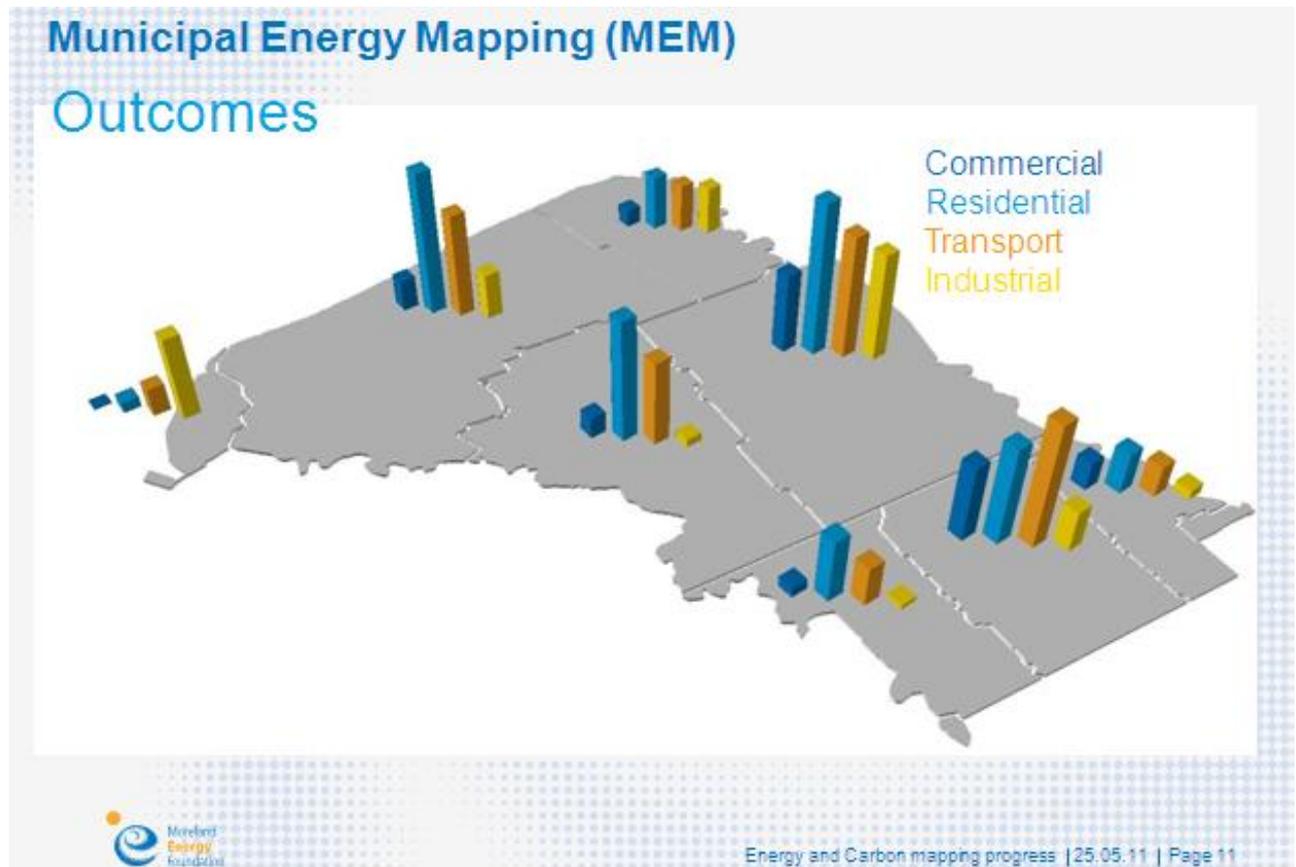


Figure 3 Mapping Moreland’s Energy and Transport Profile

### 3.3 Applications and case studies

*Objective 3. Demonstrate the application of local energy consumption data by and for local government. Case studies will be developed of NAGA members' application of datasets to local planning and communications for wide dissemination to Victorian councils.*

Prior to the development of the case studies, a *Value Case* (see Appendix 2) was developed to articulate the rationale for local energy consumption data to all key stakeholders as a means of engaging government, industry, non-government organisations, researchers and interested parties. The *Value Case* has been amended and improved over the course of the project, with inputs and feedback from partners and stakeholders, including distributors, refining the document and ensuring it represented the wide range of benefits of data provision for the many interested parties. This document has become a key means of communicating local energy consumption data to a diverse range of people and organisations, including the federal Parliamentary Secretary for Climate Change and Energy Efficiency, and the Garnaut Climate Change Review Update. Having a succinct summary of the project’s objectives has been an essential tool to promote the case by NAGA members, such as to the Council of Capital City Lord Mayors, or for allies, such as ClimateWorks Australia, to advocate the case in other forums.

As the data and the *Municipal Energy Consumption Tool* have become available, the applications of data for various purposes have commenced. It is still early days. Applications of data by NAGA members include project planning for specific localities and sectors based on local profiles; reporting on energy use and emissions across municipalities; and reporting against greenhouse reduction targets.

Data has also been applied for modelling energy options for the Coburg Initiative Precinct Plan in the City of Moreland and in growth area planning for the Epping Structure Plan in the City of Whittlesea. In both cases the data provided a baseline of likely emissions in a business-as-usual scenario from which alternative options for supply and reducing demand, including distributed energy, planning and building for energy efficiency could be estimated.

A number of case studies have been prepared as part of this project. These include the applied tool, initial profiles of household electricity and gas use of Victorian municipalities by DSE, the UK CO2 emissions by local authority annual statistical release, and the City of Newcastle's ClimateCam billboard which displays the amount of electricity the city has consumed in the past hour. The case studies are intended to show the scope and potential applications of local data (Appendix 2).

Once data can be transformed to provide a comprehensive picture of a municipality's consumption by locations, sectors and over time, the extent of planning and communications opportunities can be revealed. The strong interest shown by other councils and Greenhouse Alliances in the *Municipal Energy Consumption Tool* indicates that there is great interest in having data readily available for local purposes.

The *Value Case and Case Studies* were distributed to councils through the Greenhouse Alliances and published on the NAGA website.

***“Partnerships such as this may provide a model for improvements to data quality and availability at a national level. It is appropriate that efforts to improve national data on energy efficiency are coordinated to ensure that data is sufficiently accurate, relevant and comparable.”***

***Consumer Utilities Advocacy Centre***

### **3.4 Model data management tool and data repository**

*Objective 4. Facilitate the establishment of a data repository and access arrangements for local government, Greenhouse Alliances and agencies working in the public interest. This will be done by developing a model electronic data management tool.*

The development of the data tool has been outlined in section 3.2, above.

The need for a data warehouse, or repository, was recognised early in the project. Local government and Alliances do not have the resources or expertise to acquire, store, analyse and communicate energy consumption data. This is a specialist function, with economies of scale achievable by being housed in a single location with appropriate expertise, and able to be accessed by the multiple stakeholders who are working in the public interest to improve energy efficiency, costs and reduce greenhouse emissions. This includes local government, Greenhouse Alliances, state government agencies, researchers and non-government organisations.

NAGA held a high level workshop in February 2011 to identify options to progress the case for data provision and a data repository. The workshop brought together representatives from across the areas outlined above. The workshop concluded that a multi-pronged approach was required to create a winning case for a formalised approach to accessing the data and holding it in a state or national data collection and repository facility. The workshop also concluded that a data repository is best developed and maintained at the state or federal level.

There has been some initial exploration of possible national options for a data repository; further work is required to identify the central data repository's function, location, and the associated resource implications. In the interim, DSE has a vital role in obtaining and managing data, provision of policy and technical expertise to transform data into information and further the development of applications suitable at the local and regional level. The establishment and ongoing maintenance of a data repository and undertaking the necessary analysis will require commitment of additional state and/or federal government resources as existing capacity appears limited/fully committed; the Victorian Local Sustainability Accord could potentially play a key facilitating role.

Building support for the value of obtaining data remains the priority for NAGA, over determining mechanisms to establish a repository. Nevertheless NAGA will continue to advocate for this capacity to be developed in the public interest.

### 3.5 Supply infrastructure and demand data for urban redevelopment projects

*Objective 5. Facilitate the application of supply infrastructure and demand data from distribution networks to urban redevelopment projects.*

Several NAGA members are working with distributors on supply planning issues, including the Cities of Manningham, Melbourne, Whittlesea and MEFL. Most precinct or development projects are at early stages of planning and scenario modelling of energy demand and supply. Some have benefited from the data and contacts made through the *Local Energy Consumption Data* project.

The NAGA Project Manager has not been directly involved in these specific projects; her role has been mainly to keep other parties aware of developments and facilitate contacts, information and awareness between NAGA members and distributors. Projects in urban redevelopment and growth areas are largely separate from the *Local Energy Consumption Data* project, but NAGA can provide support to assist and connect councils where possible. This involvement contributes to capacity building and captures the data sharing element promoted by the *Local Energy Consumption Data* project.

NAGA sees facilitating capacity building in distributed generation, smart grids, and supply and demand developments as a priority for its ongoing energy consumption data efforts. These provide opportunities to strengthen the dialogue between distributors and local government on current and emerging system changes.

### 3.6 Legislative and regulatory measures to facilitate sustainable energy infrastructure and systems

*Objective 6. Investigate possible legislative and regulatory changes needed to enable the development of sustainable energy infrastructure and systems.*

The NAGA background paper *Access and Publication of Local Energy Data* (rev July 2010, Appendix 3) identified the need for changes to National Electricity and Gas Laws and Rules, to enable the necessary systemic changes to occur.

The high level workshop (see section 3.4) identified the need to engage state and federal Ministers to accelerate the formalised voluntary approach to data provision. Distributors' business models and service delivery objectives are not currently compatible with the objectives of increased energy efficiency and greenhouse gas emissions reduction. Inclusion of environmental objectives in the National Electricity Law and accompanying rules and regulations would realign the market to incorporate consideration of greenhouse emissions, alongside provision of secure and reliable supply of electricity and gas, which is the focus of the current laws. Until there is a fundamental change in the way the market operates, there is little incentive for making detailed data available. Data remains in the hands of industry. Indeed, with the roll out of smart meters, key customer information is likely to be increasingly seen as a valuable commodity. Data will inform pricing structures on which energy businesses base their businesses. This may jeopardize the long term prospects for energy data provision for public policy in the absence of regulation.

While NAGA has focussed on developing formalised voluntary agreements and building the value case for data sharing, it will continue to advocate and support projects addressing the barriers to decarbonising energy supply. Issues related to sustainable energy and infrastructure are being addressed regionally by NAGA members through the *Towards Zero Net Emissions* plan and projects such as the City of Manningham's Doncaster Hill Precinct Redevelopment.

Engagement with senior policy makers and Ministers, at state and federal level, is required to promote the systemic change to support sustainable energy infrastructure and systems. The priorities identified by the Accord in October 2010, in particular, building distributed energy and other systems, and managing carbon emissions, are significantly constrained without legislative or regulatory changes to alter the operation of the market in favour of leaner and greener energy. This is a complementary action to this Project's and should be addressed simultaneously. NAGA and its members will continue to advocate for change in this direction.

## 4. Project evaluation

### Key project achievements:

- The provision of project funding allowed NAGA to employ a dedicated project manager to develop relationships with Victoria's electricity and gas distributors. The relationships formed between the NAGA project manager and the energy distributors resulted in the distributors voluntarily providing 2008 and 2009 data.
- Ultimately, NAGA's aim was to have formalised data-sharing agreements with each of the distribution businesses to ensure that ongoing data-sharing was not dependent on individual relationships with particular staff members. Jemena was the first distributor to formalise a data-sharing agreement with NAGA, and agreements with other energy distributors are under consideration. The data-sharing agreement with Jemena would not have been possible without the perseverance of the Accord funded project manager.
- The funding also ensured that NAGA had resources to capitalise on DSE's expertise working with energy data. This enabled a broader understanding of the value and limitations of the data-sets to be considered from both a local, regional and statewide perspective. The knowledge and capacity developed ensures that for both state and local governments much better use can be made of the data. NAGA has developed local capacity through this project and has trialled local applications.
- The *Value Case for Local Energy Consumption Data* has been amended and improved over the course of the project, with inputs and feedback from partners and stakeholders, including distributors, refining the document and ensuring it represents the wide range of benefits for the many interested parties. This document has become a key means of communicating the project objectives to a diverse range of people and organisations, including the federal Parliamentary Secretary for Climate Change and Energy Efficiency, and the Garnaut Climate Change Review. Having a succinct summary of the project's objectives has been an essential tool to promote the case, and has also assisted NAGA members and allies to advocate the case in other forums, such as the Council of Capital City Lord Mayors.
- The project funding also provided NAGA with an opportunity to develop the *Municipal Energy Consumption Tool* to assist in local area data analysis. This tool transforms postcode-level source data into consumption profiles across the municipality. It provides a profile of energy use by postcode for households and business across the municipality. Year to year comparisons can show changing patterns of energy use for households and on a per capita and per household basis. Commercial and industrial energy use and trends over time and place can also be viewed with the tool.
- As the data and the *Municipal Energy Consumption Tool* have become available, data applications have been developing. It is still early days. Applications of data by NAGA members include planning and reporting on energy use and emissions across municipalities, and reporting against greenhouse reduction targets. The City of Whittlesea is already using the project data to plan for suburban growth. The City of Yarra recently established the Yarra Energy Foundation (YEF), dedicated to making the City of Yarra carbon neutral by 2020. City of Yarra plans to use local energy consumption data to monitor YEF's progress towards this goal.
- DSE has identified the value of the *Municipal Energy Consumption Tool* beyond NAGA councils, and as a result is separately funding the supply of the populated tool to all 79 Victorian councils.
- Recognition and support for NAGA's leadership on this issue by councils, regional alliances and others has been received throughout the project. NAGA is heartened by the support and future benefits this work will provide for all councils and others working in the public interest.

***“Thanks for inviting me along yesterday; I think your network of council staff working in that space is fantastic.” City of Port Phillip officer***

## Barriers and opportunities:

- The *Local Energy Consumption Data* value case is still not widely understood or recognised outside local government circles. The value case remains pertinent to demonstrate that this information is critical to sound evidence-based policy-making and program development. The climate change policy space is crowded, complex and contested, making it difficult for data as an issue to gain traction. Major climate change policy development (carbon price, complementary measures) provides potential opportunities to support the value case for data sharing and repository establishment.
- The Electricity and Gas legislative and regulatory system is complex, and requires major changes to accommodate social and environmental objectives, in which the objectives of the *Local Energy Consumption Data* project are embedded. Local energy consumption data availability represents one component of the transition to a low-carbon climate-changed future which embodies systemic change to energy demand and supply.
- The change of state government and ability to access appropriate Ministers and advisors presents an opportunity to engage state government on community needs and how governments can facilitate a more informed 'energy literate' community, particularly in relation to cost of living pressures and rising energy consumption.
- The value case for distribution businesses is weak, especially if any major investment in data and IT is required. This highlights the importance of providing information exchange (data sharing) and demonstrating the business benefits to distributors. Concerns about information privacy also contributed to the challenge of establishing formalised data-sharing agreements with distribution businesses. This concern was overcome by sharing data aggregated to postcode, rather than sharing records, and the inclusion of 'authorised purposes' in the Jemena data-sharing agreement and NAGA members' protocol.
- In the near future, smart metering data is likely to increase the value of consumption data for both commercial and policy purposes and therefore make voluntary agreements potentially more elusive. This reinforces the importance of acting now. The provision of smart meter data could yield a better result for consumers from their investment in meter infrastructure if the data could be applied for public policy and community education purposes.
- The main challenge for the future in progressing access to energy data is ensuring that there is a continuation of commitment and funding to formalise the remaining data sharing agreements; oversee the agreements' implementation; establish a clearinghouse (or repository) to receive the data and provide it in a form that is useful; and to continue with research to maximise the value of the data.
- As part of a progressive shift in the acquisition of data at the local level, the *Local Energy Consumption Data* project has been successful in finally obtaining regular data from all the electricity and gas distributors and having established a data sharing agreement with Jemena. While the pace of change is slow, these achievements cannot be underestimated. This has been a very conservative industry with which to develop innovative approaches.
- NAGA and DSE have been the key agencies addressing this issue; it deserves greater attention and support than it has received across government at both state and federal level. Many key energy policy and consumer advocacy organisations are now aware of the need for data and a data repository. This requires NAGA to sustain interest in local energy consumption data and continue to keep the issue and its need for champions consistently in the policy gaze.

***“Agreement should be sought on the provision of consistent and relevant energy consumption data at the local level to plan and measure progress in the transition to a low carbon economy.”***

***Energy Efficiency Statement (excerpt), May 2011, Coalition of groups, including the Brotherhood of St. Laurence, ACTU, the renewable energy sector, Property Council and ClimateWorks Australia***

## 5. Recommendations and future directions

Issue	Recommended action	Suggested owner
<b>Data sharing agreements and knowledge exchange with energy industry</b>		
1. Formalised data-sharing agreements	Establish formalised voluntary data-sharing agreements with Victorian electricity and gas distribution businesses	NAGA/MEFL State government
2. Reliability and consistency of data	Identify and improve the reliability and consistency of the data provided by distribution businesses	NAGA/MEFL State government
3. Linkages and capacity building for distribution businesses and local government	Build linkages and mutual interests and support capacity building through forums and projects on distributed energy, smart grids and low carbon solutions.	NAGA/MEFL VLSAC
<b>Data repository, analysis and support</b>		
Develop a central data repository with analytic capacity for public benefit		
4. Data analysis	Ensure raw consumption data is consistent, accurate and translated into a format which is of maximum benefit to users. This requires an ongoing investment from government to support its data analysis and database knowledge capacity.	State government
5. Annual reporting	Annually publish local energy consumption profiles for all municipalities to track consumption and support policy and program development and evaluation	State government
6. Data repository and access	Establish a data repository to house local energy consumption data, with appropriate capacity to support policy and program development at all levels of government. Ensure consumption data is publically accessible in a non-proprietary format; provide primary data to researchers in a wide range of disciplines.	State government
<b>Data applications and case studies</b>		
7. Local case studies	Publish and promote case studies and examples of applications relevant to local government and communities	NAGA/MEFL
8. Applying data to policy development	Develop research and project capacity to support the application of data for policy, and program development	State government
9. Building the community's 'energy literacy'	Build energy literacy in the community by utilising and communicating local energy consumption data in conjunction with identification of efficient energy consumption for changing normative social practices.	VLSAC State government

Issue	Recommended action	Suggested owner
<p><b>Systemic change to enable the transition to a low carbon future</b></p> <p>Local energy consumption data is part of a suite of systemic changes required to transition to a low carbon future and should be addressed in this context</p>		
11. Strengthened data-sharing arrangements	Continue to build and demonstrate the value case for local energy consumption data, and pursue legislative or regulatory change should the formalised voluntary approach prove unsatisfactory	NAGA/MEFL VLSAC
12. Smart meter data	Identify the potential uses of smart meter data and the benefits of its availability for public policy purposes (in addition to the developing commercial uses)	VLSAC State government
13. Distributed energy, smart grids and low carbon solutions	Engage senior policy makers and government ministers at state and federal levels to incorporate energy consumption data acquisition into frameworks for energy and climate change policies, infrastructure and systems.	VLSAC State government
14. National Electricity Market	Identify and prioritise the incorporation of environmental and social considerations in the National Electricity Market framework.	VLSAC State government

## 6. Conclusion

The *Local Energy Consumption Data: Access and Application* project has made some significant advances in one year. NAGA members increasingly rely on accurate local energy data to plan and measure progress towards municipal emissions reduction targets and strategies. NAGA will continue to seek access to local energy data and pursue formalised voluntary agreements with distribution businesses on behalf of its members. Increased access to local data, the establishment of a formal agreement with Jemena and the development of a tool to store and translate data into information have been some of the key outcomes from the project. NAGA has established some valuable partnerships with private and public sector organisations, social and environmental researchers and organisations to advance the case for local data and identify measures to resolve the commercial and regulatory barriers to obtaining local data.

A combined approach, involving state and local government, is required to ensure there is capacity to house and analyse local data and ensure the public benefits deriving from local data will be realised for Victorians.