

***International Federation
of Chemical, Energy, Mine
and General Workers' Unions
(ICEM)***

Labour And Climate Change

An ICEM position

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Introduction

'A state without the means of some change is without the means of its conservation' (Edmund Burke: Reflections on the Revolution in France)

Since June 1992 the governments of the world have been committed through an international treaty – the United Nations Framework Convention on Climate Change - to mitigating climate change. In late 1997 they adopted mandatory targets (the “Kyoto Protocol”) to control or reduce greenhouse gas emissions from human activities that contribute to climate change. In 2000 there has been intensive negotiations (not finalised as of the beginning of 2001) to specify the precise legalities of the mandatory targets.

Changes in the world’s climate have major implications for workers and their communities in terms of food availability and prices, living standards and lifestyles, occupational health and safety and public health. Measures adopted by governments that seek to control climate change also have major implications for jobs in many industries, especially ICEM industries, as many are based on fossil fuel production and/or use, the major source of greenhouse gas emissions.

The ICEM industries are amongst the world’s most energy-intensive. A large number of members of ICEM affiliates are directly employed in the energy industries – coal mining, oil and gas extraction and processing, and power generation. The majority of the other industries in which the ICEM is involved – chemicals, pharmaceuticals, rubber, ceramics - are heavy energy users. For this reason, the ICEM has always maintained that it has a special responsibility to address the environmental challenges presented by the industries it covers. At the ICEM World Congress in November 1999, one of the resolutions unanimously adopted was concerned with Sustainable Development in ICEM Industries. This stated amongst other things that:

- the ICEM...has an obligation to participate fully in defining, promoting and refining the concept of sustainable development.
- recognising that the dynamics between economic, social and environmental needs and demands will change over time;
- the pace of sustainable development will be more rapid in so far as it meets the needs of current and future workers and their families;

The ICEM World Congress therefore resolved:

- to work with affiliates and others to develop ‘Just Transition’ policies and strategies which address the transitional needs of workers and their families in the pursuit of more sustainable development; in particular where large scale moves from old to newer, more friendly, technologies are involved;
- to continue to insist on the international context of ‘Just Transition’ and sustainable development and, in particular, to promote support for workers and their families in developing and newly restructuring countries;

- to seek the creation of transitional funding, from industry and public sources, that will support the process of industrial change and relieve workers from carrying the burden of cost and insecurity that has accompanied the process of change to date;
- to develop work on priority areas of concern such as the prevention of environmental dumping, the development of more efficient and cleaner use of energy, and the 'sunsetting' of obsolete and/or unwanted products and processes;
- to increase its work with major companies, in particular regarding the development, implementation and monitoring of global agreements aiming to ensure the highest possible standards of health, safety and environmental performance of such companies wherever they operate.

The adoption of the ICEM Sustainable Development in ICEM Industries reflects the view of the ICEM affiliates that responding to the current and potential environmental challenges – including climate change - whilst at the same time protecting and creating jobs is one of the greatest challenges ever faced by trade unions. For ICEM unions the challenge is greater than for others (e.g. service industry unions). Not only will there be major industry restructuring required, but unions and governments may find themselves in conflict if a major effort is not made to find a globally just and sustainable solution. This position paper seeks to describe the issue from an ICEM perspective and to describe immediate and longer-term approaches that help to ensure that workers' interests are addressed in greenhouse response measures.

A brief background

Scientists have been monitoring the increasing levels of greenhouse gases in the atmosphere since shortly after the Second World War. Major scientific conferences beginning with the First World Climate Conference in 1979 began to raise concerns that these gases from human activity might affect the global climate.

The atmosphere and its various components (water vapour being the largest component) have a natural effect of holding some of the solar radiation that hits the planet. This natural greenhouse effect – the retaining of heat that has come from the sun – is one of the essential requirements for life on Earth. It keeps the temperature about 30 degrees Celsius above what it would otherwise be. Greenhouse gases are continually exchanged among the atmosphere and the land and oceans. What now seems to be happening is that human activity is altering that natural system – causing a build-up of greenhouse gases in the atmosphere and leading to the “enhanced greenhouse effect”.

Because the global climate is the result of an enormous number of interacting factors it is inherently difficult to isolate and measure the impact of just one factor – human greenhouse gas emissions. For this reason, indisputable proof

of human-caused climate change may not be found for many years, if ever. The scientific consensus, and that of governments, is that the threat is substantial and warrants major action to mitigate.

This concern led to the 1988 Toronto Conference that called for greenhouse gas emissions to be reduced by 20% below 1988 levels by 2005 (“the Toronto target”). As a result of major public concern, governments of the world signed the United Nations Framework Convention on Climate Change (UNFCCC) in June 1992 at the Earth Summit on environment and sustainable development.

The convention recognises that greenhouse gas emissions from human sources are adding significant emissions to those that naturally occur in the environment. If the natural environment is not able to absorb these emissions then the concentration of greenhouse gases in the atmosphere will increase. This appears to be happening - atmospheric concentrations of carbon dioxide, the major greenhouse gas, have risen from an estimated 280 parts per million (ppm) in pre-industrial years to around 370 ppm today. The international scientific authority on the issues, the Intergovernmental Panel on Climate Change (IPCC) stated in 1995 that *“the balance of evidence suggests that there is a discernible human influence on the global climate”* (IPCC, 1995, p22)

Computer-based mathematical models of the world’s climate predict that these increased gas levels will cause an enhanced greenhouse effect. The result will be an increase in average global temperatures.

“Most projections suggest that greenhouse gas concentrations will increase significantly during the next century in the absence of policies specifically designed to address the issue of climate change, with carbon dioxide emissions from the combustion of fossil fuels being projected to range from about 5 to 35 GtC (gigatonnes of coal equivalent) per year in the year 2100, compared to current emissions of about 6.3 GtC per year.”

(Robert T. Watson, Chairman, Intergovernmental Panel on Climate Change, November 20, 2000 in his report to the Sixth Conference of the Parties of the United Nations Framework Convention on Climate Change)

In 1997 governments of the world strengthened their commitment to mitigating climate change by adopting the Kyoto Protocol. This set a mandatory target of an overall reduction in global greenhouse gas emissions of 5% below 1990 by 2008-2012. Within that global target, various targets were set for individual nations and groups of nations – but not for developing countries. There are, however, enormous difficulties with measuring the various sources and sinks of greenhouse gases, so governments are still negotiating the final legal wording of their commitments under the Protocol.

Possible consequences of climate change

“Climate models, using the latest emissions projections from the IPCC Special Report on Emissions Scenarios, project an increase in global mean surface temperature of 1.5 to 6 degrees Centigrade between 1990 and 2100, with land areas warming more than the global average, especially at mid-and high northern latitudes. These changes in temperature will be accompanied by changes in precipitation patterns and sea level rise.”

(Robert T. Watson, *ibid*)

Changes that flow from this are hard to predict but may be severe. They include

1. Stronger and more frequent natural disasters - tornadoes, cyclones, etc - due to greater climate volatility.
2. Major movements in climate zones – forests and other environments may find that their climate moves several hundred kilometres from current locations. If these ecosystems cannot move with the climate they may perish. This has huge implications for existing farmland and conservation areas. It may threaten the survival of many plant and animal species. Arid and semi-arid land areas in Southern Africa, the Middle East, Southern Europe and Australia are likely to become even more water stressed than they are today. The structure and functioning of critical ecological systems, particularly coral reefs and forests, will change affecting their goods and services that are vital for sustainable development.
3. Agricultural production in many tropical and sub-tropical countries is likely to decrease, especially in Africa and Latin America. In other parts of the world (notably the more northern climates), agricultural production may increase. More severe weather events will also increase the risk of crop loss and food shortages.
4. The flooding of low-lying areas, and increased occasional flooding. This will have greatest effect on many coastal and port cities, on wetlands and on some island nations. Tens of millions of people may be displaced by rising sea levels in Small Island States and low-lying deltaic areas.
5. The incidence of vector-borne diseases, such as malaria and dengue, is likely to increase in tropical countries and hundreds of millions more people may become subject to these and other such diseases.

These kinds of potential impacts affect workers. Jobs will be lost or gained in certain industries, especially forestry and agriculture. Housing and living standards will be affected. Public health may suffer, especially in poorer regions where protective measures are less affordable.

The level of temperature change that is predicted is greater than that which has been experienced over the last 10,000 years. For the simple reason that most changes are unpredictable, and may be negative, it makes sense to avoid the changes if possible.

A big issue for the ICEM

The major source of greenhouse gas emissions from human activity is the use of fossil fuels for energy - oil, coal, lignite, natural gas, and peat. The generating of electricity from any of these fuels, or their use in industry, homes and transport creates carbon dioxide, the major greenhouse gas (see Table 1).

Table 1: Relative contributions of major greenhouse gases over 100 years*

Carbon dioxide	71%
Methane	21%
Nitrous Oxide & others	8%

(Source: UNEP (1999), Climate Change Information Sheet No. 3)

* Greenhouse gases have differing life spans in the atmosphere. Methane has a stronger per unit greenhouse effect than carbon dioxide, but is not as long-lived in the atmosphere.

Methane, which is the second major greenhouse gas, is mostly released from agriculture and forestry, but some comes from coal and natural gas extraction.

In Table 2 an attempt is made to show where or for what purpose carbon dioxide emissions from energy use occur. Roughly two thirds is for stationary use – in industry, offices, homes and farming. One third is used in transport. Of emissions that occur in stationary uses, much does not occur at point of use but at the time of the generation of the electricity needed for the purpose.

A further large source of emissions that does not get used for any other purpose is power generation itself. This is because power stations – gas, oil or coal – only convert part of the energy from fossil fuel into electricity that can be distributed for use. A large part (up to 70% in the case of coal-fired power stations) is lost. The emissions from this lost energy are counted as emissions from energy transformation – the task of transforming energy from one type (usually fossil fuel) to another (usually electricity)

Table 2: Carbon dioxide emissions from energy – millions of metric tonnes

Source	1995	2010 (forecast)
Mobility / transport	4467	6536
Fossil fuel in stationary uses – industry, services, agriculture, households	8615	11015
International marine bunkers	410	555
Electricity generation	7498	11363
Other transformation	1159	1721
Total emissions	22150	31189
Solid fuels	8576	12166
Oil	9343	12675
Gas	4231	6348

Source: OECD & IEA (1998) World Energy Outlook. Paris, p414

Energy costs are a large part of the operating costs of much heavy industry. Changes in what type of energy is used, and therefore how much energy for industry costs, have large implications for the viability of many heavy industries, not just the energy extraction and production industries.

The ICEM represent workers in the traditional energy production industries - coal mining, the oil and gas industry, and in electricity generation, which mostly relies on fossil fuels. It also represents workers in chemicals, pharmaceuticals, rubber, ceramics, pulp and paper and materials industries that are energy-intensive and usually heavily reliant on fossil fuel. The overwhelming majority of the ICEM's membership is in industries either directly involved in fossil fuel production or whose operating costs are significantly influenced by energy prices.

Any measures to address climate change must affect these industries. If climate change requires the phasing out of fossil fuel industries altogether within a few decades, as stated by the environmental organisation Greenpeace International (1999), then clearly all or most jobs in such industries will be lost.

A study of the impact of climate change policies on employment in the coal mining industry commissioned by the International Labour Office found that stabilising emissions at 1990 levels by 2010 was likely to lead to the loss of 1.5 million jobs (Polidano, 1997).

For other industries reducing reliance on fossil fuels is technically achievable. But in many cases the cost-competitiveness of industry will be affected,

leading to a diversion of investment to other, less energy-intensive industry. This too has implications for jobs in ICEM industries.

Treaty complications

Where large amounts of money, jobs and vested interests are involved, international treaty negotiations are bound to be complex and exhaustive. The UNFCCC and the Kyoto Protocol are a major example of this.

It was relatively easy for the governments of the world to agree that there was a problem and that “something should be done about it”. So the initial treaty took relatively little time to develop – only from 1988 to 1992; a quite short time frame for an international treaty. Since then, however, the process of making commitments and giving legal meaning to them has become extremely difficult.

This is because the matters at the heart of the climate change problem relate to one of the most basic building blocks of developed economies – fossil fuels, and one of the standard methods of economic development – the substitution of non-human energy for human effort.

The earliest international treaties on environmental matters e.g. the Convention on International Trade in Endangered Species (CITES) generally dealt with problems that were of minor importance to national economies and international trade. The Montreal Protocol on the elimination of ozone depleting substances (another atmospheric problem) was more difficult, but in essence dealt only with a small group of chemicals used in certain manufacturing processes.

By contrast, the UNFCCC and the Kyoto Protocol deal with the core product of major industries – coal, oil and gas – and with the use of energy across all sectors of the global economy. This makes the climate change treaty and the Kyoto Protocol potentially the most significant economic and trade treaty the world has ever attempted – on par with the complexities of the World Trade Organisation. In fundamental terms developed nations (and eventually all nations) are being asked to make commitments which require major changes to the way they create and use energy – in industry, homes, offices and transport.

Downplaying the gravity of this challenge is ultimately self-defeating; unless the size of the task is comprehended by the public, there will be no acceptance of government measures to meet targets.

Example

Many white-collar or professional workers – not involved in the energy or energy intensive industries - may assume that climate change measures will not affect them; that power stations and heavy industry will have to undergo all the change. However, the transport sector not only accounts for more than a third of emissions in most developed countries; it is the most rapidly growing source of emissions. The propensity for Europeans and Americans to commute long distances to work by car must be curtailed if such emissions are to be reduced – ultimately entailing major changes in either where people live or how they travel. Some measures to reduce greenhouse gas emissions may result in restrictions on car ownership, on the price and size of cars, and on the price of fuel. There will be flow-through impacts on the price of housing, with distant housing falling in price relative to inner urban dwellings. The widespread protests in Europe during 2000 over oil price rises shows that there is currently little appreciation of the need for oil prices to rise over time to discourage its consumption.

Each nation or group of nations is therefore negotiating intensively to ease the burden of their position in the final treaty outcome. All have individual factors influencing their positions. These include:

The European Union – with few fossil fuel resources, little room to increase the size of forests, and significant decreases in emissions in the 1990s as an accidental by-product of shutting down much coal mining and heavy industry, the dominant view is that fossil fuels should be penalised and emissions cut speedily.

USA – with an economy based on cheap fossil fuels both domestic and imported the USA is reluctant to embrace energy taxes. However, with vast areas of forests and agricultural land that might be managed as greenhouse sinks, the USA is keen on increasing sinks rather the cutting emissions.

Developing countries (G77) - with fossil fuel use and GDP per person still very low, most of these nations argue that the greenhouse problem is the fault of the developed world and must be solved by them. However, whilst emissions to date have indeed mostly come from the developed world, most of the projected increase in emissions over the next decades is expected to come from rapidly industrialising developing countries.

Small Island States – with much of their land less than 1 metre above sea level and no heavy industry, these nations want emission reductions regardless of the costs.

Major OPEC nations – stand to lose substantial revenues if oil is more heavily taxed, and therefore want compensation from the developed nations who propose such measures.

Japan – with heavy industry already extremely energy-efficient by world standards, they are concerned that further efforts to reduce emissions will be particularly expensive for them. Japan – and a few other nations such as France – have relied heavily on nuclear power. This has had the coincidental effect of reducing their greenhouse gas emissions from energy. They want their lower levels of greenhouse emissions per unit of economic output factored in to their targets.

Australia – a developed nation in the unusual position of having relied on energy-intensive heavy industry development over the last 30 years; views measures to penalise fossil fuels as being more costly to it than other developed nations especially the EU. Also has large areas of farmland and potential forest areas that could be used as greenhouse gas sinks, so keener on emission absorption than emission reduction.

Treaty negotiations naturally reflect these differing interests. However they are further complicated by the poor state of our understanding of greenhouse gas sources and sinks, and by the inexperience we have with the technologies, economic policies and legal and administrative structures that might be used to mitigate the problem.

The complexities include:

Starting points: What emissions get included? Carbon dioxide emissions from power stations and cars are relatively easy to estimate, but methane emissions from agriculture and coalmines are more difficult. What was each nation's emission levels in 1990? It is in most nation's economic interest to have their 1990 base line as high as possible, so that meeting their target for 2008-2012 is easier.

Inclusion of sinks: Removing greenhouse gases from the atmosphere is as legitimate a means of addressing the problem as stopping them getting into the atmosphere in the first place. But what absorption of greenhouse gases by forests and farming is included? There has been considerable debate over pre-1990 versus post-1990 programs, and whether only measures undertaken in response to the treaty can be included.

Emissions trading: If countries are assigned emission entitlements as part of their targets, do they have the right to buy, sell or otherwise trade those entitlements as part of their effort to meet the target? Some nations will be able to reduce emissions more cheaply than others, and will have an incentive to do so if they are able to trade their spare entitlements. Against this argument, which is based on conventional economic theory, is the moral one that emissions trading is only postponing the hard decisions that countries must make to transform their economies. If emissions trading is to be allowed, which nations should be allowed to participate? And what proportion of their target or entitlement should they be allowed to trade?

Joint implementation: If one nation assists another to develop industry in a way that reduces emissions, or at least makes them grow more slowly, should

they get a greenhouse gas credit or other benefit? What is the situation if the joint activity is done by private business rather than governments, or involves different parts of a multinational corporation?

The Global Environment Facility. This is a pool of funds from developed nations to assist developing nations to mitigate their greenhouse emissions (and for other environmental measures). How much money should developed nations be required to contribute, and what should be the eligibility criteria for projects?

Inclusion/exclusion of developing countries: There is a strong moral argument that developed nations should lead the way in reducing emissions. But the global environment has no morality; it does not distinguish between greenhouse gases from one country over another. As most future emissions growth is forecast to come from developing countries, sooner or later they will need to be part of the global target for emissions reduction. What is an appropriate time frame? And at what level should their greenhouse gas entitlements be set, given that they are currently very low on a per capita basis? For developed countries there is the further concern that the exclusion of developing countries from greenhouse gas targets may lead to the relocation of some industry to the developing world. While this may be good for development in the poorer nations, developed countries are likely to resist the loss of industry (along with jobs) – the more so where there is no global environmental benefit.

Compensation: Should any nation be entitled to compensation from any other if measures taken by the latter have a detrimental impact on the economy and trade of the former? (This argument also applies between industries and sectors *within* nations, but that is not part of the international treaty process.)

For the ICEM as an international community of trade unions it is clearly inappropriate to take sides in the brawling amongst governments. Further, the debate amongst nations is moving so rapidly - along with the economic theory, economic practice and environmental science - that any consensus view on the complex issues described above is likely to be overtaken by events. However, it is very important for the ICEM to be involved as the representative of labour in many of the world's industries. It is the responsibility of the ICEM to represent its constituents rather than national interests; government(s) can not be relied upon to look after the interests of workers globally.

It is possible to describe a set of principles that may inform decision-making where necessary, and this is undertaken in the next section.

ICEM principles and policy

In 1997 the ICEM helped publish *Reforming Energy, Sustainable Futures and Global Labour*. It articulated the following principles that are intended as a guide for all policy on the energy industries, not just environmental concerns.

- • Sustainable Development
- • Social justice
- • Accountability and democracy
- • Regulatory structures to ensure social and environmental goals
- • Precautionary approach
- • Diversity and resilience

In June 1997 the ICEM Executive adopted a position with respect to treaty negotiations at that time which stated:

“The ICEM calls upon the parties to the Framework Convention on Climate Change to insist on a treaty amendment that:

- (1) Places the highest priority on the needs of workers and consumers who will shoulder the greatest burden of efforts to address global climate change.
- (2) Promotes investment in energy efficiency in all countries, and provides assistance for this purpose to developing countries
- (3) Includes the protection of existing jobs and the creation of new ones, and the improvement of living standards in all countries as a critical goal to be met in any climate treaty.
- (4) (4) Provides adequate time for both developed and developing countries to meet the needs of the environment and the needs of working people.”

In November 1998 the ICEM World Energy Conference held in Cork, Ireland, adopted an action program that contained the following elements:

- • Democratic basis for national choices
- • Unions must be involved and consulted
- • Deregulation requires strong regulation
- • Public service obligations for all players
- • Employment and social rules to prevent dumping
- • Privatisation and takeover: agreements with new investors
- • Public enterprises must be developed
- • Need for cross-border rules
- • Global rights for workers in multinational companies
- • Collective bargaining must be strengthened
- • Controlling the multinationals
- • Energy policy, training and union-building programs
- • Organising is a priority
- • Building global solidarity

The degree of upheaval and job loss that is already occurring in energy industries as a result of increased competition and privatisation has occupied the ICEM and its affiliated energy unions over the 1990s. The need for a comprehensive response to climate change is a new and further complexity that, if nothing else, means that industry restructuring is certain to continue at a high rate for the foreseeable future.

In October 2000 the ICEM World Mining Conference resolved to develop a policy paper (this paper) for adoption by the ICEM Executive in May/June 2001. The guidelines for the paper were that it should:

- • Be based on an acceptance of the overwhelming scientific consensus and, at the same time, should focus wherever possible on a 'no regrets' approach;
- • Address, sector by sector, the reduction of GHGs - particularly carbon emissions - on the basis of full life-cycle analysis (LCA);
- • Address the potential effects on employment - positive and negative - of any proposed mitigation measures;
- • Address the issue of carbon taxes and, in particular, the pros and cons of such taxes;
- • Focus on the development and transfer of clean technologies (e.g. combined heat and power, pulverised fluidised bed technology);
- • Aim to support a dialogue with industry on sustainability issues - stressing the major stakeholder interest of the ICEM and its affiliates in the sustainability debate.

In November 2000 the global labour movement, via the International Confederation of Free Trade Unions (ICFTU) and the Trade Union Advisory Committee to the OECD (TUAC) provided the following guidelines to the Conference of the Parties of the UNFCCC.

- • A firm consensus for actions on climate change is needed to avoid disruption to the lives of future generations, workers and industry
- • The success of implementation strategies for climate change depends in large measure on the engagement of workers and their trade unions . . .
- • Addressing social issues is a matter of fundamental importance if workers are to be counted on to support fully any protocol, or the desired mechanisms to implement it. Therefore trade unions call for measures to:
 - • Conduct social impact analyses
 - • Consider employment impacts
 - • Develop elements of “just transition” programs
 - • Identify financial and economic measures

These principles and priorities cannot give precise guidance as to what is the most fair and effective outcome of climate change treaty negotiations, and it is difficult to conceive of any that would. What may seem fair to one nation or group of nations may legitimately be perceived as unjust to another. Moreover, commitments - judged by a nation or nations in an international forum as being fair and reasonable – may, conversely, be judged by various sectors and communities *within* those nations as grossly unjust.

Example

The European Union in the post-World War II period engaged in a massive program to restructure (and scale down) its formerly huge coal and steel industries. Enormous funds (by world standards) were deployed to enable workforces and firms to relocate to other industries. This did not prevent numerous massive protests by workers who felt poorly compensated for the loss of their jobs.

The options for achieving targets

The premise for this section of the paper is that it is assumed that the *net* addition of greenhouse gases to the atmosphere from human activity must be reduced in order to minimise the risks posed by climate change. Emissions from human activity must be reduced, and/or measures that absorb such emissions must be enhanced. The ultimate goal is to stabilise the level of greenhouse gases in the atmosphere at a level that will prevent dangerous anthropogenic (human-caused) interference with the climate system (Article 2 of the UNFCCC). No one can be certain what that level is, but it is clear that no stabilisation can occur if net emissions growth is not halted. Simply stabilising greenhouse gas concentrations in the atmosphere at 1990 levels would require cuts in anthropogenic emissions of over 60% (IPCC, 1990, p xi)

There are other assumptions:

- • Net emissions should be reduced in a manner that, ideally, produces benefits for jobs, living standards and economies.
- • Where measures are necessary that must have adverse impacts in these areas, they should be implemented in the manner that produces the lowest costs possible. That is, measures should be as efficient and cost-effective as possible.
- • Measures to mitigate climate change need to be multifaceted since the problem is itself multifaceted.

Technical options and technologies

It is arguable that the technologies and techniques to radically reduce greenhouse gas emissions already exist, and that the only barrier is a lack of political will and/or the vested interests of energy multinationals.

Ignorance or information gaps play a role – households, companies and governments tend to stick with technologies and techniques that they know are reliable and cost-effective. In doing so they may be ignoring better options. However, the reality is far more complex than either conspiracy theories about multinationals or ignorance.

ICEM members know that power stations and chemical processing plants represent enormous “sunk costs”. They represent thousands of millions of dollars of investment in a particular location and particular way of doing things. The governments and companies that build them are cautious, not wanting to invest heavily in new and untried technologies. Once built, the owners want, and should be able to reasonably expect, to be able to earn a return on their investment. Requirements to modify or shut down such facilities in response to environmental problems including greenhouse gas emissions will be resisted.

At a much lower level, the same concerns apply in households and small business. Houses once built are rarely modified except once every 20 years or so. Refrigerators, heating systems and other major energy-consuming (and greenhouse gas generating) appliances are used for 10 or 20 years.

On top of this inertia and conservatism in investment decisions, there are key trends in industry and households that favour increased emissions per person. In industry it is the substitution of fossil fuel energy for human labour – because it is currently more cost-effective and in most cases safer. In the developed world, heavy manual labour is increasingly rare in mines and factories. In households, the desire for improved living standards has the same effect. Across the colder parts of Europe and North America, the increasing use of clothes dryers as well as cars for long distance commuting are examples of a trend which is the exact opposite of what needs to happen if emissions are to be cut.

It is conceivable that clothes-dryers can be operated from electricity generated from windmills or from photovoltaic cells – but at current prices the cost of drying clothes from such power sources would be far higher.

The technologies that are currently known for reducing emissions include:

For power generation

- • Renewable energy technologies

- Hydropower
- Wave and tidal power
- Windpower
- Solar thermal
- Photovoltaics
- Geothermal (not actually renewable, but naturally occurring)
- Biomass, including methane from waste

- • Cleaner fossil fuel technologies

- High efficiency coal-fired power stations eg. Pressurised Fluidised Bed Combustion (PFBC) and Integrated Gasification Combined Cycle (IGCC)
- Combined Cycle Gas Turbines

Combined Heat and Power (CHP) – use of waste heat from electricity generation to provide heat energy to nearby homes and businesses

- • Other technologies

Nuclear
Hydrogen-based Fuel Cells

For transport

Compressed Natural Gas (CNG) vehicles
Hybrid electric and combustion engines
Fuel Cells

There are also numerous technologies and techniques that reduce the demand for energy or improve the efficiency of its use in households and business. These include:

- • Insulation and double-glazed windows
- • Energy-efficient lighting
- • Energy-conserving appliances and equipment
- • Variable speed and right-sized motors
- • Better designed buildings
- • Fuel-efficient cars and trucks
- • Shift of the transport task from road to rail
- • Larger and more fuel-efficient planes

With the energy sector there are also technologies being developed that:

- • Capture methane emissions from coal seams and use it for power generation rather than releasing it to the atmosphere
- • Reduce gas flare-offs from oil field
- • Capture carbon dioxide emissions from power stations and store it – in depleted oil fields, the deep ocean or elsewhere

With respect to sectors outside the energy sector there are also many options – for methane as well as for carbon dioxide:

1. Changes to farming practices to reduce methane emissions (especially for rice and other irrigated farming)
2. Measures to increase carbon storage in soil
3. Halting land clearing for farming and unsustainable forest harvesting
4. New forest growth

Social and economic mechanisms

Given that all of the above are all technically possible, what are the social and economic mechanisms that will enable their deployment to help address climate change, and what are the implications for workers in ICEM industries? Some are far more controversial, including causing greater employment impacts, than others. What follows is a brief description, and then more detailed discussion of the most prominent and controversial measures.

Taxes and charges – Direct and indirect fossil fuel use can be discouraged through raising taxes and charges – higher petrol and electricity prices, higher costs for large cars (or for all cars). Government prefer taxes because it gives them a revenue source which they can then allocate as desired.

Subsidies – greenhouse friendly technologies can be encouraged through public subsidy of the costs of purchase or operation. Most renewable power generation worldwide is subsidised by governments as it is currently uncompetitive with fossil fuels. Subsidies can also be provided for better cars, retirement of older ones, home heating systems, energy audits in business, etc. Households and business prefer subsidies, but governments don't because of budgetary constraints. Some economists and governments also argue that the *winding back of subsidies to fossil fuels* can also help. In many parts of the world – developed and developing - coal production and electricity prices are subsidised. This makes the alternatives less competitive.

Market creation – creating rights to emit a certain amount of greenhouse gases and then permitting firms to trade those entitlements creates an incentive for those who can easily reduce emissions to do so.

Life-cycle analysis – before a particular fuel or technology is penalised, life cycle analysis needs to be applied to ensure that there is a genuine and significant difference in greenhouse gas emissions between the current process or product and the favoured alternative. In the steel industry for example, changes to the steel-making process and the re-use of waste products may reduce emissions by more than the more expensive option of changing from coal to gas-based technology (ACA, 2000).

Direct regulatory measures

- Requiring minimum energy efficiency or emission standards in cars, appliances, buildings
- Banning or capping certain activities – e.g. no more coal-fired power stations
- Prescriptive technology standards

Major issue - Carbon taxes

The most controversial measure at the national level is the uses of taxes and charges. This is crystallised in the concept of a “carbon tax”. This is the charging of a tax to either energy producers or consumers of a tax based on the carbon content of the energy.

The clear intent of such taxes is to discourage the use of fossil fuels. However, the level at which the tax is charged is critical to both its impacts and effectiveness. Economists generally argue that carbon taxes will need to be very high if they are to cause significant changes in the way we use fossil fuels – because there is limited capacity and willingness of people and industry to change their consumption patterns. High energy taxes will have a massive adverse impact on certain industries, jobs and living standards.

A small carbon tax sends only a small market signal to lower fossil fuel use – but it may generate large amounts of revenue. Governments can choose to spend this on general budgetary items, or they can choose to allocate the money to measures that create jobs – possible to offset the problem of job losses in fossil fuel and heavy industries (see, for example, Hamilton, Hundloe and Quiggin, 1997, and de Wit, 1994)).

Heavy industries generally argue that any tax on carbon affects their international competitiveness; that it is a cost burden that is not faced by their competitors. In response to industry threats to relocate or curtail investment, European governments that have experimented with carbon taxes to date have tended to exempt heavy industry. They have instead chosen to tax those who can't threaten to relocate – households and small business. While this solution deals with the problem of big business threatening to disinvest, it subverts the original intent of a carbon tax, turning it into an opportunistic consumption tax on households and small business.

The general principle of a carbon tax is one that must be considered carefully by ICEM unions. The principle is that resource-use should be taxed more heavily – because natural resources are finite, or because their use creates waste and environmental problems - with the corollary that other economic activity is favoured, creating jobs in industries which use less resources. If the revenues from carbon taxes are deployed to reduce other taxes on labour, or to other job creation, this tendency is enhanced. On balance and over time, increased taxes on natural resources, including a carbon tax on fossil fuels, will lead to more jobs in other industries. However, the clear consequence is also that resource and energy-intensive industries are penalised. In assessing the cost of this to the members of ICEM unions we need to bear in mind that massive employment losses in many ICEM industries are already occurring as a result of technological change and market forces. Carbon taxes will accelerate that problem, but how much of an additional contributor will they be?

In Australian coal mining workplace restructuring to increase international competitiveness has cost the jobs of one third of the workforce in the three years to 2000. It is unlikely that a small carbon tax would significantly affect that rate of job loss.

The jobs that may be created from cuts in labour taxes as a result of a carbon tax are not immediately likely to go to those workers who lose their jobs in power generation and energy-intensive industry. And most of the new jobs will not be in ICEM industries.

If ICEM unions are confronted with carbon tax proposals as part of addressing climate change, they should negotiate on the basis that:

- • *The tax is small to minimise industry restructuring and job loss pain*
- • *Tax revenues should be directed to:*
 - *reducing taxes and charges on labour so that new jobs are created, and*
 - *funding “just transition” programs for affected workers.*

Major issue - Emissions trading

This is an issue both internationally (where it is part of the UNFCCC negotiations) and within nations.

Once nations agree to legally binding targets it is virtually certain that, in a relatively short period of time, large industries and new projects will be subject to scrutiny over their current and projected emissions. If a country has to (say) reduce emissions by 5% below 1990 levels by 2008-2012, the real task may be to reduce emissions by more than 20% below “business as usual” emission trends. When a single large project (e.g. an aluminium smelter or power station) might contribute 0.3% and even up to 1% of national emissions, government will look closely at such projects as allowing them will mean having tougher targets elsewhere in the economy.

To help meet targets some nations may simply ban major new energy-intensive projects. This is a distinct possibility where governments are under pressure to “do something, anything” quickly eg. in response to green group protests. It is more likely that government will set up some kind of emissions-trading regime amongst major emitters that encourages them to reduce emissions and still allows new projects.

The general principle of emissions trading systems is that initial allowance or entitlements are allocated to major producers. The total amount of emissions, and/or the initial allocations can be set at a steady level, or can decrease over time.

Emitters are then allowed to trade their emission entitlements. Those that find it easy to reduce emissions shall do so, and make profits out of selling their spare entitlements. Those who find emission targets difficult, or who want to expand, will buy emission entitlements from others. The price of the entitlements is normally determined by the supply and demand balance once governments have allocated the permits.

Business that wants to establish a new project has to buy emission entitlements from existing producers. This obviously creates a bias in favour of older projects and against new projects. A further problem is that such schemes only target big producers – simply because it is too hard to police or administer a scheme covering households and small business. Similarly, emissions-trading schemes tend to target only one greenhouse gas and only one source – carbon dioxide emissions from energy production. This means one contributor is being disproportionately targeted. A gas and a sector which is being made to carry the entirety of the task of emission reduction when it is not the entirety of the problem. Against that view, it is unquestionably the case that carbon dioxide is the major greenhouse gas and that energy production and use is the largest contributor to the climate change problem.

It is the US experience in tradable emission rights for sulphur (to reduce the acid rain problem) that the prices for permits have been lower than expected. Sulphur emitters (notably power stations) have found it easy to cut emissions so permits are plentiful and cheap rather than scarce and expensive. Unfortunately for mineworkers, the way many power stations have cheaply reduced their sulphur emissions has been to shift purchases to low-sulphur coal from large-scale new mines in the mid-western USA and to cut their purchases of higher sulphur coal from more labour-intensive mines in eastern USA.

The US experience is a good example of how an emissions-trading regime can be hailed as a success in terms of economic efficiency but cost many thousands of jobs.

If emissions- trading is likely to be a popular mechanism within nations because of its flexibility and efficiency, it is also likely to have similar benefits at the international level (Hinchy, et al, 1998). Where one nation, or a set of industries within one nation, can more easily reduce emissions than another nation, an emissions-trading regime enables an incentive to be provided to those who can cut most easily. The overall cost – in money and hopefully jobs – is reduced if those who can reduce emissions most easily are encouraged to do so. If nations or industries are required to cut emissions without regard to the cost of doing so, then some nations and industries will experience far greater costs than others.

The arguments against international emissions trading are that:

1. it is too difficult to administer (because governments are responsible for national emission levels, but it is businesses and households that emit), and
2. that it is immoral because it allows heavy emitters to keep emitting rather than make cutbacks.

This moral argument is mis-conceived, and fails to pay adequate attention to who stands to lose most from emission cuts undertaken regardless of cost. When it costs one nation or one industry several times as much money and jobs to achieve an emission cut as another nation or industry, it is immoral. It

is a waste of financial resources and of people, jobs and livelihoods. It also makes little sense environmentally. To the global environment, a million tonnes of carbon dioxide saved has the same environmental benefit whether it cost thousand of millions of dollars or only millions, or whether it cost thousands of jobs or actually creates jobs.

For ICEM unions the choice is particularly stark. It is ICEM industries and workforce who will have to undertake perhaps the most adjustment of all industries and workers in addressing climate change. The level of adjustment will be worse if emission cuts have to be achieved regardless of relative cost. It will be a tragedy if industries and jobs have to be lost in some nations whilst other industries elsewhere, which could reduce emissions easily, do not do so because there is no incentive for them to do so and no mechanism to enable them to trade with those less able to cut emissions.

ICEM unions should give serious consideration to support emissions trading both within and amongst nations. The main caveat is that emission-trading systems should not be relied upon to be the primary means of reducing emissions, as that will unfairly penalise ICEM industries and workers because emission- trading will focus on carbon dioxide and the energy industries to the exclusion of other greenhouse gases and other emission sources.

Major Issue: The role and impact of individuals

It is vital to understand that expecting industry to pay the entire cost of greenhouse gas reduction is both an unrealistic and, ultimately, insufficient response. 'Industry' does not represent the full extent of the greenhouse problem and cannot therefore be, on its own, the complete 'solution'. Put bluntly, industry could not exist without a market. Sooner or later individuals or groups of individuals make the choices upon which industry bases its existence.* For example, there would be no automobile industry if there were not a huge demand *from individuals* for automobiles. Leisure goods and labour-saving household appliances which are produced using energy - and very often dependent upon energy in use - are produced and used as a result of the *choices of individuals*. Even at the level of what might be described as life's necessities e.g. food, shelter, medical care, etc. energy is required *and will be required in much greater amounts before the world's people can be considered to have reached even an acceptable level.*

The simple fact of course is that industry presents a large and visible 'target'. Industry is also a less politically risky target for many groups that wish to secure widespread public support for their agendas. Such groups well understand the risks involved in targeting the general public. But it is simply a fact that industry, its products and processes, could not continue unless there was a stable and substantial public need or support. It may well be true that individuals are often sceptical about the power and influence wielded by industry, but there is precious little evidence that this scepticism has translated into widespread opposition to the products of industry. Indeed, all the evidence continues to point in the other direction - especially in those

countries where the products of industry have historically been in short supply, limited to a small elite or of poor quality.

This is by no means to say that the ICEM and its affiliated unions have no problems with the companies with whom they engage, or that those companies are always paragons of virtue. There will always be disagreements between organised labour and companies on specific issues; and there will always be more that industry can do to protect the environment - since environmental protection and sustainability are not so much goals as processes. However, there is no getting away from the fact that climate change will depend in huge measure on the choices made *by individuals* and these choices in turn will be largely dependent upon the willingness of huge sections of society to behave differently as well as their available options should they chose to do so – available, that is, not only in terms of potential supply but also in terms of affordability.

** It is recognised that nationalised industries present some important different challenges, but even nationalised industries would not survive in the absence of demand from ‘consumers’.*

Technology transfer and Aid

As stated earlier, most anthropogenic emissions to date have come from industrialised nations, but most future emissions growth will come from developing nations. It is not hard to comprehend that substantial increases in per capita emissions from countries like China (1.2 billion), India (1 billion), Indonesia (225 million) and Brazil (173 million) will have a huge impact on global emissions if they develop in the same manner as the current industrialised nations. If the global environment cannot cope with the current emissions from the USA with 276 million people than it certainly can't cope with a similar level of per capita emissions from populous developing nations – especially in view of the fact that these emissions increases will occur over a much shorter timescale than was experienced in the highly developed countries.

Table 3: Per capita carbon dioxide emissions (1995, in tonnes): 10 indicative rates

Brazil	1.6
China	2.7
Czech Republic	10.9
Japan	9.0
Russian Federation	12.2
Swaziland	0.5
India	1.0
Malaysia	5.3
UK	9.3
US	20.5

(Source: UNEP (1999), Climate Change Information Sheets)

There is no easy solution to this, and certainly no consensus. Some have argued that, over the course of the next century, per capita emissions need to be equalised across countries at levels that do not affect the climate. This would involve emission cuts on a per capita basis in the developed world of 90%.

An obvious starting point for addressing the problem, though clearly not the end point, is to facilitate a path of economic development in developing countries that is less carbon or energy-intensive than that followed by the developed world.

The technologies and techniques that have been discussed earlier can all be used in developing countries to enable economic growth and improvements in living standards that ultimately use less energy – especially fossil fuel energy – than older technologies. Because there is less of an existing body of capital investment that needs to be paid off, there are more possibilities for deploying new technologies and techniques.

Mitigating against this are three factors:

- To the extent that there is less global experience with newer technologies and techniques, and the fear that costs may be higher, governments and businesses in developing countries will tend to adopt conventional “tried and true” options.
- The sheer lack of capital available for investment in developing countries; exacerbated by lower incomes (and therefore less capacity to pay for new services and products) and by, often huge, debt burdens.
- Big business and financial institutions move more easily across international borders than others, and they tend to favour big conventional projects.

There are two further quandaries for those promoting technology transfer:

- • Small-scale technologies which may initially be thought of as the most appropriate for small-scale communities may ultimately act as a barrier to development because they are not reliable and/or do not provide the scale of supply needed for major infrastructure. (For example, some small-scale renewable energy technologies do not provide reliable 24 hour per day supply unless provided with expensive fossil fuel powered back-ups.) However, there may be considerable scope for developing a two-pronged approach to energy supply whereby heavy energy users such as industry are provided with a more traditional form of energy – albeit based on best prevailing technology, at the same time as individual and small scale users are catered for using more appropriate small-scale alternative sources. For this to become a reality, however, there would need to be well coordinated planning and the necessary financial and technical resources.
- • There is considerable debate over what are legitimate technologies to transfer. Large-scale hydro may be greenhouse-friendly but is widely regarded as environmentally and socially problematic for other reasons. The same applies to nuclear power. And does a coal-fired power station that is highly energy-efficient qualify as appropriate technology, or should it be disqualified because it is a carbon-emitter?

The Global Environment Facility and “Activities Implemented Jointly” are two means for funding technology transfer provided for in the UNFCCC. The GEF was constituted in 1990 and in the period 1991-94 contained some US\$800 million. From 1994 to 1998 it had US\$2 billion. For the four-year period starting in 1998 it has pledges from governments totalling US\$2.75 billion. (UNEP, 1999, Climate Change Information Sheet 28)

The GEF and other mechanisms are meant to trigger far larger amounts from the private sector. Even so, the amounts of money involved are small when it is considered that one large coal-fired power station can cost US\$1 billion.

The largest constraint on technology transfer is that big business, which owns the intellectual property and expertise for most technology, will not provide it without being paid a reasonable profit. Governments who want to transfer the technology are therefore required to pay. And because most governments in developed countries have tight budgetary constraints domestically, there is a shortage of funds for projects in developing countries.

Thus, the need for technology transfer to mitigate greenhouse gas emissions falls victim to the same constraints that have ensured that virtually no developed country ever meets the UN target of 0.7% of GDP for foreign aid.

One possible option which can produce results without government aid is Activities Implemented Jointly, wherein business may be provided with an incentive to undertake activity in a developing country provided it gets some type of credit for its emitting activities in its home country. The risk here is that there may not be actual technology transfer, just a convenient means to reduce the cost of emissions reductions. Thus there have been cases (not necessarily under the AIJ process) of power companies in the developed world funding forest planting in developing countries to offset the emissions

from their power plants at home. It might produce some benefit for the environment, but it does not contribute towards a low-emissions path of economic development for the developing country.

It is also important to understand that the large-scale transfer of technology - whilst potentially having a very positive impact on future development in developing countries - might also result in the increasing 'de facto' transfer of whole industries or companies from the developed to the developing world. This is because the decision to transfer technology may be considered only acceptable if the 'owner' of the technology is able to maximise his return on investment. The upshot may well be that a company transfers large parts of its operations *at the same time as it transfers its technological know-how*. Once again, this could lead to the situation whereby decreases in greenhouse gas emissions and improved job prospects in developing countries are counterbalanced by capital transfer and redundancies in one or other of the highly developed countries. In this respect, of course, the response to the greenhouse gas challenge would be little different than the reaction of industry to more traditionally 'economic' challenges.

ICEM unions in both developed and developing countries have a major interest in the transfer of appropriate technology to developing countries to help mitigate greenhouse gas emissions. However, the transfer of such technologies should involve more than a simple 'zero sum' achievement where jobs are concerned – such that the transfer costs are not predominantly borne by workers. ICEM unions should work with business and governments to remove barriers and achieve much greater work in this area.

Employment impacts

Over the last decade there have been an enormous number of studies done on the possible economic impacts of measures to reduce greenhouse gas emissions. Some of these studies include employment impacts, but for the most part there is an assumption that economic impact corresponds to employment impact – an unreliable assumption for ICEM unions who are familiar with “jobless growth” in their industries.

The studies tend to fall into two categories:

- • “top down” economic modelling done at a national or international level; and
- • “bottom up” engineering and economic modelling that looks at changes in particular industries.

The top-down studies generally conclude that there is some economic loss associated with responding to climate change. (See, for example, the results of several global economic models on this issue in OECD 1993.) This is in part because the assumption of most economic models is that what currently happens represents an efficient allocation of resources, so policy changes that cause a shift in the economy are causing something to happen that is otherwise inefficient. It must therefore result in higher costs. What such modelling usually fails to recognise is that there are already many

inefficiencies in our economic systems as a result of inequalities of power, wealth and access to education and information. Correcting these inefficiencies can reduce the cost of restructuring the economy to reduce emissions, and may even produce net benefits.

The bottom-up studies tend to produce positive results for investment and jobs. This is because they focus on the economic stimulus of new investment designed to reduce emissions. For example, they look at the growth in wind farms and associated employment, or the re-engineering of factories to reduce emissions. What such studies routinely fail to take account of is the fact that the economic stimulus of these measures must come at the expense of investment or consumption elsewhere in the economy. For example, if governments subsidise wind farms or energy conservation measures (already a common practice), that finance must come from other government activity or must be raised through higher taxes – a higher burden on other job-creating business and on individual incomes than would otherwise occur.

Both types of modelling tend to ignore the transitional costs of economic adjustment. The bottom-up models do so because they simply ignore the industries they are not interested in. The top-down modelling does so because of the nature of macroeconomic modelling. The modelling is computer-based and changes in outcomes are instantaneous once the changes in inputs have been made. Some models do attempt to factor in time-delays but it is always a crude exercise.

There is the further problem that the overall results for a nation have the effect of “levelling mountains and filling valleys” with respect to the impacts on particular industries and communities. Throughout most of the 1990s the developed world has experienced continual economic growth and falling unemployment levels. But within that overall picture there has been massive job losses and intense suffering in many communities –especially in mining and power generation. Economic restructuring to reduce greenhouse gas emission will produce similar uneven effects. Job creation will definitely occur in some areas. Job losses of at least equal and probably greater magnitude will likely occur in other sectors.

As stated earlier in this paper, the majority of workers within ICEM unions work either directly in energy industries – mostly fossil fuel-related – or in industries which are energy-intensive; relying on fossil fuel for their commercial viability and competitiveness. One ILO study of employment impacts in coal mining showed that up to 1.5 million jobs would be lost from measures to stabilise greenhouse gas emissions at 1990 levels by 2010 (Palidano, 1997).

It is a further complication for ICEM unions in many countries that the likely areas of possible job growth from measures to curtail greenhouse emissions will not be the industries, sectors or countries in which they are able to organise. For example, a large proportion of the jobs in wind power farms are in manufacturing and maintenance. Coal and power station unions will not be able to automatically organise in the new area. In a number of countries, free

and independent trade unions are 'de jure' or 'de facto' banned. Similarly, measures to retrofit factories and buildings to improve their energy efficiency may create significant employment, but not in ICEM industries.

The climate change issue potentially challenges the membership structure of ICEM unions and even the ICEM itself. If climate change mitigation is as important an issue as is increasingly believed, the effect on the ICEM cannot, of course, be the principle concern. However the effect on the ICEM, its affiliated unions and on their rights and abilities to represent their members is an issue that has to be faced and the best way of doing that is by playing a serious, constructive role in the climate change debate and climate change policy-making.

In this regard, unions need to be wary of some economic studies that, using the assumption of high energy or carbon taxes, predict massive job losses for their sectors. Such studies are alarmist and unrealistic as no government is likely to implement high energy or carbon taxes over a short time frame. (The electoral cost of high energy taxes will also be high.)

The UN Environment Program's summary of the economic studies is:

"Policies for minimising risks by reducing greenhouse gas emissions will come with a price tag. Estimates of how much such policies will cost vary widely. For example, cost estimates for stabilising emissions from the developed countries vary from -0.5% of GDP (that is, a net saving of US\$60 billion) to +2% of GDP (equal to a net loss of US\$240 billion)."

(UNEP (1999), Climate Change Information Sheet 23)

Those without economics training find a figure of 2% of GDP small. But for developed and developing countries alike each tenth of one percent of GDP is vital in the context of seeking to reduce unemployment and poverty. As jobs tend to grow less strongly than GDP (largely as a result of automation and the substitution of human labour by machine power), most countries need GDP growth of 2 percentage points *above population growth* if unemployment is not to increase.

The summary figures from the UNEP also obscure large regional and industry impacts, as already described above.

On forming a view about the merit of accepting or opposing the need for painful structural adjustment in ICEM industries two further factors should be borne in mind:

- There will ultimately be major adverse consequences from the failure to act. Severe weather events from global warming may cause enormous loss of life, of industry and jobs, of farmlands and ecosystems. Increased rates of tropical diseases will take their toll. The increased frequency of severe weather events is already leading some insurers to refuse to provide cover to businesses and households for certain events – dramatically increasing the cost of catastrophic loss.

- • Many ICEM industries are already undergoing major job losses and structural adjustment on a continuing basis. A view needs to be reached as to how much additional pain is likely to be caused by climate change measures.

The balance of the economic studies is that there will be adverse consequences for economic growth and employment from measures to mitigate climate change. For nations as a whole these costs will be significant but not catastrophic. For particular industries and communities, the consequences may be severe, even if they are counterbalanced by growth and jobs elsewhere. ICEM industries and members are likely to figure prominently amongst those more adversely affected. This may be the inevitable price of addressing an environmental problem that has the capacity to cause even greater damage if left unchecked.

It is therefore a major priority for ICEM unions that:

- • *Climate change policies and measures be based on sound understanding of the employment impacts in particular industries; and*
- • *That “just transition” strategies be developed and funded so that the cost of structural adjustment pain is shared across the national and international economy.*

In the medium term ICEM affiliates and the ICEM itself may have to consider alterations to their industries of membership coverage as employment itself restructures in response to climate change measures. However, there is still much that can be achieved in the industries currently covered by the ICEM, and it is therefore important that the ICEM has played an active role in joint discussions held between the Trade Union Advisory Committee (TUAC) to the OECD and the Business and Industry Advisory Committee (BIAC) to the OECD. The TUAC/BIAC discussions have been the result of bipartite agreement between the two parties that climate change issues are of vital concern to both sides of industry and are more likely to be successfully addressed jointly than separately. The ICEM believes that it is extremely important to continue to participate in the TUAC/BIAC initiative and to use the initiative to bring pressure to bear on the ILO, the European Union and the OECD to address, in particular, the implications for job security and job creation of the various climate change mitigation measures being considered.

Dialogue with business

One of the key tasks of the ICEM is to liaise with a view to reaching joint agreements with international business – individually and via business groups - over the problems and prospects of ICEM industries. The ICEM seeks to develop international agreements with multinational corporations over labour issues, and has worked with global industry bodies on environmental and health and safety issues (e.g. the Chemical industry Responsible Care program).

Some ICEM affiliates have already worked with business on climate change issues. To date this has largely been with fossil fuel industry bodies, such as the World Coal Institute, seeking to ensure that the industries’ views are

presented to governments and that the industry is not unfairly targeted and penalised.

In intergovernmental treaty negotiations nobody looks after your interests but you. The lack of attention given to employment impacts in climate change negotiations because, until recently, trade union presence at the negotiations has been minimal. At the 1997 Kyoto Protocol negotiations there were only a dozen union representatives present – compared to more than two thousand environmentalists and over a thousand business representatives. This was probably due to two principal factors. Firstly, many in the union movement, given its huge range of commitments, clearly felt that they were not justified in committing the resources to send representatives to the Kyoto meeting. Secondly, it is without doubt true that there was not at the time of Kyoto anything like a ‘union consensus’ on climate change as an issue, let alone any consensus on mitigation measures. However, job implications are an inescapable element of any informed and rational debate about climate change. This is yet another reason why the ICEM has to take a lead.

There may well be occasions when it is important for unions to support the fossil fuel industries so that jobs therein are not arbitrarily penalised. However, unions must be wary of simply subscribing to business group views – after all, many companies have been retrenching our members as fast as technology will allow. Unions need to respect scientific consensus on climate change whilst acknowledging that the science is still evolving and that there is a role for scepticism as there is in all scientific research and public policy formulation. It is not part of a progressive union agenda to deny or oppose necessary change. The point is, rather, to seek to influence the way in which change is handled such that benefits for workers are maximised and the disbenefits minimised. Unions must also determine for themselves what “necessary change” is, and not simply accept the dictums of either business or environmental organisations.

To this end there needs to be:

- • Shared commitments to energy efficiency, energy conservation and emissions reduction in ICEM industries.

In many industries there is substantial scope to reduce energy use and greenhouse gas emissions. In some cases these do not require large capital investments and are able to reduce costs to business. Workers can be one of the drivers for this change if they are empowered to do so.

ICEM unions and employers can choose to include environmental targets and aspirations, including energy and greenhouse measures, in enterprise or collective bargaining. Where the company and/or workforce are able to achieve results that improve the financial position of the company as well as achieve environmental goals, the bargaining arrangements should provide for sharing of the financial gains. Where additional costs must be borne and/or the market position of the firm is adversely affected, collective bargaining should provide for consultation over least-cost responses, including minimisation of job losses. A further important likely benefit of this approach is that environmental protection will increasingly be seen by workers and, by extension, their communities, as an important issue in which they have both a direct interest and over which they have some real influence. If ‘environmentalism’ is ever to be as broadly

inclusive a political agenda item as it should be, the fullest informed participation of workers and their unions can provide a major boost.

- • High-level negotiations at an industry, national or global level over strategic restructuring to meet greenhouse requirements.

Especially where major employers are diversified companies, negotiations can occur over restructuring of investment and jobs from some industries to others.

How the ICEM can relate to business in part depends on how business perceives itself. For the last decade or more the major trend for most companies has been to “focus on their core expertise” and dispose of assets and activities that are not part of their core business. This means that, at least in the English-speaking world, diversified industrial companies have become increasingly rare, and more companies have become strongly specialised in one industry.

Thus most major mining companies are specialists in only mining and maybe minerals processing. Coal mining companies rarely vertically integrate to become power providers. They do not investigate or develop alternatives to minerals use, including recycling. It is hard to have a dialogue with a coal mining company about the future for mineworkers outside the coal industry when that company has defined itself as only a coal miner. On the other hand, coal companies – following the apparent lead of some oil companies – may come to understand that diversification is one way of helping to weather the storm of change that may arise from global CO₂ emission reduction measures.

There is some evidence that the major oil companies are seeking to diversify their image if not their actual business. Shell and BP are seeking to portray themselves as energy companies working on a diverse range of solutions to energy needs, not just finding and marketing oil. In practice oil is still the source of the overwhelming majority of their revenues and it is highly uncertain as to whether the image of diversification is only a public relations mirage; is part of the company taking out an insurance option for a future change of direction; or is a genuine current effort to experiment with alternatives.

Some businesses are beginning to see a tougher international convention on climate change as a business opportunity, but to date these tend to be smaller renewable energy companies seeking government funding, and financial services companies looking for opportunities for profit in emissions trading and the like. However, big business including those in heavy industry is now beginning to regard some kind of tougher climate control regime as inevitable. They therefore want the rules sorted out so that the uncertainty over their investments is reduced. For many coal mining companies, petrochemical companies and other heavy industry, the uncertainty over what kind of emissions control regime will be introduced between now and 2008-2012 is beginning seriously to affect their investment planning. They would rather know what the new rules are, even if it makes business more difficult for them.

There are therefore opportunities for ICEM unions to have dialogue with companies in their industry on other than a purely defensive basis.

The ICEM and its affiliates should engage in dialogue with employers on climate change in the following areas:

- 1. At an international level**
2. *On fair burden-sharing amongst ICEM industries and other industries and sectors*
3. *On ensuring that treaty measures do not result in relocation of investment and jobs for no environmental benefit*

- 4. At a national level**
5. *On clear rules and regulations from government for reducing or containing greenhouse emissions*
6. *On restructuring programs to enable firms and jobs to move to new industries where necessary*

- 7. At a company level:**
8. *On incorporation of environmental goals into collective bargaining to encourage worker participation in greenhouse responses and the share the costs and benefits of such measures*
9. *On measures to minimise job loss where they are deemed inevitable*

Conclusion

Over the course of the 1990s tremendous uncertainty has been generated for workers in ICEM industries over the potential consequences for jobs and living standards of measures to mitigate climate change. The challenges will not go away and ignoring them is the surest way of perpetuating the uncertainties. The intergovernmental negotiations over the UN Framework Convention on Climate Change and the associated Kyoto protocol have been extraordinarily complex and difficult for the public including trade unions to understand.

However, it is now increasingly clear that mandatory targets for emissions reduction will come into force along with rules and regulations on how they can be achieved.

ICEM unions must acknowledge the international consensus on the seriousness of the environmental problem and the necessity for social and economic measures to address it.

This has massive implications for ICEM industries that tend to be either directly fossil fuel based, or heavily reliant on fossil fuel based energy. Whilst it is likely that new jobs and new industries will be created as a result of economic responses to climate change policies, it is equally clear that there will be adverse results for ICEM industries. Over the medium term the restructuring of industries and jobs may even call into question the sectors of coverage of ICEM affiliates and the ICEM itself.

This challenge comes on top of decades of major restructuring of ICEM industries that in general has caused substantial job losses. This restructuring in response to market competition and technological change will continue. This should be borne in mind in assessing the additional burdens that may be caused by climate change response measures.

There are significant opportunities for the ICEM and its affiliates to affect the course of the climate change debate and the national and international measures that are adopted. In a world of uncertainty, the only certainty is that the issues of job losses and living standards will be disregarded if the union movement does not promote them. There is a multitude of technologies, techniques and social and economic mechanisms for achieving a path of reduced greenhouse gas emissions in both developed and developing countries. Their consequences for jobs in particular sectors, for overall economic gains or losses, are immense. It is the responsibility of the ICEM and its affiliates to take up the challenge so that a future may be achieved that prioritises social justice and “just transition” for ICEM members alongside a stable climate.

References

- Australian Coal Association (2000), *Environmental Credentials of Coal. A BHP Research Study*. Sydney
- Colley, P (1997), *Reforming Energy: sustainable futures and global labour*. Pluto Press, London
- De Wit, G (1994), *The effects in employment of a shift in taxation from labour to the environment*. Centrum voor energiebesparing en schone technologie, The Netherlands
- Greenpeace International (1999) *Global Warming and The Carbon Logic*
www.greenpeace.org/~climate/arctic99/reports/clogic.html
- Hamilton, C, Hundloe, T & Quiggin, J (1997), *Ecological tax Reform in Australia. Using taxes, charges and public spending to protect the environment without hurting the economy*. Discussion paper No. 10, The Australia Institute, Canberra
- Hinchy, M, Hanslow, K, Fisher, B & Graham, B (1998), *International Trading in Greenhouse Gas Emissions. Some fundamental principles*. Australian Bureau of Agricultural and Resource Economics, Research Report 98.3
- ICEM (1998), *Social Energy*. ICEM World Action Programme adopted in Cork, Ireland, November
- ICFTU (2000), *Social and Employment Transition for Climate Change*. Trade Union Statement to the COP6 The Hague Conference, 13-14 November. Brussels
- IPCC (1990), *Climate Change. The IPCC Scientific Assessment*. Cambridge University Press
- IPCC (1995), *Climate Change 1995. IPCC Second Assessment*. WMO & UNEP
- OECD (1993), *The costs of cutting carbon emissions. Results from global models*. Paris
- OECD & IEA (1998) *World Energy Outlook*. Paris
- Polidano, C (International Labour Office, Geneva, 1997), *The impact of climate change policies on employment in the coalmining industry*. Working paper 115 for the Industrial Activities Branch, Sectoral Activities Programme. Geneva
- UNEP (1999), *Climate Change Information Sheets*. Internet source:
www.unfccc.de/resource/iuckit/index.html

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