Quality public services – opportunities to address climate change in Australia

A discussion paper on the impact of climate change and the role Australia's local, public services can play as the nation adapts to a climate constrained future

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A•S•U

Australian Services Union

Inside Cover

Quality public services – opportunities to address climate change in Australia

A paper to generate discussion and look at the possibilities for ASU members and their work places in a society being confronted by climate change.

The discussion paper has been a joint collaboration between Fitzpatrickwoods consultancy and Greg Mclean, on behalf of the ASU National Office.

The document is available to ASU members and branches as well as organisations the ASU is affiliated to, in order to encourage discussion at a workers level of issues and opportunities we face as fight against climate change .However acknowledgment of the report in your ongoing work and discussions would be appreciated.

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INTRODUCTION TO THE AUSTRALIAN SERVICES UNION

CLIMATE CHANGE DISCUSSION PAPER

Climate change is an issue that touches every member of the Australian Services Union.

Significantly, as the major union in industries like electricity, water services, and local government the ASU and its members have the opportunity to play a significant role in shaping Australia's response to climate change.

A recent joint report of the ACTU and Australian Conservation Foundation recognises that several of our industries – notably water services, waste recycling, renewable energy and energy efficiency – are likely to provide major employment growth in the future because of climate change.

The ASU continues its advocacy for collective, public provision of services as the most effective and efficient means of providing for society's needs. We question whether the proposed market-based mechanisms like emissions trading can be as effective as government leadership, regulation and service provision to address society-wide issues like climate change.

In our view, quality public services and the people that provide them are most likely to provide the leadership and solutions required to address climate change.

This discussion paper has been prepared for members, delegates and officials of the ASU. It raises issues about the impact of climate change on the industries, work and jobs of ASU members. It is intended to provoke discussion on these issues. It also provides some firm recommendations for action by Australian governments.

We urge members and officials to consider the issues in this discussion paper and to debate them within the union, in our workplaces, among our families and in our communities.

Greg Mclean

Assistant National Secretary – ASU

About the Australian Services Union

The Australian Services Union (ASU) is Australia's largest union in Local Government, the electricity industry, the water industry, the airline industry, social and community services and a number of other industries.

In communities across Australia, ASU members provide services to the community including in:

- Airlines
- Child Care
- Electricity Distribution / Generation / Transmission / Retail
- Gas Industry
- Public Transport Services including Bus, ferries, and railways as well as Freight Services ,
- Local Government Planning and Administration, Recereation , Libraries, Museums , Road, Parks, Construction and Maintenance, Road, Bridge & Footway Construction
- Railway Administration, Opertation and Construction and Maintenance
- Shipping Industry
- Social and Community Services
- Travel Industry
- Water Industry Catchment, Distribution, Maintence, Retail and Customer Service

The Union is structured into the following Divisions:

- Local Government
- Energy & Electricity
- Water
- Railways & Public Transport.
- State & Federal Government Services
- Airlines
- Clerical and Administrative
- Social and Community Services.

Within Australia, the ASU is an affiliate of the Australian Council of Trade Unions, local Trades and Labour Councils, as well as peak state union organisations, industry bodies and Industry Skills Councils.

The ASU is an affiliate of the world's largest public sector union organisation – the Public Services International (PSI) and also of the International Transport Workers Federation and Union Network International.

Snapshot – ASU Members & Climate Change

ASU members work in diverse occupations - from truck drivers to beach inspectors, from administrative, social and community services and public transport in local councils and municipalities to checking-in for airlines, in electricity generation and distribution and in the nation's water authorities.

Like all workers, ASU members have an interest in climate change, and how it will affect our working place, our quality of life and our communities.

The Intergovernmental Panel on Climate Change (IPCC) is made up of thousands of scientists from around the world. They estimate that unless major action is taken immediately and continuously, global temperatures will rise by between three and six degrees Celsius within one hundred years, with a range of significant impacts on the planet and populations.[1]

Of course, there is a different view. Some people say that climate change is not occurring or they claim that if there is change, it is the result of natural events – it is part of very long term cycles - and we need not be concerned by current events.

The ASU accepts the predominant view that climate change is occurring and believes that practical action must be planned and implemented to assist members and their industries prepare for the likely future. There must be consideration of what impact climate change will have on ASU members as part of the general population and, specifically, what impact there will be on them at work and in ASU related industries.

As a recent report by the United Nations and the International Trade Union Confederation states, "Relatively little and superficial attention has been paid to the social dimension of sustainable development, in particular to the implications for employment and for decent work."[2] This discussion paper aims, in part, to address that lack of attention.

The ASU recognises that the impact of climate change and the activities undertaken to address it will cause the work of some ASU members to change. In some cases there will be entirely new technologies for existing jobs. In others, there will be new work activities related to reducing energy intensity and therefore reducing emissions.

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[1] The nature of these impacts is outlined in the next section of this discussion paper.

[2] UNEP, ILO, OIE, ITUC: 'Green Jobs: Towards decent work in a sustainable, low carbon world' Source: http://www.unep.org/civil_society

As the impact of climate change is addressed, there will be new jobs and types of work in some industries where ASU members are currently employed. More workers are likely to be needed for some activities.

The ASU's assessment is that the number of jobs in public transportation and the provision of public services by local government, including utilities such as electricity and water supply and waste and recycling collections and management, will have to increase if Australia is to respond effectively to the challenges of climate change.

If solutions to climate change are to be found, there will be new ways to work and new jobs - jobs that previously never existed.

This discussion paper is primarily concerned with ways in which industries and the work of ASU members in particular industries may change. It will consider a number of industries and the work ASU members do in them and ask the following questions:

- What is the likely affect of climate change on the industry?
- What will the industry need to do to play its part in addressing climate change?
- How could the jobs of ASU members change?

Appropriate case studies are provided.[3].

Wherever the work undertaken by ASU members may change, there is an important role for those members who are union representatives and for the ASU itself. There is a brief section outlining current and future Union activity.

This paper commences what the ASU fully expects to be an ongoing conversation over the next few years. There is recognition that the provision of quality public services and the employment of adequate numbers of workers to provide those services will result in less energy intensity, lower emissions of global warming gases and better standards of living for Australians.

The ASU and its members can be confident that while climate change will alter their working world, most of those changes will be positive.

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[3] It should be noted that this discussion paper makes no reference to the airline industry as the ASU has already produced a substantial paper and submission in respect of this industry.

Climate Change - A Working Description

It is not possible to escape the term 'climate change' in Australia today, so it is important that we have a clear understanding about what climate change is and what it is not.

'Climate' describes the *long-term* state of the atmosphere across the earth or part of the earth.

The term 'climate change' therefore refers to long term changes to the atmosphere. While there can be natural adjustments to the climate, when we consider 'climate change' we are focussing on actions by human beings that have caused *global warming*.

Global warming is the increase of average world temperatures as a result of what is known as the *greenhouse effect*. The sun's radiation heats the earth's surface. Reflected heat is trapped in the atmosphere by gases commonly referred to as *greenhouse gases* because they work like glass in a greenhouse.

Water vapour is the most abundant greenhouse gas, followed by carbon dioxide, methane, nitrous oxide and a number of minor gases.

The *natural greenhouse effect* makes the earth liveable. In nature, greenhouse gases fluctuate and adjust with the interaction of oceans, forest and animals.

But changes in the earth's temperature have come about because of human activity, in particular the burning of fossil fuels (like coal and oil) that release huge quantities of carbon dioxide into the atmosphere. That is why climate change issues are often referred to as 'carbon' issues.

Most of this increase in atmospheric carbon dioxide has occurred over the last two hundred years. Over that time, average global temperatures have increased by 0.6 degrees Celsius. By 2070, without action to stop global temperatures rising, warming is estimated to increase by between one degree and six degrees Celsius over most of Australia.

The impact of such significant changes to global temperatures is not fully understood. However, even at the lower levels of temperature increase, we have observed more extreme weather events, melting of polar and glacial ice and more rainfall over oceans and less on land.

The consequences include more variable weather in many regions of the planet; human crises from landslides, drought and rising sea levels and species extinction where some animals cannot handle temperature changes

Australia's public services and climate change

Publicly provided services in Australia have the potential to play a significant role in reducing the impacts of climate change. Importantly, large amounts of the required infrastructure and a majority of the required workforce are already in place, providing Australia's existing, quality public services.

The ASU supports the search for new solutions to address the impacts of climate change. However, the union also recognises that there are many readily available solutions, which utilise existing and enhanced public service provision.

Importantly, the ASU's analysis demonstrates that many of the current jobs of ASU members are sustainable, climate friendly and meet the global criteria for 'decent jobs'.[4]

Local Government

Including indigenous land councils, there are over 600 local government authorities in Australia. Many authorities and their associations have examined climate change and identified issues that will arise in particular circumstances.

Some issues are generic in nature – for example, how to provide the new range of support services likely to be required by a carbon constrained community. Others are more specific – for example, the threat of rising sea levels on land use and availability, which only applies to coastal local governments.

Local governments are commencing the process of examining how they might reduce their own emissions. The ASU believes there are significant opportunities for emissions reductions and for leading changes that will bring about emissions reductions by local governments.

[4] 'Decent Work' is defined by the International Labour Organisation as, 'Opportunities for women and men to obtain decent and productive work in conditions of freedom, equity, security and human dignity. ... Decent work is central to efforts to reduce poverty, and is a means for achieving equitable, inclusive and sustainable development.' Source: http://www.ilo.org/global/About_the_ILO/Mainpillars/WhatisDecentWork/index.htm'

Making local government vehicles and plant more energy efficient

Because local government's represent the largest vehicle market in Australia, the ASU expects an early focus will be on the significant body of vehicles and plant held and utilised within local government. The ASU anticipates that over the next five years, the majority – but not all – of each local government's fleet will operate on hybrid engines, use renewable energies or switch to operate on lower emissions fuels like liquid petroleum gas or liquefied natural gas where refuelling will likely occur from street mains. Some local governments are already considering this measure.

It is important that analysis of energy efficiency and emissions intensity include the entirety of the life cycle of the vehicle or plant so that the energy used in manufacturing and disposing of the vehicle and the accompanying emissions are assessed, along with the fuel efficiency of the vehicle over its operational life.

It would be of no practical use for a fuel efficient vehicle to use half the amount of fuel, resulting in half the amount of global warming emissions if twenty-five times as much energy is used producing the fuel efficient vehicle compared to its less operationally efficient peer.

The take up of alternative fuelled vehicles – in particular those powered by liquefied natural gas – will lead to new and changed employment opportunities within local governments.

Improving waste collection and disposal services

Directly or indirectly, local government is the largest provider of waste collection and disposal services in Australia. Local governments are uniquely placed to provide emissions reduction leadership through the provision of these services. They have a long track record of encouraging waste collection and disposal demand reductions: by encouraging recycling and household and business waste separation; by reducing receptacle sizes and by conducting community information and education campaigns.

Reducing demand for waste collection and disposal services will, in turn, reduce the pressure on land use for the purposes of waste disposal. Further waste separation at disposal points will continue to be important – not least because it provides income for local governments through sale of composted material and the like.

Local governments must ensure their landfills meet rigorous planning guidelines that are consistent with general land use policy and decision making. An important opportunity exists for local governments to ensure that their land fills gather, store and where possible, utilise methane gases for the purpose of bio-energy production. Such activity could be for either the use of the local government itself or for production of electricity to return to the grid.

In Australia, this is a potentially large, untapped source of renewable energy. Further, as such bio-energy creation would utilise existing facilities, it does not create additional emissions in construction as do other forms of renewable energy plant such as wind turbines.

Mindful of recent events, the ASU recognises the need for an urgent audit of every landfill to ascertain the health and other risks associated with methane and other gases trapped within the facilities.

Waste collection and disposal is an area of activity that utilises significant plant and creates substantial emissions. Analysis of the emissions intensity of both the direct and contracted services will identify areas of immediate improvement.

Employment in waste collection is likely to remain stable with employment in waste management (land fills, refuse centres, recycling facilities) increasing significantly.

Recycling collection is not just waste management

The ASU recognises that in many local governments, recycling is now a more significant activity than waste collection and disposal.

Opportunities exist to extend *recycling* activities into local community support and charity through a new emphasis on *re-use* collections of appropriate materials including furniture and clothing. This is especially the case during the less regular collections commonly known as 'hard waste'. Of course, any product that is re-used or recycled does not have to be remade using new resources and new energy.

The ASU recognises there is significant scope for collection partnerships to be expanded so that items that can be *re-used* are recovered for that purpose before they enter the massed *recycling* phase. Likely partners in these situations are charitable organisations whose emphasis is often general clothing, furniture and utensils.

Recycling receiving facilities have become increasingly more sophisticated in recent years. Many now receive co-mingled recyclables and use electronic and manual sorting processes to separate various forms of recyclables. These Mixed Recycling Facilities (MRFs) should be extended beyond the major population centres to ensure the maximum possible recycling.

In the expansion of MRFs and more discreet treatment of recycling collection processes, there are very significant new employment opportunities for ASU members.

Planning for climate change and to avoid further climate change

As land use issues arise because of climate change - including the ubiquitous references to rising sea levels absorbing coastal lands - local governments will be presented with new planning issues, including the need to address crises and understand potential new crises scenarios.

Design principles for buildings, transportation, urban centres and local government centres will need to incorporate energy efficiency and reduced emissions intensity.

Renewable energy generation to meet local government electricity needs

Local government depots and offices – especially the smaller and decentralised facilities – could be fitted with small solar and wind turbines whose power, when not utilised directly, could be fed back to the grid. Electricity generated from methane collected from local governments' waste treatment plants could also form part of this new energy self-sufficiency.

For larger local government depots that collect and recover green waste, carbon neutral bio-energy plants are also an option.

Grid interconnectivity to ensure maximum usage of renewable energy should become mandatory for renewable energy generation plant in local governments.

New buildings should be fitted with heat sink capacities that utilise excess building heat (however generated) for the purposes of heating in winter or small scale electricity generation. The ASU recognises that this is an aspirational goal and would require financial support, including possibly in the form of joint ventures with government agencies or the private sector, for the adoption of appropriate technologies as they become viable.

This is an area of potentially significant employment growth.

Importance of public spaces

While the ASU does not overstate this point, it is likely that as housing becomes denser and fewer households have traditional backyards, the importance of public spaces will increase.

This will further increase community scrutiny of these assets, potentially increasing workloads and possibly providing for greater employment opportunities.

The likelihood is that existing 'green areas' such as parks and gardens owned or managed by local governments will be expected to demonstrate community leadership and provide examples of effective land and resource use to their communities.

For example, increasingly, local governments will likely be expected to ensure their own 'green waste' goes into bio-energy facilities for the creation of 'green power'. The ASU recognises that many local governments already provide leadership in this area. We note that many local governments would require financial support to realise this potential.

Encouraging innovation

As significant and accessible leaders, local governments have an opportunity to provide practical and innovative solutions to emissions reductions and the application of renewable energy sources. Local governments should be provided with taxation and other financial incentives to continue and expand their work in these areas.

The ASU will work closely with local government authorities and associations to realise these opportunities.

To address climate change, the ASU supports:

- Replacing local government vehicle fleets to operate on renewable energy sources where possible and to lower fuel emissions
- Life cycle analysis of energy use and emissions when conducting reviews of vehicles and plant
- Bio-energy plants being developed at larger local government depots and landfills to capture and utilise methane and other global warming gases
- All local government renewable energy plant being required to be connected to the grid to maximise the use of renewable energies
- Financial incentives for local governments to develop and implement innovative solutions to emissions reductions and renewable energy generation
- Increasing local government employment levels and training and education opportunities for existing workers to ensure these opportunities to address climate change are realised.

There are other industry sectors to consider. It should be noted that each of the subsequent sections, in one way or another, intersects with local government. Such is the sector's significance in service provision in Australia.

Public Transport

Globally, transportation is responsible for a very significant proportion of global warming emissions. The majority of these emissions are related to industrial transportation, but a significant proportion – especially in Australia – relates to private motor vehicles.

Public transportation spreads emission rates across a greater number of consumers than does private motor vehicle transportation and is therefore a partial solution to climate change.

The ASU recognises that improved public transportation services leads to increased numbers of system participants and fewer road users, which will reduce transportation related emissions.

Increased public transportation infrastructure

ASU members in the public transportation industry have observed declining Government investment over many years.

There is increasing and widespread recognition that infrastructure expenditure on railways both for public transportation and for rail freight is at a critically low level. Australia's investments in railways fall way below European standards.

Unfortunately, Governments in Australia have failed to invest substantial resources in increasing the capacity of our railway network, both in physical structures and employment of industry workers. The network is now at breaking point.

Railway system maintenance

Not surprisingly, as under-investment is an issue, the number of people employed and the resources applied to railway system maintenance is critically low.

The ASU has recently been working with the Australasian Railways Association, the peak industry lobby group, for increased numbers of workers to be employed by the state-owned corporations and governments to maintain and improve the capacities of the existing infrastructure. This is a more efficient and effective opportunity for improvement in emissions intensity than building new infrastructure.

Scope exists for large employment increases in maintenance and operational staff. The Australian Railways Association briefed ASU Railways and Public Transport industry branches ,in May 2008, on the industries skills shortages including many current ASU operational, planning and related areas.

The industries skills shortages at all levels will only grow as more people travel on railway and other public transport systems – with out up to date levels of employees in the railway and public transport industry patronage will not increase ..

Continued investment in transportation interchanges where rail, light rail and buses meet efficiently will also aid take up of public transportation services.

Similarly, there is an increasing body of evidence that assisting people to access public transportation through information services at a local level will encourage consumer utilisation of the network.

Some new employment is likely in the provision of additional information and education services.

To address climate change, the ASU supports:

- Increased investment in public transportation infrastructure, including railway infrastructure, bus interchanges and dedicated lanes and light rail services
- Continued work with the Australia Railways Association and other industry organisations to access resources for increasing employment levels for maintaining and improving existing railway infrastructure.
- Continue to argue for the creation of additional employment numbers, the up skilling of existing workers and replacement of workers in an aging workforce.
- Increased investment on public transportation interchanges
- Increased employment for the provision of direct and local information on public transportation options and linkages.

Water services

Australia is the driest country and the driest continent on earth. One of the most significant impacts of climate change on Australia is likely to be widely variable rainfall. In southern Australia in particular, there is expected to be less rainfall overall. The construction and management of water resources that capture, store, distribute, treat and dispose of water will play an ever more vital role in the future.

The ASU is Australia's largest water industry union through its members employed in corporatised water entities and in local governments where a significant proportion of these services are provided.

For much of the last century, ASU members worked largely unheralded across the water industry, providing one of our nation's most vital services. Over the last five to ten years, the skills, knowledge and training of ASU members in this sector has been formally recognised. This is an important aspect of assuring the community about the quality of our water resources.

Water quality continues to improve. The maintenance of existing water assets is critical to ensuring that the improvements are retained and that further water quality improvements are made.

However, while water quality in Australia is world-leading, the quantity of available water is disturbingly low, especially during protracted periods of drought. Additionally, system losses from leakage and faults are intolerably high because of inadequate investment in water network maintenance.

Increasingly, the ASU expects that alternative forms of potable water provision will have to be utilised.

Ultimately, the quality of life of a population can be charted through its access to sufficient quantities of clean water. As rising temperatures reduce Australia's rainfall, alternative sources, localised delivery and improved industrial scale delivery of water will be essential.

Unfortunately governments have failed many areas of the water industry, by not employing sufficient numbers to stop supply line water leaks and replace an aging network of pipes.

New water infrastructure

New catchments and dams are possible but are constrained by complex, protracted and often contentious land use decision making processes.

Desalination plants that are designed to manufacture potable water from sea water will continue to be constructed. However, the desalination process is highly energy intensive, requires base load power that is largely provided by coal fired power stations with currently very high emissions and is very expensive to implement. At best, desalination constitutes only part of the solution.

There are opportunities for additional employment in the construction of new water infrastructure, in particular the pipes and pipe maintenance of aging infrastructure. .

Waste water collection and recycling

One of the vast, under-utilised water resources in Australia is that which falls onto the roofs of buildings and into the streets. The ASU recognises that significant funding support would need to be provided to capture valuable volumes of rainwater falling onto domestic roofs. We know that this is a responsibility that local governments are currently not resourced to meet. In particular Councils opportunities around storm water, from streets and public parks and domestic.

Water recycling has increased. The ASU expects industrial scale water recycling to increase significantly through a mixture of public and private investments.

The trend toward *mandated* domestic recycling of water used for clothes washing, shower water and related areas should be accelerated to existing residences, with appropriate, additional, long term financial support.

The ASU understands that such programs come at significant cost and notes that marginal water and energy efficiency analysis needs to be conducted to demonstrate the specific perspicacity of these propositions. Comparison is needed between this likely expenditure and the massive expenses involved in constructing new water infrastructure of various types.

If regulation and financial incentives are focussed on maximising domestic water collection and usage, there would be significant new employment opportunities in regulatory and educative services and supply, in installation and in maintenance of equipment.

Maintaining existing water infrastructure

Australia's existing water infrastructure must be continuously maintained for it to provide constant quality water to households and industry. Water services network efficiency is patchy, requires auditing and requires investment to ensure for the community, security of this most precious of resources.

The ASU will continue its vocal public advocacy on this issue.

To address the impact of climate change, the ASU supports:

- Mandated domestic water collection into domestic tanks, with appropriate, long term financial support for local governments to manage the introduction
- Increased employment of water industry workers including operational staff, to reduce the waste water in leaking pipes and infrastructure, to ensure an adequate maintenance and replacement program is in place.
- Continue to argue for the creation of additional employment numbers, the up skilling of existing workers and replacement of workers in an aging workforce.
- Mandated domestic water reuse from washing machines and other grey water sources, with appropriate, long term financial support for local governments to manage the introduction
- Further investment in industrial scale water recycling for domestic and industrial uses
- Auditing water delivery infrastructure to determine network issues and to assess where additional human resources are required to maintain quality delivery to households and businesses.

Electricity Generation, Transmission and Distribution

Since not long after Tamworth City Council turned on the first electric street lighting, the ASU has been representing electricity industry workers, first through local government and then state government, and now a mix of private and public owned providers. Electricity generation, transmission and distribution were for a very long period of time operated by local governments.

In the ASU's analysis, as localised, renewable energy solutions are implemented, local governments are likely once again to lead the way in power generation, even if only to meet their own needs. But they also have the ability to provide carbon neutral cities, as` we are currently seeing in Europe

Without reductions in demand, electricity usage in Australia will continue to grow at approximately 6% per annum, placing huge stress on the existing infrastructure and workforce.

To assist with the development of new and more efficient energy generation technologies and their adoption by large and small firms, existing or new energy providers the ASU supports appropriately targeted financial incentives provided through the taxation system.

Base load power

As Australia's principal power generation union, the ASU is acutely aware of the amount of global warming gases released by burning coal to manufacture Australia's base load of electricity.

Importantly, technologies have advanced substantially and coal now provides significantly more electricity generation, per tonne of coal, compared to when it was first utilised. ASU members operating the nation's coal fired power stations for the public and private sector are increasingly required to advance their technology to ensure greater electricity efficiencies and resources.

The ASU and its members know that the community expectation is for coal fired power stations to reduce significantly their emissions with the ideal being neutrality. There is some prospect of this being achieved through a mixture of efficiency improvements and the application of emerging technologies including 'carbon capture and storage'.

The ASU notes the significant government investment in carbon capture and storage and the global move to fund research and development of 'clean coal technologies'. Also relevant is the increase in gas powered electricity generation plants which create much lower levels of global warming emissions.

Regardless of the specific technologies that are employed, Australia's coal fired power stations are increasingly sophisticated and complex, with major implications for workers' skills, career paths and remuneration.

Significant increases in employment can be expected in the operation of coal fired power stations as ASU members implement new technologies and work practices.

Renewable energy sources

A small but increasing proportion of Australia's non-base load power is being supplied from renewable energy sources. These are effectively emissions neutral. They add little or no global warming emissions, once constructed and operating, while providing electricity that would otherwise be produced primarily by coal fired power stations.

These energy sources include wind turbines, solar energy plants and the increasingly attractive bio-energy plants. The ASU recognises that lifecycle analysis is required to determine whether the emissions intensity of the manufacturing of giant wind turbines and other renewable energy plants can ever be overcome by the relatively small amount of electricity they generate.

The ASU expects that where renewable energy sources will be most effective is in the provision of localised and remote electricity where other infrastructure is not able to make a significant, efficient contribution. This may include within local governments where many workers already have experience of small scale solar electricity generation to operate remote equipment including pumps and road signals.

To take full advantage of the renewable energy requirements, additional employees will be required and essential retraining in some cases will be significant.

[case study]

Local governments can lead on renewable energy

An increasing number of local governments create some portion of the energy required for major portions of their own use from renewable sources. Some of these interact with the grid to ensure that excess electricity is not wasted and to earn income for the local governments.

In the near future, some ASU members will be employed generating bio-energy. Some will work in gas plants that capture methane from landfills and use it to create electricity rather than allow it to emit to the atmosphere and become part of the problem.

In the same way, the huge amount of green waste that local governments generate and collect can be used for more than compost. When that material composts, it emits carbon dioxide and contributes to global warming. As more and more ASU members are employed to operate bio-energy plants, that green waste will be combusted, creating electricity.

Both these processes will still result in emissions. However, the electricity generated means that less fossil fuel like coal will be burned and as plants that provide the green waste continue to grow, they draw in carbon dioxide.

In this way, local governments can provide direct leadership, demonstrating the opportunities and potential of renewable, carbon neutral electricity generation.

Electricity transmission and distribution

Australia's national electricity transmission grid is matched by a complex web of distribution networks. These are constructed and maintained by many ASU members whose work increasingly includes linking existing electricity generation with renewable energy sources.

The transmission and distribution networks have the capacity to provide increased efficiencies and reduced system 'leakage' of electricity. More importantly, they provide the public with a choice between traditional and renewable energies. The ASU anticipates electricity network construction and maintenance employment levels to increase.

Because of the increasing integration of the networks, ASU members working in electricity retailing are consequently able to offer the public a choice of sources for their electricity. This is a process supported by legislation in most states, where it is required that the option be presented to potential consumers. The ASU expects the skills requirements and remuneration of these workers to increase.

Electricity demand management

Coupled with retailing and increased information provision, ASU members are also at the forefront of change in the development of demand management techniques in the electricity industry.

Improved technologies allow the public to utilise electricity outside the peak demand of daylight hours for the operation of general household appliances that can run throughout the night. This has multiple advantages.

First, the consumer receives the electricity at a lower price.

Second, by using power that must continue to be generated overnight in coal fired power stations, energy that would otherwise be wasted is utilised, reducing daytime demand. Read the case study below to learn more.

Third, effective demand management reduces the need for the construction and maintenance of new network infrastructure as existing infrastructure is more fully employed.

[case study]

Less emissions *AND* lower cost electricity? ASU members help consumers make it happen

Electricity demand management meters assist consumers to reduce demand for electricity and their related costs. They allow consumers to choose what time of the day they use electricity for some domestic purposes. Annual savings for low income households can be in excess of $300. Importantly, they reduce peak electricity network demand, reducing the need for construction of new coal fired power stations and using electricity that would otherwise be wasted.

Demand management meters need to be installed and maintained. Consumers need to be informed about them and educated and assisted to use them. Additional skilled workers are required for both of these important activities.

The ASU is currently in discussions about wide distribution of demand management meters with the Federal Government.

To address the impacts of climate change, the ASU supports:

- Ongoing federal government funding of research and development of clean coal technologies
- Continue to argue for the creation of additional employment numbers, the up skilling of existing workers and replacement of workers in an aging workforce.
- Further research into the application of renewable energy sources for local application, especially in rural and remote areas
- Increased emphasis on Demand Management Technology, including intelligent network technologies
- Lifecycle analysis for renewable technologies prior to government investment
- Nation wide introduction of a household demand management program, implemented through appropriately resourced local governments and their service providers.

Workplaces - Offices

Because of the introduction of an emissions trading scheme – where the Government will require the generators of electricity to buy permits for their global warming emissions – the price of electricity will rise. Because the bulk of Australia's electricity comes from fossil fuels that, when burned, emit global warming gases, it is expected that the price of electricity in Australia will increase significantly.

As offices are renovated and new offices are built, they will inevitably be required to meet new standards. ASU members should expect to see their offices and work spaces using more energy efficient equipment, including smart technologies where unused equipment goes into hibernation, lights in empty rooms automatically switch off and natural light is encouraged.

All workers should expect to have smaller and probably more standardised personal spaces, while at the same time, fewer people will work all of their time in offices. Car parks are already being supplemented and in some cases replaced by increased motorcycle and bicycle spaces. In larger organisations, programs to encourage use of public transportation and car pooling already exist and will likely increase.

The impact for workers in offices is likely to include a renewed and more vigorous focus on personal energy efficiency measures. Of course, many workplaces already have a simple approach to energy efficiency. We have all seen signs telling us to switch the lights off when we leave.

However, it should be expected that more sophisticated organisations will automate many efficiency processes. Where they cannot be automated or it is too expensive to do so, workers can expect to see work practices change to include responsibility for personal equipment. Workers involved in purchasing and procurement are likely to have energy efficiency at the top of their list of requirements, where that is not already the case. Recycling of waste materials is likely to increase as a natural flow on from these activities.

Where they can be meaningfully implemented, the ASU will support the introduction of environment and energy committees, in some cases as a subset of existing Occupational Health and Safety Committees.

Working from home will become an increasing option for office workers whose work does not have to be conducted from a specific location all of the time. Few Australians working for an organisation that has an office spend all of their work time at home, but increasing numbers spend part of their working week at home. There are sound organisational and personal reasons for ensuring all workers have some contact with their colleagues and the organisation that employs them.

Largely, work from home options have evolved as a partial solution to calls for more flexible forms of work. However, with the costs of transportation including motor vehicle emissions and the congestion on the roads – not to mention financial costs for fuel, parking, wear and tear or even for public transport tickets and the time commuting takes – workers should expect to see energy efficient organisations including work from home options.

In larger offices, new jobs are possible for 'energy efficiency auditors', a role that is to some extent already incorporated in existing labour forces.

Those ASU members involved in human resources and personnel management can expect these issues to become part of the concerns they need to assist organisations and individuals to address.

Other than where new jobs are created, these changes are unlikely to lead to additional skills requirements. However, there may be opportunities for participation in information sessions and new processes that lead to greater energy efficiency.

New employment opportunities are likely to be limited to administering programs conducted by other parts of an organisation. However, the opportunity for leadership by office workers is significant, especially when it comes to engaging in recycling and in the energy conscious use of office technologies.

Community Service Provision and Obligations

ASU members providing support to low income households – especially those members working within electricity, water, local government, the community sector, or in the environmental areas – will have the increasing cost of electricity as yet another issue they will have to address. This is, of particular significance to ASU members working in electricity retailing. Were the management of customer's accounts, getting best value, understanding the community service obligations, and or and easy payments schemes will be critical , as they are now, in economic hardship cases, economic down turns and drought conditions, climate change or not .

There are likely to be government schemes to assist low income households with increased electricity costs and it will be the role of ASU members to assist households to access those schemes.

[case study]

ASU members assist low income households deal with climate change

The impact of climate change and the efforts to address it will be felt first and most severely by those with the lowest incomes. The ASU recognises that this will occur in the poorest countries in the world, but there will also be a negative impact on low income Australian households.

As Australia acts to address climate change, low income households face substantial increases in electricity, gas, water, transportation and food costs.

ASU members working in community services organisations, environmental agencies, energy corporations and companies, and within local governments will be at the forefront of assisting low income households to address these challenges.

Support will have to be provided to:

- access government subsidies and other financial support to reduce energy and water costs (the Australian Government has signalled it will pay the increasing cost of electricity that results from government mandated action to address climate change)
- understand and access services to increase domestic energy conservation and water efficiency
- reconsider household budgets to address changing family cost structures arising from measures to address climate change
- Assist consumers to switch to lower cost energy solutions..

New Jobs for ASU Members

As the previous sections indicate, the impact of climate change and measures to address it will create some new employment opportunities for ASU members and some new opportunities in the areas where ASU members work.

New jobs are likely to be created in:

- Constructing and maintaining new waste management facilities within local governments
- Constructing, maintaining and operating methane and other global warming gas collection and energy generation plants within local governments
- Constructing and maintaining electricity transmission and distribution network assets
- Constructing limited quantities of new water infrastructure
- Maintaining existing water infrastructure, including pipelines, dams and reservoirs
- Maintaining existing railway networks to maximise their operational effectiveness
- Installing and maintaining localised renewable energy equipment
- Constructing new rail, bus and light rail interchanges that will encourage public transportation uptake
- Assisting communities to implement domestic water collection and grey water treatment solutions
- Provision of public and community information and education regarding transportation options
- Purchasing new equipment only after life cycle analysis of its energy use when compared to competitor products– including therefore its ability to be re-used by another user or recycled
- Installing and maintaining electricity demand management technologies
- Assisting the community with electricity demand management, including with the implementation of new technologies

If the ASU's recommendation for the establishment of a National Utilities Network Inspection Service to be established is adopted, there will be high level employment opportunities across Australia for workers expert in electricity and water transmission and distribution networks.[5]

How the Jobs of ASU Members Will Change

The impact of climate change and measures to address it will create new job opportunities. Aspects of ASU members' existing jobs will also change.

In general terms, ASU members should expect to observe and participate in energy efficiency measures, including participating in 'energy efficiency' auditing.

Work practice changes

There will be specific changes to the work of ASU members in a number of areas. These include:

- Additional and altered work practices in local government planning roles to take into account domestic water collection, grey water recycling and energy efficiency options
- Provision of information and education services to the public and communities struggling to comprehend the practical implications of climate change and the local and personal solutions they can consider
- Increased emphasis on the efficiency and effectiveness of waste management facilities, including their capacity to capture methane and other global warming gases and to utilise it for renewable electricity production
- Implementing new technologies that maximise efficiency of electricity production and transmission in coal fired power stations
- Assisting consumers to access the correct package of retail utility services

[5] For further information regarding the ASU recommendation see 'Government's must continue to act' below

Increased and new skills

A changing climate will not automatically alter the skills and knowledge required to undertake a particular job. But some jobs will change and as jobs change, so do the skills required to perform them. Some ASU members can expect to undertake new or additional training. Many will participate in information sessions.

The ASU will continue to ensure that its members receive the appropriate training, assessment and skills recognition that provides them and the communities they serve with certainty of their competence to perform new or revised work functions.

Where the skills and work practice changes arising from the impacts of climate change and measures to address it are substantial, ASU members should expect to be involved in revising and redesigning their career paths.

The ASU expects that as a result of activities to address climate change, additional skills and training requirements and revised career paths will be required in the following areas where ASU members work:

- Waste management facilities
- Water storage and distribution networks
- Electricity generation, transmission and distribution networks
- Utilities retailing
- Public and community information and education activities

Recognition of roles in the community

As the importance of addressing climate change takes on new and increased importance, ASU members who participate in community organisations that actively address climate change should be able to access reasonable community service and volunteer leave.

Workplace consultation and involvement

Taking up and making the most of these opportunities will require appropriate workplace consultation and participation of ASU delegates and members. The ASU will address this important aspect of addressing climate change with all employers of ASU members - during negotiations for union collective agreements and other industrial instruments.

Action Now is Better Than Regret Tomorrow

Climate change and its impact on the environment in which we live, represent a major challenge to and for every person. There is little doubt that action is required immediately to address the existing impacts of climate change. Importantly, there is even less doubt that the impact of climate change will become worse without further action.

While the ASU does not regularly agree with the media magnate, Rupert Murdoch, we can agree with him when he says "We must give the planet the benefit of the doubt."

That sentiment drives the ASU in its consideration of climate change and its sense of urgency that measures like those outlined in this discussion paper must be implemented.

Governments Must Continue to Act

As we have outlined in this discussion paper, the ASU recognises the significant role that quality, local public services can play in addressing climate change.

A key aspect of harnessing that localised potential is new or extended legislation and regulations that make mandatory some of the most effective and efficient means of climate change abatement and mitigation.

The ASU also recognise that the very existence of dangerous climate change represents a failure of capital and equity markets to respond to a major issue over a long period of time. We are not convinced that market mechanisms like Australia's proposed Carbon Pollution Reduction Scheme will provide lasting solutions to climate change.

Government's role – especially with respect to regulation, financial incentives, infrastructure innovation and efficiency and local implementation of solutions – will be critical in addressing climate change. Accordingly, the ASU makes the following recommendations to Governments.

Establish a National Utilities Auditing and Inspection Service

The efficiency and effectiveness of Australia's water and electricity utilities is questionable, especially when viewed through the climate change prism where the social need for efficient energy production and water provision may not be the key operational driver of a facility.

The mix of ownership models, consequent varied levels of local, state and national government involvement, wide dispersion of technologies and other factors all play their part in creating difficulties with comparison between like services. The ASU does not believe that private sector owners of electricity and water assets are capable of undertaking proper assessments of criteria of *social* significance with respect to their operations.

In turn, this complexity makes it more difficult to assess the underlying efficiency and effectiveness of Australia's utilities.

To address this important community issue, the ASU proposes the establishment of the 'National Utilities Auditing and Inspection Service' which would be tasked with the following responsibilities:

- Conducting annual efficiency audits of all electricity and water infrastructure
- Determining required additional and revised network infrastructure to enhance operational efficiency of water and electricity assets, including but not limited to:
  - New pipelines and pumping stations
  - Network repair priorities to avoid leakage
  - New transmission and distribution points
  - Maximum opportunities for the early installation of electricity demand management technologies
- Determining appropriate investment and maintenance expenditure to meet audit outcomes
- Determining required levels of human resources and advising on opportunities to improve the skills, training and education of utilities workers to meet audit outcomes.

Mandate Regular Landfill Auditing

The ASU recognises the financial constraints that many local governments face, which result in limited activities like landfill auditing for the purposes of assessing their appropriateness for improved recycling and bio-fuel energy generation (methane driven).

The ASU recommends new complementary State and Federal legislation that mandates and funds regular audits of landfills to ensure they operationalise measures that could reduce the impact of climate change.

Provide financial incentives and taxation support

Appropriately targeted financial measures can assist in the actualisation of energy and water efficient innovations and technological adaptations.

The ASU will support taxation and other measures that support or fund:

- New technological innovations in energy generation or water management, treatment and distribution
- Introduction of technologies that will improve the efficiency of utilities, *including*:
    - Retrofitting coal fired power stations with carbon capture technologies for subsequent storage
    - Switching publicly owned vehicle fleets to less emissions intensive energy generation plant and equipment
    - Electricity demand management technologies
    - Household and business water efficiency measures
- New, massed public transportation networks
- Improved railway networks and efficiencies
- Local government energy efficiency programs
- The expenses of low income households incurred because of climate change

Establish a Climate Change Innovations 'Clearing House'

The ASU notes that there are a number of schemes available to support innovations that can address climate change. However, we also note that these appear to be ad hoc in their application and anecdotal evidence indicates they can be difficult to navigate.

To address this, the ASU recommends that the Federal Government establish a Climate Change Innovations 'Clearing House' within the Department of Climate Change. The operational intent of the Clearing House would be to assist and advise proponents of innovations from local governments, businesses and individuals to access the appropriate government assistance and support for their innovation to be considered and where appropriate actualised.

Establish 'Prime Minister's Climate Change Innovation Awards'

Recognising the importance of public recognition for innovation in challenging areas of public policy, the ASU observes the relevance of the establishment of a national program of the 'Prime Minister's Climate Change Innovation Awards'. We recommend the establishment of these awards across a range of categories, focussed on organisationally and individually developed and applied innovations.

Personal Action on Climate Change Makes a Difference

Just as the ASU knows that quality public services can contribute significantly to efforts to address climate change, it knows that the actions we each take can make a difference, no matter how small they may seem at the time. This is the principle of thinking global and acting local.

The ASU notes that many households already undertake the types of actions outlined here and also that for low income households, some of these measures require government financial support to establish and implement, even where they lead to lower ongoing costs.

Household energy efficiency

Households can consider taking the following steps to reduce their energy usage:

- **Use off peak electricity** by measures such as setting appliances to run overnight. This uses otherwise wasted power and is cheaper. Demand management meters and in some cases software will be required to take full advantage of this opportunity.
- **Switch off or unplug appliances** with inbuilt clocks or small lights.
- **Change light globes** to the low energy incandescent bulbs
- **Seal around doors and windows** to ensure rooms remain at constant temperatures

- **Hang clothes on a clothes line** ~ don't use a hot air dryer unless absolutely necessary
- **Switch lights off** when rooms are empty

Household water efficiency

Australians are becoming more and more adept at saving water. Most households now use less water than they did just five years ago. These are the types of measures households have taken:

- **Diverted grey water** (washing machines, shower water and sinks) to gardens, being cautious about health issues
- **Installed low flow shower heads**
- **Replaced lawns with native gardens** that require less water
- **Replaced leaking taps and hoses** immediately.

Change your transport mix

There are some simple measures we can all take to reduce the amount of global warming emissions that arise from our transportation needs. They include:

- **Taking public transport or riding a bicycle to and from work** whenever possible
- **Car pooling** to get to work or take children to school
- **Walking or riding a bicycle to the local shops**
- **Shopping local** as much as possible

Buy locally grown, seasonal food

It is more difficult in large cities in particular, but where possible, buy locally grown fruit and vegetables. Most of the emissions (and up to half the cost) of some fruit and vegetables is transport costs. Local produce should be cheaper and better for the environment. Buying local also means buying seasonal fruit and vegetables.

The other option, if you have a garden, is to grow your own fruit and vegetables.

What the ASU is Doing Now

There is no set timeframe around which climate change issues will be addressed. There are some aspects of the public debate that have clear timeframes attached to them, but at the same time, there are others that are simply ongoing work.

As an issue affecting ASU members and their families, climate change is an issue, which the ASU believes is now part of the continuous work of the union.

The ASU will continue to produce detailed papers for our industries - placing the interests of members and their families and the communities in which they live at the heart of the debate.

The ASU is actively *analysing industries*, often in detail. The intention of industry analysis is for the union and members to understand fully the impact of climate change and the changes that may occur because of it. This discussion paper commences this work for a number of our industries.

Sharing the outcomes of our industry analysis involves the union *informing members* in a number of ways, including through documents like this discussion paper, workplace newsletters, meetings and conferences.

Once the ASU and members have discussed and fully understand the impact of climate change on an industry, the union will hold *discussions with employers and in many cases, with federal, state and local governments*. As part of this work, the ASU will continue its work to influence Australia's major political parties on these matters.

As the ASU has already formulated a series of recommendations to government that are outlined in this discussion paper, this work is already underway.

The ASU and its members are significant and influential in a number of industries. Our influence will be harnessed to ensure policies and programs to reduce the impact of climate change, create new jobs and enhance existing jobs in the local government, electricity generation, transmission and distribution and water industries.

Similarly, the ASU is a member of global organisations including the Public Services International (PSI), the global representative body for workers providing public services. Through PSI and through direct lines of communication, the ASU will continue its work to influence the United Nations, the global banks that fund development activities (World Bank, Asian Development Bank etc) and significant economic and financial organisations like the Organisation for Economic Cooperation and Development (OECD).

As a result of all of this activity, ASU members should expect to receive more information and be involved in more debates about the impact of climate change on them, their jobs and industries over the coming months and years.

Finding Out More

There are many sources of information about climate and climate change for those who want to know more. The weather may have been a topic of discussion for thousands of years, but it has only been recently that climate change and human impact on the planet has been a significant issue. As a result, almost all resources and information are held on the internet.

The sources listed below include many of those considered in the drafting of this discussion paper.

Australian Government action on climate change

- Department of Climate Change. http://www.climatechange.gov.au
- *The Garnaut Review Report on Climate Change.* http://www.garnautreview.org.au/report

Global climate change negotiations

- *United Nations Framework Convention on Climate Change (UNFCCC).* http://unfccc.int
- *Kyoto Protocol.* http://unfccc.int/resource/docs/convkp/kpeng.pdf

Jobs and climate change

- *International Labour Organisation.* http://www.ilo.org
- *International Trade Union Confederation.* http://www.ituc.org
- *United Nations Environment Program.* http://www.unep.org/civil_society
- *Australian Council of Trade Unions.* http://www.actu.org/climate_change

General Climate Change Information

- *Intergovernmental Panel on Climate Change.* http://www.ipcc.ch
- *The Stern Report.* Britain's latest influential review on Climate change and its impact. (www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_Report.cfm)
- PSI – climate change web page (http://www.world-psi.org/TemplateEn.cfm?Section=Climate_Change1&Template=/ContentManagement/ContentDisplay.cfm&ContentID=19355)