

LEICHHARDT MUNICIPAL COUNCIL

NOTICE OF MOTION

DIVISION:	MOTIONS OF WHICH DUE NOTICE HAS BEEN GIVEN
SUBJECT:	LEICHHARDT COMMUNITY OWNED WIND TURBINES AND ENERGY EFFICIENT COGENERATION
FILE REF:	F09/
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Background

Climate Change

Many key climate indicators are already moving beyond the patterns of natural variability within which contemporary society and economy have developed and thrived. These indicators include global mean surface temperature, sea-level rise, global ocean temperature, Arctic sea ice extent, ocean acidification, and extreme climatic events. With unabated emissions, many trends in climate will likely accelerate, leading to an increasing risk of abrupt or irreversible climatic shifts.¹

The installation of large community owned wind turbines in appropriate areas of the Leichhardt Municipality that also experience sufficient wind could allow the community and Leichhardt Council to take significant local action on global warming. Large wind turbines could help Council efficiently meet and surpass its target to reduce its greenhouse gas emissions and those of the community by 25% by 2020. A few large wind turbines have the potential to reduce Council's emissions from electricity completely and those of the community significantly.

Increasing costs of electricity

This financial year Leichhardt Council's electricity costs rose more than 20% (increase of \$265,000) taking the cost of Council's electricity bill above \$1,000,000 annually on electricity consumption of 5,642 mega watt hours. Electricity prices will only continue to rise when a price is placed on carbon and with increasing demand for declining fossil fuel supplies.

¹ International Alliance of Research Universities 2009, Synthesis Report
http://en.cop15.dk/files/pdf/iaru_synthesis_report_2009.pdf

Wind power is currently the most proven form of renewable energy in terms of environmental benefits and cost. It is a cost effective way for Leichhardt Council to reduce its emissions and encourage the community to do the same. Leichhardt Council's entire electricity consumption could be covered by a 2 mega watt wind turbine placed in an appropriately windy part of the municipality. According to the Hepburn Wind Co-operative a 2 mega watt wind turbine costs \$5-\$6 million, or a potential payback period of about five years for council.

Urban Wind farm Co-operatives

Maribyrnong Council in the inner west of Melbourne has recently completed a \$25,000 pre-feasibility study for a community wind project that involves two 2 megawatt wind turbines at the West Gate Bridge. They have used the Bendigo Bank Community Enterprise Model, which is a cooperative mechanism. The Council appointed Parsons Brinkerhoff to undertake the pre-feasibility study to determine the terms of reference for the project, determine the technical and financial feasibility and identify major risks.

The ownership model proposed involves Maribyrnong Council owning up to 10% of the project and the community owning the remainder, following the Bendigo Bank model. The estimated cost per wind turbine is \$5-\$6 million. Wind speeds at the site are not optimum – 6m/sec being the lower end of commercial viability. However the Council centred its business case on the arguments of energy security, climate change and increasing costs of fossil fuels.

The Hepburn Renewable Energy Association is behind a project to build two 2 mega watt turbines at the Hepburn Community Wind Farm, Victoria in 2010 at a cost of \$5-\$6 million each. The site experiences 8m/s wind speeds. The renewable energy generated by the wind turbines will be fed into the local grid thereby reducing the local demand from the wider grid. According to the Victorian Government, the average 2MW turbine results in a greenhouse gas abatement of 6,000 tonnes of CO₂ per year. The two turbine Hepburn Community Wind Farm will;

- reduce energy production p.a. by 12,200 megawatt hours – equivalent emissions of 2,300 households
- reduce greenhouse gases by 12,000 tonnes - equivalent to taking 2,800 cars off the road or planting 18,000 trees.

The Hepburn community will further benefit from the cooperative by receiving part of the profits via the Community Sustainability Fund. This fund will make grants to programs with an emphasis on community and sustainability. Shareholders in the cooperative will benefit from the financial returns on their investment.

In 2003, the Toronto Renewable Energy Co-operative in partnership with Toronto Hydro installed a \$1.6 million large wind turbine at Exhibition Place on the Toronto waterfront. The unit is a 750 kW model which generates an average of 1,400 megawatt hours per year, the equivalent of the electricity needs of about 250 homes. It displaces about 380 tonnes of carbon dioxide annually. About 1 million Toronto Commuters view the turbine every day on their way to work.

Community owned wind turbines in Europe have been very successful and are almost exclusively large wind turbines. Denmark derives more than 20% of its electricity from wind and more than two-thirds is community owned by farmers, individuals and families. Half of German wind capacity is developed by landowners and small investors.

Benefits of Community Ownership

The important difference between a cooperative and corporate structure is the voting rights of shareholders. In a cooperative the essential rule is one vote per shareholder, regardless of their financial contribution.

Local ownership helps turn a large wind turbine project into local sustainable economic development that may otherwise just be another corporate energy project. The widespread acceptance of wind energy in Denmark and Germany is in part attributed to the high degree of local ownership. Local ownership results in more of the benefits of renewable energy remaining in the local community; reduced local emissions, more local jobs, ownership and income remains in the local area.

Co and tri-generation

Cogeneration or CHP (combined heat and power) is the simultaneous production of electricity and heat using a single fuel such as natural gas, landfill gas or biomass. With tri-generation, the heat produced from the electricity generating process can be redirected into heating, cooling and hot water systems. Up to 80% of the fuels energy is converted to usable energy compared with about 30% for coal fired power stations.

Council has proposed to introduce a cogeneration plant at the LPAC. It would likely be located adjacent to the existing main pool electric heat pumps at the eastern end of the site. A report on the progress of this project will be brought to the next Climate Change Taskforce meeting.

Recommendation:

That Council engage a suitable consultant to undertake a pre-feasibility study to determine the technical and financial feasibility and identify any risks of community owned large wind turbines located in the municipality.

That Council engage a suitable consultant to undertake a pre-feasibility study to determine the technical and financial feasibility and identify any risks of additional cogeneration or tri-generation plants located in the municipality or possibly partnering with the City of Sydney's proposal.

That the results of the pre-feasibility studies be presented to a community meeting to be held in February 2010 and invite expert speakers to discuss the potential for community owned large wind turbines, co and tri-generation for the Leichhardt community. Potential speakers could possibly be drawn from Energy Australia, Climate Change Balmain-Rozelle, Maribyrnong Council, the Hepburn Wind Farm, the Clean Energy Council, the City of Sydney, the Bendigo Bank Community Enterprise and the NSW Registry of Co-operative and Associations.